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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 1 Chicago, Illinois July 4, 1914

SOME UNHEALTHY TENDENCIES IN THERAPEUTICS *

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WASHINGTON, D. C.

In the beginning I wish to express to the Section my very great appreciation of the honor paid me in the election as your Chairman for this year. As custom has directed that the Chairman shall prepare and deliver an address at the opening meeting, I have chosen for my subject a discussion of some matters that should be of great concern to all of us, rather than a discussion of a particular topic of therapeutics.

The soundest basis and the one most to be desired for all therapeutic procedures is one founded on experimental results; or, lacking in this, a method based on sound theoretic considerations. Therapeutic procedures inaugurated on any other basis than these are empiric. It should not be forgotten, however, that some of our most valued remedies were, in the beginning at least, empiric until later researches had developed an experimental basis for their continued use.

In recent years there has been manifested a very marked tendency to the use of certain agents or methods for therapeutic purposes which, unless checked, will, in the reaction that is bound soon or late to follow, have an unfortunate effect on progress in therapeutics. Many of these agents in the method of their exploitation almost force one to the conclusion that financial gain of the proposer or of the producer is the sole basis for their exploitation. Aside from the exploitation of the sick for selfish or financial considerations, the use of some of these agents (it really does not seem proper to call them remedies or treatments), on account of the possibilities for harm possessed by them, presents a question demanding immediate and serious consideration.

We know that the injection into the body of certain toxic substances may produce a certain primary reaction, but we know little of the secondary or remote effects when such substances are introduced into the circulation or are given hypodermatically. We know less about the primary effects of the introduction of many other toxic substances now used for therapeutic purposes and nothing of their secondary or remote action. No doubt many of them in their secondary effects do the body permanent harm and thus may reduce the natural resistance against disease.

These unhealthy tendencies — and I do not hesitate so to term them — in therapeutics have of late been particularly evidenced in regard to the use of certain biologic products. It has not been long since physicians were teaching that drugs given by the mouth would cure or relieve many morbid conditions, but now it seems to be the fashion to teach that in order to obtain a surer and more lasting effect it is necessary to introduce the drug into the body parenterally. This may be due in part to the extensive propaganda for the use of certain biologic preparations carried on by some of the users and manufacturers.

The mode of administration appears to have cast a spell not only over the laity, on whom a method unusual to them may be expected to have a psychologic effect, but also on some physicians who seem easily persuaded to ascribe virtue to parenteral administration of almost any preparation. It may be granted that some effect can be readily produced by subcutaneous or intravenous injection, but that this effect is of real benefit to the patient is another matter.

Some of the agents which have been put forward and for which extravagant claims have been made clearly belong in the class of preparations known as "fake remedies," while others, with but little more value on account of being similar to preparations of proved value, are not so placed. Among the number of these preparations are the Friedmann vaccine, the Duket treatment, and other preparations for the treatment of tuberculosis; solutions of rattlesnake venom for the treatment of epilepsy and many other conditions; the metabolic products of various bacteria for the treatment of rheumatism and other conditions; bacterial vaccines for the treatment of diseases of non-bacterial origin; mixed bacterial vaccines for the treatment of almost all the ills that the animal organism is subject to; mineral oil for the treatment of every form of constipation; serums for many conditions; antirabic virus for the treatment of infantile paralysis and epilepsy, and the numerous advertised or recommended "cures" for pellagra.

It may not be unprofitable to say just a few words in regard to some of the preparations just mentioned. First of all comes the Friedmann vaccine for tuberculosis, on account of the wide-spread publicity it has received and the many who had their hopes of recovery awakened only to be doomed to bitter disappointment. This proposed treatment for tuberculosis consists of a suspension of acid-fast bacilli, claimed by its introducer to have been originally obtained from a turtle infected with tuberculosis. It was claimed by its proposer to be non-virulent, non-toxic and harmless and that non-tuberculous persons and animals could be immunized against tuberculosis with it and that human cases of the disease were cured by its use.

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

Careful and impartial investigations made by the United States Public Health Service early showed that the extravagant claims made by Friedmann were not substantiated, and later reports from many investigators have shown that the vaccine is not entirely harmless, and that the course of the disease in those treated is but little if at all favorably influenced. Indeed, evidence is accumulating that, in some cases at least, the patients have been distinctly harmed by the vaccine. It would appear that this much-advertised treatment for tuberculosis as yet presents no justification for its endorsement or use by physicians. It is to be regretted that there does not appear to be any way by which its exploitation and use in so-called "institutes" within a state can be prohibited by local health authorities, either on the ground of false pretenses or as being dangerous to the public health.

Another so-called treatment is the use of solutions of crotalin or rattlesnake venom. This preparation has been chiefly recommended for the treatment of epilepsy, but some of its proposers having very great confidence in its properties also claim that it can cure tuberculosis, and have advised its use for the treatment of lumbago, sciatica, neuritis, asthma, hay-fever, chorea, nerve exhaustion, bronchitis, neuralgia, insomnia, debility and pleurisy. From a perusal of the reports of cases treated with crotalin solutions it does not seem that the treatment is of any permanent benefit in epilepsy, and there certainly does not seem to be any evidence that it can cure the numerous other conditions for which it has been advised. There is, on the other hand, evidence of the harmfulness of the treatment, and death has been reported as a result of the use of solutions bought on the open market containing gas-forming anaerobic bacteria. It has been found that 38.8 per cent. of samples of crotalin solutions examined in the Hygienic Laboratory contained living bacteria, and that in the majority of instances the contamination was with anaerobic gas-forming bacteria similar to that found in the fatal case.

In the crotalin solutions we have a proposed treatment for conditions as unrelated as tuberculosis and epilepsy and a treatment absolutely without a suggestion of an experimental basis. While the injection of rattlesnake venom in large amounts may produce a distinct metabolic disturbance and even in small quantities cause a profound psychic impression, it does not appear that it will actually cure any disease for the treatment of which it has been proposed; but, on the other hand, there is unimpeachable evidence that it may do harm and even cause death.

The essential basis of what is generally spoken of as "vaccine therapy" is the use of the specific organism or its products, but the use of such preparations has gone far beyond this limitation. We now have it advised not only that the specific organism be used, but also that, when the specific organism is not known, a mixed vaccine or the mixed products of a number of organisms[1] be used in the hope, it is to be supposed, that one of them may exert some specific action. Bacterial therapy undoubtedly in some cases is a most valuable method of treatment; but when the claim is made that a combination of the dead bodies or the filtered products of a number of different bacteria are useful for the treatment of certain diseases with a different specific cause, it would seem that the suggestion closely approaches quackery.

Practices such as these do more to bring bacterial therapy into disrepute than does the failure of vaccine therapy when found not to be effective in certain cases, even though scientifically applied.

It is not necessary for me to detain you longer with a discussion of the claims and value of the preparations put forward for the treatment of diverse conditions, few of which, in my opinion, have any greater justification for their use than those mentioned. But I wish to say just a few words as to the way in which these unhealthy tendencies may be checked. In the position somewhat of an outsider, I have given this question considerable thought and it has appeared to me that the situation is one for which the physician is largely responsible, and that therefore its amelioration is to a certain extent in his hands. If physicians were not so eager to listen to the claims of the proposers of new methods of treatment and to "try them out" (of course, on the poor patient) before their value had been properly demonstrated by reliable investigators, it would seem that the exploitation of unproved preparations must prove to be unprofitable and lacking economic incentive.

Aside from the doubtful practice of the indiscriminate use of unproved methods of treatment, it has seemed to me that a great injustice is done the patient by their use, since some of the preparations that have been widely exploited have been shown to be harmful in certain instances and even to have caused death. So the first step in attempting to remedy conditions is to awaken the physician to the importance of ignoring the claims of those who are pushing these new methods until their usefulness and harmlessness has been clearly demonstrated by those best in a position to do so.

The work of the Council on Pharmacy and Chemistry of the American Medical Association, while a step in the right direction, should be further elaborated by securing authoritative information from those in position to furnish it regarding the status and value of new products. The influence of the information so secured could be further augmented by teaching in the medical schools the embryo physician to hold fast to that which is proved rather than to seek those things still lacking proof.

Advances are necessary, and clinical trials must be made; but those trials should be with adequate controls of untreated cases and under circumstances in which every stage can be watched and the various clinical and laboratory observations made a matter of unbiased record and the interests of the patients guarded. It is difficult to secure these conditions outside of a well-equipped hospital. Until a new method of treatment has received abundant confirmation of this sort it is unjust — to use no stronger word — to apply it promiscuously to patients who are not under constant observation and are not amenable to instant emergency relief.

Preparations offered for sale should clearly indicate by label or otherwise whether or not the product is experimental or its value thoroughly well established. With a differentiation of this kind the physician in active practice would not be misled and would not mislead his patient into believing that thoroughly well-established measures are being applied.

The supervision of the federal government, through the Public Health Service, of the manufacture and interstate sale of biologic products has resulted in

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[1] As, for instance, Phylacogens.—Ed.

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great good in safeguarding the purity of many of the preparations and in enforcing standards of potency where such have been established; but additional authority must be given by certain amendments to the present law.

Not only sales, but also actual attempts to ship contaminated or dangerous biologic products in interstate traffic should be prohibited. This provision in the case of biologic products would be a safeguard not only to the public, but also to reputable and conscientious manufacturers.

In the case of the large class of agents which are being advocated solely for gain, and which are advertised and sold with evident fraudulent intent, not only should provision be made to exclude them and the advertising relating to them from the mails, but their shipment in interstate traffic should also be prohibited. After all, however, it devolves on the medical profession to use wise discretion in the endorsement and use of preparations, and in this respect it has a large responsibility.

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RESEARCH IN OPHTHALMOLOGY, AND THE TRAINING OF OPHTHALMOLOGISTS

THEIR PROMOTION AND ENCOURAGEMENT THROUGH THE ESTABLISHMENT OF TEACHING FELLOWSHIPS *

FRANK C. TODD, M.D.
MINNEAPOLIS

As Chairman of the Section on Ophthalmology of the American Medical Association, it is my duty and pleasure to bid you welcome to this, our thirty-fifth annual meeting.

Permit me first to express to you my most cordial thanks for the honor you have conferred on me. The record of this Section and the distinction of my predecessors make me realize that the honor is a great one, and also cause me to feel a diffidence in assuming the office which they have so well filled.

The work of the year has largely fallen on an experienced and efficient Secretary, and it has been a pleasure to cooperate with him in the management of the Section work.

The duties connected with the position of Secretary of this Section are considerable. Not only is he expected to conduct a large correspondence and to manage the business of the Section tactfully and efficiently, but also he must devote a great deal of time and energy in its behalf. That the work of the Section for many years has been so well conducted is largely due to the interest that has been shown by our secretaries. But even though we may complacently accept such service and reward our Secretary only with appreciation and thanks, it is time that we should by some manner of means provide for the not inconsiderable expense that every Secretary of this Section has to bear. I am not here going to suggest whether or not such expenses necessary to the conduct of this part of the Association's work should be borne by the Association, but I wish to recommend that some steps be taken to remove this imposition.

THE SCIENTIFIC PROGRAM

We trust that the program will meet your approval. It has been made up largely of voluntary contributions. We have tried to follow the plan of my immediate predecessor in securing papers from those who have not often appeared on the program and have asked some of the older men who have frequently contributed to give way, which they have most obligingly done. We shall have the benefit of the judgment of many of these men in the discussion on the papers that will be presented.

SYMPOSIUM ON GLAUCOMA

It was thought wise by your officers to discuss the subject of glaucoma especially in its relation to the newer methods of operative treatment, because of the timeliness of the subject, and the report on the operations performed in this country by Lieutenant-Colonel Elliot last fall would seem to be especially worthy of study. This report has been well tabulated by Dr. Parker in his paper, which is a part of the symposium on this subject, and there will be included three other papers, one of which bears on the late infections following sclerectomy, and one on the subject of non-surgical treatment.

COMMITTEE TO INVESTIGATE NEWER METHODS OF TREATMENT OF GLAUCOMA

Like all advances, particularly of a surgical nature, the profession is liable to go to an extreme in the adoption of these newer operations for glaucoma, resulting then in a reaction when the pendulum may swing too far the other way. That a real advance has been made there is no question. It remains to be determined just what the degree of that advance is going to prove to be, and the solving of this question involves many considerations which the profession and the many suffering from this malady are impatiently awaiting. These questions are not satisfactorily answered by any one man or by several, as the result of their individual experiences. This fact is self-evident and is further borne out by the varying opinions we see expressed by those whose judgment we all respect.

It is a subject which deserves to be further scientifically investigated as soon as possible, and it can best be studied in the manner which this Section has heretofore adopted. I refer to the plan so well set forth by Dr. Wilder in his Chairman's address before this Section: that of the appointment of committees for cooperative scientific investigation of specific subjects. Such a committee carefully selected can gather the data pertaining to this new work and suggest uniform methods of recording observations, and can otherwise perform a valuable service. Their report should prove to be a guide for fellow ophthalmologists that should result in inestimable value.

FOREIGN GUESTS

It is with pleasure that I call your attention to the fact that one of our neighbors, well known by reputation to ophthalmologists of the United States, has accepted our invitation to participate in our proceedings — Dr. W. Gordon M. Byers of Montreal.

During the meeting of the International Congress of Medicine in London last summer, after a conference with many of your prominent members who were there present, an invitation was extended to Professor Axenfeld to attend and address this meeting. This

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* Chairman's address, read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

invitation was accepted. We were much disappointed when only on June 11 we received a letter from our expected guest stating that owing to the serious illness of his father, he would be unable to attend.

THE KNAPP TESTIMONIAL

At the suggestion of Drs. Posey and Bulson, ex-Chairmen of the Section, a fund has been created called "the Knapp Testimonial Fund," in honor of the late Hermann Knapp. The originators of this enterprise had in view the furthering of scientific work, and incidentally the advancement of the interests of this Section. As a direct consequence of the establishment of this fund, the Knapp Testimonial Committee has been enabled to assist in the publication of some valuable contributions, which otherwise could not have been presented before our Section. It has enabled us to secure the bound *Transactions* of the Section and the "Ophthalmic Year-Book" at a reduced price, and it has also been the means of relieving the officers of the Association and members of the Executive Committee of some incidental expenses in connection with the Section work which are not borne by the Association. Up to this time the Committee of Award has not seen fit to present the medal to any contributor, but I am happy to announce that a contribution to our program has been deemed worthy of conferring this distinction on its author and at this meeting we are to witness the first award.

THE YEAR-BOOK

The Knapp Testimonial Committee, which has helped supply the funds to pay the cost of the Year-Book, will have a report to make concerning the continuation of that valuable publication. It seems that not only have we consumers been enjoying the benefits of the gratuitous and efficient services of the editor of that publication, but also he has been obliged to make up a considerable financial deficit each year. This shows a science-loving and generous spirit on the part of the editor, but it is a condition of affairs that cannot continue, and those of us who enjoy the profits of his labors must find a way to relieve the situation. The imperative necessity of the continuance of the publication of the Year-Book would become evident the moment its publication were discontinued, and to prevent that catastrophe some decisive steps must be taken which will permit its publication without a deficit. The Knapp Testimonial Committee will offer a solution of the problem and it is hoped that the plan they propose will meet a ready acceptance. The Knapp Testimonial Fund is deserving of the support of every member of this Section, for by means of it we are enabled to promote scientific work and further the interests of this Section in a way that otherwise would not be possible. It is hoped, therefore, that the enterprise will continue to receive the hearty support of every member of this Section.

PROMOTION OF RESEARCH

There could be no worthier object than that of stimulating the development of scientific research work and the medal of award should serve as a stimulus. It is evident, however, that something more is required than reward to bring out research work and create research workers.

It would be well worth while to make a study of the various reasons why there are not more productive research workers in ophthalmology in America with a view to correcting the defect, and with a hope of increasing the number. The present methods of training do not tend to encourage the development of research workers. They do not furnish the opportunity and stimulus needed. There are unquestionably men fitted and anxious to do research work in ophthalmology who lack the means and opportunity. To provide for such men, scholarships should be created in universities equipped with the proper facilities for the carrying on of such work. This leads me to the subject on which I wish briefly to address you: the promotion and encouragement of research in ophthalmology and the systematic training of ophthalmologists through the establishment of teaching fellowships.

TEACHING FELLOWSHIPS

An opportunity for the creation of a certain number of scholarships exists in all high-grade medical schools, where suitable material is at hand for clinical experience in ophthalmology, and where other facilities requisite for proper training exist. Such universities could well employ full-time men on small salaries in the capacity of teaching fellows. The students filling such positions would thus be provided with sufficient means to pay their expenses during their entire course, such recompense increasing each year as the student becomes more valuable in the teaching department of the university. The university utilizing such students as assistants in the conduct of its ophthalmologic clinic and laboratory, and after the first year assisting in the instruction of undergraduates, will find such full-time men valuable in the conduct of the department. Such students will be more satisfactory not alone because of the fact that they will be full-time men, but also because their attention will not be diverted by the demands of private practice. Furthermore, the discipline of the department will be much better. Thus it is evident that in the adoption of such a system of teaching fellowships the university will not only thereby establish proper courses in the education of specialists, but it will also profit in the conduct and teaching in the undergraduate department.

Two universities, Michigan and Iowa, have been compelled to employ men for a period of two or three years, because of the fact that they are situated in small towns, where assistants in ophthalmology are not to be had otherwise. They have found such men useful in the conduct of the undergraduate school. In effect they have thus been training ophthalmologists in a better manner than is yet provided.

An elaboration of this plan with the provision of a systematic curriculum will afford an opportunity for more students to take such a course in certain universities with or without remuneration. Or a competition may be provided for such fellowships during the first year of the course, the better positions of the second and third year being awarded to the most deserving. It is easy to conceive of the opportunity that may exist for the development of research work in the process of such a course, and it would be highly desirable for universities offering such courses so to arrange the curriculum that encouragement may be given to those desiring to do research work.

Though only the few are cut out to do continuous and painstaking research work, many could and would be able to study out some problems if they knew how to go about it. Most men who have the inclination to undertake some original work find, as time progresses, that their research work or scientific studies are hampered or stopped by the demands of a growing and busy practice; but it is an unfortunate fact that many do not realize the opportunity for study and research, do not see the problems which the leisure of their earlier experience might permit them to solve, until they become so busy in practice that they cannot enter on such work. It is largely the beginners, the young men in our profession, to whom we must look for such advances. During the years they are waiting to build up a practice there is so much that could be done in the line of original investigation and scientific study that those who are busy with the demands of routine practice envy them their time and opportunity.

More important still is the production of more well-trained ophthalmologists. Those who are to-day practicing ophthalmology have secured their training through serving as assistants to some busy ophthalmologist or as interns in an eye-hospital, or as a consequence of taking postgraduate courses, too often courses that are too short and inadequate.

All of these methods teach only clinical ophthalmology, and give a most deficient preparation at best in the fundamentals that should be the foundation of the preparation of a specialist in ophthalmology. Thanks to the suggestion of the late Alvin Hubbell in his chairman's address before this Section, and the more persistent efforts of Edward Jackson, we are just beginning to realize the necessity for such systematic training.

THE SYSTEMATIC EDUCATION OF THE OPHTHALMOLOGIST

It is evident that many medical students do not know their bent until after graduation, and must wait until they have served an internship in a general hospital or have tried themselves out in general practice before determining on the specialty in which they wish to engage. An ideal preparation as an ophthalmologist would seem to start during the student days of the aspirant for this highly developed and distinct specialty in the practice of medicine. From this it should not be inferred that I mean that the ophthalmologist should fail to secure the regular medical training that is required for all aspirants for the degree of Doctor of Medicine. But I do mean that should the student realize that he is later to make a specialty of ophthalmology, his course should be so shaped as to secure knowledge which will prove of greatest advantage to him in his specialty, and he should devote less time to work which is wholly irrelevant.

In whatever branch of endeavor, whether it be medicine or music, art or that of a mechanic, the earlier in life the aspirant begins his work the better, and however much benefit may be secured toward the development of a broader culture in the pursuit of subjects not related to the particular field of endeavor, the more purposeful the education, the greater will be the resulting efficiency. In this connection, and as evidence of the fact that early preparation makes better ophthalmologists, Jackson's investigations concerning the time after graduation when ophthalmologists enter on their special work are instructive. He showed that with very few exceptions successful ophthalmologists in America undertook their special preparation very early after graduation, that is, immediately or within five years after securing the M.D. degree.

Of course, the fundamental idea in the assertion that five or ten years should be spent in general practice preliminary to undertaking the study of this specialty has some merit. It lies in the acceptation of the fact that specialization is apt to lead to narrowness. There are many things a student might learn in the course of general practice which would be of benefit to him in his later practice of ophthalmology; but during such a prolonged period the student would be obliged to spend the major portion of his time in work which would be of no particular value to him later, and that which is of such value could be better learned and in a much shorter period of time in collegiate work (postgraduate, of course) under the supervision of trained teachers. During these years the student's mind and fingers are more plastic than at a later period, and it is highly desirable that the student secure his training for his life work during that period.

At present, however, all opportunities for the preparation of an ophthalmologist are at fault in the other direction. The physician preparing for this specialty now devotes his time during his preparatory course too exclusively to ophthalmology and particularly clinical ophthalmology, and does not study those other branches of medicine, which, though not ophthalmologic, are closely related to ophthalmology, a knowledge of which is necessary to acquire a proper foundation for the study and practice of ophthalmology proper. If then we are to make this change in the method of preparing an ophthalmologist, in beginning immediately or within a year after graduation from a high-grade medical school, we must supply in a concentrated form the knowledge of general medicine and the other specialties requisite to a broad understanding, that would otherwise be gained, slowly, but not so well, in a long period of general practice. It is just during these preparatory years that the physician should acquire the broader knowledge of these related subjects if he is to prepare himself properly and avoid the extreme specialization which creates narrowness. Such courses cannot well be given by ophthalmologists or in ophthalmic hospitals, but may be given most efficiently in universities properly prepared for general medical teaching. A large portion of the time during a prolonged postgraduate course would thus be devoted to such subjects and a rather definite curriculum should be laid down providing for advanced courses in the laboratory branches, namely, anatomy, physiology, pharmacology, pathology, neurology, bacteriology, etc. Later the student should have the opportunity, under the supervision of trained teachers in those subjects, to pursue the studies connected with general medicine and surgery so far as they are related to ophthalmology. Inasmuch as the subjects of otology, rhinology and laryngology are closely related to ophthalmology, and because most ophthalmologists likewise practice in diseases of the ear, nose and throat, he should have ample opportunity to pursue the study of those branches.

During the pursuit of the laboratory and correlated clinical branches he should be given an opportunity to elect certain work and should be encouraged to undertake the solving of some special problems with the hope that some, at least, of such students would become imbued with the research spirit.

The entire course in the preparation of an ophthalmologist could thus be taken in a university, or one or two years could be spent in a university, where the student would pursue a regular, systematic course, followed by a year or more in strictly clinical work in an ophthalmic hospital. It would seem that at least two years is none too long for the systematic and thorough preparation of an ophthalmologist, and if the student is to be prepared also in ear, nose and throat, a course could be arranged covering a period of three years.[1]

This rather brief comment on the education of an ophthalmologist is not intended to be full and explicit, but rather to emphasize the importance of the work, and thus pave the way for the more detailed report of our committee on education, which will cover the entire field of the teaching of ophthalmology to undergraduates and graduates in medicine. In their report I bespeak your interest, and in this work your cooperation. The subject of the preparation of ophthalmologists and the production of research work opens up a new field of usefulness, and it is a proper function for this Section to investigate and direct such work.

RECAPITULATION

At present physicians desiring to take up ophthalmology as a specialty can look to no systematic course.

Too many undertake special work after having taken a very short course in some postgraduate medical school, and thus become incompetent and unsafe practitioners.

Others sincerely desiring to prepare themselves properly and spend sufficient time, are often unable to outline their own course properly, and find none prepared for them.

Such men usually prepare themselves clinically, but do not secure the proper laboratory training, or sufficient training in subjects correlated to ophthalmology.

The course should be carefully systematized and arranged to prepare a student properly in the fundamental laboratory and clinical branches related to ophthalmology.

An effort should be made to discover among such students natural research workers, and facilities and encouragement should be offered to promote research work.

The natural and already prepared place for such courses exists in high-grade medical schools having proper facilities for such instruction.

The entire course may be taken in such a university if sufficient clinical material is to be had, or it may be supplemented by an internship in an eye hospital. An exchange of students between universities offering such courses for short periods of time could be arranged with benefit to the students.

Degrees should be granted on the completion of thorough and satisfactory work. The requirements and the nature of the degree should be uniform in all colleges granting the degree.

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[1] Since writing the above I have received a copy of the report of the Committee on Diploma in Ophthalmology of the American Ophthalmological Society. This report was framed by Drs. de Schweinitz, Standish, Risley, Jackson and Weeks and makes certain recommendations concerning the character of and the requirements for a degree in ophthalmology. The standard recommended and the suggestions made are most excellent.

Industrial Insurance.—Industrial sickness insurance constitutes a logical means by which society may equitably distribute the costs resulting from physical inefficiency. No sound argument can be advanced against the propriety of establishing systems of industrial sickness insurance nor against the economic necessity for such systems.—J. W. Schereschewsky, *Public Health Rep.*

PAINLESS TUMORS OF THE SPINAL CORD *

PEARCE BAILEY, M.D.
Attending Physician, Neurological Institute
NEW YORK

In 1896, at a meeting of the New York Neurological Society, I presented two cases of tumor of the spinal cord,[1] found at necropsy, in which the patients had not complained of pain. Since that time, several other examples of spinal cord tumor have come under my observation in which the characteristic root-pains were absent; and a recent review of the literature has shown that in a very considerable number of recorded cases pain is either not mentioned, or else the specific statement is made that it was slight or wanting. What the proportion is it is hard to say.

In a summary of published cases on this subject in 1904, Malaisé[2] stated that 5 per cent. of extramedullary tumors were painless; and Serko, in a recent review of the German literature,[3] found that the neuralgic state was absent in one-half of all the extramedullary tumors, and of these atypical cases 16 per cent. (intradural) and 29 per cent. (extradural) ran their course entirely or almost entirely without pain. It seems to me at present impossible to rely on published case-reports to determine what percentage of spinal cord tumors run their course without pain, since in the absence of this symptom, which is relied on more than any other for diagnosis, an operation is rarely performed, and, consequently, correct diagnosis is not reached unless a necropsy is done.

That pain may be entirely absent in cases in which the other symptoms are typical of spinal cord tumor, and in which in one way or another proof is finally offered that such tumor exists or, more frequently, existed, is no longer open to question. Since the publication of my paper in 1896, references to similar cases may be found in literature. The following is such a case, which, by reason of the absence of pain and the great curvature of the spine, was long regarded as a case of Pott's disease.

Case 1.—Intramedullary sarcoma lower cervical and upper dorsal cord. Three years' duration. No spontaneous pain. Infectious disease causes temporary recession of symptoms. Laminectomy, but removal of tumor impossible. Perfect surgical recovery.

History.—L. G., a schoolgirl of 14, entered the third division of the Neurological Institute March 28, 1912, suffering from paraplegia so profound that she was unable to stand or walk. This condition had begun three years before, during a long convalescence from measles. At first, the only difficulty was an increased fatigability in the legs and feet, with the feeling as "though she would sink or as though her feet would go out from under her." When she tried to run, or to go up-stairs, she felt pain between the shoulder-blades and in the small of the back. The motor disability progressed, and within two months of the onset she began to get awkward and would stumble and fall. The condition remained stationary until eleven months before admission (February, 1911), when the left foot began to drag; then both legs became progressively worse, so that on admission she could neither walk nor stand. At no time has there been any disturbance of the sphincters or any spontaneous pain.

Examination.—The patient is a well-nourished girl, with a right scoliosis including the dorsal vertebrae from the

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* Read by title at a meeting of the American Neurological Association, held at Albany, N. Y., May 7, 1914.

[1] Bailey, Pearce: Jour. Nerv. and Ment. Dis., March, 1896.

[2] Malaisé: Arch. f. klin. Med., 1904, lxxx.

[3] Serko: Ref. Neurol. Centralbl., 1914, No. 7.

second to the eleventh with the shortest curve from the eighth to the eleventh. She turns in bed with her back held stiff as though she were suffering, but says she has no pain and the back is not painful on pressure. The paralysis of the legs is so complete that she can hardly draw them up 2 or 3 inches in bed. The type of the paralysis is spastic with knee-jerks and ankle-jerks positive, double Babinski, Oppenheim and ankle-clonus. All the symptoms are more marked on the left. The abdominal reflexes are absent. There are no symptoms in arms or in cranial nerves. There is a corset-shaped zone of profound anesthesia for touch, less profound for temperature and pain in the distribution of the dorsal segments from the fourth to the tenth. Below this there is hyperesthesia to all forms of sensibility, still more pronounced for touch.

There has been a discharge from the ear since the attack of measles, and the day after admission the patient developed right otitis media, followed by suppurative mastoiditis which was successfully operated on by Dr. E. B. Dench. During this time she had high fever, leukocytosis and other signs of septic infection. She recovered quickly from this acute illness, and about ten days after the operation on the mastoid, began to improve in a remarkable degree. She soon could move her legs about in bed, and May 1, was able to walk with a cane; June 3, the corset zone of anesthesia had diminished in size, especially on the right side, and in lower areas, the right side showed less hyperesthesia than the left, the right abdominal reflex had returned, and the Oppenheim reflex had disappeared. The other signs were the same except hat the spines of the seventh cervical and the first dorsal vertebrae were now sensitive to pressure.

There had been a great difference of opinion on the part of the physicians of the hospital as to the neurologic diagnosis in the case, the majority voting for tuberculosis or syringomyelia, the scoliosis and the absence of pain being the determining reasons. But the magical return of function in sequence to the purulent infection of the mastoid made some of us incline very strongly to the belief that a tumor existed and had been advantageously acted on by the toxins manufactured in the ear. No operation was decided on, however; the patient was fitted with a brace, left the hospital and went home.

Second Admission.—The patient reentered the hospital Oct. 23, 1912, with the history that she had been doing well during the summer, but that in the past four weeks the difficulty in walking was getting worse. Examination of motor functions gave practically the same results as the last examinations, except that the left lower extremity was much more involved than the right. The anesthesia had increased so that now it involved both trunk and legs from the fourth dorsal segment down. There was some sensibility preserved in the sacral distribution on the right side, and in the other anesthetized areas there was some preservation of temperature and pain sensibility. A Wassermann test of the blood and cerebrospinal fluid was negative. The cerebrospinal fluid showed twenty-four lymphocytes per cubic millimeter with great excess of globulin.

Operation and Result.—The operative procedure, carried out in two stages by Dr. C. A. Elsberg, was the following: Nov. 12, 1912, the first operation showed a brownish-red tumor within a capsule, lying under laminae of the sixth, seventh and eighth cervical and first dorsal vertebrae. The tumor was intramedullary and had burst through the posterior surface of the cord (Fig. 1).

July 23, 1913, the second operation showed the tumor well extruded from the cord but still connected to it by firm infiltrations, so that it could not be removed. Sections were taken for microscopic examinations.

The patient made a rather slow recovery from the first operation (Nov. 12, 1912) owing to the fact that the wound opened and had to granulate from the bottom. Two days after the operation she said that she "could feel her legs better." The power began to return slowly in the legs and with this the sensation began to return to some degree below the knees.

One month after the first operation (Dec. 12, 1912) she could move the legs around in bed much better than formerly, but still was unable to walk or stand. Examination at this time showed little change in the motor signs except that the signs of spasticity were receding in the right leg. Sensation, however, had improved considerably. For light touch there was a corset-shaped band of anesthesia from the fourth dorsal to the first lumbar segment which extended down on the right thigh (anterior surface) for a short way. Below this there was hypesthesia about equal on the two sides. The loss of pain sensation was still less. The corset zone of analgesia extended from the fourth to the tenth dorsal segment on the left side and to the twelfth dorsal segment on the right. Below these levels the hypalgesia was of only slight degree. Temperature sense was still less affected there than for pain, as there was no true thermic anesthesia, only hypesthesia from the fourth dorsal segment down.

The muscular power gradually returned to the legs and, in the early part of January, 1913, the patient began to walk with the aid of two canes and later one, and when she was discharged from the hospital, Jan. 30, 1913, she walked out. While the power of her legs was increased, there was practically no change in reflexes. The corset-shaped band of anesthesia remained about the same as when last noted, and was the same for all forms of sensation. Besides this, there was an irregular stocking-shaped anesthesia of the right leg and foot below the knee, extending higher in front. Above the anesthetic area, there was now a hyperesthetic area involving both arms, and bands extending from the fourth dorsal to the fifth cervical segment. This was the first affection of sensibility in the upper extremities. On account of the obvious motor improvement, the secondary operation was postponed and the girl discharged. After her return home the patient's general condition remained about the same. She walked around the village with the aid of a cane. Occasionally she would come

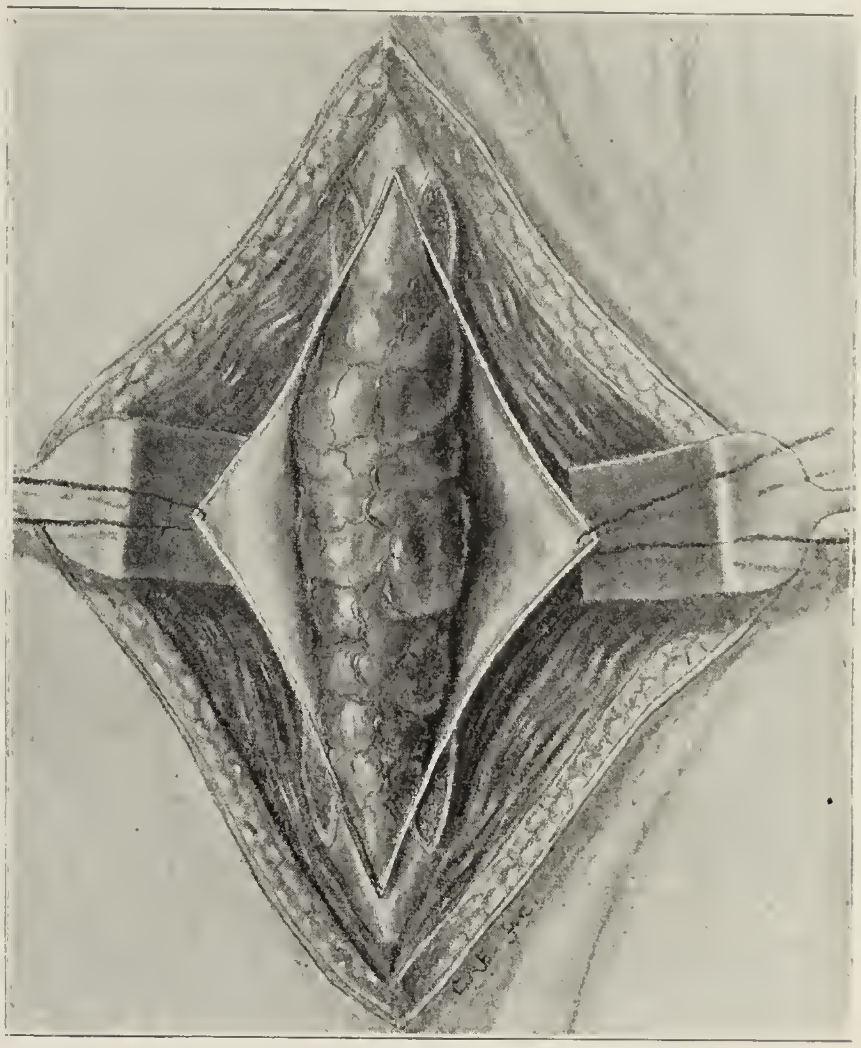

Fig. 1.—Irremovable intramedullary sarcoma of lower cervical and upper dorsal cord (Case 1). The tumor had originated within the cord substance and in its growth had burst through the posterior surface of the cord. It formed a large vascular mass on the posterior surface of the cord. Appearance of tumor after incision of the dura. Laminectomy, Nov. 12, 1912.

to the clinic for observation and no change was noticed in her status. She remained this way until the first week of July, 1913, when she began to have some pain in the back and arms which was not continuous and did not interfere with her sleep. July 13 she had walked into the yard and sat in a chair. After sitting awhile she attempted to get up and found that she was unable to move the legs. No subjective symptoms of any sort preceded this. There was no rectal or vesical incontinence. She was returned to the hospital on a stretcher.

Third Admission.—Physical examination now showed that the former spastic paralysis had changed, so that there was a complete flaccid paralysis of the lower extremities; the knee- and ankle-jerks were absent. There was no clonus, Babinski or other plantar response. Muscular power in the arms was unchanged. Sensory examinations showed complete anesthesia to all forms of sensation of the trunk and legs from the level of the second dorsal segment down. Above this was an indefinite band of hypesthesia. There was hyperesthesia on the inner side of the arm in the distribution of the eighth cervical and first dorsal segments.

The third operation was now done. Following it the patient lost bladder control for about three weeks. After one month she could raise the right thigh about 15 degrees. Besides this there was no change in her motor status from the last examination. Sensations showed no change, except that there was possibly some return of pain sensation over both feet, fifth lumbar and first sacral nerves. She was discharged at the end of August, 1913, unimproved, and has not been seen since.

Another way in which tumors of the spinal cord may escape recognition by reason of irregularities in the manifestation of pain is that while the tumor is not entirely painless, the intervals between attacks of pain are so protracted that, when the patient comes under observation, he has either forgotten them or minimizes them to such an extent that the examiner is unable to convince himself whether pain has ever been present in a degree to indicate pressure on the posterior roots. It is, perhaps, not sufficiently recognized that in certain tumors of the spinal cord, extremely painful at some periods, long intermissions occur during which the patient may pass months of comparative comfort without any pain, and that during these periods also there may or may not be an improvement in other symptoms. In one case, reported elsewhere,[4] a patient during an interval of pain recovered sufficiently to go to Europe and thought she was cured. The following is another illustration of this:

Case 2.—Intramedullary lesion in cervical cord. Eight years' duration. Pain intermittent and varying in location. Operation. Death.

History.—G. L., a blacksmith, aged 47, entered the third division of the Neurological Institute, Dec. 26, 1912, with paralysis of both arms and both legs. With the exception of rheumatism, there was nothing in his history to throw light on the present trouble, which had begun eight or nine years before. Stiffness of the right shoulder and numbness in the right hand had been the initial symptoms, followed by a weakness of the upper extremities, especially on the right side. The paralysis began in the upper arms, so that for a time the patient could make use of his forearms and hands by resting the elbows on the table. At this time there was a dull-aching pain between the shoulders, severe enough at times to keep him awake at night. This pain became more persistent, until one year after the onset he was much disturbed at night by cramp-like but non-radiating pains, so that his wife would iron his neck with a hot flatiron. These pains lessened as the years went on and finally disappeared, but were followed by paroxysms of severe pain and cramps in the lower extremities, which started in the hips and radiated down the legs to the knees and feet. The initial weakness in the arms was followed by weakness in the legs, so that the patient had difficulty in walking, the legs feeling heavy and difficult to lift. All the motor symptoms progressed gradually, and at the end of five years the patient was paralyzed in all four extremities, having no use of their muscles except for slight movement in the left arm. He presented a picture, then, of painless spastic paraplegia and was shown before a clinic for three consecutive years as a case of multiple sclerosis.

Examination.—This showed a large, well-developed man with the muscles of all the extremities in a state of tonic spasm, so that he lay in bed, stiff as a board, with arms and legs extended and fingers flexed, and with the feet in a position of plantar flexion. There was no spasm of the muscles of the neck, which was flexible, with some tenderness to pressure over the sixth cervical vertebra as well as over the first and second dorsal vertebrae. There remained a slight power of flexion and extension in the left arm at the elbow, and the power in both trapezii was good. There was everywhere in the paralyzed muscles an increased myotatic irritability. There was no atrophy. Anesthesia to light touch existed from the distribution of the second dorsal segment down. Cranial nerves were normal. Pain and temperature sense were lost in some degree over the same area except in the left leg, in which there was some sensation over the anterior surface and over the foot in the distribution of the fifth lumbar root. The Wassermann test in blood and spinal fluid was negative. The cerebrospinal fluid showed seven lymphocytes per cubic millimeter. Globulin was in marked excess. There was a slight incontinence of urine. There were no bed-sores.

The painful features of his illness were far from characteristic, and while with us the patient suffered no pain. In spite of that and of the long history, a diagnosis of tumor of the spinal cord was made and he was operated on twice by Dr. Alfred S. Taylor. The first operation, Jan. 1, 1913, showed a swelling on the right half of the cord, underlying the fifth and sixth cervical laminae. The lower end of this swelling was rounded and distinct to light touch, while the upper end rather faded away. This swelling was in the cord itself. The right posterior column was split longitudinally over the lower end of the swelling and left for the second operation, which was done Jan. 10, 1913. A thick gelatinous clot was found in the depth of the wound over the cord, which now had a normal appearance. What had been taken for an intramedullary growth had disappeared, possibly by extrusion. The patient survived this operation only a few days. No necropsy was permitted.

It may perhaps be an exaggeration to say that any malady which leads to such disastrous results as do tumors of the spinal cord, and in which neglect to operate is fatal, can run a course which is painless. Any disabling disease must be painful in a way. But there seem to be many cases of spinal tumor in which the pain is no more severe than it is in many other degenerative conditions, and, consequently, is of too elusive and indefinite a character to permit one to decide whether the case is one of tumor or some degenerative spinal cord disease, which is, by its very nature, not operable. Such degenerative conditions as progressive muscular atrophy, multiple sclerosis and paramyoclonus multiplex, are associated with pain in the affected muscles and limbs, feelings of discomfort, feelings of heaviness and feelings of burning; and in the following case the pain complained of was much less than may be observed in any of the conditions just mentioned:

Case 3.—Extramedullary psammosarcoma of upper dorsal cord of six years' duration. No characteristic pains. Laminectomy, with removal of tumor. Perfect surgical recovery. Symptomatic improvement slight.

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[4] Bailey, Pearce: The Surgical Diagnosis and Treatment of Tumors in and about the Spinal Cord, The Journal A. M. A., March 12, 1910, p. 849, Case 2.

History.—Mrs. H., aged 28, entered the third division of the Neurological Institute, Oct. 16, 1913. She was unable to stand or walk, and had incontinence of urine. Nothing in her antecedents could be found to explain this condition. She was married in 1905, and never had children but had one miscarriage. The monthly periods were irregular but not painful. In the spring of 1907 she began to have trouble with her legs. She felt a stiffening and drawing sensation in the knees when she stood or began to walk. This was temporary and would pass off as soon as she took a few steps. A little later she felt a dull pain on the outside of the right thigh, which would come and go; she was treated for rheumatism. In the summer of that year she felt as though she could not lift her feet, and this condition gradually progressed, so that by the end of November, 1907, she began to use a wheel-chair and has never walked since. About three years ago she began to have urgency and incontinence of urine. At no time was the pain severe and it only lasted a few months. It was more a dull ache than a pain. She complains of no pain now, has lost no weight and is otherwise healthy.

Examination.—This showed a woman with a paralysis of the legs, both of which were shrunken and could not be moved by the patient. The knee-jerks were exaggerated, especially the right, and there was a slight patellar clonus. The abdominal reflexes were sluggish. There was no involvement of the arms or the cranial nerves. The back was freely flexible, without tender points. There was anesthesia in the distribution of the sixth dorsal segment. No pain was present. A Wassermann test of the blood and cerebrospinal fluid was negative. Globulin was increased. There were no cells.

In spite of the absence of pain, laminectomy was done by Dr. Elsberg, Oct. 25, 1913. Beneath the laminae of the first, second, and third dorsal vertebrae was found a light reddish tumor 2 inches long and ¾ inch thick. The tumor was extramedullary on the posterior surface of the cord, and attached firmly to the dura at the level of the second dorsal lamina (Fig. 2). The tumor was easily removed and proved to be a psammosarcoma. The cord was much flattened and as thin as tissue-paper and showed a deep depression where the growth had been. The patient recovered well from the operation and improved slightly from the anesthetic symptoms. Otherwise her condition was unchanged and she left the hospital Feb. 1, 1914.

Sometimes the pains of spinal cord tumors are masked, in that they are referred to other regions of the body which are also the seat of disease, and consequently the pain, which in reality comes from the spine itself, is believed to be due to the disease of some vegetative viscus. For example, Krauss[5] reports the case of a man ill of tuberculosis with involvement of the left lung. There were very severe pains referred to the left lung and, in spite of the fact that paraplegia was also present, it was not recognized that the lesion which caused the paraplegia was the same one which caused the pain in the lung, and which proved at necropsy to be a tumor of the dorsal region of the spinal cord.

A woman is at present under my care who three years ago had a number of abdominal operations for ectopic pregnancy. These operations, according to her story, were followed by adhesions, and a subsequent operation was undertaken for these. At the same time symptoms of colitis developed, with burning pains starting from the back and going down and across the abdomen. These pains have gradually become less and the symptoms of the colitis have disappeared, but in the past six months the patient has developed a pronounced spastic paraplegia with slight loss of sensation, but with pains no longer a conspicuous feature. After several painstaking interviews with her, I am still in the dark as to whether or not the pains complained of were directly from the spinal cord.

In the following case, the pains, which were extremely slight and inconspicuous, were for a long time referred to a floating kidney, a condition which existed and which undoubtedly, prior to coming under our observation, had been held as the cause of the pains:

CASE 4.—Intramedullary perithelioma of middorsal cord, of nine months' duration. No characteristic pains. Laminectomy, with partial removal of tumor. Death nine months after first operation.

History.—Miss A. H., a housemaid, aged 34, was admitted to the third division of the Neurological Institute, Oct. 5, 1910. Her chief complaint at that time was heaviness of the legs and thighs, with numbness and burning sensations. She gave the following history. About Christmas, 1909, she had the measles. Shortly afterward, in January, 1910, she was seized with a sudden sharp pain in the right abdominal region. This gave her a feeling of faintness, but there was no nausea or vomiting and the pain was relieved by the wearing of a tight corset. It continued until May or June, after which time it was not severe enough to be complained of. Physicians told the patient that she had a floating kidney, a diagnosis which was substantiated by us; but no operation for this was ever done. In February, 1910, she noticed a prickling, burning, numb sensation in the toes of the right foot. This gradually extended to the thigh and leg on the left side. At the same time there were disturbances in gait. She felt as though she walked on rough boards, and there seemed to be a ball in the center of the foot. This did not prevent her from walking and she could walk several miles without difficulty and without uncertainty in the gait or twitching, or jerking of the muscles. In March, 1910, she began to have intestinal trouble so that the ordinary stools were mixed with a thick, mucilaginous substance. She had cramps during this time, but the abdominal pains subsided in May. During June, 1910, the prickling sensations continued and the difficulty in walking increased so that she had to use a cane, and she became exhausted after she had walked ten blocks or so. Once, when trying to dodge an automobile, her knees gave out and she fell in

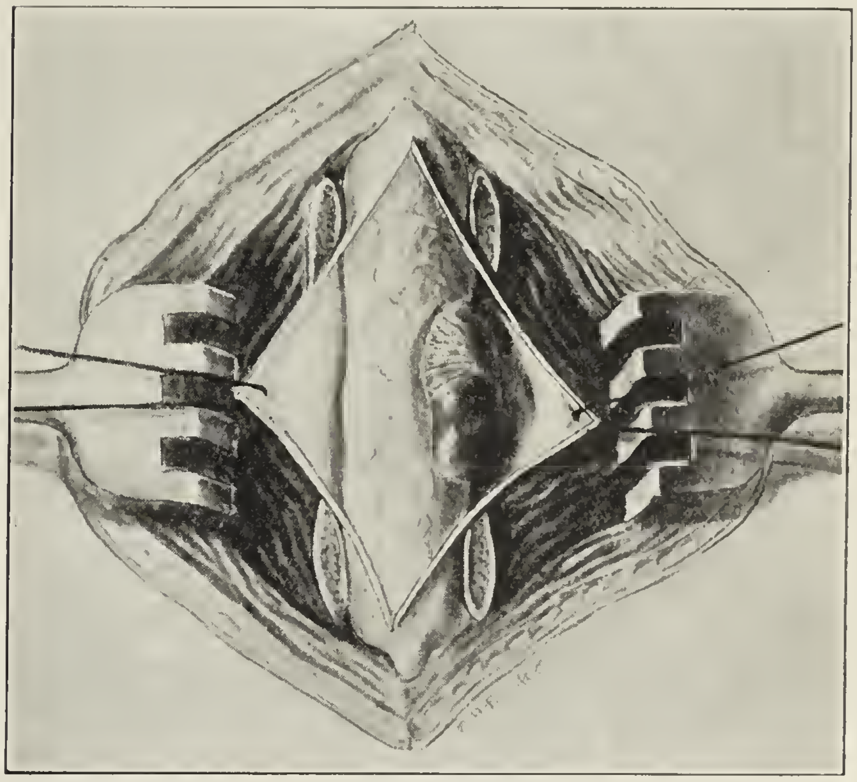

Fig. 2.—Extramedullary tumor of upper dorsal cord, six years' duration (Case 3). Laminectomy and removal, October, 1913. Appearance of tumor after the dura was incised.

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[5] Krauss: Jour. Nerv. and Ment. Dis., April, 1910.

the road. She was frightened, and for a time could hardly walk. About the middle of September, 1910, she had to take hold of things when she walked, and her legs felt so heavy that she had to make an effort to move them along. All during this summer there was a tight feeling about the abdomen a little above the hips. She walked in the hospital, but complained of heaviness of the legs and thighs, numbness, prickling and burning sensations. Although there was no actual pain on the left side of the thigh, there was a ridge that felt like a cut. During the first few days in the hospital she became very much worse, so that she was unable to stand alone, and when she attempted it her knees gave way and she fell to the floor.

Examination.—This showed a well-nourished woman with a paraplegia of the spastic type. She was unable to stand alone, and as she lay in bed there was twitching in groups of muscles in both sides and sudden involuntary flexion of each thigh at intervals, with inability to extend the thighs voluntarily. She complained of continuous pain on the outer side of the left thigh. There was no retention or incontinence of urine, but she complained of a feeling of urgency. There were no tender points over the spine and no deformity. The motor symptoms were more marked on the right side. On this side there was a slight foot-clonus, and the right patellar reflex was more marked than the left, although both were exaggerated. When she was supported her gait was spastic, although she could neither walk nor stand alone. She localized the girdle sensation pretty accurately at the dorsal level. The abdominal reflexes were absent. To light touch there was pronounced anesthesia, at the level of the tenth and eleventh dorsal segments, extending a little lower on the right side. Below this there was hyperesthesia, more marked on the right side. Also, above the band of anesthesia was a small band of hyperesthesia. The pain and temperature sensations were practically the same as the touch, except that temperature sensations appeared to be more affected than those of pain. A Wassermann test of blood and cerebrospinal fluid was negative. The cerebrospinal fluid showed no increase in pressure, and 13 lymphocytes per cubic millimeter. There was marked increase in globulin.

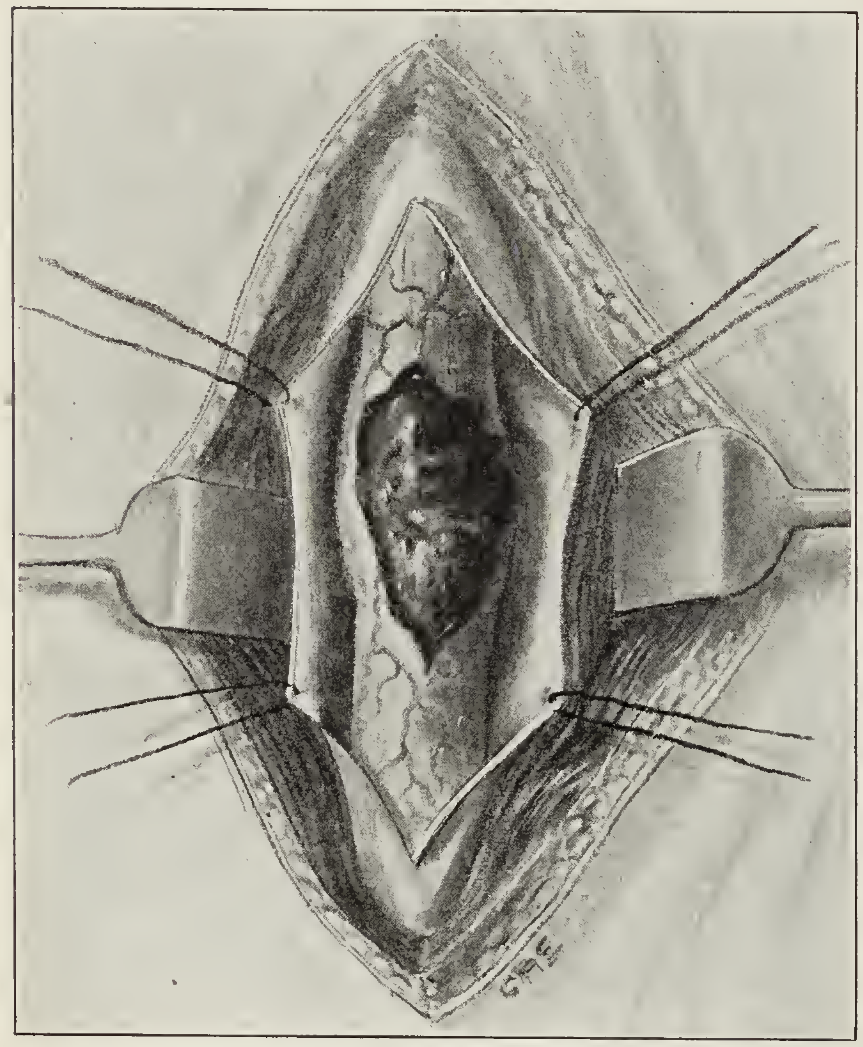

Fig. 3.—Intramedullary tumor of middorsal cord (Case 4). After incision of the cord in the posterior median septum, the hemorrhagic growth was partly extruded from the cord substance. Appearance of tumor at the second operation, Oct. 27, 1910.

This case proved to be an intramedullary tumor (perithelioma), and the operative procedures by Drs. Elsberg and Beer were carried out in three stages.

Operations.—The first operation, Oct. 19, 1910, showed a tumefaction of the cord under the laminae of the sixth, seventh and eighth dorsal vertebrae. This was incised in the median line, and a dark mass about the size of an olive began slowly to extrude.

At the second operation, Oct. 27, 1910, some of this mass was removed (Fig. 3). At the third operation, March 10, 1910, most of the growth was removed. It was 2½ inches long and from ½ to ⅔ inch wide, was green and very friable. The day after the first operation there was an improvement in motor power, which continued, and the patient said that the subjective sensations were less.

After the second operation, the return of power in the legs was rapid and marked, so that by January, 1911, the patient could stand and support her weight, and in February began to walk again, with slight assistance. In the latter part of February, however, the patient began to lose ground again and soon became paraplegic, with incontinence of the bladder and rectum, symptoms which had not appeared before. Sharp pains developed now which, beginning in the lower dorsal spine, radiated down the legs. They were increased by movement.

The sensory changes which followed the operation, although very intricate and interesting, will only be indicated here. After the first operation the patient had anesthesia in the area of the tenth dorsal segment. After the second operation there was a return of touch sensation on the left side up to the eleventh dorsal segment. Temperature and pain sensation anesthesia remained unchanged. On the right side there was some return of all three forms of sensation, but not so marked as on the left. A little later, the anesthesia assumed the Brown-Séquard type, so that there was a marked loss of touch on the right side with marked loss of temperature on the left, the upper level of all remaining the same. Just before the third operation there was a deepening of the loss of sensibility to pain and temperature, while the loss of sensibility to touch remained about the same. The Brown-Séquard dissociation persisted.

Shortly after the third operation there was complete anesthesia for all sensations from the ninth dorsal segment down. There was considerable shock after the third operation, without functional motor improvement. Patient left the hospital in April, 1911, being bedridden at that time, and during the summer she died. No necropsy was made.

I take it that the relationship between trauma and spinal cord tumor is now well established. There are a great many instances in which injury to the back, in a previously healthy person, has been followed in the course of a few months by characteristic appearances of spinal cord tumor, and in many of these cases operation has been done. The occurrence of pain in such cases is interesting, for at the time of the injury to the back there is immediate pain at the point of injury, and this pain does not entirely disappear, but remains until finally it develops into the pain of a spinal cord tumor.

In a case of endothelioma of perithelial type, reported by Schlapp and Bovaird,[6] a young man injured in a football scrimmage felt intense pain between the shoulder-blades. The spontaneous pain lasted a week. Eleven months later, without the addition of shooting pains, there was pain on pressure at the point of injury and also pain referred to the same

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[6] Schlapp and Bovaird: Jour. Nerv. and Ment. Dis., 1911, xxxviii, 221.

place when the patient jumped or leaned over. The tumor, which was removed by operation, surrounded the cord from the seventh cervical to the third dorsal segment.

In a discussion of the general subject of pain in spinal cord tumors, it must not be forgotten that pains identical with those of irritation of the posterior roots by compression may occur in other conditions. Dr. Elsberg and I[7] have reported such a case, in which no positive diagnosis was ever made, but which was relieved by operation; and in several cases I have seen neuralgias following as a result of the withdrawal of morphin in morphin addiction, identical in symptoms with pains of spinal cord tumors.

It used to be believed that absence of pain was a definite indication that if a tumor existed it was intramedullary. This is now proved to be an error, as a great many cases of intramedullary tumor are on record in which pain has been a prominent feature; and, on the other hand, in many of the painless tumors (as in some reported here) the growth was extramedullary. Presence or absence of pain, therefore, is not to be relied on to prove that the condition is intramedullary or extramedullary, any more than it is a means of localizing the growth with respect to the circumference of the cord. We shall have to take the same position in regard to spinal cord tumors as we have taken for years in regard to tabes, that is, that pains may be absent in a disease which is usually highly painful; and that the absence of it in any case presenting other sufficient symptoms does not vitiate the diagnosis. Acceptance of this view is extremely important for the successful handling of these cases, for if we are to be held back from laminectomy by the single reason that pain is absent, we shall either lose the chance altogether of curing many patients, or shall defer the operation so long, as happened in two of the cases mentioned here, that when it finally is done the injury to the cord is past remedy and the operation serves no purpose other than a demonstrative one. The operation is not hazardous in itself.

Out of twenty-four laminectomies performed in the Neurological Institute during the year ended Nov. 30, 1913, there was only one death, and this patient died after a second-stage laminectomy for a suspected tumor of the cervical cord, a highly precarious region. Considering this slight mortality, I feel little hesitation in recommending exploratory laminectomies by skilful operators in cases in which spinal cord tumor may exist, especially in view of the fact, now established, that painlessness does not deny such existence.

My thanks are due to Dr. C. A. Elsberg for the drawings and to Dr. Elsberg and Dr. A. S. Taylor for description of the operative procedures.

52 West Fifty-Third Street.

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[7] Bailey, Pearce, and Elsberg, Charles A.: Spinal Decompression, The Journal A. M. A., March, 9, 1912, p. 675.

The Value of Antityphoid Vaccination.—Since the very great and almost absolute protective value of antityphoid vaccination has been proved, the fact should be promptly accepted by the medical profession, who should encourage its acceptance by the public by example, but, especially, by expression of absolute confidence. A doctor should no more question the value of antityphoid vaccination than he should question vaccination against small-pox or mosquito transmission of yellow fever or malaria.—C. C. Bass, M.D., in *Am. Jour. Trop. Dis. and Prev. Med.*

GASTRO-INTESTINAL STUDIES

I. THE QUESTION OF THE RESIDUUM FOUND IN THE EMPTY STOMACH *

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The routine examination of material from the empty stomach in the morning discloses a small pale yellowish or greenish residue, somewhat cloudy, containing mucus and a little cell débris. We are told by Loeper,[1] Zweig,[2] Kemp,[3] Wolff,[4] Strauss,[5] Riegel[5] and Soupalt[5] that in health this residue should not exceed 20 c.c., and that there should be no macroscopic food-residues. It is true that occasionally the microscope discloses fat-globules, cells with their protoplasm digested and their nuclei set free, and rarely vegetable-fibers or meat-fibers, but no macroscopic residue is forthcoming.

This is the common finding with the stomach-tube, and the results recorded have gone unquestioned. Only recently Harmer and Dodd,[6] by careful Roentgen studies, pointed out that we are by no means sure that the stomach-tube reaches the lowest point of the stomach. In other words, they showed that the stomach-tube, even when it was passed through a glass tube of the size and caliber of the esophagus, has a tendency to deviate on emergence, striking the gastric mucous membrane. It then curls up so that not all the material in the stomach can be aspirated. They pointed out that the results obtained by the stomach-tube were by no means conclusive, and that gastric stasis was frequently overlooked.

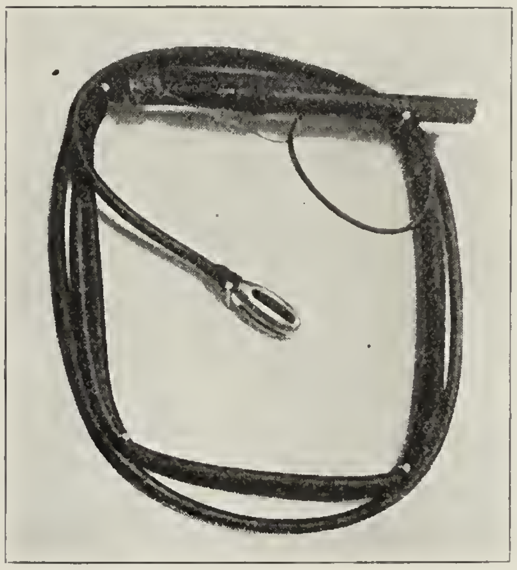

Fig. 1.—Modified gastric tube.

We have been able to corroborate the statements of Harmer and Dodd in an entirely different way, incidentally throwing light on the so-called physiologic residue. One of us[7] devised a modified stomach-tube (Fig. 1) on the principle of the duodenal tube, supplying it with a special tip, which by its weight would seek the most dependent part of the stomach. The tip is slotted with large perforations, the diameter of each being equivalent to the maximum bore of the tubing (No. 8 French). This tube can be left in the stomach through the entire cycle of gastric digestion. It was in studying the normal digestion in healthy symptomless medical students that we were able to determine the normal residue. One of us was surprised to note discrepancies between the amount of material aspirated with the stomach-tube and the amount of material obtained with the new tube. In two instances in which the passage of the old tube failed to disclose any residue, the passage of the latter enabled us to obtain a little over 20 c.c. in one case and over 100 c.c. in the other case. The principle is therefore entirely different. The old tube is propelled from above and its position is always fixed, while the principle of the new tube is always that of gravity. The technic is described elsewhere. Suffice it to say that we aspirate while the subject is on his back, on his stomach and on each side and is breathing deeply. In this way we obtained the accompanying figures from healthy symptomless medical students, and a glance at Figure 2 will show the residuum in a straight series of nine students, the material being placed in 150 c.c. flasks.

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* From the Laboratory of Physiological Chemistry of the Jefferson Medical College.

[1] Loeper: Leçons de pathologie digestive, Series 2, 1912, p. 17.

[2] Zweig: Magen und Darmkrankheiten, 1912, p. 459.

[3] Kemp: Diseases of the Stomach, Intestines and Pancreas, 1912, p. 133.

[4] Wolff: Taschenbuch der Magen und Darmkrankheiten, p. 22.

[5] Cited by Loeper.

[6] Harmer, T. W., and Dodd, W. J.: Sources of Error in the Use of the Stomach-Tube for Diagnosis, Arch. Int. Med., November, 1913, p. 488.

[7] Rehfuss: Am. Jour. Med. Sc., June, 1914.

SERIES DETERMINATION OF THE RESIDUUM OF THE EMPTY STOMACH

Case	Total Acidity	Free Acidity	Mette	Quantity, c.c.	Food Residues
48	26.0	19.5	...	57	0
50	43.5	36.0	2.5	76	0 bile
51	51.5	41.5	2.5	180	0 bile
52	35.5	21.5	2.8	97	0 bile
57	42.5	32.0	3.0	42	0 bile
58	61.5	49.0	3.2	61	0 bile
59	49.0	41.0	3.5	120	0 bile
60	41.0	39.0	2.6	60	0 bile
61	5.0	2.5	0.0	32	0 bile
62	53.0	37.5	3.5	65	0 green
63	40.5	38.0	1.5	60	0 none
64	6.5	4.0	1.0	35	0 saliva
65	6.0	0.0	1.1	30	0 saliva

None of this series was suffering in any way from gastro-intestinal disturbances, and yet we were able to obtain in every instance more than 20 c.c. of residuum and in some cases more than 100 c.c. No macroscopic food-rests were found in any of these samples, and although microscopically fat and occasionally a few vegetable fibers were found (very rarely), meat-fibers were never found. In every instance the subject was examined at 8 o'clock in the morning. More than half the number contained bile, and with the exception of the last two only the slightest traces of saliva were found. It will be noted that most of the samples contained a rather high acid content and strong enzyme activity.

These results are of the greatest importance. The fact that in a straight series of healthy medical students (and care was taken to select only those who came up to this standard), we should find none from whom we could not obtain more than 20 c.c. of residuum, leads us to modify seriously our conception of the diagnostic value of the quantity of residuum.

EXPLANATION ON THE BASIS OF THE STUDIES PERFORMED BY THIS TUBE

On the same students and others we made a study of normal digestion. Briefly stated, we found that there was no single curve which could be construed as normal. We found that each individual exhibits a certain tendency in the elaboration of his secretion, and this tendency is the same, be the stimulus an Ewald meal, water or meat. In fact, we obtained exactly the same character of curve with water as with an Ewald meal, and the figures for all practical purposes were just as high. This suggested to us the fact that this substance in itself was the simplest and possibly the best test-meal. That phase of the subject will be more fully discussed in a contribution regarding the action of water in human gastric digestion.

Our normal responses fell into three types:

In the first type, which we call the "isosecretory" type, the curve rose gradually, reached a maximum, the limits of which were from 50 to 60 in terms of tenth-normal sodium hydroxid, and then gradually fell. An Ewald meal was digested in two and one-half hours.

The second type showed a rapid rise, a sustained high point and little tendency to drop even after the food had left the stomach in normal time; for some time afterward secretion poured out. This might persist for half an hour, one hour or even in pronounced cases several hours, and is called the "continued" digestive secretion in contradistinction to hypersecretion, because it occurs in almost 40 per cent. of normal symptomless persons. The figures in this type may approach 100 and over.

The "hyposecretory" type is like the first type, but the response is slower, the high point lower and less pronounced, and digestion is usually over in a little more than two hours. It is particularly in the hypersecretory type that the largest residuum is encountered, and it must be evident that a residue of 50 c.c., which is without significance in this type, may be of great importance in the other types.

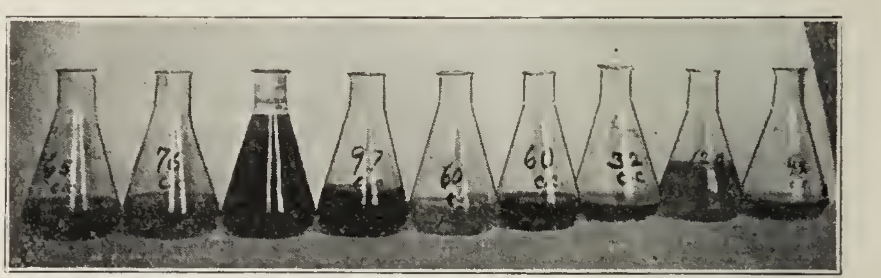

Fig. 2.—Gastric residuum in nine normal students.

WHAT IS THE CAUSE OF THIS RESIDUE?

Sokolow[8] has demonstrated that saliva, bile and pancreatic juice were all capable of calling forth the gastric secretion, but that the former is nearly always expelled at the close of a meal (Gröbbel[9]). If the Roentgen and physiologic findings demonstrate that the pyloric reflex is largely due to the action of acid on the duodenal mucous membrane, it is likely that when this ceases the pyloric mechanism is in a relaxed condition and there is a backflow of juice. We have found that the most common residue and the last to leave the stomach is fat, and this substance, even in small amounts, is capable of inducing a regurgitation of bile and pancreatic juice. Loeper[10] asserts that there is an increased molecular concentration to the residuum and that this favors spasm of the pylorus and retention. While this may be an explanation of certain pathologic residues, it scarcely holds for these findings, inasmuch as there was no pylorospasm, and bile was present in the majority of cases.

Of late, much importance has been attached to the study of the residuum or the *liquide à jeune*, as the French term it. Continental writers and statements in our text-books insist on the fact that it should not exceed 20 c.c. Rosin and Schreiber[5] alone assert that it is important only when it attains 60 c.c. or over.

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[8] Sokolow: Diss., St. Petersburg, 1904 (Babkin: Die Aeussere Sekretion der Verdauungsdrüsen, 1914, p. 150).

[9] Gröbbel: Ztschr. f. physiol. Chem., 1914, lxxxix, 1.

[10] Loeper: Leçons de pathologie digestive, 1912, p. 19.

The general feeling is that anything over 20 c.c. indicates hypersecretion, and this in turn in many cases indicates an organic lesion, nearly always ulcer. Loeper[1] gives a summary of the thesis of Sauphur in which two series, those of Rubow and those of Borjsjarg, are reviewed. The former obtained in 77 cases a residuum varying from 9 to 100 c.c.; 17 times the existence of ulcer was verified, 10 times it was clinically certain, 30 times probable. In the second series 102 patients were examined; 72 presented a distinct residuum with or without free hydrochloric acid; 52 had ulcer; 15 a stenosis, 1 cancer of the liver, another cancer of the stomach, and 2 were tabetic and tuberculous. In 30 the stomach was absolutely empty, and of these one alone had ulcer. Does this mean that ulcer is so frequent that the majority of our subjects were afflicted with that condition? Or does it even mean that some of them were predisposed to ulcer? That is utterly out of the question even though we do believe in the possibility of latent ulcer. The fact that in the second series mentioned above thirty cases showed no residuum with the old tube indicates that the old method was defective inasmuch as we found no case in which examination with the new tube failed to disclose some residuum.

These points are exceedingly important. They simply indicate that we must modify our opinion regarding the quantity of residuum and demonstrate that the old method of examination was inadequate. The fact that 20 c.c. is constantly exceeded in health lends color to the belief that the presence of food-rests is more important than the quantity of residuum. It is not our purpose to detract from the value of hypersecretion in ulcer, but simply to indicate the dangers in drawing conclusions as to the existence or nonexistence of ulcer from this symptom.

CONCLUSIONS

1. The accepted limit of the normal residuum of the empty stomach as 20 c.c. is false.
2. The examination by means of the old stomach-tube as demonstrated by Harmer and Dodd and our own experiments is entirely inadequate.
3. The method of examination by means of the new modified stomach-tube is the only satisfactory method of determining the complete residuum.
4. On a series of healthy medical students the residuum in every instance exceeded the accepted limit and in several instances was above 100 c.c. without there being any evidence of gastro-intestinal or general disorders.
5. The significance of this symptom in relation to the diagnosis of ulcer must be seriously questioned.

We wish to thank the gentlemen who kindly served as subjects in the experiments reported.

Oxypathy.—Who can count the cults? If any one of them could do what they claim to do the human race would be free from disease and the millennium would be with us. The osteopath, the chiropractic, the mechanotherapist, the Christian Scientist and the hundreds of other false believers have all failed in that they have benefited only a few and injured many. The benefit has been chiefly through suggestion and really a false benefit. In other words, they obtain an apparent relief by substituting a cult delusion for a disease delusion.—Editorial, *Old Dominion Jour. Med. and Surg.*, April, 1914.

CHRONIC OCULAR TUBERCULOSIS

NECROPSY FINDINGS IN A CASE IN WHICH DEATH WAS DUE TO TUBERCULOSIS OF THE HYPOPHYSIS CEREBRI *

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BOSTON

Ocular tuberculosis may be classified into at least two well-defined types, the acute and chronic. To the acute type belong the cases of solitary tubercle of the eye, diffuse tuberculosis of the choroid, acute tuberculous iritis, etc. These cases run a relatively rapid and malignant course, loss of the eye and often also death of the patient ensuing. Although this type of tuberculosis is rare, the eyes, for obvious reasons, have frequently been examined microscopically. The lesions do not differ from active tuberculous lesions elsewhere in the body, and there is no doubt that they result from direct blood metastases. To this type belongs also miliary tuberculosis of the choroid, which is usually a terminal manifestation of the systemic disease. Intermediate between cases of the acute and chronic type of ocular tuberculosis are certain cases of tuberculous choroiditis which are also probably due to direct blood metastases.

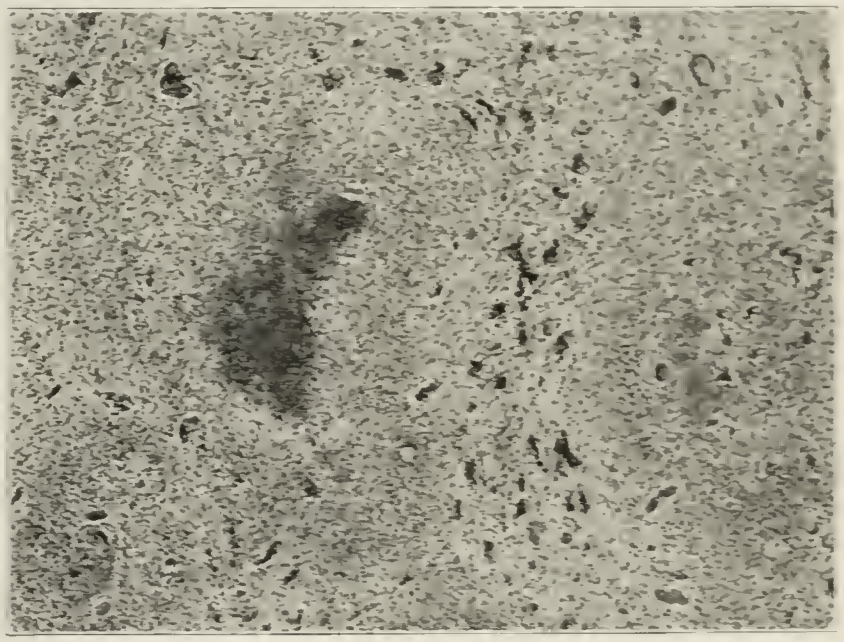

Fig. 1.—Tuberculosis of the hypophysis cerebri, showing giant-cells, caseation and remains of parenchyma of anterior lobe; × 40.

To the chronic type of ocular tuberculosis belong the far more frequent cases of tuberculous scleritis, keratitis, chronic iritis, and cyclitis. These cases run an extremely slow course, are almost never fatal, and healing ultimately occurs, followed frequently by recurrences. Both eyes are most often involved, though not always simultaneously. In 1907 I showed by means of tuberculin tests and microscopic examinations of excised nodules that tuberculous scleritis, the most common manifestation of chronic ocular tuberculosis, is in reality identical with anterior nodular scleritis.[1] This condition had generally been designated simply as scleritis or episcleritis and regarded as rheumatic in nature. More recently, I have brought forward evidence that the lesions of chronic tuberculous scleritis, keratitis, iritis, cyclitis, and sometimes, choroiditis, have the same origin, which, moreover, as will be pointed out, is essentially different from that of acute ocular tuberculosis.[2]

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* From the Massachusetts Charitable Eye and Ear Infirmary.

* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Verhoeff, F. H.: Tuberculous Scleritis, a Commonly Unrecognized Form of Tuberculosis, Boston Med. and Surg. Jour., March 14, 1907, p. 317.

There are still other affections of the eye that may be due directly or indirectly to tuberculosis but concerning which our knowledge is yet highly imperfect. Thus, phlyctenulosis is generally believed to be due to sytemic tuberculosis, but on evidence that is not accepted as conclusive. Recurrent hemorrhages of the retina and vitreous, exudative retinitis (Coats), and periphlebitis retinalis adolescentium (Igersheimer) all may prove to be manifestations of tuberculosis. It is noteworthy that these conditions in general occur at an earlier period of life than does chronic ocular tuberculosis.

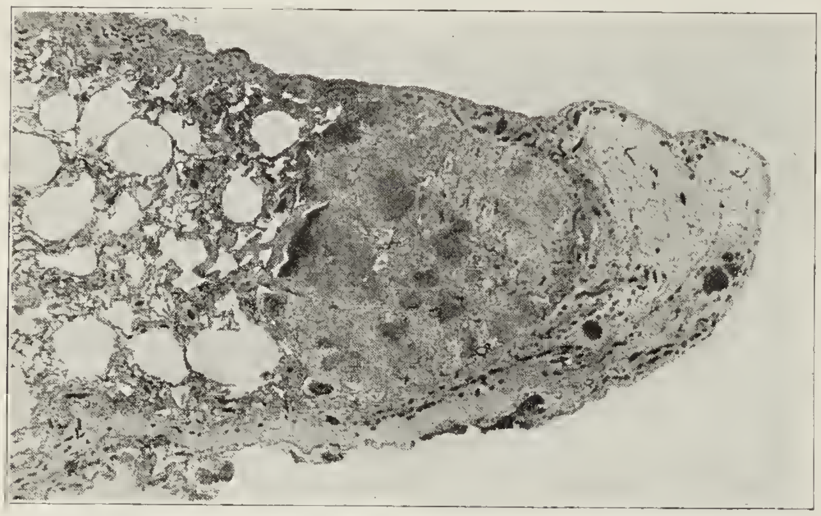

Fig. 2.—Tuberculous focus at base of right lung; × 6.

Microscopic examinations of entire eyes from cases of chronic ocular tuberculosis have been few, while so far as I know a general autopsy in such a case has never been recorded.[3] The case that I have to report is therefore especially noteworthy, since not only were both eyes obtained for examination but a general autopsy was performed. It also seems to be only the third case yet recorded of death due to tuberculosis of the hypophysis cerebri.

REPORT OF CASE

J. M., married woman, aged 36, multipara, was first admitted to the Massachusetts Charitable Eye and Ear Infirmary Jan. 18, 1912, for a tuberculin test. She was readmitted Feb. 24, 1913, and discharged March 8, 1913. April 4, 1913, she was again admitted, at which time she came under my care until her death.

Ocular History and Condition.—The right eye first became affected with keratitis three years before death. This subsided after one year, leaving the vision of the right eye reduced to 20/100; it remained so for one year. The left eye then became similarly affected and soon afterward the right eye again became inflamed, after which neither eye was entirely free from inflammation. Seven weeks before death, visual acuity of the right eye was 3/200, and of the left eye 2/200. At this time the right eye was considerably congested, the cornea was vascularized, generally hazy, and showed scars of old sclerokeratitis above, and two deep interstitial opacities in inner and outer lower quadrants respectively, each about 1.75 mm. in diameter. In addition, near the limbus below there was a large nodule which projected into the anterior chamber. The left eye was almost free from congestion but showed a condition of the cornea similar to that of the right eye, with the exception of the nodule projecting into the anterior chamber. There were no nodules of scleritis visible in either eye. Each eye showed a few small posterior synechiae, but the pupils dilated fairly well under atropin. The anterior chambers were of normal depths, and the tension of each was not elevated. Fundus details could not be made out owing to the corneal opacities. Paracentesis of the cornea was done three times on the right eye, and each time was followed by noticeable clearing of the corneal haze and decrease in the congestion, but the effect was not lasting.

General History and Condition.—The general condition of the patient was good until the year of her death. Tuberculin tests made four months before death (1, 5 and 10 mg. of Old Tuberculin) gave no definite focal or general reactions, the highest temperature reached being 99.4 F. This, however, was about 2 degrees above the usual temperature, which was persistently low, averaging about 97 F. and often falling below 96 F. in the morning. A general physical examination made at the Massachusetts General Hospital, April 8, 1913, showed double mitral disease of the heart, but was otherwise negative. The anterior cervical lymph-glands were slightly enlarged. Eight months before death the menses permanently ceased. The patient had always been mentally bright and cheerful, but during her final stay in the hospital she became markedly dull and apathetic. During this time it was noted that she had polydipsia and marked polyuria, but her appetite was very poor. Examination of the urine was negative for sugar and albumin. The pulse-rate showed extreme variations, at times in the morning falling to 60 and in the evening rising to 120. Toward the end it became more constant, varying between 70 and 80 until a few days before death. The respiration rate varied between 15 and 20. The patient was habitually constipated, but about ten days before death she developed diarrhea and pain in the bowels. This confined her to bed for three days, when she improved sufficiently to walk about. The day before her death, she was attacked by still more severe diarrhea and pain, accompanied by attacks of syncope. Finally she became comatose, and died May 29, 1913. Three days before death her temperature began to rise slightly, reaching 100.5 just before death, with a pulse-rate of 110.

Necropsy.—By Dr. Verhoeff, eight hours after death.—Body that of a fairly well-nourished woman. Peritoneal and pleural cavities free from fluid. Pericardial cavity does not contain an excess of fluid. Lungs: On the right side the pleural cavity is partly obliterated by old adhesions extending from the base of the lower lobe. Along the anterior margin of the base of the right lower lobe immediately beneath the adherent pleura, there are three contiguous nodules each about 8 mm. in diameter, and the lung margin is here more or less thickened for a distance of 5 cm. This is evidently a tuberculous process. On section, no other evidences of tuberculosis, either old or recent, can be made out after the most careful examination. The apices are emphysematous

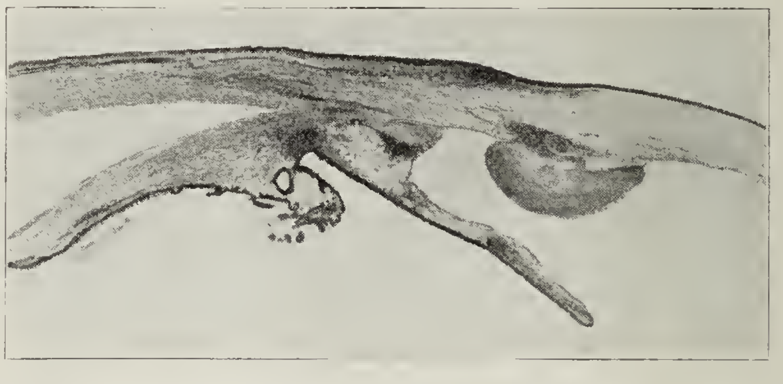

Fig. 3.—Tuberculous scleritis; tubercle in filtration angle, and large tubercle of unusual character on posterior surface of cornea; × 10.

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[2] Verhoeff, F. H.: The Histologic Findings in a Case of Tuberculous Cyclitis, and a Theory as to the Origin of Tuberculous Scleritis and Keratitis, Tr. Am. Ophth. Soc., 1910, p. 566; The Experimental Production of Sclerokeratitis and Chronic Intra-Ocular Tuberculosis, Arch. Ophth., 1913, xlii, 471.

[3] Hayashi (Ueber einen bemerkenswerten Fall von Tuberkulose des Auges mit Sektions-Befund, Klin. Monatsbl. f. Augenh., 1911, xlix, 274) reported a case that on clinical grounds he regarded as probably tuberculous, in which a general autopsy was performed. Inasmuch, however, as the microscopic examination of the eyes gave no evidences of tuberculosis, and no tuberculous lesions were found elsewhere, this case certainly cannot be accepted as one of tuberculosis.

only. There is marked anthracosis. The bronchial glands are pigmented and slightly enlarged, but are not caseous on section. Heart: Weight, 220 gm. Thickness of wall of left ventricle, 14 mm.; of right, 6 mm. Ventricles not abnormally dilated. The tricuspid and mitral valves are thickened and show a few old vegetations. The aortic valves are also slightly thickened. The pulmonary valves are normal. The foramen ovale is not patent. The aorta and coronary arteries are normal.

The spleen, kidneys, liver, bladder, stomach, uterus, fallopian tubes, and ovaries are normal. The mesenteric glands are in general very slightly enlarged, the largest being 1 cm. in diameter, and those beneath the diaphragm are pigmented. The solitary lymph-nodes and Peyer's patches of the intestines are abnormally large for an adult, the individual nodes measuring from 0.5 mm. to 2 mm. in size, and are unusually numerous. Otherwise the intestines are normal.

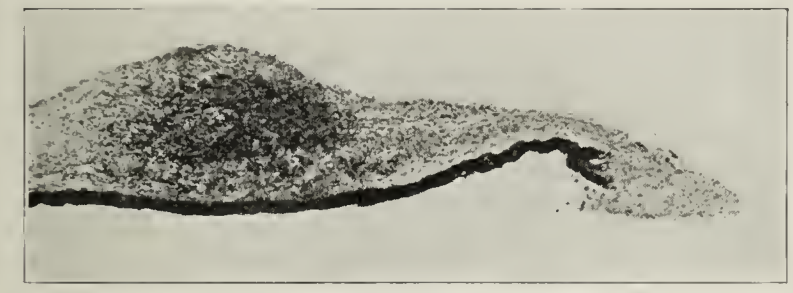

Fig. 4.—Tuberculous synechia at pupillary margin of iris; lymphoid nodule in iris stroma; × 30.

Head: The meninges are normal. The hypophysis cerebri is enlarged to about ten times the volume of a normal hypophysis, measuring 21 mm. by 18 mm. by 15 mm. It is firmly united with the chiasm which it has carried backward. The brain on section is normal. The ventricles and choroid plexus, examined with special care, are free from tubercles.

Histologic Examination.—The liver, spleen, and ovaries are normal. The kidneys show slight subacute glomerulonephritis (?). The intestines show moderate hyperplasia of the lymph follicles. The bronchial lymph-glands show the usual reaction to carbon pigment, but are not tuberculous. The mesenteric lymph-glands also show no evidences of tuberculosis.

Lung: The process at the base of the right lung shows the typical picture of tuberculosis, with foci of epithelioid and giant cells, a considerable amount of fibrin, and small areas of caseation (Fig. 2). There is notably slight lymphoid cell infiltration, and the areas of caseation are not infiltrated with pus-cells. Some of the individual tubercles consist of discrete endothelial cells situated within distended alveoli. Most of them, however, show a syncytial structure and are undergoing fibrosis. The conglomerate tubercle as a whole contains a large amount of fibrous tissue. About 16 mm. from the main process, and 3 mm. beneath the pleura, there are three minute tubercles that appear to be of relatively recent origin. The pleura over the tuberculous process and in the vicinity of the latter is not itself tuberculous, but consists of a thick layer of fibrous tissue containing in places large masses of adipose tissue. The lung tissue beneath the thickened pleura shows, in addition to the tuberculous process, the usual changes associated with anthracosis, and is emphysematous.

The hypophysis cerebri has been converted into a large tubercle of the fibroid type with a central caseous center about 5 mm. in diameter. Not a single area of non-tuberculous hypophyseal tissue can be found anywhere, but remains of the acini of the anterior lobe are scattered here and there (Fig. 1). Small discrete tubercles are numerous. These always consist of a syncytium of endothelial cells often containing Langhans' giant-cells, and many of them show caseation. The large central area of caseation and the smaller areas as well are free from purulent infiltration but contain an abundance of reticulated fibrin. Lymphoid cell infiltration in general is slight, but in places is fairly marked. From the hypophysis the tuberculous process has slightly invaded the chiasm. The latter also shows interstitial infiltration with lymphoid cells and an occasional deeply seated tubercle. The infundibulum is normal except at its junction with the hypophysis, where it shows an inflammatory reaction.

PATHOLOGIC EXAMINATION OF THE EYES

Both eyes were removed at autopsy and opened by equatorial section. The right eye was fixed in 10 per cent. liquor formaldehydi, but before it was placed in this solution a piece of the ciliary body, as described below, was removed for animal inoculation. The left eye was fixed in Zenker's fluid.

Right Eye.—The globe is normal in size and shape. The cornea shows the scars already noted clinically. The nodule projecting into the anterior chamber from the cornea is ovoid in shape, situated parallel to, and 1.5 mm. from the canal of Schlemm, and measures 1 mm. by 1.5 mm. by 4 mm. in size. The anterior chamber is free from coagulum. The lens is *in situ* and clear. There is complete peripheral anterior synechia. The pupil, 4 mm. in diameter, shows six delicate posterior synechiae. The vitreous humor is of normal consistence, and clear in its posterior portion. In its anterior portion it shows a number of dots scattered within it. The largest of these, about 1 mm. in diameter, are twelve in number. The ciliary body shows four white spots irregular in shape, situated just behind the ciliary processes. Three of these are below, 2 mm. apart, the largest being 2 mm. in diameter. The other 0.75 mm. in diameter, is on the nasal side. The choroid and retina are *in situ* and normal. The optic disk is not cupped.

Histologic Examination of Right Eye.—For a distance of about 3 mm. from the limbus above, the cornea has been converted into vascularized scar tissue, but it here contains no definite tuberculous foci. The central portion of the cornea is relatively normal, but shows occasional vessels in its posterior layers. Near the center, an old non-vascular scar is found just beneath Bowman's membrane. The epithelium is everywhere intact. Bowman's membrane is also intact except over the scar near the limbus above, where it has been destroyed in places. Descemet's membrane and the endothelium are normal except at the site of the nodule below. This nodule (Fig. 3) is found to be a large tubercle that has involved the posterior layers of the cornea only to a depth of five or six lamellae. Some sections show curled fragments of Descemet's membrane carried into the cornea by the tubercle. The structure of the tubercle is unusual. Within the cornea and at its base it is composed of epithelioid and giant-cells as is usual, but its greatest mass, lying within the anterior chamber, is composed largely of fibrin. The fibrin is covered with a thick layer of fibroblasts, and the latter are also invading it from the base. It is thus evident that the large size and unusual structure of the tubercle is due to the deposition of fibrin on a tuberculous focus primarily involving the inner surface of the cornea. Whether this focus originated inside or outside of Descemet's membrane it is now impossible to determine.

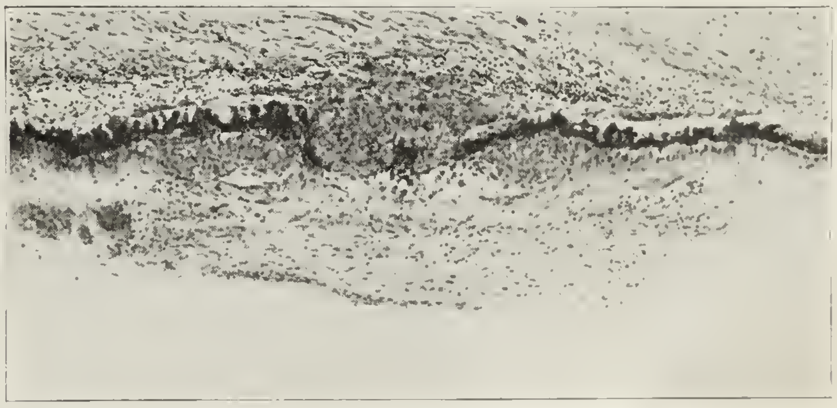

Fig. 5.—Tuberculous focus involving surface of ciliary body. The epithelium has been broken through. Macroscopically this appeared as a white spot about 1.5 mm. in diameter; × 50.

Filtration Angle: This is blocked by the root of the iris all around, and almost every section shows it to contain one or more small tuberculous foci, most of which are in various stages of fibrosis (Fig. 3). Sometimes a focus is seen extending into the cornea beneath Descemet's membrane.

Sclera: In the vicinity of the limbus above, the sclera is abnormally vascularized and largely replaced by fibrous tissue continuous with that of the cornea (old sclerokeratitis). In addition, it shows marked perivascular infiltration with lymphoid cells and a number of small stretched out areas of epithelioid cells, usually in the middle layers. Below, the sclera is less cicatrized, and here also shows tuberculous foci (Fig. 3). These are more active or recent than those above, and one of them, composed largely of discrete endothelial cells, is almost in contact with the conjunctival epithelium.

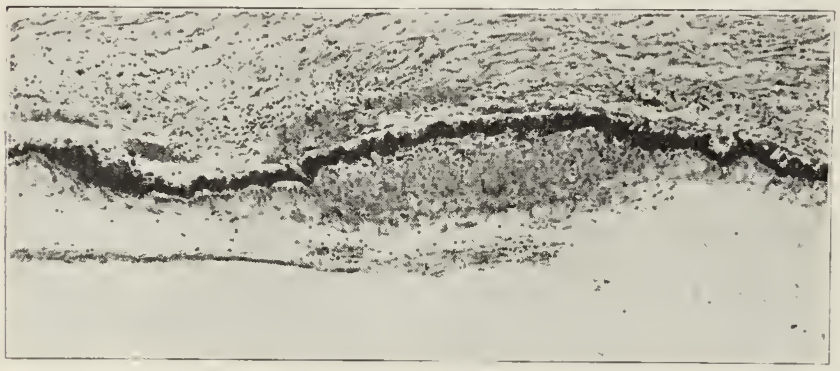

Fig. 6.—Tuberculous focus involving only the epithelium of the ciliary body. A giant-cell is present; × 50.

Iris: The iris shows diffuse infiltration with chronic inflammatory cells, chiefly lymphocytes, and also numerous sharply defined lymphocytic nodules. The latter contain no germinal centers as do true lymph follicles. Attached to the pupillary margin in places there are minute wedge-shaped foci of epithelial cells—tuberculous posterior synechiae (Fig. 4).

Ciliary Body: In general, the ciliary body is almost normal. It shows only slight lymphocytic infiltration, but is giving off a considerable number of lymphocytes from its surface. In places there is slight proliferation of the pars plana ciliaris retinae. The white spots on the pars plana are found to be localized tuberculous foci involving chiefly the surface (Figs. 5 and 6). They consist of delicate avascular hyaline tissue in which more or less circumscribed areas of epithelioid cells occur. Each is intimately connected with the epithelium, which is greatly altered beneath it. In some places the epithelium is almost completely destroyed by foci of epithelioid cells which have penetrated it and slightly involved the underlying stroma. In other places its two layers are split apart. In the upper part of the eye a small tuberculous focus is found beneath the intact epithelium over which there is no tuberculous process. This focus also differs from the others in the fact that it is surrounded by a marked lymphocytic infiltration.

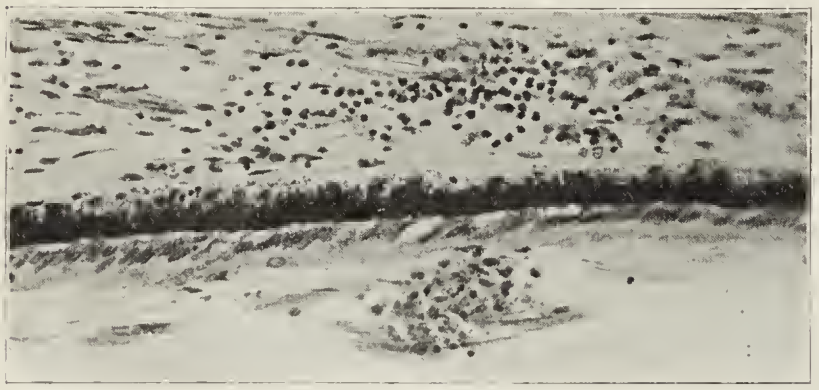

Fig. 7.—Minute tubercle composed of endothelial cells, on surface of ciliary body; × 195.

Vitreous Humor: The white dots are found to be tubercles, free from caseation, composed of epithelioid cells (Fig. 8).

Choroid: This is normal.

Retina: So far as can be determined the retina is normal. The ganglion cells are present in normal numbers but show post-mortem changes.

Optic Nerve: The optic disk is not definitely cupped, but the lamina cribrosa is curved backward, and there are small cavernous spaces just in front of it. The myelin sheath stain shows no atrophy of the nerve stem.

Left Eye.—This is also normal in size and shape. The anterior chamber is free from coagulum. There is complete peripheral anterior synechia. The lens is *in situ* and clear. The ciliary body shows one minute white spot on the pars plana ciliaris, but is otherwise apparently normal. The vitreous humor is free from tubercles and otherwise normal. The retina and choroid are *in situ*, and normal. The optic disk is not cupped.

Histologic Examination of Left Eye.—The left eye shows changes that differ only in degree from those in the right. The older lesions, represented by scars in the cornea and sclera, are less well marked. Some of the old foci in the filtration angle, however, have become almost completely converted into hyaline tissue and thus show further retrogression than any corresponding foci in the right eye. The active tuberculous foci, both within the filtration angle and elsewhere, are more recent than those in the right eye, as indicated by the fact that the cells are more discrete. Numerous active foci are found in the anterior sclera both above and below, and a small one especially active is found just beneath the epithelium at the limbus. One active focus is seen in the cornea situated immediately beneath Descemet's membrane. Active foci are also found within and beneath the hyaline tissue in the filtration angle from which they sometimes extend into the cornea. The iris shows numerous tuberculous synechiae, and in addition small tubercles within the stroma near the pupillary margin. The iris is free from the lymphocytic nodules seen in the right eye. In fact, the eye as a whole shows much less lymphocytic infiltration than the right eye.

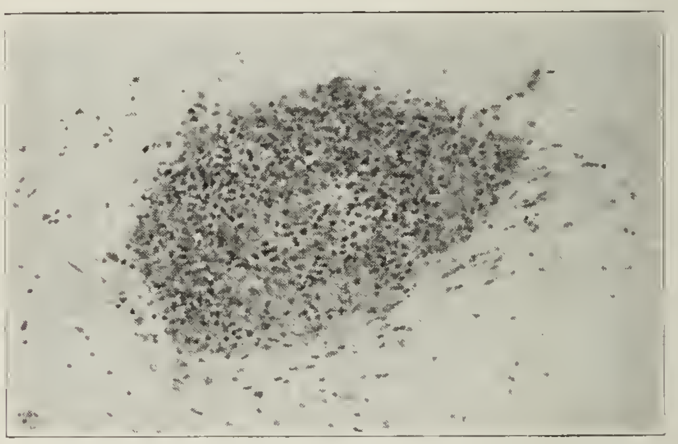

Fig. 8.—Small tubercle in anterior part of vitreous humor; × 145.

The ciliary body shows a few small recent foci on its surface, but none of such size or so old as those in the right eye. Below there is a minute tubercle 0.1 mm. in size, composed of discrete endothelial cells adherent to the pars plana (Fig. 7). In another place there is a disk-shaped nodule 0.4 mm. in diameter on the surface of the pars plana, while beneath the epithelium there are two small tubercles. In still another place there is a small tubercle in the stroma that is just beginning to invade the epithelium.

The retina, choroid, and optic nerve are free from tuberculous foci and present the same appearance as in the right eye.

BACTERIOLOGIC EXAMINATION

Numerous sections stained for tubercle bacilli show no bacilli in the lesions of the eyes, hypophysis, or lungs. Spreads from the tubercles of the vitreous humor, made before fixation, are also negative for bacilli. A piece of the ciliary body from the right eye, containing the largest one of the tuberculous foci, was introduced into the anterior chamber of a rabbit's eye. This adhered to the surface of the iris but was completely absorbed without producing tuberculosis.

Pathologic Diagnosis.—Tuberculosis of the hypophysis cerebri. Old pleural adhesions. Small conglomerate tubercle, base of right lung. Old endocarditis. Hyperplasia of lymph follicles of intestines. Chronic bilateral tuberculous scleritis, keratitis, iritis and cyclitis. Tubercles of the vitreous humor.

In spite of the inconclusive tuberculin test and the negative bacteriologic findings, there can be no doubt that this was a case of tuberculosis. The lesions in the lung, hypophysis, and eyes were typical, mutually corroborative, and incapable of any other interpretation. Moreover, the ocular history and clinical picture were perfectly characteristic of chronic ocular tuberculosis.

This case proves, so far as it is possible for a single case to do so, that complete destruction of the hypophysis cerebri is incompatible with life, for there can be no doubt that death was due to loss of function of the hypophysis resulting from its complete tuberculous involvement, since at autopsy no other cause for death could be found. In other words, this was an extreme case of hypopituitarism. Unfortunately, this fact was not recognized during the life of the patient, and the case was not treated or investigated from this point of view. Some of the more important clinical symptoms, however, were noted. These were the cessation of the menses eight months before death, polyuria and polydipsia, and marked mental dulness. There was not undue adiposity, though the amount of subcutaneous fat was greater than would have been expected in view of the little nourishment the patient could be induced to take. The persistent low temperature was characteristic of hypopituitarism, but was equally so of chronic ocular tuberculosis. The terminal symptoms of hypopituitarism have not been described in a series of cases, so that whether or not those observed in this case can be regarded as characteristic is uncertain. The attacks of syncope and the gradual onset of coma might have been expected. The diarrhea and abdominal pain, both probably due to exaggerated peristalsis, beginning ten days before death, were perhaps analogous to the hiccoughs of Addison's disease.

CASES IN LITERATURE

In the literature I have been able to find reports of only eight cases of hypophyseal tuberculosis, none of which was associated with ocular involvement.

Hueter[4] and Heidkamp[5] describe one case each of generalized tuberculosis with death from tuberculous meningitis, associated with tuberculosis of the hypophysis. In Sommer's[6] case—this was also one in which death occurred from tuberculous meningitis—the hypophyseal involvement was probably by extension from tuberculosis of the sphenoid bone. In the case of Lancereaux[7], death was due to pulmonary and intestinal tuberculosis, and the hypophysis was found enlarged to double normal size and pervaded by miliary granulations. The case of Lucien and Parisot[8] was one of diabetes mellitus with death from subarachnoid hemorrhage, in which old pulmonary tuberculosis and miliary tuberculosis of the hypophysis were found. In Beck's[9] case, in which death was due to sepsis, the hypophysis had been converted into a large encapsulated tubercle, and there were no other evidences of tuberculosis.

Wagner's[10] case was that of a scrofulous girl aged 13, with ozena, slight glandular swelling, and attacks of conjunctivitis. There was sudden onset of convulsions followed by coma and death within six hours. At autopsy the hypophysis was found completely converted into a tubercle. There were no other tuberculous lesions, but the right lung showed extensive pleural adhesions. (Hueter regarded this case as probably one of gumma of the hypophysis.)

In the case of Haushalter and Lucien,[11] the patient was a girl aged 6½ years. There was marked polyuria and polydipsia, but the urine was free from albumin and sugar. The child was in good spirits. The temperature was never above normal; the pulse-rate was 100. The skin was rough and dry. There was sudden onset of convulsions which lasted fifteen minutes, followed by coma and death. At autopsy the tuber cinereum was found replaced by a large tubercle which had extensively involved the hypophysis by way of the infundibulum. No tubercle bacilli could be found. There was a caseous gland the size of an almond to the right of the trachea and a fibrous tubercle at the apex of the right lung. The latter also showed adherent pleura posteriorly.

In only the last two of these cases could death be attributed to the involvement of the hypophysis. In both, as in my case, death occurred suddenly and unexpectedly. In both there were convulsions, however, whereas in my case these were absent. This may have been due to the fact that these cases were in children in whom convulsions readily occur, or to the fact that the destruction of the hypophysis was more rapid than in my case. Only in the case of Haushalter and Lucien were diabetes insipidus and polydipsia noted, but it is possible that they were present in some of the other cases and overlooked.

The question of the relation of simple polyuria to lesions of the hypophysis is a complicated one. Schafer and Magnus have shown that the injection of extracts of the posterior lobe into animals produces temporary polyuria. Cushing's[12] researches also indicate that polyuria of hypophyseal origin is due to involvement of the posterior lobe, but his experiments are apparently contradictory as to whether it results from overactivity or underactivity of the latter. Thus he finds that manipulation of this lobe produces temporary, whereas its complete removal causes prolonged polyuria. The present case, as well as that of Haushalter and Lucien, would seem to prove that depressed activity of the hypophysis may cause polyuria. This is supported by the fact that clinical observations show that simple polyuria is associated with symptoms of hypopituitarism rather than with those of hyperpituitarism. Possibly the relatively transient polyuria that results from a sudden excess of pituitary secretion in the blood may be produced in an entirely different way from that of the persistent polyuria of hypopituitarism.

An interesting question concerns the possible relationship, in the present case, of the hypophyseal, pulmonary, and ocular lesions. Judging by the time of onset of clinical symptoms, the duration of the ocular tuberculosis was definitely known to be three years. That the process in the hypophysis could have been of equal duration is possible but improbable. Its duration, however, was certainly over eight months, since the first hypophyseal symptom noted, cessation of the menses, occurred eight months before death. That the hypophyseal lesion could have given rise to the ocular tuberculosis by way of the optic nerve is hardly conceivable. The chiasm was only slightly involved at death and there were no foci in the optic nerve or in the chorioid, so that for the eyes to have been infected in this way it would have been necessary for retrograde metastases to have traveled along the subvaginal space and thence along the subchorioidal space into the anterior chamber without producing any lesions in their transit. On the other hand, for similar reasons, it is almost equally improbable that in the reverse way the ocular lesions could have infected the hypophysis. In all probability, therefore, the ocular and hypophyseal lesions were independent of each other, a conclusion that is strengthened by the fact that chronic ocular tuberculosis is relatively common while tuberculosis of the hypophysis is extremely rare.

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[4] Hueter, C.: Hypophysistuberkulose bei einer Zwergin, Virchows Arch. f. path. Anat., 1905, clxxxii, 219.

[5] Heidkamp, Hans: Beitrag zur Tuberkulose der Hypophyse, Virchows Arch. f. path. Anat., 1912, ccx, 445.

[6] Sommer, H.: Zur Tuberkulose der Hypophyse, Ztschr. f. Laryngol., 1910, ii, 355.

[7] Lancereaux, E.: Traité d'anatomie pathologique, 1883; Cited by Heidkamp, Note 5.

[8] Lucien, M., and Parisot, J.: Tuberkulose de l'hypophyse et diabète sucré, Rev. neurol., 1909, No. 16, p. 970.

[9] Beck: Tuberkulose Entartung des Hirnanhanges als Ursache der Diplopie und des Strabismus, Ztschr. f. d. Ophth., 1835, iv, 401.

[10] Wagner, E.: Tuberkel der Glandula pituitaria, Arch. d. Heilk., 1862, iii, 381.

[11] Haushalter, P., and Lucien, M.: Polyurie simple et tubercle de l'hypophyse, Rev. neurol., 1908, p. 1.

[12] Cushing, Harvey: Concerning Diabetes Insipidus and the Polyurias of Hypophyseal Origin, Bull. Mass. Med. Soc., 1913, xxiv, 25.

There can be little doubt that the tuberculous focus which gave rise to the ocular and hypophyseal lesions was the small conglomerate tubercle at the base of the right lung. The latter may have represented the recurrence of an old lesion, perhaps originally associated with the old pleurisy in this situation, for a fresh infection would have been expected to produce a more active type of tuberculosis. The persistent low temperature and the absence of a well-marked tuberculin reaction are likewise against a recent infection, as is also the fact that tubercle bacilli could not be found in sections of any of the lesions. A low order of virulence of the infecting organisms was indicated by the negative result of animal inoculation, although it is possible that the amount of material used for this purpose was insufficient.

As is well known, patients having chronic ocular tuberculosis seldom if ever die from pulmonary or generalized tuberculosis. The present case is not a real exception to this rule, since it is evident that death would not have ensued had it not been for the chance involvement of such an important structure as the hypophysis. Occurring elsewhere, a lesion of such small size in a case of this type would undoubtedly have healed. This case, in fact, affords the first demonstration based on anatomic findings of how insignificant the systemic tuberculosis may be in cases of chronic ocular tuberculosis.

Each eye in this case showed the typical clinical picture of recurrent tuberculous sclerokeratitis. While the case was under my observation there was active keratitis, but the only clinical evidence of scleritis was the presence of the corneal scars extending out from the limbus. Nevertheless, on microscopic examination the anterior part of the sclera in each eye showed numerous active tuberculous foci, a fact that suggests that scleritis may often exist without characteristic clinical manifestations, especially when in association with tuberculous keratitis.

The lesions of the cornea, iris, filtration angle, and surface of the ciliary body were similar to those previously described by me. The tuberculous synechiae at the pupillary margins were especially well marked. The chorioid and retina were free from tubercles. None of the ocular lesions showed caseation, but simply epithelioid and giant cells and more or less fibrosis. The right eye, in addition, showed two features not hitherto described, namely, the unusual type of tubercle on the posterior surface of the cornea, and the tubercles of the vitreous.

Elsewhere I have brought forward evidence, which I believe to be sufficiently conclusive, that in chronic ocular tuberculosis the infection of the ocular tissues takes place from the aqueous humor. The bacilli reach the latter from the blood through the ciliary processes, and are then carried to the filtration angle, whence they may pass into the cornea or sclera. They may also be deposited on the ciliary body or carried into the iris, producing focal lesions here, or into the subchorioidal space, where they may give rise to chorioidal foci. In experimental ocular tuberculosis produced by injecting dead tubercle bacilli into the vitreous or aqueous humors, all these lesions were produced, and in addition sometimes tubercles of the retina and vitreous. It is evident that the ocular lesions in the present case had a similar origin. The vitreous tubercles of the right eye were identical in appearance with those produced experimentally. The foci involving the surfaces of the ciliary body in each eye were clearly due to infection from the aqueous humor, since all stages in their formation could be observed, beginning with a minute nodule of endothelial cells on the surface of the intact epithelium. A few tubercles, however, were found entirely beneath the epithelium; and these might have been regarded as direct blood metastases, were it not for the fact that the experiments referred to demonstrated that minute tubercles can pass through the pars ciliaris retinae into the underlying stroma without leaving permanent defects in the epithelium.

It will be noted that this theory necessitates the assumption, as yet unproved, that tubercle bacilli may pass from the vessels of the ciliary body into the aqueous humor. The evidence for the theory, however, is otherwise so strong, it seems to me, that it may be regarded as sufficient to establish this assumption as a fact. It is known that bacteria may be excreted by the kidneys, so that *a priori* there is no reason why they cannot be excreted by the ciliary processes. If this is so, it may be asked why tubercle bacilli are not similarly excreted in cases of active tuberculosis. This is probably due to the fact that here the conditions of immunity are different from those existing in chronic ocular tuberculosis, so that when bacilli get into the blood they are either quickly destroyed or immediately produce lesions wherever they happen to lodge, which in case of the eye is most often within the choroid. It may also be asked why other organisms are not sometimes excreted into the aqueous humor. The answer to this is that there is no evidence that under certain conditions of immunity this may not happen, or, in fact, that other forms of iritis and uveitis may not be produced in this way.

A survey of the features of chronic ocular tuberculosis in general, including those of the present case, makes it plain that there is something special about this type of tuberculosis in addition to the mode of origin of the eye lesions. This is indicated among other facts by the following:

1. Chronic ocular tuberculosis almost never occurs in cases in which there are well-marked clinical signs of systemic tuberculosis and in which, therefore, metastases would presumably be most apt to occur. On the contrary, it occurs chiefly in cases in which it is difficult or even impossible to find any other indications of tuberculosis. The present case is in this connection a striking example.
2. Although chronic ocular tuberculosis is rare compared to the incidence of tuberculosis in general, yet when it occurs it is almost always sooner or later bilateral, thus showing plainly that it does not represent chance metastases.
3. It occurs almost exclusively in adults, and sometimes even in patients of advanced age.
4. It occurs far more frequently in females than in males.
5. The temperature is almost never elevated and is often subnormal.

6. A large dose of tuberculin is usually required to produce a constitutional reaction, and rarely a tuberculin reaction cannot be obtained at all.

7. Acid-fast tubercle bacilli seldom if ever can be demonstrated in the lesions.[13]

8. Animal inoculations of the lesions usually if not always give negative results.

To account for the foregoing facts, I venture to advance the following hypothesis. It is, briefly, that a condition is established in which the tissues of the host and the infecting organisms have become relatively tolerant with respect to each other. This condition is due to the fact that the tissues and organisms have existed so long under the same environment that they have developed similar immunities. The mutual tolerance is, however, not absolute, so that lesions of slight intensity but of long duration are produced, and the growth of the organisms is to a greater or less degree inhibited.[14]

According to this hypothesis the history of a typical case of chronic ocular tuberculosis may be reconstructed thus: In early life, most often in childhood, the patient becomes infected with tubercle bacilli, perhaps, usually of the bovine type. A sufficient degree of immunity is quickly developed and the lesions heal without having become extensive. Many of the bacilli, however, remain alive in the lesions. In the course of years, the bacilli become more or less active from time to time, owing to varying resistance of the patient, and as a result the tissues and bacilli become more and more tolerant of each other. The bacilli become not only relatively but also absolutely less virulent, and lose their acid-fast property.[15] At some time under these conditions the resistance of the patient becomes depressed to an unusual degree, and the original lesions take on renewed activity. Bacilli are now at times given off into the blood, but owing to their small numbers, lack of virulence and the resistance of the patient, metastatic lesions are directly produced only exceptionally.[16] From time to time, however, bacilli pass from the capillaries of the ciliary body into the aqueous humor, where, owing to the lack of immune substances encountered, they proliferate and then sometimes give rise to the various lesions of chronic ocular tuberculosis, as already described, of which those of scleritis and keratitis are the most frequent. Many times, no doubt, the bacilli pass into the canal of Schlemm and are carried from the eye without producing any lesions. On account of the relative inactivity of the bacilli and diminished sensitiveness of the tissues to tuberculo-toxins, the ocular lesions do not reach large size and are often associated with little or no leukocytic infiltration. The resistance of the patient now becomes reestablished and the lesions heal. After a shorter or longer interval, the resistance again becomes lowered and the preceding process is repeated, with the addition that some of the older ocular lesions again become active.

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ABSTRACT OF DISCUSSION

Dr. Ervin Török, New York: The way in which tuberculosis of the eye develops is still an open question, but I think there is no doubt that it must be a secondary lesion in most cases. Except for tuberculosis of the conjunctiva, cornea, sclera and lacrimal organs, when we may assume that a break in the epithelium occurred through which infection entered, no other explanation can be given. The bacilli are carried to the eye by the blood and I have read with great interest Dr. Verhoeff's theory by which he explains how the bacilli get into the interior of the eyeball through the ciliary processes, and the ocular tissues are then infected through the agency of the aqueous humor. The theory is very interesting and is true in some cases, as Verhoeff's animal experiments have undoubtedly shown. I do not think, however, that this is the rule, or that it is necessary to assume that the bacilli pass into the aqueous through the ciliary body without infecting it, and again from the aqueous back into the ciliary body, then infecting it. I rather think that the most common way of infection is the direct way: the bacilli are carried in the blood and are deposited in the eye in one of its tissues, if, for any reason, its resisting power is lowered. Those tissues of the eye are most frequently affected that are most abundantly supplied with blood-vessels, that is, the tissues of the uveal tract, and I doubt whether a tuberculous scleritis or sclerokeratitis, as a primary disease of the eye, exists. I think that in all of these cases the primary focus of the eye is in the ciliary body and the nodules on the sclera develop later, and consequently in reality are symptoms of a tuberculous cyclitis.

The cause of this lowered resisting power is of course hard to determine. In a great many cases, if we inquire carefully into the previous history, we shall find that the patient has had some trouble with the infected eye previous to his tuberculous trouble. This would also explain why we find that in a great many cases only one eye is affected.

From a practical point of view, the most important test to perfect the diagnosis is the tuberculin test. The subcutaneous test is the one we usually employ, giving the patient 1, 3 and 5 mg. at three-day intervals. Attention must be paid to the reaction at the site of the injection, to the local reaction of the eye, and to the general reaction.

I fully agree with Dr. Verhoeff that large doses of tuberculin are necessary to produce the general reaction, and even then it is sometimes negative. Here again the temperature and the patient's subjective symptoms are important.

Dr. M. Schoenberg, New York: I object to Dr. Verhoeff's theory as to the manner in which the chronic tuberculosis originates and spreads. His argument, published some time ago in the *Archives of Ophthalmology*, includes, to my mind, a fundamental error. His experiments have been made with dead tubercle bacilli, which, it seems to me, do not conform themselves to nature. There is no such thing as a condition in the eye produced by tuberculin injection in itself. If Dr. Verhoeff had performed the experiments by using living tubercle bacilli it would be much more conclusive. He says he could not use the living bacilli because they produced such an acute reaction that the study of the processes was impaired by the suddenness and acuteness of the processes. I take issue with this statement, as I have been engaged in a series of experiments on ocular tuberculosis in rabbits for the last few months in the laboratory of the Eye and Ear Infirmary in New York, and I have succeeded in producing a chronic, slow, progressive type of iritis by the injection of a new strain of human tubercle bacilli. I have also produced another type, a very acute, progressive general uveitis by injecting into the anterior chamber human tubercle bacilli which had been sensitized for about twenty-four or forty-eight hours. I would like to hear Dr. Verhoeff's views in the light of his own experience, of the reason why tubercle bacilli from a broken-down gland or some other tissue attacked, in his remarkable case, only the hypophysis and the ocular tissue. Why should they not attack other tissues? In the light of the work done by Rosenow and some other Chicago men it could be explained on the assumption that there are numerous strains of tubercle bacilli, and, as with other organisms, each strain has an

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[13] I have found that altered pigment granules may occasionally stain by the carbolfuchsin method and appear not unlike tubercle bacilli. This no doubt has given rise to error.

[14] This theory, it seems to me, also explains well the parasyphilitic affections. Thus it explains why they are not amenable to mercurial treatment, since the spirochetes and body cells have become to such an extent alike in their vital processes that drugs no longer act differentially on the organisms. Possibly it explains also why hereditary interstitial keratitis is likewise resistant to treatment.

[15] I have shown experimentally that dead tubercle bacilli may lose their acid-fast property when injected into the eyes of immunized animals, and yet remain capable of producing tubercles.

[16] The thought naturally suggests itself here that it is to such relatively benign metastatic lesions that certain forms of tuberculous choroiditis, retinitis, etc., are due.

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affinity for particular tissues, just as drugs have affinity for certain tissues in the body.

Dr. E. V. L. Brown, Chicago: In corroboration of Dr. Schoenberg's statement that there are undoubted cases of tuberculosis of the eye that do not react to tuberculins, I wish to recall the article by my associates Drs. Dodd and Lane of Chicago, read before this Section two years ago, in which miliary tuberculosis with the organism was identified in the ciliary body and iris. Successive doses up to 10 mg. had been used with no reaction on the part of the patient.

Dr. R. L. Randolph, Baltimore: How did Dr. Schoenberg inject living organisms into the eye, in what medium were they suspended and how much was injected? The organisms I have dealt with, no matter how slightly pathogenic they may have been, have always been followed by more or less reaction when injected into the eye. I was very much surprised to hear Dr. Schoenberg's interesting observations on this point.

Dr. F. H. Verhoeff, Boston: I cannot agree with Dr. Schoenberg that my experiments on rabbits were vitiated by the fact that dead instead of living tubercle bacilli were injected into the vitreous or aqueous humors. The purpose of the experiments was simply to show where the bacilli finally lodged in the eye, that is, to show the location of the lesions to be expected relatively avirulent if tubercle bacilli should be secreted by the ciliary body into the aqueous humor. In this respect the experiments were eminently successful. I agree with Dr. Schoenberg that the involvement of the human eye in chronic ocular tuberculosis is due, at least in part, to some peculiarity in the character of the bacilli, and in my paper I attempt to give the reason for this peculiarity.

TUMORS OF THE OPTIC NERVE*

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This paper is intended as a contribution to the surgery of those primary tumors which occur in the optic nerve. As long ago as 1901, from the laboratories of the Royal Victoria Hospital, I issued a monograph, with which possibly some of you may be acquainted, dealing more especially with the pathologic aspect of the subject. I now propose to lay before this Section of the American Medical Association the experience which I have acquired since that time in the clinical aspects of these cases and in the operative procedures for their removal. As preliminary to that, however, I shall be obliged to define more clearly the conclusions at which I have arrived on the pathology of these growths.

Simultaneously with the arrival of the invitation that I should address this meeting, I encountered a clinical experience which encouraged me to undertake the task, for tumors of the optic nerve are of such rare occurrence that most men, even in a life's experience, do not encounter them; and a surgeon seeing the condition for the first time must almost of necessity turn to the literature for guidance.

Let me, then, direct your attention to a few facts concerning the pathology of these growths. In the investigations spoken of, I came to the conclusion, with very material assistance from Professor Adami, in whose laboratory at the Royal Victoria Hospital, Montreal, my studies were conducted, that tumors of the optic nerve, growing within its dural sheath, could be rather sharply divided into two main groups. In the first place one had to do with growths the basis of which was essentially an overgrowth of the fibrous connective-tissue elements of the nerve, but very protean in character, inasmuch as one found every phase of development from the embryonic myxomatous type to firm fibrous bands. The appearances were unquestionably influenced by conditions of stasis in the lymph and venous channels which resulted solely from the local anatomic arrangement of the parts; and altogether the changes suggested those characteristically present in cases of elephantiasis. These findings were in agreement with those of practically every student of the subject as a whole, and can still perhaps be best described by the term "fibromatosis," which I used in the title of my first contribution to the subject.

In the second group of neoplasms the changes, varying somewhat in character, were attributable to a proliferation of the local endothelial cells, and the growths were classified as endotheliomas.

It seemed, too, from our studies, that these two groups were histogenetically closely related, that even, at times, it was possible for the indeterminate fibrous tumors to take on the more striking arrangement of the endotheliomas. As regards frequency I found from an analysis of the entire literature on the subject that the fibrous growths outnumbered the endotheliomas in the proportion of about thirty-five of the former to one of the latter.

Unfortunately, we know so little about the final outcome of these cases that it is impossible to make very positive statements in regard to their clinical behavior. We know that they are characteristically slow in their development; and the reports seem to show that recurrences, always of a purely local character, are rare, secondary growths being perhaps commoner after the endotheliomas than after the fibrous tissue-group. In this connection let me say again, however, what I previously laid great stress on in speaking of the prognosis in these cases, that in many, if not in the majority, of these cases, the tumor of the optic nerve is but part of a neoplasm with a more or less wide intracranial distribution which in its eventual development will bring about the death of the patient. Whether or not it is possible and permissible to do anything further in those cases in which it is perfectly clear after the removal of the orbital growth that an intracranial portion remains, is still an open question.

In considering this subject it is of equal importance to make note of the primary extradural tumors of the optic nerve, that is, growths which take their origin in, or from the outer surface of, the dural coat of the nerve. While by no means so common as the intradural growths, occurring probably in the ratio of about 1 to 5 or 6, they are more frequently encountered than the intradural endotheliomas whose histologic structure they almost invariably possess. Parsons' careful analysis of the published cases led him to believe that almost certainly at least three-fourths of these growths were of this nature, the remaining tumors being of a frankly sarcomatous type. Without entering into a consideration of the possible relationship of these tumors to the intradural variety, or attempting any conjecture as to their origin, one can say that, while these growths are, too, like the intradural variety, characteristically "slow and even" in their development, they are yet more rapid in their growth than the intradural type, as one would expect from the absence of the retaining dural sheath; that their removal is more often followed by recurrences, and that they may even, if Lawson's case be admitted (though it is questioned by Parsons) be followed by metastases. In a word, the extradural tumors are distinctly of a more menacing type than those within the dural sheath.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The fact that most if not all of the intradural connective-tissue tumors are of a non-malignant character, and that these greatly outnumber the endotheliomas, might incline one to adopt an "expectant" attitude, especially in those cases in which, as often happens, the neoplasm over long periods seems to be making little or no progress. This is especially true when other conditions are present that favor a policy of waiting, that is, pregnancy, the need of nursing a child, or profound nervous or other systemic disturbance; and always there are to be considered the dangers inherent in the operation and in the anesthetic, and the question of mutilation, especially in women.

A careful consideration of this attitude leads one, however, inevitably to the conclusion that it is incorrect from every point of view. In the first place, because it is impossible to differentiate clinically the three types of growths whose pathologic features have just been described. All these tumors have exophthalmos, in or near the line of the orbital axis, and profound or complete loss of sight as their characteristic symptoms; but, while it can be said that the possibility of an intradural tumor diminishes and that of an extradural neoplasm rises in proportion as the degree of sight increases, this statement can be taken only very generally; for there are marked exceptions on both sides. The ophthalmoscopic changes and the other signs as described are, too, of no value in making a differential diagnosis; and even the age factor coincides. A surgeon can never be certain, then, that he has to do with a growth of the "fibromatosis" type; he has always to keep in mind the possibility of an intradural endothelioma or more especially of an extradural neoplasm of this nature. An attitude of expectancy here can only give rise to conditions which at best will necessitate a more radical operation, and at worst will jeopardize the patient's chances of recovery.

In the second place, a waiting policy is unjustifiable in tumors of the optic nerve because one cannot ever be sure of the size, situation, or rate of development in any given growth, at any given moment. It is notorious that in these cases the exophthalmos, the principal index, is often pronounced out of all proportion to the size of the neoplasm, and that it frequently undergoes variations that bear no relationship whatever to the dimensions of the swelling. The explanation of these features is to be found in conditions of stasis and edema in the lymph-spaces in and about the optic nerve and eyeball; and perhaps at times in the buckling of a piece of uninvolved nerve. There are so many exceptions that it can be said only in a very general way that early pain, conspicuously absent in these cases, would rather suggest a development in the apex of the orbit, and an early neuritis or atrophy involvement of the anterior portion of the nerve. Increasing hypermetropia, valuable when present, too often fails us to be relied on; and palpation is seldom of any assistance, and may even be misleading.

Finally, considering the matter from the point of view of the operator who wishes while removing the growth to retain the eyeball *in situ* (and the desirability of this effort is now so well established that I shall not take up your time in defending the position), there is every reason in favor of early and immediate interference. It can be affirmed with emphasis that no matter what procedure is adopted, the larger the growth the greater the manipulation that is necessary, with its consequent dangers to the cornea and to the blood-supply of the globe, and the fewer the chances of achieving the end desired. In illustration of the points which I have tried to adduce let me cite the two following cases:

Case 1.—Miss B., a nurse, aged 44, consulted me on Jan. 25, 1910, for blurring of the right eye noticed during the preceding few weeks. The ophthalmoscope showed no changes in either eye, but, while the vision of the right side equaled 6/5—, that of the left was only fingers at 1 foot. The diagnosis, uncertain at first, became, five months later, clearly one of tumor of the optic nerve, when slight proptosis appeared along with beginning pallor of the optic disk.

The patient had a most deeply rooted objection to an operation and dreaded the disfigurement. Influenced by her and by an imperfect apprehension of the factors which I have already set forth at length, I decided to follow the case in an expectant way.

The proptosis developed very gradually during the next three years without any change in the refraction of the eyeball and with only slight involvement of the musculature; but during the summer of 1913, the rate of progress was much more rapid, the exophthalmos becoming noticeably greater, the excursions of the globe much more restricted, and severe neuralgic pains a pronounced feature. The patient's general condition was somewhat impaired, apparently, however, from pain and loss of sleep rather than from the direct influence of the tumor on her constitution.

On the patient's admission to the hospital, Oct. 15, 1913, the eyeball showed a proptosis, directly in the line of the axis of the orbit, of about 2 cm.; total restriction of movement, except downward and inward, where the excursion was about half the normal; complete atrophy of the optic disk; and nothing on palpation. No changes were made out in any other part of the body; and the other eye was quite normal in every respect. The growth was removed October 16, in the manner described later on, and recovery was quite uneventful. At present there is no sign of recurrence, and the patient's general condition is excellent.

The macroscopic examination of the orbital contents showed a large tumor-mass surrounding the posterior surface of the globe and extending into the orbital tissues beyond the muscular cone; but the dural sheath was so disintegrated and invaded by the growth that it was impossible to say whether the neoplasm had originated within or without this structure. Microscopic examination also failed to clear up this point. The growth was pronounced to be "fundamentally endotheliomatous" by my colleagues, Drs. Gruner and McMillan, who sent me the following minute description: "The tumor consists of lobulated masses of triangular shape, separated by broad connective-tissue septa. The lobules are partly solid and partly take the form of acinous tissue, with numerous polygonal spaces of fairly uniform size, filled with material which stains blue with hematoxylin and pink with carbolthionin. The adjoining spaces are separated by two layers of cells, the lining of each space, respectively. There appears to be no fibrous tissue between the acini at all, and, speaking broadly, many fields can be found which closely resemble normal thyroid tissue. The angles between the spaces are filled up with cells similar to those lining them, and thus solidity is imparted to the mass. The cells lining the spaces are small, cubical or slightly flattened, and have a relatively large, intensely staining nucleus of oval shape; but definite cell-borders cannot be distinguished. The cytoplasm is rather acidophil; occasionally, a few cells are found mixed up with the mucoid matter of the space. Some of the cells show a tendency to vacuolization in the vicinity of the nucleus; but the cytoplasm does not develop a foamy structure, however abundant the mucoid material may be. The shape of the lobule is not always the same; a number of them are elongated while others differ in having no definite outline and being made up of ramifying, linear groups of cells devoid of any lumen formation. Transition forms between this type and the first described are to be found. These are areas in which the material separating the ramifying column is undergoing mucinous change, staining purple instead of pink or blue, but otherwise showing the same appearance as is seen in the gland spaces already referred to. Another type of lobule is that composed of densely packed, darkly staining, small rounded cells without any lumen formation of any kind. The stroma of the tissue is composed of very coarse fibrous tissue in which there are few cells. It is variable in thickness, the smallest lobules being enclosed by the largest amount. In many cases the septa become converted into hyaline lines staining brightly with eosin. The muscular bundles are pushed aside by those nodules of growth which are present in that situation."

The history of my second case is a curious story of functional disturbance and of simulation based apparently on numerous organic troubles. What relationship all these bear to the changes in the optic nerve it is of course impossible to say.

Case 2.—The patient first came under observation at the Royal Victoria Hospital for profound chlorosis and gastric ulcer. Three years later she was operated on at the same institution for appendicitis; and shortly after this, Oct. 5, 1900, I saw her in the eye clinic for headaches which were worse after reading and sewing and had been especially bad since her abdominal operation. On the occasion of her first visit her sight was 6/6 on both sides, with a manifest hypermetropia of half a diopter; and the fundi were unquestionably normal. Following the instillation of a mydriatic, she developed within the next few days the most typical example of functional amblyopia I have ever seen, great reduction of the central vision with contraction and inversion of the visual fields. She had typhoid fever in December, 1906, with a miscarriage during the course of the attack, and, following this, functional hemianesthesia. A year later, Feb. 15, 1907, she again came under my observation in the eye clinic, and I was surprised to find unmistakable signs of a tumor of the right optic nerve, and slight proptosis, with complete atrophy of the optic disk, the other eye being normal.

During the following years the patient had repeated miscarriages attributable to uncontrollable vomiting that her pregnant state engendered, and several gynecologic operations for the relief of uterine disturbances. I saw her a few times during this period, but her wretched state of health, coupled with the fact that the tumor showed little or no apparent progress, seemed to justify a waiting policy. Following a severe operation on one of her kidneys in the spring of 1913, the condition became, however, rapidly worse; and when I saw her in the autumn of the same year and advised removal of the tumor she consented to have it done.

At the time of admission to the Royal Victoria Hospital, Jan. 19, 1914, little or no restriction of the ocular excursions accompanied the moderately marked proptosis, and nothing could be made out on palpation. The ophthalmoscopic picture was that of a secondary atrophy of the optic nerve with the deposition of a good deal of fibrous tissue on the disk and along the vessels below. There was also an irregular band of atrophic retinitis running horizontally through the macular area.

The following day the tumor was removed in the manner which I shall presently describe, the eyeball being left in position. For several days following the operation there was a marked milkiness of the cornea suggesting the appearance which one sees following a lime burn of this structure; and there was marked pericorneal congestion. There remains now an apparently permanent opacity of the lower half of the cornea with superficial vascularization as in pannus, and this, together with a marked layer of exudation in the pupillary area, prevents one from obtaining anything but a dim red reflex from the fundus. The iris still remains somewhat discolored, the globe is slightly shrunken and squared, and the tension is quite soft; but the movements of the eyeball are practically full, and, though the lids are somewhat retracted, the general appearance is good.

The excised tumor measured 3 cm. in length by 1.75 cm. at its point of greatest breadth. It strongly suggested a phimotic penis in appearance, owing to the fact that it tapered markedly toward its posterior end and was constricted about its middle by a band of fibrous tissue. A macroscopic examination showed that the removal of the tumor at the posterior pole of the globe was incomplete, as was also the eradication behind. Microscopically the growth belonged unquestionably to the group of connective-tissue overgrowths which I have described at the commencement of this paper and very fully dealt with in my previous monograph.

The operations performed in these two cases, in both of which the principle of saving the eyeball while removing the growth was followed, can be described briefly.

In my first patient I employed Kroenlein's procedure, which consists I may say briefly for those not familiar with its details, in removing the tumor through an opening made in the external wall of the orbit. The only variation from the operation as originally described was that I used a strong septal saw to make the bony incisions instead of the chisel and mallet as recommended by Kroenlein. On entering the orbit I encountered a soft, almost gelatinous tumor, much larger than I anticipated; and it soon became apparent that it had grown to such a size and had infiltrated the tissues to such an extent that it was impossible to remove it through the lateral aperture. Accordingly a complete evisceration of the orbit was carried out after the osseous resection was replaced and the overlying flaps closed. Recovery was quite uneventful, the removal of the orbital contents not retarding in any way the healing of the incisions made during the first operation. At present there is no sign of recurrence, and the patient's general condition is excellent.

In view of the difficulties I had had with my first patient, I decided to employ a modification of Knapp's procedure rather than the Kroenlein operation to remove the tumor in my second case, because it was apparent that in this instance, too, the neoplasm had attained a considerable size. After tenotomizing the external rectus and opening the conjunctiva and Tenon's capsule for a short distance above and below, I had no difficulty in separating the sharply defined intradural growth from the surrounding structures; and I succeeded in removing the neoplasm very completely, and with practically no hemorrhage, by means of a stout tonsil snare, which lent itself very nicely, it seemed to me, to this purpose. Following this the external rectus was reattached and the conjunctival opening closed by sutures.

Criticizing Kroenlein's operation and Knapp's procedure in the light of this recent experience, and of previous cases in which I have made use of the latter method, I would say at the outset that Kroenlein's operation is adapted to the removal only of small, or at most, medium-sized growths. At best, one feels hampered by the smallness of the lateral opening; the deeper parts of the orbit are not so readily seen as one would think, owing to the tendency of the contents of the cavity to prolapse into the wound; and it is actually impossible to deliver large growths, except piecemeal, through the biggest aperture that can be made. On the other hand, the vascular supply of the eyeball is least interfered with by this method; the cornea perhaps is not quite so exposed to injury as in Knapp's procedure, and the orbit is not opened to infection from the conjunctival sac.

The Knapp method is suitable for any sized tumor of the optic nerve, it being possible with external canthotomy for an operator to procure practically any sized aperture he wishes. The only objection that can be made to it is that it opens up the orbit to infection from a field which cannot be sterilized. In the absence of tear-sac trouble, and with bacteriologic control, this fear, however, can be disregarded. With the method one works easily in an anteroposterior direction; and in those cases in which the tumor is not infiltrating the orbital tissues, these structures are prevented from prolapsing into the field of operation by Tenon's capsule. Further, with this procedure, if the operator finds the growth ineradicable, he can proceed to evisceration of the orbit without loss of time, and without the injury to the adjacent parts incidental to Kroenlein's operation. Viewing the matter as a whole, I look, then, on Knapp's method as easier to perform and more suitable for these cases than Kroenlein's procedure; and I am convinced that it alone can be satisfactorily employed when the growth has attained large dimensions.

The two cases which I have cited brought with them an experience which materially altered my views in regard to the treatment of tumors of the optic nerve. My previous work had obscured the potentialities of the few reported cases of intradural endothelioma, and I had not fully grasped the more menacing characters of the extradural tumors, which had not come within the scope of my paper. There remained only the impression of the connective-tissue growths, little if at all malignant, and characteristically slow in development; and the feeling that these could be followed in an expectant way, until pain or some such indication demanded their removal, much in the same manner as one does a fibroma of the uterus. My conviction in this matter was strengthened by the emphasis laid on the benignancy of these growths by numerous other investigators whose findings were substantially in accordance with my own; but it is clear now that the contingencies which I have mentioned have not been clearly apprehended or sufficiently accentuated, because the general conceptions of tumors of the optic nerve have been based almost exclusively on studies of the intradural connective-tissue variety.

The expectant attitude adopted in my second case, largely as the result of conditions which could not be controlled, was to a certain extent justified by the finding of a tumor of the benign fibromatosis type and by the ease with which it was removed. The changes in the intracranial portions of the nerve, which the microscopic examination clearly showed, occurred in all probability concomitantly with those in the orbital division. This supposition is based on the post-mortem findings in several cases of this kind to which I have already referred; but it is just possible that one had to do here with one of the more uncommon occurrences in which the growth develops in the anterior end of the nerve, leaving for a varying length of time a piece of uninvolved nerve between the tumor and the optic foramen; and that earlier interference might have resulted in an entire eradication of the process. In my first patient, however, it is apparent that under the same clinical picture one had to do with a growth of an unquestionably more malignant nature, as shown by its histologic character and its behavior in the tissues; and though I am persuaded that the tumor involved the cerebral end of the nerve from the outset, and know that the bony walls were not invaded, there is no question now in my mind that the right thing to have done in this instance was to remove the growth as soon as the nature of the condition became clear. Further, in view of the occurrence of neoplasms of this sort, I feel that the only safe practice to adopt in tumors of the optic nerve is to extirpate them as soon as possible after the diagnosis has been made.

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ABSTRACT OF DISCUSSION

DR. MARCUS FEINGOLD, New Orleans: Primary tumor of the optic nerve is a rare disease so that few of us are so fortunate as to see even one, much less three cases. Von Graefe's classical description of the clinical features made the diagnosis quite easy—the early blindness in contrast with the comparatively late appearing exophthalmos; the free mobility; the exophthalmos mostly directed forward; the youth of the patient, and the comparatively low malignancy, etc. But the pathologic side of the picture could not be settled early for several reasons.

In 1902 Dr. Byers tabulated all cases of intradural tumors published up to that time. In this tabulation tumors of differing nature are placed, from which Dr. Byers succeeded in isolating a group of tumors which are characterized by excessive connective-tissue formation, for which group he coined the name of fibromatosis.

Apparently a step nearer to the ultimate understanding of these tumors has been made by A. C. Hudson in a monograph on "Tumors of the Optic Nerve" (*Ophthalmic Hospital Reports*, xviii, 317). In it he states as the purpose of his paper "a supervision of the whole of the available cases based on a critical examination of their records and more especially their histological features." He divides the cases into three groups: Group A, containing 118 cases, the group of gliomatosis; Group B, 6 cases, fibromatosis of the nerve-sheath; Group C, 28 cases, endothelial tumors of the nerve-sheath. In Group A, the tumor tissue is characterized by cells of various appearance. Between the cells is found a product of degeneration of the cell processes, often determining the appearance of the tumor. Some of the tumors being harder and bearing the character of fibromatosis; others are more myxomatous in appearance and others have a more cystic character. Above all, however, "the overgrowth of glia tissue," the main characteristic of these tumors, is caused by the previous death of nerve-tissue from accident, traumatism, dyscrasia and vascular changes, etc. Group B is characterized by the enormous development of fibrous tissue in the nerve-sheath, the nerve suffering only secondarily by compression. Again, the fibromatosis of the dural sheath is only made possible by lesions of the nerve-tissue similar to those in Group A. This group is characterized by the absolute "innocent" character of the tumor. Group C is characterized by the endothelial nature of the cells and the whorl-like appearance they give to the tumor. They are analogous to the endothelial tumor of the brain membranes. Tumors of this group appear, on the average, later in life and have a tendency to invade the neighboring tissues and the exophthalmos precedes blindness in a large percentage of cases. In these cases, also intra-ocular extension of the growth has been found.

Mention, I believe, should be made of the suggestion of Greeff, based on a paper by Braunschweig, that a great many of the features of these tumors of the optic nerve point to and could be explained by an embryologic origin.

As to the treatment, one can only agree with Dr. Byers that very early operation is indicated before invasion of the cranial cavity has taken place. Of course, as much as possible, the operation should aim to retain the eye, and there is little to be added as to the kind of operation, except to mention the Legrange operation and the method as practiced by de Schweinitz (*American Ophthalmic Society Rep.*, 1911).

DR. G. E. DE SCHWEINITZ, Philadelphia: As Dr. Byers has pointed out in his admirable paper, intradural tumors of the optic nerve are of comparatively rare occurrence.

The growth in the second case was a psammomatous endothelioma. The bulk of the mass is made up of a coarsely and irregularly interwoven network of fibrous tissue in the midst of which are found numerous concentrically laminated psammoma bodies. In parts of the growth are groups of comparatively large embryonic connective-tissue cells of variable shape, provided with large round oval nuclei of the vesicular aype. They are apparently of endothelial origin, and in picked fields their relation with small blood-vessels is clear, such vessels being seen in longitudinal section, often with branches, showing their walls formed of multiple layers of these elements, or they are seen in transverse section as whorls of endothelial cells, sometimes with the diminished lumen still appreciable, sometimes solidly closed. In these, more or less fusion of the cells may be made out, apparently with hyaloid change, and in a few places the development of the psammoma bodies in these masses of endothelial proliferation is evident. Their origin thus is clearly from vascular endothelium. A similar origin of psammoma bodies in the case of tumor of the orbit which I recently reported before the American Ophthalmological Society was imperfectly evident. It will be remembered that this origin of psammoma bodies is well discussed by Adami. Sand bodies in tumors of the optic nerve have been reported, if I am not mistaken, on several occasions, for example, by Ribbert, and in a psammosarcoma which existed as a primary extradural tumor of the optic nerve, and which was described by Bilroth many years ago.

I have been particularly interested in Dr. Byers' reference to Krönlein's operation, and would agree with him that it has a comparatively limited application, and that in many instances of orbital growth, not necessarily either an extradural or intradural optic-nerve tumor, most satisfactory operative results can be secured without resection of the wall of the orbit. In a discussion of this subject, in a paper which I presented before the American Ophthalmological Society a few years ago, I reported some cases of orbital tumor in which, without the slightest difficulty, rather large growths were removed, in these instances by an incision beneath the orbital arch.

Dr. Edward Jackson, Denver: I was interested in Dr. Byers' final conclusion with regard to the method of removing tumors of the optic nerve or small growths in the orbit. At the time Krönlein's operation began to attract attention, from my work on the cadaver I concluded that it must have a very limited applicability in ophthalmology. When we attempt to go in through the temple we have to go through an absolutely rigid canal, not distensible, not movable in any direction; so that its practical size is very much smaller than that of an opening through the soft parts that can be pushed freely to either side. I have for some years been measuring the prominence of the eyeball. The average of the corneal apex in from the outer angle of the orbit is between 16 and 17 mm. That means, on the average, that the back of the eyeball is not more than 7 or 8 mm. behind the angle of the orbit. In some normal eyes the posterior pole of the eyeball is on a level with the outer edge of the orbit, and in any case in which exophthalmos has become pronounced the eyeball has reached pretty nearly the situation that the posterior pole of the eye is only a millimeter or two behind the outer edge of the orbit. In such cases very little is to be gained by going back through the bony wall of the orbit. I think the operation can be justified in only a few orbits that have a thick orbital margin, a small orbital opening, with rather deep-set eyeball. In such orbits we would gain decidedly by going in according to Krönlein's operation.

Dr. W. C. Posey, Philadelphia: I have seen but one tumor of the optic nerve, a sarcoma of the sheath. That I removed by the Krönlein method. I have used this operation in four or five other cases and have found it a very valuable means of gaining access to tumors within the orbit. The difficulty in the operation has been the displacement of the triangular fragment of bone forming the outer wall of the orbit. If one tries to do this by means of the chisel, as recommended by Krönlein, one has great difficulty. I note that Dr. Byers recommends resection by means of a saw. About a year ago two French authors, Magitot and Landrieaux, recommended the removal of the fragment of bone by means of a flexible saw—the Gigli saw—getting the saw back of the malar bone and cutting forward. I have been very anxious to try this method on the living body, but no case has come under my care during the past winter. The Krönlein operation leaves practically no scarring. In the five or six cases in which I have employed the procedure I have had scarring in but one, and that occurred in a child 3 or 4 years old, who was suffering from a dermoid cyst which I first tried to remove by the ordinary incision into the orbit. The healing is so prompt following the Krönlein procedure, the scarring is so slight and the aid given to the operator so great that I do not hesitate to recommend it as a very efficient measure in nearly all cases of growths lying in the posterior part of the orbit.

Dr. John E. Weeks, New York: I want to bear testimony to the value of the Krönlein operation under certain conditions. I am afraid the impression gained from this discussion will be adverse to using it in many cases in which it would certainly give great aid. I have operated by the Krönlein method only four times, but in all the cases the aid afforded was certainly very great. One case was a large tumor occupying almost the entire portion of the orbit back of the globe. The lateral exposure of the orbital content was such as to enable me to outline the extent of the growth and to remove it satisfactorily. Another operation was in a case in which there was a small endothelioma occupying the apex of the orbit, which was removed. The exposure of the tissues at the apex of the orbit is much more easy and sataisfactory by a lateral opening than can be obtained through the natural opening in the orbit. In this case the tissues back of the globe could be thoroughly examined; but the growth at the apex of the orbit, which was only discovered after much search, in which Dr. Reese afforded me great aid, certainly would not have been disclosed if we had not made a lateral opening by the Krönlein method. I have resorted to the saw in almost all cases. I have, however, not used the flexible saw. I have attempted to use it but have not succeeded in passing it back of the bony structure readily, consequently I have used the ordinary stiff nasal saw with very good effect. The triangular piece of bone was readily detached and depressed and restored after the operative procedure. I think in tumors that occupy the apex of the orbit we get better exposure by removing the triangular piece of bone.

Dr. W. R. Parker, Detroit: I have performed the Krönlein operation on two occasions, once for the removal of a neurofibroma in the orbit, once for the removal of a dermoid cyst with origin at the apex of the orbit. While I believe that osteoplastic resection gave a better view of the apex of the orbit, I am forced to conclude that I could have operated in both cases without first having done an osteoplastic resection.

Dr. J. O. McReynolds, Dallas, Tex.: I wish to report on the use of radium in such conditions. A case in a child 15 months old presented a typical condition of glioma of the retina. The extirpated globe showed the endothelial character of the growth, with quite a good deal of calcareous deposit. It involved the retina and the optic nerve. After extirpation of the globe there was very rapid recovery. The parents desired to have Dr. Kelly of Johns Hopkins see the child. I asked Dr. Kelly to keep me posted as to progress under the use of radium. He sent me photographs taken at intervals of six days. Altogether there were three applications. The tumor was quite large and the patient almost in a state of convulsions. Within a period of three weeks the tumor had entirely disappeared and a normal-appearing cavity corresponded to the former situation of the growth. The child was supposed to be well and returned to its home in McAlester, Okla., but died after a period of two or three weeks from some cause unknown to me. I feel that at present we know so little about the exact value of radium that it is perhaps wise to report cases so that we may later determine just what forms of tumors are benefited by its application. It is probable that had the tumor not extended so far back into the cranial cavity when the radium was first applied the result might have been permanent.

Dr. M. Foster, New York: I believe that we are not justified in long delay after the diagnosis of tumor of the optic nerve, or indeed of any retrobulbar tumor has been made, before attempting to remove it and at the same time to save the eyeball. The serious question in most cases is whether the tumor is benign or malignant, for if the latter is the case the orbit should be exenterated, and any other intervention we may make will serve simply as an operative complication.

Taking the questions I suggested in order, I must say that as regards diagnosis I have found that Krönlein's operation gives free access to the outer part of the orbit, and enables me to examine the structures there with greater ease, greater exactitude, and, it has seemed to me, less traumatism to them, than I have been able to obtain through an incision in the conjunctiva. Therefore it seems superior to me as an exploratory operation. Second, by what route can a benign tumor be best removed? This varies. I would not do a Krönlein to gain access to a tumor presenting on the nasal side of the eyeball, whether or not I thought it appertained to the optic nerve; I would try to get it through an incision in the conjunctiva after temporarily dividing the internal rectus and retracting the eyeball outward. In spite of the experience I have just related I would be apt to make the same attempt to remove a small, free, accessible tumor in the outer part of the orbit, but in case I met with difficulties I would feel that I had the other operation to fall back on, and I would not make the attempt unless it seemed distinctly feasible. My point is that in the majority of cases of tumor of the optic nerve with which I have had to deal, the osteoplastic resection of the outer wall of the orbit has afforded me more direct access to them, has enabled me to diagnosticate them more accurately, and has permitted me to remove them with less injury to the other structures in the orbit, than the incision through the conjunctiva.

Dr. W. Gordon M. Byers, Montreal: The operations under discussion apply to the removal of tumors of the optic nerve. After careful consideration of the matter as a whole I should like to speak rather dogmatically in favor of Knapp's procedure for tumors of the optic nerve as being the easier and better procedure.

OCULAR MANIFESTATIONS OF THE TOXEMIA OF PREGNANCY

CLINICAL REPORT OF A CASE *

WARD A. HOLDEN, M.D.

NEW YORK

We know little about the ocular manifestations of eclampsia and their causation, and this single case is put on record because it seems to throw a little light on this obscure subject.

REPORT OF CASE

Patient.—Feb. 6, 1913, I was called to the Sloane Hospital for Women to examine the eyes of Mrs. G., housewife, aged 25. The following notes as to her condition while in the hospital are taken from the hospital records by the kind permission of Dr. E. B. Cragin and Dr. E. C. Lyons, the resident obstetrician. Feb. 3, 1913, the patient was admitted to the hospital and said that she was about seven months pregnant, for the second time; that she had vomited during the first three months of her pregnancy, and that for a month her feet had been swollen at night. Her chief complaints, however, were that for five days she had seen double, and that during this time the sight of each eye had grown rapidly worse. Her general condition seemed to be good, there was no toxic rash, the legs and feet were slightly edematous, the blood-pressure was 160 mm. and the urine (51 ounces on February 4) contained 20 per cent. albumin and many cells, and was alkaline. She was kept in bed on active eliminative treatment, and the urine increased greatly in volume and the percentage of albumin was reduced, while the reaction became acid.

Examination of the Eyes.—February 6 I found a paresis of the left external rectus and an absolute central scotoma in the field of each eye so extensive that vision was reduced to the recognition of movements of the hand, but this was possible in the entire periphery of each field. The fundi were normal in appearance except for a trace of retinal edema about the macula lutea in each eye, which was not sufficiently marked to cause obscuration of vision.

Course.—I advised the immediate induction of labor in order to save her vision, and the patient was at once delivered of an eight-months still-born child. From an obstetric point of view, she had a rapid and uncomplicated recovery, and her sight became rapidly better, while the albumin was reduced and the blood-pressure fell and she was discharged in good condition February 22.

March 3, 1913, I saw the patient again and found that her vision had returned within a few days after the operation and was 20/20 in each eye with normal fields. There had been complete recovery from the paresis of the external rectus also; but she said that since leaving the hospital she had experienced much difficulty in seeing at night; and in each macular region of the retina, which had, a month before, been edematous, there was now an abnormal pigmentation. The fundi were otherwise normal.

July 22, 1913, the night blindness was said to be less pronounced, but the abnormal pigmentation was found to have spread from the macular region out to the periphery of each retina. On careful examination it was seen that the pigment of the retinal pigment epithelium had become rarefied in punctate spots and greatly increased in adjacent punctate spots. In the macular region many of the accumulations of pigment were confluent, giving this region a much darker appearance than normal when viewed with the ophthalmoscope by the indirect method. No colloid excrescences were found in the retina and the pigment seemed not to have wandered into the retina proper. The vision was 20/20 in each eye. At this time there was still albumin in the urine and the patient complained of vertigo, pain in the back and transitory obscurations of vision. The Wassermann blood reaction was negative.

Oct. 9, 1913, the pigmentary changes were more pronounced. Jan. 29, 1914, the condition was unchanged.

This curious chronic progressive disturbance in the pigment epithelium of the retina would seem to be due to the same toxic condition of the blood which, when more intense, caused paresis of one external rectus muscle and the retrobulbar affection of the optic nerves. The night blindness of scurvy, for example, must be attributed similarly to the action of the altered blood on the pigment epithelium, and this point will be mentioned later.

In the absence of an anatomic examination we can merely conjecture what was the cause of the paresis of one external rectus and of the large central scotoma in the field of each eye with normal optic disks and speedy recovery after delivery.

Weil and Wilhelm,[1] recent investigators of ocular disturbances in pregnant women, believe that the retention in the blood of certain salts causes hydropic disturbances—edemas, and eclampsia, with sudden blindness without ocular changes; while the retention of nitrogenous substances causes albuminuric retinitis and renders the prognosis grave.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Weil and Wilhelm: Obstétrique, iv, No. 3.

The characteristic lesion in eclampsia is a more or less localized edema of the intracranial tissues, of sudden onset. Complete transitory blindness with normal fundi is a fairly frequent symptom of eclampsia. In the rare cases of incomplete recovery of vision, a concentric contraction of the fields down to 10 degrees in each meridian, with good central vision, has been found. Lagrange and Abadie each has reported such cases, and Endelmann, describing a similar case, correctly called it double homonymous hemianopsia with preservation of a small central field in each eye. A homonymous hemianopsia on one side, followed later by a homonymous hemianopsia on the other, with preservation of a small central field in each eye, has been observed repeatedly in patients with advanced arteriosclerosis, the bilateral cortical or subcortical hemorrhages or thromboses sparing some of the fibers serving central vision.

In many of the cases of blindness in eclampsia we must suppose that there is an edema affecting the calcarine cortex or the optic radiation on each side, which in some cases causes destruction of tissues and therefore produces permanent defects in the fields of vision.

The question arises whether in our case also the visual and sixth-nerve symptoms might not have been caused by a bilateral edema of some parts situated near the optic chiasm, for it is not likely that central scotomas clearing up in a few days, with disks and retinal vessels normal at the time and also months later, were due to a true inflammation of the optic nerves.

Leber,[2] nearly forty years ago, offered the suggestion, apparently overlooked by most later writers, that a retrobulbar neuritis coming on suddenly after a coryza, with slight fundus changes, might be due to a periostitis of the optic foramen—a suggestion that is fully confirmed by Onodi in the recent elaborated English edition of his "Optic Nerve and Accessory Sinuses." Onodi finds that in the cases of retrobulbar neuritis due to sinusitis, there is a direct transmission of the infection from the lining membrane of the sinus to the lining membrane of the optic foramen, either through a dehiscence in the thin bony wall or along the perforating veins. The swollen periosteum compresses the optic nerve, affecting first the delicate axial or papillomacular bundle of fibers of the optic nerve, and thus causes a central scotoma.

Foster Kennedy[3] has put on record half a dozen cases of tumor or abscess of one frontal lobe of the brain, producing a central scotoma in the field of the eye on the same side by a direct pressure on the optic nerve behind its entrance into the optic foramen. I have observed two cases of this kind. Furthermore, though some others have not had the same experience, I found that a tumor surrounding the sheaths of the optic nerve far back in the orbit caused a sharply defined atrophy of the axial bundle of fibers alone.

The conjecture, therefore, would be that an edema —possibly of the anterior lobes of the brain, but more likely of the meninges and of the periosteum of the optic foramina which is continuous with the dura mater—brought about pressure on each optic nerve near its origin and on one sixth nerve which, as it passes to the sphenoidal fissure, lies very near the optic nerve.

The night blindness in this case was preceded by edema of the retina and of the ankles in a patient with supposed retention in the blood of saline elements. In scurvy, some of the saline constituents of the blood have been found to be in excess. Hence, it may be that, apart from the sclerosis of the choroidal vessels that leads to the degeneration of the pigment epithelium and thus causes night blindness in retinitis pigmentosa and other choroidoretinal affections, an excess of certain salines in the blood may be the cause of the faulty functional activity of the pigment epithelium that produces night blindness of a transitory character.

8 East Fifty-Fourth Street.

ABSTRACT OF DISCUSSION

Dr. R. L. Randolph, Baltimore: Dr. Holden's case adds another to a group with which we are all somewhat familiar and as to the treatment of which we are entirely agreed. It seems to me that we see in this case an early stage of what no doubt would have developed into either a full-blown retinitis or a general edema of the retina. In Dr. Holden's case the edema seems to have been limited to the region immediately surrounding the macula, though it is no uncommon thing to meet with rather wide-spread retinal edema in these cases. Some years ago I reported (*Bull. Johns Hopkins Hosp.*, June-July, 1894) five cases of retinal involvement in pregnant women in whom the ophthalmoscopic picture consisted largely of swelling and pallor of the retina. Evidence is at hand to show that permanent impairment of sight may follow too long a delay in inducing premature labor, but I may remark here that it is astonishing what an alarming ophthalmoscopic picture may be seen in the parturient woman, yet may be followed by complete restoration of sight with the delivery of the child. In one of my cases in which at a previous pregnancy a pronounced albuminuric retinitis occurred, the woman in her desire to have a child delayed the induction of labor and suffered in consequence partial and permanent loss of sight. It is clear, however, from what I can learn that these ophthalmoscopic findings in parturient women, findings known as edema of the retina and albuminuric retinitis, are rarely followed by permanent and complete blindness, though considerable impairment of sight may be present at the time. This favorable termination is largely due, of course, to the usual attitude of the medical attendant in dealing with these cases, that is, promptly to induce labor, on account of the danger not only of the loss of sight but also of eclampsia. In all of the cases which I have seen there was albumin in the urine. The treatment is clearly indicated. The prognosis is excellent. When the condition occurs in the first six months of pregnancy and especially when associated with violent headaches, pregnancy should be terminated at once. Visual disturbances in the last seven weeks of pregnancy, when unassociated with marked ophthalmoscopic changes, should not in themselves call for the induction of premature labor and this is especially true in the last two weeks of pregnancy. The occurrence of retinitis in one pregnancy does not mean that the woman will be likewise affected in a subsequent pregnancy even though headaches be present and there be albumin in the urine, so long as the fundi are free of ophthalmoscopic changes. In the one case in which I had an apportunity of making an anatomic examination the principal changes consisted in great edema of the retina and, as a consequence, increased depth of the latter. Hyperplasia of the retina especially marked in the nerve-fiber layer was observed. The presence of hyaline masses throughout the retina and the formation of spaces was frequently noted. As a general thing the changes were more striking near the disk though visible along the retina as far forward as the ora serrata.

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[2] Leber: In Graefe-Saemisch Handbuch der gesamten Augenheilkunde, Ed. 1, 5.2, p. 814.

[3] Kennedy, Foster: Am. Jour. Med. Sc., September, 1911, p. 355.

Dr. James Bordley, Baltimore: Dr. Holden makes the suggestion in the summary of his case that an edema of the anterior lobes of the brain, but more likely of the meninges and of the periosteum of the optic foramina which is continuous with the dura mater, brought about pressure on each optic nerve, and that these changes possibly resulted in central scotoma and paralysis of the sixth nerve. Dr. Holden points to the field-changes in frontal-lobe tumors in support of his hypothesis. In the service of Dr. Cushing such a case came to necropsy. We sent the optic nerves to Dr. Verhoeff for examination. He could find no special evidence of change in the central bundle, but did find marked peripheral changes. The central blindness in this patient was of over a month's duration. In other words, the pressure exerted on the nerve had damaged the peripheral fibers, but could hardly be held accountable for the loss of central vision.

In a case of optic-nerve atrophy following a basilar fracture necropsy revealed the optic nerve markedly compressed in the optic foramen. This case I watched. There was general loss of vision, though it never especially involved the center of sight. Nor can we overlook the tremendous pressure exerted on the nerve by the subdural fluid in high grades of choked disk; nevertheless, central scotomata are among the rarest of all visual field-changes in these cases.

Only a comparatively short time ago, in association with Dr. Follis, we opened the orbit of a patient having an acute hydrops of the optic nerve. The fluid was under great tension and the patient had never experienced loss of central vision.

One other point, suggestive but not conclusive, is that the atrophy taking place in the optic nerve of a dog from pressure of a ligature was in direct proportion to the distance from the ligature. I have seen eight of these cases of central scotomas in eclamptic women. The impairment of vision lasted from a few seconds to four days. One woman had sixteen distinct attacks in one day. Now can we conceive such a transitory edema in the tissues of the optic foramen? If we are willing to concede that eclampsia is dependent on a toxin, we shall certainly have a hard time eliminating that organ of the body which shows the most profound reaction to a long list of poisons. Dr. Holden believes the retinal pigment-changes are probably dependent on a toxin; then why absolve the same toxin from the damage to the papillomacular bundle of fibers? Dr. Holden's case impresses me as one of nephritis, probably a nephritis antedating the pregnancy, complicated by the toxin of eclampsia. In 250 cases of paralysis of the sixth nerve analyzed by Koellner, nephritis as a cause stood next to syphilis and traumatism. I have seen several such cases myself. I have, however, never seen a sixth-nerve palsy in eclampsia uncomplicated by nephritis, nor have I been able to find such a case in literature, although I may have overlooked some.

One other interesting symptom is night blindness. Experience leads me to believe that this, too, is but an acute manifestation of the nephritis. To quote from Parsons: "Acute night blindness is associated with defective nutrition, such, for insance, as we find in nephritis. . . ." We must not overlook the fact that the only invariable changes in eclampsia are those of the liver. In many post-mortems no evidence of edema of the brain has been found, and in at least one such case there was central blindness.

Dr. Allen Greenwood, Boston: The lesson to be learned from Dr. Holden's paper and Dr. Randolph's discussion is: early delivery of these patients. One must be careful, however, not to give too grave a prognosis as to sight and the future of the patient if there is massive exudate in the retina. Some years ago I saw a woman, aged 40, pregnant, with a very marked neuroretinitis with a high-grade albuminuria. The eye condition recovered entirely after delivery, leaving little signs of trouble. A subsequent pregnancy brought back the kidney and eye condition with almost blindness at the time of delivery and a subsequent recovery and the patient as yet has not succumbed to any kidney disease. I also saw a case similar to the one Dr. Holden reports in which a woman of 25 had homonymous hemianopsia as an accompaniment of an albuminuric neuroretinitis of pregnancy.

Dr. Ward A. Holden, New York: It seems to me these cases are of a good deal of interest and importance, and careful study of individual cases with the possibility occasionally of a necropsy will certainly clear up some of the questions which now are obscure.

TWO CASES OF ACUTE RETROBULBAR NEURITIS, ASSOCIATED WITH MARKED ACETONURIA*

LEE MASTEN FRANCIS, Ph.B., M.D.
BUFFALO

The two cases of acute retrobulbar neuritis presented in this report are of interest because a thorough physical examination by competent observers revealed no definite findings except the presence of a pronounced reaction for acetone in the urine. Both patients were young, one a girl of 8½ and the other a man of 31. The girl had been an exceptionally healthy child, while the man gave a history of a previous attack of colitis coincident with marked acetonuria. Both lived under ideal hygienic conditions, being members of families in more than comfortable circumstances. In both cases, hysteria, disease of the nose and accessory air-passages, alcohol, tobacco and drugs could be eliminated with certainty, nor were there any grounds on which the likelihood of chemical or ptomain poisoning might be entertained.

While blindness from retrobulbar neuritis occurs in diabetes, as a rule the patients are past middle life, very much broken down, or well advanced in the disease. I have not been able to find cases reported occurring in young persons associated with a decided acetonuria and with no other likely etiologic factor.

Case 1.—A. A., aged 8½, the daughter of well-to-do parents, consulted me Feb. 12, 1910. The family history was good. The child had always been exceptionally well and healthy and had lived under ideal conditions. There was no history of gastric disturbances, no coryza, injuries or illnesses of any sort. No visual disturbances had been observed by patient, parents or teachers, until a few days ago the girl complained that she could not see the blackboard in school and that the print in her books was not clear. At about the same time she complained of dull frontal headaches, and her mother remembers that she was somewhat nauseated when riding on the street-cars.

Examination.—The patient is a well-nourished, healthy appearing girl of normal size and weight, of good color and presence. The pupils are of normal size, equal and respond readily to all reflexes.

O. D. V. = 6/15
O. S. V. = 6/15

Muscles: 1° exophoria with Maddox rod. The fundus examination without mydriasis showed the disks to be of normal appearance, retinal vessels normal. Not suspecting the nature of the case, I ordered a 1 per cent. atropin solution to be instilled three times daily, and the patient was requested to return three days later for refractive examination under cycloplegia.

February 15, the patient returned, the atropin having been used as ordered.

The retinoscope showed:

O. D. + 1.00 cy. ax. 105°
O. S. + 1.00 cy. ax. 75°

Vision (under atropin):

O. D. V. = 6/22.3 + 1
O. S. V. = 6/22.3 + 1

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

A careful test with trial lenses showed that while the cylinders indicated by the retinoscope made the test-letters more distinct, they did not improve her ability to read. A test was then made of her visual fields by means of colored disks on the end of a rod. The fields for white appeared normal, but there was a total lack of recognition of the red disk in the fields of fixation. The blue field appeared normal; green and yellow were not tested.

The eyeballs were not tender on pressure. The fundus examination revealed no change in the appearance of the nerve-head or retinal vessels.

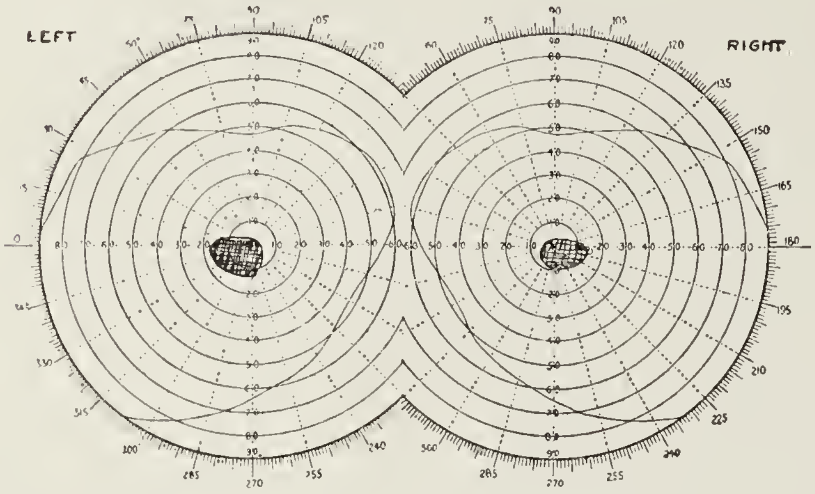

Fig. 1.—Absolute scotoma for red, white and blue fields normal.

The patient was then referred to Dr. F. W. Hinkel for examination of the nose and air-passages and to Dr. N. G. Russell for a thorough physical examination.

The examination of the nose and air-passages was reported as absolutely negative.

Dr. Russell's report is as follows: I have examined A. A. carefully and have found her normal in every way except possibly somewhat nervous. The blood is fully up to standard except that hemoglobin is a little low. The urine is perfectly normal except a decided reaction for acetone and a slight reaction for diacetic acid. This is rather unusual in a full diet such as she has been on.

Feb. 21, 1910, the patient returned to me, the effects of the atropin having thoroughly passed away. At that time:

O. D. V. = 6/12 + 1
O. S. V. = 6/12 + 2

Plus cylinders, while improving the above letters do not add to capacity to read smaller letters. The fields were then charted on the perimeter (Fig. 1.).

A urinalysis made by Dr. Russell, February 25, showed a mild acetone reaction but no diacetic acid. Having been under a regulated diet, ordered by Dr. Russell, the patient returned to me, April 25, 1910, at which time O. D. V. = 6/6, and O. S. V. = 6/6. The urine has been free from acetone about two weeks. A test with a red disk showed no color defects. The patient again came under my observation in December, 1910, when she was brought to me complaining of asthenopia and headache dependent on eye use. Her visual tests at that time were as follows:

O. D. V. = 6/9 — Exophoria 1½, fields negative.
O. S. V. = 6/9 + Fundus negative.

These lenses were ordered and worn during school hours and for near use with a complete relief of the symptoms.

May 28, 1913, the patient again returned, saying that the lenses had not been worn during the past year. For the past two weeks her headaches and asthenopia had returned. Visual examination revealed:

O. D. V. = 6/9 — Exophoria 1½, fields negative.
O. S. V. = 6/9 + Fundus negative.

Under atropin:

O. D. V. = 6/75 — 0.25 sp. = + 0.50 cy. ax. 90° V. = 6/5
O. S. V. = 6/6 + 0.50 cy. ax. 75° V. = 6/5

A full correction was ordered for school use, which has been worn with comfort.

Case 2.—*History.*—A. G., aged 31, married, department manager of a business firm, consulted me, Jan. 22, 1911. Family history is without incident. He uses neither tobacco nor alcohol, denies venereal disease and describes himself as of "nervous disposition" and as having a "sensitive stomach" and "somewhat run down" from overwork. He says that for many years he has had occasional attacks of what he describes as "intestinal catarrh," for which his physician has prescribed exercise and diet, with relief of symptoms. He has worn lenses for many years, having been examined by Dr. Julius Pohlman of Buffalo. He is wearing:

O. D. + 0.75 sp. = — 2.00 cy. ax. 180°
O. S. + 0.50 sp. = — 1.00 cy. ax. 180°

The glasses have always been comfortable and have given him good vision.

Present History.—He has been in his usual good health so far as he knows, except that he remembers having had a slight attack of indigestion a few days ago which he ascribes to a corned-beef sandwich which he ate at noon. January 19, he noticed that the vision of his left eye was blurred and the sight noticeably impaired. The vision has remained about the same as at first, so far as he can determine. There have been no headaches or dizziness or "colds in the head." His work is not that which would expose him to any poisons in its performance, and he has been taking no medicines of any kind.

Examination.—The patient is somewhat pale, is fairly well nourished and of apparently high-strung disposition. Pupils are of normal size and equal, and respond readily to light, convergence and consensually. There is no tenderness on firm pressure on the globes.

O. D. V. (tested with his lenses) = 6/6
O. S. V. (tested with his lenses) = 6/15

Muscles: 2° exophoria (Maddox rod).

The ophthalmoscopic examination shows the disks to be sharply outlined, of normal color and appearance. The retinal veins and arteries are normal. The circulatory balance is good. There are no abnormal appearances to be noted.

The fields were then tested by means of disks on a rod. While the visual field of the right eye appeared normal for white, blue and red, on the left side white and blue were normal. The patient fails to recognize the red disk in the center of the field. The perimetric chart was then made (Fig. 2).

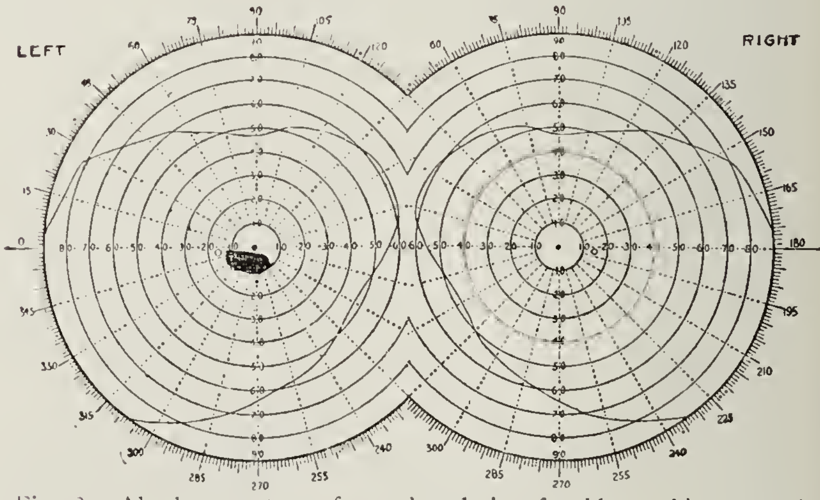

Fig. 2.—Absolute scotoma for red, relative for blue, white normal.

A diagnosis of left retrobulbar neuritis was made. Dr. W. Scott Renner, Buffalo, who made the rhinologic examination, reported that the nose and sinuses were free from disease. Dr. Herbert M. Hill reported a twenty-four-hour sample of urine negative, both chemically and microscopically, but no test for acetone was made. A competent internist, to whom the patient was referred in the temporary absence of his regular medical adviser, reported to me within a few days that he had been unable to discover evidences of hysteria or anything abnormal about the patient. The differential blood-count was negative. Hemoglobin estimate was 75 per cent. At my suggestion the patient was given small doses of calomel, sodium salicylate and sweat-baths. The following days were without incident, beyond the fact that the patient was very apprehensive concerning his condition and became very nervous. I suggested a rest and change of scene. The patient decided that he wanted to go to Lakewood, N. J., so I gave him a letter to Dr. Arnold Knapp of New York, instructing him to consult him during his absence. A few hours before leaving for Lakewood, however, his regular physician, Dr. John Mesmer, having returned to the city, I suggested that he submit a sample of urine to him, and seek his advice.

Within a few days Dr. Mesmer reported to me that the examination of the single sample of urine submitted to him had shown "a very heavy acetone reaction." He also reported that the patient in past years had had several severe attacks of "mucous colitis with crises" and in each instance there had been decided acetone reactions. Each attack had yielded readily to a proper diet and outdoor life with plenty of exercise. During the intervals between the attacks the urine had been free from acetone bodies. Dr. Mesmer had advised the patient to return to his dietary regulations, and to take plenty of exercise during his sojourn at Lakewood.

Following are the clinical records of the case tested with lenses:

Feb. 16, 1911: O. S. V. = 6/7.5 + 3 Scotoma for red tested roughly appears smaller.
Feb. 27, 1911: O. S. V. = 6/6 — 3 Urine is free from acetone.
Mar. 29, 1911: O. S. V. = 6/.6 + 2
Apr. 22, 1911: O. S. V. = 6/6 + 2 No scotoma for red.

April 22, 1911, the patient's refraction was gone over under homatropin with the following result:

O. D.—0.62 sp. = + 2.25 cy. ax. 90° V = 6/5
O. S. + 0.62 cy. ax. 90° V = 6/5

The urine gives no acetone reaction. During the past three years the patient has been seen at frequent intervals. During this time visual acuity has remained the same. There have been no attacks of lowered vision in the right eye.

According to von Noorden,[1] "the primary acetone bodies are beta-oxybutyric acid and aceto acid, from which acetone is probably derived as a secondary product . . . by far the most important sources of acetone are the lower fatty acids." Whatever be the source or whether the virulence of the toxin in cases of faulty metabolism be acetone or some antecedent product or products, clinicians recognize that the excretion of acetone is a fair index of a toxemia. While acetonuria is not at all infrequent in children, and to a less extent in adults with gastro-intestinal disturbances, and invariably accompanies starvation, it may be fairly stated that acetone is not found in appreciable quantities in the urine of normal persons, and that its presence is an index of some toxemia of enough virulence to attack nervous tissue.

While it is quite obvious that acetone, beta-oxybutyric acid or aceto-acetic acid exercise no decided selective action on the papillomacular bundle of the optic nerve, yet it appears reasonable that in certain cases it may produce a retrobulbar neuritis, and that these factors should be taken into consideration in the search for possible etiologic factors in cases of retrobulbar neuritis of otherwise obscure origin.

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ABSTRACT OF DISCUSSION

Dr. G. E. De Schweinitz, Philadelphia: It would seem to me, in agreement with Dr. Richard's observation, that acetonuria in cases such as Dr. Francis has reported, must be regarded as an accompanying symptom, without direct etiologic relationship to the blindness, and this, I take it, is Dr. Francis's own view.

With regard to the classification of these types of central amblyopia: Certainly the symptoms in no way correspond to those of acute retrobulbar neuritis of the classical type, that is to say, obscuration of vision, beginning always in the center of the visual field and rapidly progressing in from one to eight days to complete or nearly complete blindness; at first, negative ophthalmoscopic appearances, later, blurring of the margins of the disk, hyperemia of its surface, and sometimes, in severe cases, diminished caliber of the retinal arteries and fulness and pulsation of the retinal veins; distinct pain on movement of the eyeball or when the globe is pressed backward into the orbit. If such a condition of affairs as Dr Francis has described is to be regarded as an expression of retrobulbar neuritis, then it must belong to the so-called attenuated types, but even in these types the scotoma includes the fixing-point, although the depreciation of vision is not nearly so great as in the acute or fulminating varieties, and the subsidence of the amblyopia is always much more prompt.

While Dr. Francis' careful examination and observations have excluded hysteria or any other pronounced psychosis, it does not seem to me impossible that scotomas of this character may represent and interpret fatigue of the macular region; indeed, it is well known that temporary central scotomas may have such an interpretation. Usually they exist as small central color scotomas, best detected with a 1 mm. red or green object, and not infrequently the patients have been the subjects of long-standing eye-strain. The peripheral field may be normal, or repeated investigations will sometimes elaborate one of the various fatigue contractions. Sometimes these central scotomas closely simulate the variety produced by toxic amblyopia.

Finally, as has also been suggested by Mr. Gunn, some of the slighter forms of so-called retrobulbar neuritis may depend on an edema which is analogous to the acute swelling of the eyelids, with headaches, occasionally encountered as the result of errors in diet or of intestinal auto-intoxication. It is perfectly conceivable that an edema may arise in the optic nerve which would bring about a condition of elevated pressure in the optic fibers, especially in the neighborhood of the optic foramen. It will be the duty of all of us to see that careful urine examination is made in all forms of central amblyopia, whether they belong to the functional varieties or not, but I suspect, to repeat a former sentence, that the acetone may indicate that some form of toxemia is the responsible agent, which in one instance might produce a fugitive edema of the eyelids, and in another a fugitive edema of the optic nerve-fibers. Indeed, as we all know, one observer is of the opinion that the functional central scotomas, the so-called hysteric manifestations, depend on edemas in the neighborhood of the optic chiasm, analogous to the edemas which this psychosis can call into existence elsewhere in the body.

Dr. Wendel Reber, Philadelphia: About six years ago a young woman, aged 33, came under my observation, a case which I reported before the American Academy of Ophthalmology. Tobacco as a factor could be easily excluded. This has been a complicating factor in many cases of central scotoma in cases in which diabetes was excluded. The patient was neurasthenic, corresponding somewhat to the type to which Dr. de Schweinitz alluded, in that she viciously overworked her accommodative apparatus. She had a central scotoma involving the fixation point. At times sugar appeared abundant in the urine, ranging from 0.5 to 1.5 per cent. for the six years. At times she will show a low acetone reaction; at other times she will be entirely free of it. Her vision at no time has fallen below 6/10. Once it rose to 6/7½. She has continued at her occupation as a secretary. At no time that I have examined her during the six years has she been free from her central scotoma. It is practically the size of the blind spots in Dr. Francis' first case. The case has been one of great interest to me because of the persistence of the scotoma. I have taken the fields at least twenty times. They remain about the same. Accessory-sinus disease was excluded by repeated examination, skiagraphically and otherwise. I saw the patient about three weeks ago. She has vision still about 6/9, the same scotomata, and about four weeks ago showed some acetone. At the last visit she showed none. The question in the case is the exact cause of this low-grade toxemia.

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[1] Von Noorden: New Aspects of Diabetes, E. B. Treat & Co., New York, 1913, p. 127.

Dr. Lee Masten Francis, Buffalo: I want to emphasize the fact that the only thing we could find in these cases was the presence of acetone. Whether it or some parent body was the cause of the lowered vision, or whether it was a psychosis, I am sure I do not know. I thought at first it might be on a hysterical basis, possibly, especially in one case, but careful study by competent observers failed to reveal corroborative evidences of hysteria. I simply report the cases for what they are. Acetonuria was the only finding we could determine in both instances.

A METHOD OF CLOSING PERFORATIONS OF THE SEPTUM OF THE NOSE

W. LIKELY SIMPSON, M.D.
MEMPHIS, TENN.

During the last two or three years, I have adopted the method of inserting a piece of cartilage or bone between the flaps of the mucous membrane after the submucous operation is made in cases in which it seemed to me that there might be a permanent perforation due to a tear in the mucous membrane on both sides of the septum. It occurred to me that in those cases in which there is a perforation of the septum that is not too large, a submucous operation with a transplantation of cartilage or bone or both to that part of the nose in which there is a perforation, together with the arranging and sewing of the flaps, could be carried out with good results. I have adopted this procedure in a few cases with very gratifying results. This cartilage or bone gives a support and a place for attachment for the flap of mucous membrane and this does away with retraction which is so liable to occur without some support. Before I tried this procedure my results in closure of perforations of the septum were almost invariably bad.

It seems to me that the primary incision should be at the anterior end of the cartilage of the septum so that as large a flap as possible anterior to the perforation can be obtained. Instead of cutting through the cartilage when beginning the elevation of the mucous membrane on the opposite side to the incision, it is better to begin the elevation just at the anterior end of the cartilage. One should be as careful as possible in elevating the mucous membrane around the edges of the perforation, as it is only with the greatest care that tears in the mucous membrane are prevented.

After the elevation of the mucous membrane is completed, the cartilage or bone, both anterior and posterior to the perforation, are resected and placed in a normal saline solution. As a general rule the large piece for transplanting would be taken posteriorly to the perforation. The larger the piece the better. If one thinks that a large suitable piece of cartilage or bone will be difficult or impossible to obtain, it is a good plan to transplant from another deflected septum on which a submucous operation is being made. If one uses such a method as Hazletine's, the anterior flap which is to be displaced posteriorly should be on the side of the primary incision, and the flap to be brought forward would be on the opposite side. Of course, the edges of the perforation should be pared. After the flaps have been arranged, the largest possible piece of cartilage or bone should be placed between the flaps, and the stitches applied. One may find it better at times to insert the transplant before cutting and arranging the flaps.

After the stitches are applied, the packing of both sides of the nose is done with more care than is usually necessary after an ordinary submucous operation. The packing should be kept in two or three days. After the packing is left off a small amount of cotton may be applied over the flaps to keep them from being dried. Ointments also may be used with advantage to prevent drying of the flaps. Some variation at times in making the incision, flaps, etc., would be necessary, depending on the position, size, etc., of the perforation, but the all-important thing is to get a large piece of cartilage or bone or both anterior or posterior to the perforation and transplant this segment so that this whole area is filled in by the transplanted cartilage or bone; if possible, this transplant should be covered with mucous membrane on both sides. If only partially covered, of course, this transplant will become covered with granulations and later by epithelium and a good final result obtained; but of course this would prolong the after-treatments.

I present this procedure, thinking that it might be of assistance to some one in this obstinate class of cases.

930 Exchange Building.

SUPPOSED POISONOUS PROPERTIES OF CHESTNUTS GROWN ON TREES AFFECTED WITH CHESTNUT BLIGHT

C. DWIGHT MARSH
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WASHINGTON, D. C.

In October, 1913, there were a large number of newspaper reports that chestnuts collected from trees affected with the blight had poisonous properties and were producing cases of disease and death. These cases were reported from the vicinity of Hartford, Conn., from both western and eastern Massachusetts, and one case each from New Hampshire and New Jersey. One news item was to the effect that in Framingham, Westboro and the surrounding towns of eastern Massachusetts there was an epidemic resulting from eating these chestnuts. A report from western Massachusetts stated that gray squirrels were dying, presumably from eating chestnuts from these blighted trees.

The matter was deemed of sufficient importance for at least a preliminary investigation, and Dr. T. C. Merrill, Assistant Forest Pathologist, was detailed to make an examination of the cases reported from Hartford and vicinity. Inasmuch as his report was not conclusive, I, accompanied by Dr. Merrill, made a careful examination of the reported cases in Massachusetts and New Hampshire. It was found that the cases in western Massachusetts were reduced to two. A conference with the attending physician in these cases made it clear that in one instance the illness was not connected in any way with chestnuts, and, in the opinion of the physician, there was no evidence that the illness in the second case was caused by chestnuts, although the patient had been eating nuts which came from an area in which some of the trees were affected with blight.

The story that gray squirrels were dying from this cause was found to be based on the fact that a game-warden had found two dead squirrels which had apparently perished from disease, as there were no shot marks on them. The publicity which had been given to the subject had caused something of a local scare, and the schoolteachers had instructed the children to eat no chestnuts, the result being that no chestnuts were on the markets, and the dealers had been obliged to throw away their stock of nuts.

In eastern Massachusetts, an examination of the reported cases and conferences with physicians and health officers brought out the fact that there was not a single case of illness that could be attributed to the eating of chestnuts either from healthy or from blighted trees.

Only one case had been reported from New Hampshire, and this was found to be a case of severe illness following the ingestion of a considerable number of chestnuts, but the tree from which these nuts had been gathered appeared to be entirely healthy. A careful examination by Dr. Merrill brought out no evidence of the presence of blight. It is true, however, that the tree is located in a region in which the blight exists, and as it is sometimes difficult to detect the disease, it cannot be stated positively that the tree was entirely healthy. The attending physician very kindly gave a detailed account of the case, in which the symptoms had been decidedly puzzling, but he himself was not ready to diagnose the trouble as due to chestnut poisoning.

RESULTS OF FIELD EXAMINATION

Dr. Merrill,[1] as already reported in THE JOURNAL, tabulated the symptoms observed in the cases. A careful examination of the detailed report of these twenty-one cases, as tabulated by Dr. Merrill, shows that only one case could definitely be connected with the eating of chestnuts from a blighted tree. This was the fatal case, numbered 3 by Dr. Merrill, and in this case there was no clear evidence that the disease was caused by the chestnuts. In only one of the other cases, the New Hampshire case, numbered 21 in Dr. Merrill's table, was there a definite connection between the eating of chestnuts and the illness, and in this case the chestnuts were from an apparently healthy tree.

It is well known that raw chestnuts are not very digestible (Saiki,[2] Merrill,[3] Jaffa[4]). It is also well known, at least in New England, that many persons have an idiosyncrasy which makes the eating of any considerable number of raw chestnuts harmful. It is well known that children, eating too many of these nuts, frequently are affected with sore mouths and with skin eruptions, and most of the described details of the symptoms of the cases investigated can be explained on the basis of an idiosyncrasy of this kind. This is so evident that it seems unnecessary to go into a detailed discussion of the symptoms in these cases.

The final result of the field examination, then, made it clear that there was no evidence whatever that nuts from trees affected with the chestnut-bark disease produce illness.

LABORATORY EXPERIMENTS

In order, however, to make this conclusion more certain, it was thought best to carry on some detailed experiments in the laboratory. Chestnuts were obtained from areas affected by the chestnut blight, and as many as possible were collected from the trees which were supposed to be associated with the cases of illness. The material collected was fed to white rats, rabbits and a monkey. A considerable quantity of the material collected from one of the trees which was supposed to be connected with one of the fatal cases in Connecticut was fed to the monkey, which ate it greedily.

All these feeding experiments were negative. Inasmuch as no results were obtained, it does not seem at all necessary to go into the details of the feeding experiments, which were carried on in the laboratory of the Office of Poisonous Plants by Mr. A. B. Clawson, physiologist. Mr. O. F. Black, chemical biologist, made some extracts of chestnuts collected from a Connecticut area infested with the chestnut blight, and these were administered to mice in the form of hypodermic injections, with no result. Mr. Black also made a chemical examination of the nuts with reference to the presence of any toxic principles and found none.

SUMMARY

1. An examination of the reported cases of poisoning from eating chestnuts collected from trees affected with the chestnut blight showed that there was no evidence that nuts from blighted trees contain any more deleterious properties than those from healthy trees, and the symptoms which had been supposed to be connected with blighted chestnuts could in almost all cases be explained as symptoms which would be produced by healthy chestnuts in some persons.

2. Laboratory experiments in feeding the whole fruit, in the use of extracts and in chemical examinations failed to show any toxic properties in the nuts.

3. While the results of the investigations were negative, it is believed that the study was sufficiently thorough and comprehensive to show that there is no ground whatever, either in the experience of the physicians or in the results of laboratory tests, to think that nuts from trees affected with the chestnut blight disease are any more injurious than those from healthy trees.

Bureau of Plant Industry.

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[1] Merrill, T. C.: Is there a Toxemia Referable to the Eating of Chestnuts? THE JOURNAL A. M. A., Jan. 24, 1914, p. 289.

[2] Saiki, T.: The Digestibility and Utilization of Some Polysaccharide Carbohydrates Derived from Lichens and Marine Algae, Jour. Biol. Chem., 1907, ii, 251.

[3] Merrill, L. H.: Digestion Experiments with Chestnuts, Bull. 131, Maine Agric. Exper. Station, 1906, p. 146.

[4] Jaffa, M. E.: Nuts and their Uses as Food, Farmers' Bulletin 332, U. S. Dept. Agric., 1910.

Permeability of the Intestines in New-Born and Sick Infants

Lawatschek reports experiments (*Prager med. Wchnschr.*, 1914, xxxix, 185) at Prague on the absorbing power of the intestines in young infants. He found that albumin was absorbed through the gastro-intestinal tract so readily that it was speedily found in the urine in infants up to 10 days old and in infants with severe gastro-intestinal derangement at any age. The intestines normally seem to become less permeable with every day after birth, but the albuminuria—testifying to the abnormal absorbing power of the intestines—was manifest up to the tenth day of life, at which time the infants left the hospital. He examined thirty-eight new-born infants and forty-six sick infants, feeding them at one meal with half the beaten white of an egg, undiluted. The liquid part is readily taken but the infants do not swallow the froth, so that the amounts actually ingested are liable to be irregular. All the healthy new-born infants and also the older infants who were sick gave the positive reaction in the urine. The absorbing capacity seemed to parallel the severity of the gastro-intestinal derangement.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JULY 4, 1914

THE FUNCTIONS OF THE CORPUS LUTEUM

The histologic features of the corpus luteum — the temporary tissue produced in the ovary as the result of the discharge of an ovum — suggest that it has a glandular character. In the fully formed structure the lutein cells strongly resemble the cells of an ordinary gland in a state of secretory activity and are epithelioid in origin and character. Furthermore, the whole mass has a very efficient blood-supply. It is not surprising, therefore, that the hypothesis of an internal secretion, in the sense in which this term is applied to what are called the ductless glands, was postulated long ago for the corpus luteum.[1] Direct chemical analysis has, as yet, furnished no conclusive evidence concerning this theory. The study of the occurrence or failure of certain physiologic functions and morphologic changes in special parts of the organism relative to the presence or absence of corpora lutea, however, has given a more substantial basis for suggestive hypotheses. The older ones, now regarded as untenable, may be dismissed without more than passing reference.[2] It was once believed, for example, that the corpus luteum "forms a plug of tissue to fill up the cavity of the ruptured follicle and so compensate for the disturbance in the circulatory system caused by the rupture." Another theory held that the purpose of the corpus luteum was to suppress ovulation during pregnancy. As a matter of fact there are animals which ovulate shortly after parturition, although the corpus luteum has not yet disappeared. Leo Loeb, who has devoted much study to this gland, believes that the corpus luteum secretes a substance which inhibits the maturation and rupture of new follicles. In discussing this, O'Donoghue concludes that, although the presence of a corpus luteum tends to retard ovulation, it cannot be asserted at present that this is its main function.

Far more convincing is the evidence that the presence of a corpus luteum is essential to the uterine changes connected with the implantation of the ovum and its maintenance during the early stages of pregnancy.[3] Under the influence of the corpus luteum the uterine mucosa becomes so sensitized that it will form the maternal part of the placenta in response to a certain stimulus which is normally provided by the fertilized ovum, but which may be replaced by a mechanical one. Portions of the uterus transplanted to the subcutaneous tissue also produced deciduomata if transplantation was carried out from five to seven days after ovulation, when the corpus luteum has developed. If, when the uterine tissues were transplanted, the ovaries were also extirpated, it was found that the response was not nearly so marked as if the transplantation alone had been effected and the ovaries not interfered with. These transplantation experiments appear to exclude the possibility that the nature of the stimulation is nervous; and the fact that it is cumulative, even when the uterus is removed to another part of the body, suggests that the stimulus is a chemical one carried by the blood. We see here an example of a highly useful adaptation, most important for the propagation of the species, based on biochemical correlation between different organs.

Of the factors concerned in the development of the maternal placenta the sensitizing substance furnished by the corpus luteum seems to show the highest degree of specificity. The mechanical factor which is involved in the insertion of the ovum can apparently be imitated in a variety of ways, so that the beginnings of placental changes may be initiated even when the ovum is excluded from entrance. The substance which sensitizes appears, according to Loeb, to have a specific affinity for uterine tissue in some, if not in all, species. For this reason extra-uterine, tubal or abdominal pregnancies are impossible in the guinea-pig, for example. In man, in whom these are occasionally found, the specificity in the fixation of the corpus luteum substance may be regarded as less marked.

Not less striking than the foregoing interactions associated with the early changes in pregnancy are the recent hypotheses regarding the relation existing between the corpus luteum and the mammary glands. Certain facts in this connection are commonly accepted. It is known that the removal of both ovaries before puberty prevents its onset with the accompanying growth of the mammary glands. It is further recognized that there may be a growth of these glands at each estrual period. Obviously, hypertrophy of the mammary glands might be due to the liberated ovum or its subsequent development or to some purely uterine factor. That there is, however, really a functional correlation between the growth of the corpora lutea and the mammary glands is shown by the fact that a growth of the latter follows when the corpora lutea are produced in animals either by artificial rupture of the follicle or by copulation with a male previously rendered sterile. According to Hammond and Marshall,[4] the mammary hypertrophy can take place in animals from which the uterus has been removed while still immature, thus showing that the uterus is not essential to the development of the organ of lactation. The development of the corpora lutea of pseudopregnancy is further correlated with uterine hypertrophy and hyperemia followed by extravasation of blood. These changes are clearly comparable with those that occur in true pregnancy, and afford a further confirmation of the view that the corpora lutea are a necessary factor in causing and maintaining the raised nutrition of the uterus during the first part of the period of gestation. Recent studies have indeed thrown a flood of light on the function of what was regarded not long ago as an obscure and insignificant vestige of ruptured graafian follicles.

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[1] Prenant: La valeur morphologique du corps jaune, etc., Rev. gén. d. sc. pures et appliquées, 1898.

[2] A recent popular review of the subject is furnished by O'Donoghue, C. H.: The Corpus Luteum, Its Structure and Function, Sc. Progr., 1914, viii, 721.

[3] Loeb, Leo: The Experimental Production of the Maternal Placenta and the Function of the Corpus Luteum, The Journal A. M. A., Oct. 30, 1909, p. 1471.

FURTHER DEVELOPMENTS IN THE INVESTIGATION OF THE CHEMOTHERAPY OF CANCER

The excitement that followed Wassermann's publication concerning the healing of mice with inoculated cancers by means of a compound of eosin and selenium is probably well remembered.[5] The great caution he used, in presenting this report, to limit its application to the particular experimental tumors with which he had worked, is perhaps not so generally recalled. Wassermann is too experienced an investigator not to know the dangers of over-rapid generalization from an isolated fact, and he foresaw the immediate furor that would arise concerning the new "cancer cure"; hence he carefully and specifically stated that his results had been obtained with mouse tumors only, and that no clinical application of them had been made. The wisdom of his conservatism has been shown by subsequent events. Not only has no remedy for human cancer yet been produced through this development of Ehrlich's principle of specific chemotherapy, but even its being really a specific curative agent for mouse cancer has recently been made doubtful through the work of Keysser, who was one of Wassermann's collaborators in the original publications. This, by the way, is a good illustration of the fact that real scientists do not hesitate to bring forth evidence against their own work when they can find it.

Keysser's new observations[6] are based on new methods of experimentation, whereby inoculations are made into various viscera instead of subcutaneously as has previously been the almost universal method. The importance of this lies in the fact that the inoculated tumors when growing in the subcutaneous tissues have little tendency to infiltrate, and with many strains do not often produce metastases. In these respects they resemble benign tumors rather than carcinoma. The lack of infiltrative tendency seems to depend, at least in part, on the looseness of the subcutaneous tissues of the mouse, which permits the formation of large growths without the development of sufficient pressure to force the tumors to grow by infiltration rather than by expansion. When the same tumors are inoculated into the muscles or viscera they assume a typically infiltrative character, and are more prone to produce extensive metastases. After developing a technic that permitted of inoculation into the viscera with a large percentage of takes, Keysser investigated the action on such visceral tumors of various drugs that had been found effective in curing subcutaneous tumors. The results were entirely negative, not only with Wassermann's selenium-eosin compound, but also with Neuberg's copper-glycocoll salt and various selenium-vanadium preparations, all of which produce retrogression regularly in subcutaneous tumors of the same strains. Not only were these agents ineffective in destroying the tumors, but also the eosin compounds, which were found to accumulate specifically in the subcutaneous tumors, did not stain the visceral tumors more than they did the normal tissues, and showed no evidence of specific affinity by either accumulation or retention. While subcutaneous tumors under this treatment show a liquefactive necrosis, followed by healing, the visceral tumors of treated mice showed no such softening, and grew and caused metastases and death just as did the tumors in control animals that received no treatment. The same negative results were obtained with tumors in many different organs, and with different strains and types of inoculable mouse tumors, including both carcinoma and sarcoma.

The explanation of this difference of effect of chemotherapeutic agents on subcutaneous and visceral tumors, as arrived at by Keysser, is both interesting and significant. He observed that while these drugs destroyed tumors that had reached some size, they do not prevent the development of tumors from a fresh inoculation made just before treatment was begun; also they do not readily kill tumor cells mixed with the drugs *in vitro*. Hence it seems that, despite their ability to destroy tumors of size, the drugs in question can scarcely be considered specific curative agents for mouse cancer, since they cannot prevent fresh inoculations from taking root and growing just as fast as they do in untreated animals. Their destructive effect on the larger tumors is ascribed by Keysser to the fact that when the effects of treatment are being studied the tumors are subjected repeatedly to palpation, which causes hemorrhage and necrosis in the tumors, and the drugs found effective in causing softening and disintegration owe this to their ability to stimulate autolysis, whereby they cause rapid softening to take place in the necrosed tumor tissue. Furthermore, areas of necrosis and hemorrhagic extravasations are sites wherein many foreign chemicals tend to accumulate, a fact which accounts for the apparent specific affinity of the eosin compounds for the tumor tissue. It is because the visceral tumors are not subject to equal manipulation and trauma that they do not undergo corresponding softening and retrogression under the influence of the drugs. As proof of this, Keysser found that if he treated mice with subcutaneous tumors with the usual doses of eosin-selinate, but carefully refrained from palpating and manipulating the tumors, they did not retrogress under the treatment but grew like the controls. The healing of mouse tumors thus far obtained by chemotherapeutic methods resolves itself, therefore, into the production of hemorrhage and necrosis through mechanical means, and an augmentation of autolysis by the drug. If no injury is produced in the tumor, the drug of itself has no effect in modifying the growth of the tumor.

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[4] Hammond, J., and Marshall, F. H. A.: The Functional Correlation Between the Ovaries, Uterus and Mammary Glands in the Rabbit, with Observations on the Oestrous Cycle, Proc. Roy. Soc. London (B) 1914, lxxxvii, 422.

[5] The Application of Chemotherapy to Cancer, editorial, The Journal A. M. A., Jan. 13, 1912, p. 120.

[6] Keysser, F.: Zur Chemotherapie subkutaner und in Organen infiltrierend wachsender Mäusetumoren, Ztschr., Chemotherap., Orig., 1914, ii, 188.

All this does not signify, by any means, that no progress has been made—merely that we are not so near the goal as we had hoped. These observations have increased greatly our knowledge of the growth and behavior of tumors under certain influences, have developed new and valuable methods of investigation, and have pointed out other possible routes along which progress may be made. Also, they teach emphatically the necessity for scientific conservatism, especially when we are contemplating so exciting a subject as the treatment of cancer.

THE THYROID AND THYMUS IN RELATION TO DEVELOPMENT

In speaking of growth or development those who do not give close attention to the problems involved in this phenomenon usually emphasize primarily the increase in size or weight which familiarly characterize it. The growth of the organism as a whole, particularly at an early period, is accompanied by another feature, that of differentiation. The changes in form and weight do not consist merely of additions to the tissue elements already laid down, but frequently also include those alterations whereby new types of structure are added to or evolved out of the primitive ones originally present.

The striking experiments of Dr. Gudernatsch[1] of the Department of Anatomy at Cornell University Medical College in New York lend a peculiar emphasis to the fact that in development we may deal with two entirely separate factors, one of growth and one of differentiation. This was brought out by feeding to developing tadpoles certain mammalian glands with so-called internal secretion. The results, which have now been abundantly verified, leave no doubt that the thyroid gland contains something which, when the gland is given as food, calls forth a rapid differentiation in a developing vertebrate organism. This may be brought about at any stage of development before maturity is reached. The differentiation may therefore be highly precocious if the treatment is begun on extremely young animals. For example, tadpoles could actually be brought to the point of metamorphosis within eighteen days after hatching, while normally they would require ten or twelve weeks to reach such a stage. The results of this premature metamorphosis are perfect frogs of minute size—pygmy frogs. The thyroid influence is very decided and no tadpole given a thyroid diet escapes from it. Each individual, even if thousands be employed, as was the case in several experiments, will react almost immediately to the thyroid stimulus, so that certain changes in its structure may be observed twenty-four hours after a single feeding of thyroid. Although the time of reaction and the nature of the response vary somewhat with the character of the previous or simultaneous food-supply, there appears to be no complete counteraction against the thyroid stimulus, so that sooner or later any tadpole, receiving thyroid after or mixed with other diets, must respond to its influence.

If thyroid is given to these differentiating animals too rapidly, they usually die very soon after the appearance of their fore limbs and the reduction of their tails; but if they are fed carefully they may be kept alive for several weeks. They will not undergo any further changes except perhaps a continued reduction of their tails, nor will they ever feed again after this differentiation. During this period of excited differentiation, curiously enough, the animals fail to grow. Though the thyroid induces differentiation to a degree not common to other foods, there is no evidence that it possesses any power to prevent growth to the morphologic changes. The suppression of growth may merely be incidental, for rapid differentiation does not allow growth.

The thymus, on the other hand, has the power to stimulate growth, but lacks that of exciting differentiation. Tadpoles feeding on any food (except thyroid) reach a maximum size, and thereupon differentiation begins independently. Thymus-fed tadpoles experience a rapid growth, but fail to be brought to metamorphosis within the usual period. They are slow to develop their hind limbs, even though they grow in size beyond the normal. The thymus therefore possesses a quality that suppresses differentiation in a way not exemplified by any other food used.

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[1] Gudernatsch, J. F.: Feeding Experiments on Tadpoles I, Arch. f. Entwcklngsmechn. d. Organ., 1912, xxxv, 457; II. A Further Contribution to the Knowledge of Organs with Internal Secretion, Am. Jour. Anat., 1914, xv, 431.

Whether or not other glands share in any degree the accelerating or the depressing power so conspicuously shown by those already described at length, cannot at present be positively answered. The pronounced effects produced in developing organisms by the thyroid and thymus, respectively, at once suggest inquiries of the most diverse character regarding the possible rôle of these organs in the development of the human individual. For the moment we must remain content to record these exceptional experiences which show how specifically our food factors may be related to developmental processes.

THE PATHOLOGIC ACCUMULATION OF BETA-OXYBUTYRIC ACID IN THE BODY

In the intimate study of the phenomena involved in the perversions of metabolism manifesting themselves in ketonuria, attention has been centered primarily in the estimation of acetone either in the excreta or in the organism itself. The analytic problems involved in the accurate measurement of this compound are less difficult and the methods less tedious than those pertaining to the other so-called "acetone bodies," as this group is sometimes collectively called. Yet there can be little doubt that the key to the situation is really to be found in the presence or production of beta-oxybutyric acid which in good measure governs the subsequent appearance of acetone and diacetic acid. In the development of ketonuria, acetone is the first of the three related compounds to appear. When from 0.4 to 0.5 gm. of acetone is present in the day's urine diacetic acid may be found; but beta-oxybutyric acid does not usually become evident until the amount of acetone exceeds 1 gm. After this the chief increase is in the beta-oxybutyric acid, which often amounts to from 30 to 80 gm., whereas the diacetic acid and acetone rarely exceed from 7 to 8 gm.

The presence of considerable amounts of the "acetone bodies" in the urine foreshadows an impending coma and is a familiar symptom in the severer forms of diabetes. It is therefore a matter of no small moment to know where and to what extent these harmful products may accumulate in the body. Beta-oxybutyric acid has been reported to occur in the blood and various organs of patients dying in diabetic coma, figures as high as 0.4 per cent. being reported for the blood. With improved methods of analysis Sassa[1] has observed that the blood and organs of man and various animals in health normally yield traces of beta-oxybutyric acid. The distribution of the compound throughout the parts of the body is fairly uniform and the content in the organs is expressed by quantities of the magnitude of from 0.01 to 0.02 per cent. In experimental diabetic conditions there may be a decided increase in the amounts found in the tissues; yet the proportions retained in the body at any moment are at best small in comparison with those eliminated by the kidneys in the urine. On the other hand, the organs obtained from a patient who died in diabetic coma showed a decidedly increased accumulation of beta-oxybutyric acid in the organism, amounting to eight times the usual "normal" figures. The liver was found to be particularly rich in the acid.

It does not follow from this, however, that the liver necessarily is the seat of formation of the beta-oxybutyric acid; for it is likewise conceivable that the latter is promptly carried to the liver from all parts of the body. Indeed, the distribution of beta-oxybutyric acid in many tissues rather favors the view that the capacity of forming it belongs to the general properties of all tissue-cells. The new facts regarding the actual extent to which such a compound can fail of further metabolism or elimination and thus remain as a menace to the organism which produces it, are in harmony with the serious consequences properly ascribed to the condition attended by severe ketonuria.

INDUSTRIAL INSURANCE

The Journal has called attention to the development of industrial insurance in England, Germany, Norway and other European countries. Especial attention has been given to the experiment now going on in England, following the passage of Lloyd-George's industrial-insurance bill two years ago, by which, at one stroke, fourteen million working men and women, many of whom were unable to pay for medical services under the old plan, were taken out of the field of private practice and were provided with these services, largely at the expense of the state. In Germany, governmental industrial insurance has been in force for a number of years and its scope has been gradually enlarged, until, in some districts, 95 per cent. of the people are said to be affected by its operations. The Journal has repeatedly expressed the opinion that sooner or later in this country this question will become a matter of vital interest to the public and to the medical profession.

This impression is borne out by a paper on industrial insurance by Dr. J. W. Schereschewsky of the United States Public Health Service, read before the National Association for the Study and Prevention of Tuberculosis.[1] Dr. Schereschewsky's article, although short, should be read by those interested in this subject, and this should include all physicians. Considering the social and evolutionary phases of the question rather than the practical and administrative side, Dr. Schereschewsky finds the explanation for the development of industrial insurance in the gradual growth of appreciation of the consequence to and the interdependence on each other of the individual members of society. "The bitter lessons taught by the ravages of devastating epidemics, the concentration of population in cities, the high degree of specialization in manufactures and similar conditions have all increasingly emphasized man's dependence upon his fellow and shown us how properly to assess the value of the individual unit to society at large." The efficiency of the social unit is conditioned more by the physical status of the individual than by any other one factor. Inefficiency due to ill health constitutes a burden to be borne by the whole of society rather than by the individual. This is the addition to our social concept which may really be regarded as a new discovery. The sickness and disability of the individual is not a burden which should be borne by the individual alone, but is rather a liability for which society, as a whole, is responsible and which should be borne by it, unless the causes for such disability are plainly the fault of the individual. Industrial insurance is the method by which the burden of physical disability is equitably distributed. In this field, as in all others in which it is possible to ascertain the aggregate result of a limited set of causes, it is inevitable that efforts at prevention should at once be inaugurated. Consequently, as soon as any system of industrial insurance has been in operation long enough to acquire definite data as to the cause of disease, it is inevitable that systematic efforts for the prevention of disease will follow, just as systematic efforts for fire prevention have followed the development of fire insurance. This involves, as Dr. Schereschewsky points out, the detection of incipient defects and diseases among workers and the prevention of the development of diseased conditions by proper precautionary measures. This can be secured only by frequent periodical examination of employees and frequent inspection of their environment. Not only bad shop conditions but the total environment of the worker must be included. This means that the unhygienic home as well as the unhygienic workshop must be found, recognized and corrected, and the entire surroundings of the individual subjected to careful scrutiny. The inauguration of such a system, no matter on what basis or exactly at what point the dividing line would be drawn between the insured and the uninsured, would result in the establishment and maintenance of suitable hygienic standards of living for all classes. Enormous economic gains would result through the reduction in the loss of working-time, the saving in expenses for medical attendance, nursing, drugs, etc., and the largely increased wage-earning capacity through increased efficiency.

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[1] Sassa, R.: Ueber den Oxybuttersäuregehalt der Organe normaler und diabetischer Individuen, Biochem. Ztschr., 1914, lix, 362.

[1] Schereschewsky, J. W.: Industrial Insurance: Medical Examination of Employees and Prevention of Sickness Its Proper Foundation, Public Health Reports, June 5, 1914, p. 1417.

Labor unions and workingmen are coming to realize more and more that sound physical health is the only capital which the laborer possesses, and the belief is growing that it is as much the duty of the state to protect and conserve the capital of the laborer as it is to protect the capital of the employer. When labor unions fully realize the importance of this fact, the workingmen of the country will demand that the state take suitable measures for the protection of their health.

Current Comment

SAN FRANCISCO IN 1915

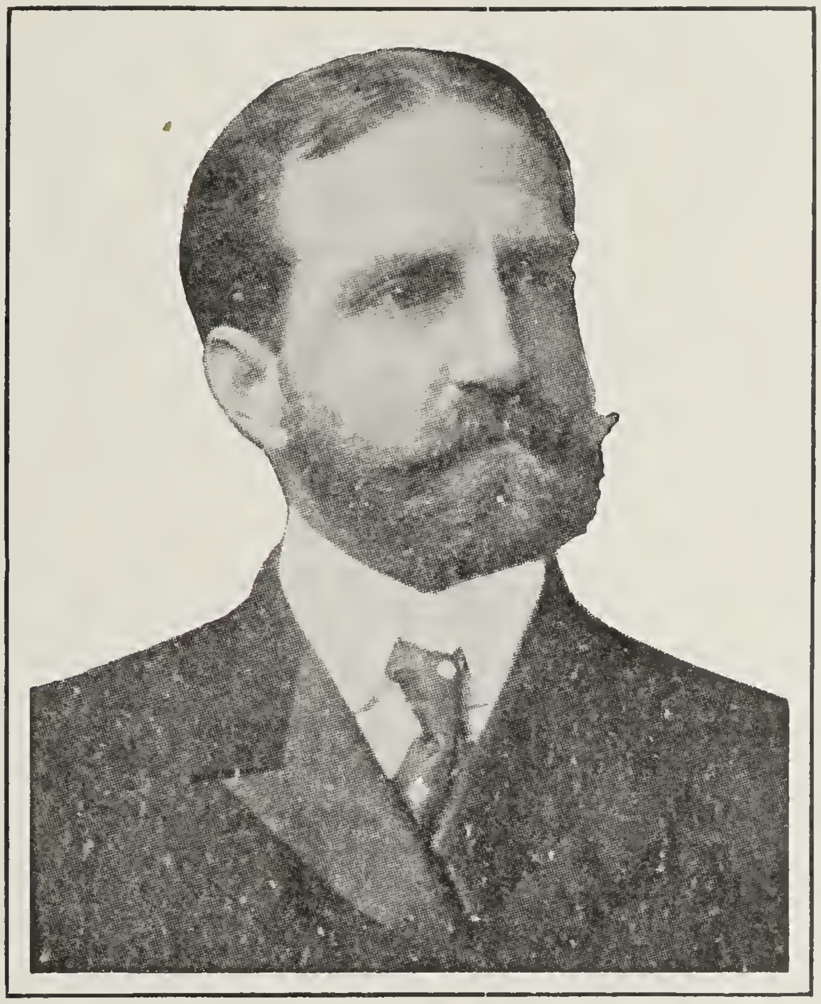
The American Medical Association will hold its next annual session in San Francisco. While the selection of the meeting-place of the Association is always a matter of importance, there is a peculiar appropriateness in meeting next year in connection with the great exposition which is to celebrate the completion of the Panama Canal. While many other organizations and societies will doubtless hold their meetings in San Francisco or its vicinity during 1915, none of them is so directly connected with the exposition and the achievement which it celebrates. Great as were the achievements of the engineers and administrators in rendering possible the completion of the canal, the decisive factor which made its construction possible was the control and practical extermination of infectious diseases. This is the only essential factor in the problem which the French engineers under de Lesseps were unable to master and which the United States under Goethals and Gorgas were able to carry to triumphant solution. The French were not lacking in engineering skill or administrative ability. They had ample equipment, splendid machinery and carefully laid plans, as well as personal determination and endurance; but their laborers died from tropical diseases faster than they could be brought in and set to work. The price exacted in human lives was too great to be paid. In the years which intervened between the collapse of the French efforts and the occupation of the Canal Zone by the United States, much progress had been made in our knowledge of preventable diseases. This, however, would have been of little use had not the Army and Navy Medical Services and the United States Public Health Service been able to furnish trained men who were able to apply the newly acquired knowledge in a practical way and to render this tropical jungle a more healthful place of residence and labor than any of our large American cities. The canal has not merely been completed; it has been completed with a smaller toll of lives than would probably have been exacted from any similar undertaking within our own boundaries, but under different sanitary supervision. When the American Medical Association meets in San Francisco, it can with perfect truth say to the country and the world, "We have a right to meet at this time and in this place because we represent the profession which made possible the construction of the canal which this exposition commemorates." As a commercial undertaking, the Isthmian Canal will doubtless be worth many times over the $300,000,000 which it was estimated that it would cost;

but as a triumphant demonstration of the possibility of modern sanitation it is worth far more than any value which mere money can express. The San Francisco exposition will be a celebration of the most striking achievement of scientific medicine quite as much as a recognition of the successful completion of the greatest engineering undertaking ever conceived.

THE NATURE OF THE CIRCULATORY COLLAPSE IN DIPHTHERIA INTOXICATION

The failure of the circulation, which is a characteristic symptom of the terminal stages of certain infectious diseases and other fatal intoxications, has been ascribed to various factors. The haphazard diagnosis of "heart failure" is no longer permissible in all of the familiar instances of collapse in these cases. There are narcotic poisons which appear to act vigorously and directly on the vasomotor center, leading to extreme depression at a time when the heart itself still seems to be functioning satisfactorily and the respiratory center is still irritable and responsive. Corresponding to this, the circulatory disturbance in certain acute-infectious diseases has been believed to illustrate a typical paralysis of the vasomotor center in the medulla oblongata, the heart not appearing to be the weakened link in the chain of circulatory agencies. Experimental infections with the organisms of pneumonia and diphtheria, as well as with cultures of *Bacillus pyocyaneus,* and likewise experimental septic peritonitis, are attended by symptoms which expert observers have declared to be unlike the phenomena of typical purely cardiac weakness in man. The conclusions reached from the investigation of the results of these induced diseases in animals have been transferred to the conditions believed to obtain in cases of related etiology in man.[1] At the laboratory of comparative physiology in the Harvard Medical School, Boston, Drs. Porter and Pratt[2] have examined the nature of the evidence relating to the failure of the circulation in acute infectious diseases, using diphtheria intoxication as the illustrative type. They find that the testimony is essentially negative; that is, the opinion that the vasomotor center is gravely affected or "paralyzed" is based on the failure of most previous observers to obtain any rise in blood-pressure in asphyxia, on stimulation of the nasal mucous membrane or of the sciatic nerve — all procedures which commonly lead to a prompt and unmistakable response through the intermediation of the bulbar vasomotor center. A renewed experimental examination of such responses in animals severely affected by the administration of diphtheria toxin has brought conclusive evidence to the Harvard investigators against the hypothesis that the center is "paralyzed" in diphtheria intoxication even of the severest fatal type. The vasomotor center is not impaired and the cause of the severe collapse in diphtheria must therefore be sought in other factors.

THE PRESIDENT-ELECT


President-Elect William L. Rodman

In electing Dr. William Louis Rodman President-Elect, the House of Delegates of the American Medical Association has honored an eminent member of the profession, who is widely and favorably known as a surgeon and as a medical teacher. Dr. Rodman was born in Frankfort, Ky., Sept. 7, 1858. His preliminary education was obtained at the Kentucky Military Institute, from which institution he received the degree of Master of Arts. His medical degree was obtained from Jefferson Medical College in 1879, in the hospital of which institution he served as an intern in 1879 and 1880. In 1880 he entered the Medical Corps of the United States Army and was stationed at Fort Sill, Indian Territory, where he served for nearly two years. From 1882 to 1884 he was engaged in practice in Abilene, Texas. He then moved to Louisville, Ky., where he was appointed a demonstrator and clinical assistant in surgery in the University of Louisville, Medical Department. In 1893, he became professor of surgery in the Kentucky School of Medicine, and in 1898 he accepted the chair of surgery in the Medico-Chirurgical College, Philadelphia. Dr. Rodman was Chairman of the Section on Surgery of the American Medical Association in 1897 and in 1900 delivered the Oration on Surgery. He served the Association as Trustee for a term of three years, beginning in 1900, and was for a number of years the chairman of the Committee on Reciprocity until this work was turned over to the Council on Medical Education. Dr. Rodman has contributed largely to surgical literature. Among these articles, his monograph on "Diseases of the Mammary Gland" deserves special mention.

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[1] Gottlieb, R., and Meyer, H. H.: Experimentelle Pharmakologie, p. 280.

[2] Porter, W. T., and Pratt, J. H.: The State of the Vasomotor Center in Diphtheria Intoxication, Am. Jour. Physiol., 1914, xxxiii, 431.

BUBONIC PLAGUE APPEARS IN NEW ORLEANS

As announced in our news columns, bubonic plague has invaded New Orleans. Two cases have been found in the Industrial Home of the Volunteers of America, one death resulting, the post-mortem confirming the diagnosis. Thanks to the ceaseless vigilance of the quarantine officers of the United States Public Health Service, this is but the second instance in which this dread disease has gained a foothold on American soil in the last twenty years, during which time it has made one of its periodic and mysterious circuits of the globe. The four world-wide epidemics of bubonic plague in previous centuries, while carrying unprecedented death and disaster to the human race, did not touch the North American continent, at that time unsettled by civilized men and cut off from communication with the outside world. The announcement of bubonic plague within our borders, if made ten years ago, would have caused consternation and panic throughout the country, while one hundred or three hundred years ago, the disease would probably have been unrecognized and would have smoldered in its characteristic fashion until a large number of cases and many centers of infection had developed. To-day through the knowledge given us by scientific medicine, we know the cause, the method of transmission and the necessary measures for controlling this dread "black death" of history. Knowledge alone, however, will never save. The knowledge must be applied promptly and energetically. No time must be lost in stamping out the infection, which in the case of bubonic plague, is transmitted by rats and fleas. The prompt action of the authorities in New Orleans is in gratifying contrast to the inactivity, delay and evasion of the responsible officials in San Francisco under similar circumstances ten years ago. There has been no hesitation, no attempt to suppress the facts, no "indignation" over the announcement that the health of the city was in danger. New Orleans has learned by years of bitter experience with yellow fever that temporizing and denial always give disease more time to develop. The local health officers promptly recognized the disease. The state health authorities were immediately notified and took action at once. Before the facts had had time to appear in the daily press, the United States Public Health Service had been called on for assistance. Surgeon-General Blue and Surgeon Creel are now in charge of the situation. Wide experience gained in fighting this disease in Honolulu and San Francisco has given General Blue a training for this task possessed by few, if any, other sanitarians, while Surgeon Creel's masterly work in Porto Rico, in controlling the plague on that island, is well known.[1] Swift, decisive and effective action is necessary on the part of local, state and national health officers. The immediate cooperation of the general public and especially of all railroad, transportation and local officials is also necessary. Ports reached by shipping must be watched to prevent landing of the rodents responsible for spreading the disease. It is impossible to state at present the extent of the infection or the number of hidden cases, but we may rest assured that the fight will be waged with the aid of all the weapons of modern science, and that all necessary funds will be promptly provided. Some one has said that the first yellow fever patient always dies, so also with bubonic plague. A characteristic of this disease is that it smolders unrecognized and suddenly breaks out, apparently from a number of different centers of infection. The discovery of two cases in New Orleans indicates that there are other persons infected, and we may look for the report of additional cases in the course of the next week. The country is to be congratulated on the fact that New Orleans and Louisiana have in this emergency wide awake and energetic health officers who have lost no time in acting.

ATLANTIC CITY SESSION

The annual session of the Association held last week at Atlantic City was a most successful one, both in attendance and in work accomplished. The attendance was larger than at any previous session in Atlantic City. A summary of the registration appears on another page. The activities of the Association were reflected in the work of the House of Delegates and its committees. The proceedings of the House, a report of which appears in this issue, shows well the variety and extent of the activities of the Association. The House of Delegates gave earnest study to the various problems that came before it, and a number of important measures were considered and wisely determined. The work of the Scientific Assembly — that is, of the various sections — was unusually good, the programs were excellent and not a few contributions of great value were presented. The Commercial Exhibit was most creditable, and many spoke of the contrast between this Commercial Exhibit of to-day and that of ten years ago. The Scientific Exhibit was a commanding feature, and the interest shown in it evidenced not only the excellence of the work displayed, but also the practical value to the profession and its interest in scientific research. The social events were well planned and contributed largely to the pleasure and profit of the meeting. The ladies were especially well cared for, and with one accord expressed their appreciation of Atlantic City's delightful hospitality. The members of the local profession were untiring in their efforts to make the meeting one of comfort, as well as of pleasure, and they are to be congratulated on their management of this best-attended meeting the Association has held in that city.

PROGRESS IN THE KITCHEN

The fact that a thing has always been done in a certain way — the mere precedent — limits originality and halts progress. For example: In a recent issue of the *Survey* the question why kitchen sinks have been made so low was discussed. No one seemed able to explain. Finally a certain maker discovered that the original sinks were made when the washing of dishes and other sink-work was done in wooden tubs with high sides. Such a tub when used in a high sink came up too far, so the sink was made low. Furthermore, as running water and fixed faucets had not long been made, the tub had to be lifted out of the sink, and the lower the sink the lighter the lift. Though improvements in faucets, dish-pans and other accessories of kitchen sinks have been made, no one has seemed to realize that the sink could be improved by raising. So women were — and are — compelled to endure discomfort when doing their ordinary household work. There may be a certain percentage of inconvenience to be reached before the human mind grasps the fact that something must be altered. The wise inventor attains a reputation for brilliancy by making his invention before the need becomes obvious to others.

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[1] Creel, R. H.: Plague Eradication in Porto Rico, The Journal A. M. A., May 17, 1913, p. 1527.

Medical News

CONNECTICUT

New Officers.—Willimantic City Medical Society, June 3: president, Dr. Laura H. Hills; secretary-treasurer, Dr. Charles A. Jenkins.——Litchfield County Medical Society, one hundred and fiftieth annual meeting at Norfolk, June 12: president, Dr. Elias Pratt, Torrington; secretary, Dr. Charles H. Turkington, Litchfield. Dr. Frederick S. Dennis, New York City, made an address on "Retrospective Surgery," and Dr. William H. Welch, Baltimore, one on "Retrospective Medicine." Dr. John C. Kendall, Norfolk, in his address, traced the growth of the society since its inception, 150 years ago.

ILLINOIS

Psychopathic Hospital Opened.—The newly completed Cook County Psychopathic Hospital, which replaces the old Detention Hospital, was opened June 26. The new institution has accommodations for three hundred patients, and was erected at a cost of $470,000. County Physician Haim I. Davis will be in charge of the hospital. On June 28, thirty patients were transferred from the temporary quarters in the old College of Physicians and Surgeons building to the new hospital.

Chicago

Fresh-Air Tents for Sick Babies.—Sick babies are finding refuge and medical care in the fresh-air tents of the Elizabeth McCormick Memorial fund. Several tents are already established in the poorer districts of the city. For thirty years, up to the year 1910, there was an average of 743 deaths among the infants under the age of 1 year just during the month of July and 635 during the month of August. The low month was November, with an average of 270.

Summer Outings for Poor Children.—Nearly 1,000 poor Chicago children will have been sent to camps and country towns by the United Charities during the ten day period from June 27 to July 7. It is reported that in the five days ending July 1, 365 mothers and children were sent to various camps. Sixty-five tuberculous children were sent to a special camp on Hickory Creek, near Cherry Hill and Joliet. Only $4,000 of the $20,000 needed has been subscribed for the work, according to D. R. Forgan, treasurer of the United Charities. Citizens are being urged to send in contributions.

IOWA

Personal.—Dr. Alice M. Clark, McGregor, has been appointed local surgeon for the Chicago, Milwaukee and St. Paul Railway.——Dr. Robert Stewart, assistant superintendent of the Mt. Pleasant State Hospital for two years, has resigned to take the position of first assistant surgeon in the sanitarium in Wauwatosa, Wis.——Dr. William P. Crumpacker, Independence, has been reappointed superintendent of the Independence State Hospital.

Epileptic Colony.—It has been finally decided that the State Epileptic Colony will be established on a 1,000-acre tract of land on the interurban line, near Woodward. The cottage construction plan is to be used, each building to be three stories high, of brick and tile construction and to accommodate fifty patients and their caretakers. Several of these cottages are to be arranged in a semicircle, an administration building overlooking them, a central heating station being located in the rear.

NEBRASKA

Northwestern Physicians Organize.—On June 6, physicians from twenty counties met with the Cherry County Medical Society at Wood Lake and organized the Northwestern Nebraska Medical Society. Dr. James M. Tische, Wood Lake, president of the Cherry County Medical Society, entertained the visiting physicians at the Wood Lake Hotel, and also acted as chairman of the meeting. Preliminary steps toward the formation of the society were taken, but the formal organization was postponed until a meeting to be held at Long Pine, July 23. Dr. Walter S. Gates, Kilgore, acted as temporary secretary of the meeting.

MARYLAND

Corner-Stone Laid.—The corner-stone of the John Hubner Psychiatric Hospital, which Maryland is erecting for the care and treatment of acute cases of insanity, was laid June 25. Dr. William A. White, superintendent of the Government Hospital for the Insane at Washington, delivered the address entitled "The New Ideal." Dr. J. Clement Clark, Sykesville, the superintendent, presided at the exercises.

Increase of Tuberculosis Nurses for Baltimore.—A large increase in the number of tuberculosis nurses is under consideration by Health Commissioner Nathan R. Gorter in connection with the reorganization of the department recommended by the United States Public Health Service. There are now seventeen nurses including the chief of the division. It is stated that the force will be increased to thirty-six in the near future. The seventeen nurses now have nearly 4,000 patients under their care. More than 7,000 visits to homes were made during May.

Report of Johns Hopkins Hospital.—The report of Dr. Winford H. Smith, superintendent of the Johns Hopkins Hospital, for the year ended Jan. 31, 1914, shows an increase in the number of patients and a steady gain in usefulness, efficiency and economy. Within the year the Henry Phipps Psychiatric Clinic was opened. Another important event of the past year was the award of the contract and the beginning of the work on the James Buchanan Brady Urological Clinic. The building is to be six stories high and to have accommodations for forty public and twenty private patients. It is expected that the clinic will be open in October. Dr. Smith further stated that the greatest need of the hospital at the present time is a fund which will enable them to run the Harriet Lane Home for Invalid Children to its full capacity of one hundred. At present only thirty-five children can be treated.

MASSACHUSETTS

State Society Meeting.—The one hundred and thirty-third annual meeting of the Massachusetts Medical Society was held June 9 and 10 at the Copley-Plaza Hotel, Boston, and at the Massachusetts General Hospital. Nearly one thousand members and guests were present at the annual dinner at the Copley-Plaza Hotel, at which Dr. Walter P. Bowers, Clinton, retiring president, was toastmaster. The following officers were elected: president-elect, Dr. Charles F. Withington, Boston; vice-president, Dr. Samuel B. Woodward, Worcester; secretary, Dr. Walter L. Burrage, Boston (reelected); treasurer, Dr. Edward M. Buckingham, Boston (reelected); librarian, Dr. Edward H. Bingham, Brookline (reelected), and orator, Dr. Everett A. Bates, Springfield.

Personal.—Dr. John D. Adams, Boston, surgeon-in-chief of the orthopedic department of the Boston Dispensary, has gone to Labrador, where he will perform operations in his speciality at the Grenfell Mission Hospital.——Dr. Frederic M. Briggs has been elected professor of surgery emeritus in Tufts College Medical and Dental School, Boston.——Dr. George B. Magrath, Boston, has been reelected president of the Boston Medico-Legal Society.——Dr. Harold A. Gale, Winchester, has been appointed medical director of the Milk and Baby Hygiene Association.——Dr. William V. McDermott and the other two members of the Salem Board of Health have been summarily removed by the public health director, it is said, because they refused to cooperate with him in attempting to save money in the department.

MICHIGAN

State Health Train.—The Board of Health and Dairy and Food Commission have completed their tentative plans for the tour of the state health train which will leave Lansing, August 2, and will end its tour at Brimley, August 29; after which it will be transferred to Grand Rapids for the week of the state fair.

Personal.—Dr. William H. Price has been reappointed city health officer of Detroit.——Dr. Robert LeBaron, Pontiac, has been appointed medical examiner of the G. A. R. of Michigan.——Dr. and Mrs. Collins H. Johnston and daughters, Grand Rapids, sailed for Europe, June 27.——Dr. Ross V. Adams, Kalamazoo, left for England, June 14.——Dr. Enos C. Kinsman, Saginaw, has been appointed a member of the State Board of Registration in Medicine, vice Dr. Bret Nottingham, deceased.——Dr. Archibald D. McAlpine has been appointed assistant police surgeon of Detroit.

NEVADA

New Appointments.—Dr. Delos A. Turner, Goldfield, has been appointed chief surgeon of the Tonopah and Goldfield Railway Company and of the Goldfield Mining and Operating Company, vice Dr. Eugene A. Wheeler, deceased.

NEW YORK

New Drug Law.—The recently adopted act to amend the public health law of the state in relation to the sale of habit-forming drugs becomes effective on July 1, 1914, and physicians are advised that it is important to make immediate application to the Secretary of the State Board of Health for a supply of medical order blanks for the purpose of providing themselves with morphin, codein, heroin, cocain, etc. It is reported at the same time that the legislature has failed to make an appropriation for the purpose of having the blanks printed.

New York City

Personal.—Dr. Josephine Walter has recently been appointed consulting physician of the medical department of the New York Infirmary for Women and Children and trustees of the same institution. In appreciation of her faithful service and as a token of the high esteem in which Dr. Walter is held, her associates recently presented her with a silver loving-cup.——Dr. William H. Morrison has resigned as a member of the Board of Inebriety.

Baby Hospitals Prepared to Work.—St. Christopher's Hospital, the only infant hospital in the Borough of Brooklyn, which now accommodates forty babies, has purchased land adjoining the institution, on which it is planned to erect an additional building. The institution asks for $150,000 for the building and a like amount for endowment. The Sea Side Hospital of St. John's Guild at New Dorp, Staten Island, began its summer work on June 26. Last summer the floating hospital belonging to this institution carried 28,000 mothers and babies and it is prepared to do even a greater work this year.

The Foreign-Born Population and the Tuberculosis Problem.—Dr. Walter Rathbun, physician in charge of the Otisville Sanatorium, in a recent paper calls attention to the fact that out of 1,197,892 immigrants admitted to this country at Ellis Island during the year 1913, only thirty-eight were debarred on account of having tuberculosis. This represents but a small fraction of the immigrants actually tuberculous. The hospital and sanatorium figures tell a very different story. At the Bedford Hills Sanatorium 84 per cent. of the patients are foreign born and most of them aliens; at the Metropolitan Hospital 51 per cent. are foreign born and 25 per cent. of these are aliens; at the Riverside Hospital, 45 per cent., at Otisville, 42 per cent., and at the Seton Hospital 39 per cent. are foreign born. As the population of New York City includes 40 per cent. of foreign-born people, the proportion of foreign-born patients in these institutions is considerably more than it should be. Dr. Rathbun suggests that the federal government should appoint a committee to investigate this situation and to outline a more thorough system of examination.

Wood Alcohol as an Adulterant.—New York has a strict sanitary code relative to the sale of wood alcohol or preparations containing this drug, either for internal or external use, but New Jersey has more lax laws and consequently many manufacturers in New York make two kinds of preparations, one for sale in New York City and not containing wood alcohol, and another containing this adulterant, for sale in New Jersey. Even the labeling of the preparation as required by the sanitary code does not protect the patron of the barbershop from toilet preparations containing wood alcohol. Since July 1, 1913, the Department of Health has examined 233 toilet preparations intended for external use and the label did not state the presence of wood alcohol in any of the specimens found to contain that adulterant. Of 158 specimens of bay rum examined 61 contained wood alcohol, of 33 specimens of hair tonic 14 contained wood alcohol, of 220 samples of toilet water 11 were found to contain wood alcohol, and of 19 specimens of witch hazel 2 contained it. More drastic legislation designed to prohibit the use of wood alcohol in preparations for external use is now under consideration.

Bureau of Public Health Education.—The Board of Estimate and Apportionment and the Board of Aldermen have approved the proposal of the Commissioner of Health to establish a Bureau of Public Health Education. Dr. Charles F. Bolduan, formerly assistant to the general medical officer of the Department of Health, has been directed to organize a Division of Public Health Education and has been made temporary chief of the division. Among the proposed functions of the bureau are the following: To prepare and publish popular leaflets of public health; to issue press bulletins; to edit the publications of the department; to organize and direct public health lectures, both independently and in connection with existing educational, social, medical and civic agencies; to prepare traveling exhibits on various phases of public health; to prepare and exhibit moving-picture films dealing with the public health; to administer the library of the Department of Health and conduct a journal for study by the department officials; to assist in the organization of a school of sanitary science or in the preparation of practical courses on public health in conjunction with medical schools and colleges, and to inaugurate lecture and study courses within the department for the training of workers.

NORTH CAROLINA

Health Officers' Meeting.—The fourth annual meeting of the North Carolina Health Officers' Association was held in Raleigh, June 15. Dr. William M. Jones, Greensboro, was elected president; and Watson S. Rankin, Raleigh, secretary-treasurer (reelected).

Colored Physicians of State Hold Meeting.—The North Carolina Medical, Dental and Pharmaceutical Association held its twenty-fifth annual session in Winston-Salem, June 18 and 19. The following officers were elected: president, Dr. John W. Jones, Winston-Salem; and seceretary-treasurer, Dr. Allen A. Wyche, Charlotte.

New Officers for State Society.—The sixty-first annual meeting of the Medical Society of the State of North Carolina was held at Raleigh, June 16-18, under the presidency of Dr. James M. Parrott, Kinston. Greensboro was selected as the next place of meeting. The following officers were elected: president, Dr. Lewis B. McBrayer; secretary, Dr. John A. Ferrell, Raleigh, (reelected); delegates to the American Medical Association: Drs. John A. Ferrell, Raleigh, and Isaac H. Manning, Chapel Hill; and alternates, Drs. Addison G. Brenizer, Jr., Charlotte, and David T. Tayloe, Washington.

New Members of State Board.—The Medical Society of the State of North Carolina at its recent meeting, elected the following seven members to constitute the State Board of Medical Examiners for the ensuing term of six years: Drs. John Myers, Charlotte; Hubert A. Royster, Raleigh; Isaac M. Taylor, Morgantown; Jacob F. Highsmith, Fayetteville; Martin L. Stevens, Asheville; John G. Blunt, Washington, and Charles T. Harper, Wilmington. The board met for organization June 18, electing Dr. Jacob F. Highsmith, Fayetteville, chairman, and Dr. Hubert A. Royster, Raleigh, secretary.

School for Feeble-Minded Open.—The North Carolina State School for Feeble-Minded opened at Kinston, N. C., July 1 with Dr. C. Banks McNairy formerly of Lenoir, N. C., as director. It is expected to establish in connection with the school a psychologic clinic where children below the average mentality may be carried for expert observation with a view to affording the best facilities for the development of whatever individual capacity may be present. In addition it is hoped to aid in the segregation and protection of young girls of defective type during the years of their lives when they are liable to be most exposed to danger.

PENNSYLVANIA

Personal.—Dr. J. C. Wallace Wallin, director of the psycho-educational clinic in the University of Pittsburgh, has resigned to take up similar duties for the St. Louis public schools.——Dr. Charles E. Thompson, Scranton, had conferred on him the degree of M.A. by St. Thomas' College, Scranton, at its annual commencement exercises, June 16.

Fellowship in Medicine Endowed.—Richard Beatty Mellon, Pittsburgh, has endowed a fellowship in internal medicine in the School of Medicine of the University of Pittsburgh. The fellow is to be a resident of a Pittsburgh hospital, and will work directly under the professor of medicine. Mr. Mellon has also provided funds for the erection and maintenance of an electrocardiographic apparatus.

Tuberculosis Notes.—The campaign of the Berks County Tuberculosis Society for its sanatorium at Neversink Mountain has resulted in contributions of more than $8,000 for the maintenance fund.——On Tuberculosis Day at Reading nearly $7,000 was collected.——The hours of the State Tuberculosis Dispensary at Wilkes-Barre have been changed from the afternoon to 10 to 12 in the morning.——Plans have been approved for the new wing to be erected east of the Cresson Sanatorium building to cost $300,000. The institution now cares for 350 patients.

Faculty News from Pittsburgh.—Associate Professor Ralph Edward Sheldon has been promoted to the full professorship in anatomy in the School of Medicine of Pittsburgh, and has been placed in charge of that department.——Dr. Davenport Hooker of Yale Medical School has been appointed assistant professor of histology and neurology.——Dr. Oscar Klotz, professor of pathology, bacteriology and hygiene, is spending the summer in Marburg, Germany.——Dr. James D. Heard, professor of medicine, has sailed for Europe in the interests of the newly endowed fellowship in internal medicine.

Tablet for Dr. Lemoyne.—At the one hundred and thirteenth annual commencement of Washington and Jefferson College, June 24, a tablet to the memory of the late Dr. Francis Julius Lemoyne, a graduate and for many years a trustee of that college and a graduate of the medical department of the University of Pennsylvania, was presented by the Cremation Association of America, in honor of the fact that Dr. Lemoyne was the founder of cremation in America, having built the first crematory forty years ago. On behalf of the University of Pennsylvania, Dr. Robert S. Stewart, Washington, D. C., made an address.

Philadelphia

Forty Years in Practice.—Dr. E. E. Montgomery celebrated his fortieth year of practice of medicine by entertaining the class of 1874 of Jefferson Medical College at the University Club, June 26.

Banquet for Archbishop.—The staff of St. Vincent's Maternity Home and Hospital gave a dinner at the Bellevue-Stratford Hotel, June 2, in honor of Archbishop Prendergast and the board of trustees.

Hospital Dedicated.—The Jewish Maternity Hospital at 532-534 Spruce Street was formally dedicated, June 10. Edward Brylawski delivered the presidential address, and the response was made by Millard Merz, representing the board of directors.

Personal.—Dr. Thomas B. Holloway has succeeded Dr. James Thorington as professor of ophthalmology, Dr. Charles R. Reed has been elected associate professor of ophthalmology, and Dr. George S. Crampton lecturer on refraction in the Polyclinic Hospital.

Physicians Adopt Automobile Emblem.—The Aesculapian Club has announced that its members will have placed on their automobiles an insignia of a serpent twined on a rod, this emblem to be placed on a keystone, enclosed in a circle, on which are the words "Aesculapian" and "Philadelphia."

Relics for College.—David Lewis has announced his intention of presenting the College of Physicians with two relics of the late Dr. Philip Syng Physic, son of Dr. Philip Physic, keeper of the Great Seal under William Penn. These relics consist of the steel plate of Dr. Physic's visiting card and data concerning an unknown portrait in the college.

Coroner's Report.—According to the annual report of the coroner, there were 280 cases of suicide in the city during the year 1913. Of this number, 160 cases were the result of poisoning, 56 by shooting, 26 by hanging, 11 by jumping from high places and 3 by drowning. There were also 99 homicide cases. There were 3,879 inquests held, an increase of 24 over 1912.

First Health Center Opened.—An experiment in child saving was started, June 22, by the Child Federation Health Center, at Twelfth and Carpenter Streets. A preliminary survey of a restricted area was made and 157 children under 6 years of age, belonging to 377 families were found. The Child Federation has pledged itself to be responsible for the health of every one of these. The center has been established in a new house thoroughly equipped from basement to top floor with every facility needed. It is in charge of Dr. Charles V. Dorwarth. There are also physicians, nurses, interpreters, social workers and an office force. The building is fitted up on the first floor with offices and examining rooms. The second floor is reserved for registration and the third floor for living quarters for the housekeeper. The roof garden for mothers with their babies is supplied with awnings and comfortable seats and may be used later, as an open-air sleeping place for sick babies. The entire population of the selected area is Italian. The center will be opened every day from 9 until 5 and will be free to the women and children of that district.

TENNESSEE

Personal.—Dr. Richard B. Maury has been elected head of the Recreation Board of Memphis.——Dr. G. Manning Ellis, Chattanooga, sailed for Europe, June 13.

New Hospital.—A hospital has been established in Clinton by Drs. Samuel B. Hall and J. O. Woods. The hospital is located in the Hall building, which has been remodeled and thoroughly equipped.

Sanatorium Needs Money.—The trustees of the Chattanooga Tuberculosis Sanatorium at Pine Breeze on Walton Ridge have appealed to the Board of Commissioners for $5,000 to liquidate operating expenses.

Eve Infirmary to Close.—Drs. Duncan and Paul F. Eve, Nashville, announce that they will dissolve partnership and close the Eve Infirmary on October 1. Dr. Paul F. Eve will continue in private practice, and Dr. Duncan Eve, Jr., will join his father in practice. The patients at present in the institution will be removed temporarily to the Douglas Infirmary.

TEXAS

Banquet to State President.—A banquet was given under the auspices of the Tarrant County Medical Society to Dr. Frank D. Boyd, Fort Worth, new president of the State Medical Association of Texas, at the Westbrook, Fort Worth. Dr. S. A. Woodward, president of the Tarrant County Medical Society, officiated as toastmaster.

Bats Must Not be Killed.—An ordinance recommended by the Board of Health and various San Antonio medical societies, which had its origin with Dr. Charles A. R. Campbell, San Antonio, makes it a misdemeanor to kill bats within the city limits of San Antonio. Bats, it is declared, are valuable as scavengers and as eradicators of malaria, since they are destroyers of mosquitoes.

GENERAL

Anesthetists Elect Officers.—The second annual meeting of the American Association of Anesthetists was held in Atlantic City, June 2, and the following officers were elected: president, Dr. Charles K. Teter, Cleveland; and secretary-treasurer, Dr. James Gwathmey, New York City.

Students of Feeble-Minded Meet.—The thirty-eighth annual meeting of the American Association for the Study of the Feeble-Minded was held in Columbus, Ohio, June 18. Dr. H. H. Goddard, Vineland, N. J., was elected president and Mr. A. C. Rogers, Faribault, Minn., secretary-treasurer (reelected).

Fraternal Examiners Elect Officers.—At the triennial meeting of the Association of State Medical Examiners of the Modern Woodmen of America, held in Toledo, June 18, Dr. John H. Conway, Cheyenne, Wyo., was elected president; Dr. L. Weatherspoon, Louisville, secretary; and Dr. Frank A. Greedy, Denver, Colo., treasurer.

Medical Milk Commissioners Elect Officers.—The annual meeting of the American Association of Medical Milk Commissioners was held in Rochester, N. Y., June 19. San Francisco was selected as the next place of meeting. Dr. Thomas C. McCleave, Berkeley, Cal., was elected president, and Dr. Julius P. Sedgwick, Minneapolis, treasurer.

Baltimore and Ohio Surgeons' Meeting.—At the annual meeting of the Baltimore and Ohio Association of Railway Surgeons, held in Washington, D. C., last week, the following officers were elected: president, Dr. Page Edmunds, Baltimore; secretary-treasurer, Dr. C. E. Johnson. San Francisco was selected as the next place of meeting.

Urologists Elect.—At the annual meeting of the American Urological Association, held in Philadelphia, June 18 and 19, the following officers were elected: president, Dr. William E. Lower, Cleveland, Ohio; secretary, Henry L. Sanford, Cleveland; treasurer, Dr. James A. Gardner, Buffalo, N. Y. It was decided to hold the 1915 meeting in Baltimore.

Railway Surgeons Hold Meeting.—The annual meeting of the Norfolk and Western Railway Surgeons' Asssociation was held in Cincinnati, June 16 and 17, under the presidency of Dr. Sparrell Gale, Roanoke, Va. The following officers were elected: president, Dr. Philip H. Killey, Vivian, W. Va.; secretary-treasurer, Dr. Thomas D. Armistead, Roanoke, Va.

Annual Meeting of Southern Railway Surgeons.—The nineteenth annual meeting of the Southern Railway and affiliated lines was held in Washington, D. C., June 18 and 19. Asheville, N. C., was selected as the next place of meeting. The following officers were elected: president, Dr. Henry T. Bahnson, Winston-Salem, N. C.; secretary-treasurer, Dr. Jacob U. Ray, Jr., Woodstock, Ala.

Specialists in Study of Exceptional Children Meet.—The National Association for the Study and Education of Exceptional Children will hold its annual meeting in St. Paul, July 7-10, with the Department of Special Education of the National Educational Association. Dr. Emil Schmitt, New York City, is acting president, and Dr. Maximilian P. E. Grossman, Plainfield, N. J., educational director of the association.

To Make Social Study of Palestine.—A commission consisting of Meyer Bloomfield, director of the Vocational Bureau of Boston, and professor of vocational guidance at Boston University, Dr. Milton J. Rosenau, professor of preventive medicine and hygiene at Harvard Medical School, and Dr. Boris D. Bogen, head of the Jewish Charity Work of Cincinnati, has been appointed to proceed to Palestine to study sanitary conditions, vocational opportunities and charitable conditions among the Jews of Palestine.

Welfare Commission for Cripples.—This national commission held its annual meeting in Philadelphia, June 20, following the convention of the American Orthopedic Association. Plans were made for the literature relating to the education and care of cripples and the *American Journal of Care for Cripples* was designated as the official organ of the commissison. The following officers were elected: president, Dr. Arthur J. Gillette, St. Paul, Minn.; secretary, Mrs. Edith Reeves Solenberger, Lansdowne, Pa.; treasurer, Dr. John L. Porter, Chicago; editor, Mr. Douglas C. McMurtrie.

Insurance Examiners' Meeting.—At the annual meeting of the American Association of Medical Directors, held in Atlantic City, June 22, the following officers were elected: president, Dr. Augustus T. Gaillard, Philadelphia; secretary-treasurer, Dr. Foster K. Collins, Philadelphia. The representatives of the larger companies present joined actively in the discussion of future aims of the association. These plans will be presented to the Medical Directors' Association and the Medical Section of the American Life Convention, and they will undoubtedly result in improving the quality of the examiners' work and in bringing examiners in closer touch in their methods and ideals.

Congress for Obstetrics and Gynecology.—The Seventh International Congress for Obstetrics and Gynecology will be held in New York, Sept. 14, 15, 16 and 17, 1915. Among the subjects to be read are "The Remote Results of Operations for the Relief of Retrodisplacements of the Uterus, both Simple and Complicated," Prof. Th. H. Van der Velde, Haarlem, Holland; "The Treatment of Puerperal Infections," Dr. Edward P. Davis, Philadelphia, and "The Value of Radio-Activity in Gynecological Therapeutics." On Friday September 17, miscellaneous papers will be read. National societies are encouraged to discuss these subjects at least eight months before the meeting of the congress, and to have reporters collect and digest the discussions and report their conclusions.

Bequests and Donations.—The following bequests and donations have recently been announced.

New York State Women's Hospital, $150,000; Presbyterian Hospital, New York City, $100,000; Manhattan Eye and Ear Institute, $50,000; New York Institute for Deaf and Dumb, $50,000; Memorial Hospital for Cancer, New York City, $10,000; St. Luke's Hospital, New York City, $10,000; Denver Home for Consumptives, $50,000, by the will of Maria DeWitt Jesup, widow of Morris K. Jesup.

New York Eye and Ear Infirmary, $10,000, by the will of Miss Serena Rhinelander.

Presbyterian Hospital, Philadelphia, $5,000, for the endowment of a free bed; Children's Hospital, Philadelphia, $1,000, by the will of Elizabeth N. Brown.

Children's Hospital of Philadelphia, $25,000, for the construction and equipment of an operating pavilion, as a memorial to Mary Bankson King Wainwright, by Miss Hetty M. King.

West Philadelphia Hospital, $98,000 of the $150,000 required in the campaign ended June 26.

Additional Donation to Rockefeller Institute.—Mr. John D. Rockefeller has just donated $2,550,000 to the Rockefeller Institute for Medical Research to purchase additional land in New York City adjoining the present plant, and to erect, equip and maintain additional laboratories. The above sum is in addition to a fund of $1,000,000 for the establishment of a department of animal pathology, of which Prof. Theobald Smith has been made director, as previously announced. The department of animal industry will give special attention to the study of hog cholera, foot and mouth disease, diseases of poultry, etc. Mr. Rockefeller's previous gifts to the institute had amounted to nearly $9,000,000, exclusive of the real estate in New York City, and the endowment of the institute will now reach about $12,500,000, making it the most amply endowed institution for medical research in the world.

An American Journal of Parasitology.—In response to an increasing demand, a quarterly publication on this subject has been founded. It is intended to be a medium for the prompt publication of briefer papers and research notes on animal parasites. Longer contributions of exceptional value may be printed occasionally, but ordinarily single papers will be limited to ten or fifteen text pages and outline drawings will be used as illustrations. The reports of the Helminthological Society of Washington, a brief record of personal and institutional items in parasitology and reveiws of books or monographs of special merit are among the features announced. Each number is intended to contain from 70 to 80 pages of text and illustrations and the subscription price is $2 per year. Manuscripts of articles offered for publication, copies of books for review, subscriptions and correspondence should be sent to the Managing Editor of the *Journal of Parasitology*, Henry B. Ward, University of Illinois, Urbana, Ill.

Awarding of the Knapp Medal for Research in Ophthalmology.—In the Section on Ophthalmology at the Atlantic City Session, Dr. Clifford B. Walker, senior house surgeon in the Massachusetts Eye and Ear Infirmary, Boston, was awarded the Herman Knapp Medal for original research in ophthalmology. This medal awarded for original research discovery or for meritorious work for the advancement of the science of ophthalmology is provided for by the Knapp Testimonial Fund, originated in the Section four years ago at the suggestion of Dr. A. E. Bulson, Jr., and administered by the Hermann Knapp Testimonial Fund Committee, of which Dr. Bulson is at present chairman, in honor of the distinguished ophthalmologist, the late Dr. Hermann Knapp of New York. A committee of award is elected each year by the Section to consider the work presented. This is the first medal awarded under the provisions of the fund. The committee this year consisted of Drs. Edward Jackson, Denver; Casey Wood, Chicago, and John E. Weeks, New York. The medal is simple in design, showing in relief a portrait of Dr. Knapp, with a suitable inscription. It is of 22-karat gold, 2 inches in diameter and the designing of the medal, making the die and striking the first copy cost $600. The award was made on the work done by Dr. Walker in connection with his paper on "The Topical Diagnostic Value of the Hemiopic Pupillary Reaction and the Wilbrand Hemianoptic Prism Phenomenon with a New Method of Performing the Latter." A number of ingenious instruments and appliances used in conducting the test were devised and presented by Dr. Walker. At this year's meeting Dr. Walker presented a new clinical instrument for determining the hemiopic pupillary reaction, and in his paper on the subject seems to have established that the Wilbrand phenomenon is of no value in determining the location of brain lesions.

Plague Outbreak in New Orleans.—On June 27, at 3:30 p. m., Dr. W. T. O'Reilly, Health Officer of the City of New Orleans, reported to Dr. Dowling, the chief health officer, a suspicious case of bubonic plague at the Charity Hospital. A thorough examination, which was confirmed bacteriologically and completed at 6 p. m., showed the presence of *Bacillus pestis*. The patient was a Swede named Charles Lundane, 49 years of age, who had been living at the home operated by the Volunteers of America since June 16. There was no record of previous residence. On the night of the 27th, at 6:30, Lundane died, and the necropsy, which was completed at 8:40, revealed typical bubonic septicemia. In the next room to Lundane, in the Volunteers of America Home, was a man named Rufus Wilkinson. On the night of June 27, Wilkinson was removed to the Charity Hospital, and a tentative diagnosis of plague was confirmed bacteriologically. The twenty-six additional inmates of the home are now under strict quarantine. The place has been thoroughly cleaned and fumigated and all clothing and bedding has been burned.

A joint resolution has been introduced in the two houses of the general assembly at Baton Rouge authorizing the governor to borrow $150,000 to be expended in the eradication of bubonic plague and a rigid quarantine of the infected district by local authorities has been inaugurated. Armed guards have been stationed at intersecting streets within four blocks of the Volunteers of America Home. Only breadwinners will be allowed ingress or egress to the quarantined district, which includes some of the large French markets, many of the commission houses and a number of wholesale houses, and they are required to report three times a day for inspection.

Active steps are now being taken by the state and local authorities to begin eradicative work in the making of a sanitary survey. Surg.-Gen. Rupert Blue and Surgeon Creel are at the scene of the outbreak. As a precautionary measure to prevent the spread of the infection by shipping, Surgeon-General Blue has sent warnings to health authorities of the Atlantic coast states and to those of the Mississippi River states as far north as Iowa, suggesting that they take up the work of rodent eradication actively.

Three suspicious cases have been discovered in Santiago, Cuba, and infections continue to be reported from Havana. No new deaths, however, are reported from there.

Ten cents each for live rats has been offered by the health authorities of Galveston. The rats will be examined for traces of bubonic infection. City, state and federal authorities and business interests combined forces at once for a sanitary campaign. The city of Pensacola offered a bounty of 5 cents on each dead rat delivered to the state laboratory.

The prompt activity of the various local and state health officers and the immediate aid of the Public Health Service in this case offer again evidence of the growing efficiency of American health departments.

FOREIGN

Half-Holidays for Physicians in Bohemia.—According to a report of Consul Frank Deedmeyer, Prague, the Association of German Physicians at Prague has arranged for a half-holiday for its members on Sundays and legal holidays, under a system whereby there are designated in rotation for each half-holiday, certain members of the association who will respond to all sick calls from the patients of any member. The office of each physician not on duty is supplied with a list of the physicians on duty for particular days.

CANADA

Academy of Medicine, Toronto.—The Academy of Medicine, Toronto, has closed its seventh year with pronounced success. There are now 396 fellows on its roll. Of these 350 are resident fellows and 46 non-resident. During the past year Drs. Robert A. Stevenson and Horatio C. Burritt were elected life members, and Sir Rickman J. Godlee an honorary member. The financial report showed a saving account balance of $1,619.54.

Seeking Recompense for Vaccination.—What promises to be the first case of its kind in the Dominion will be the prospective suit of a resident of the town of Waterloo, Ont., against the corporation for $25,000 for damages said to be the result of vaccination on the claimant during the epidemic of 1913 and following an order for general vaccination in Waterloo promulgated by the Ontario Board of Health. Since vaccination the appellant claims to have been in ill health for several months and states he has been advised by medical experts that this is due to the vaccination.

Dominion Medical Council.—The Dominion Medical Council met in annual session in Ottawa, June 18 and 19. Dr. Thomas G. Roddick retired from the presidency and was elected honorary president for life. Dr. Robert S. Thornton, Deloraine, Man., was elected president; Dr. R. W. Powell, Ottawa, registrar, and Dr. Robert J. Gigson, Sault Ste. Marie, Ont., vice-president. The examinations will take place in October in Montreal; and in June, 1915, in Winnipeg. All the provinces were represented at the sessions. The Hon. Dr. Roche, Minister of the Interior, was granted the diploma of L.M.,C.C.

Curtailing Infant Mortality in Toronto.—The June *Health Bulletin* of the Toronto Department of Public Health is devoted entirely to prevention of disease and death during the summer months. Considerable of the space is devoted to the baby. Last year there died in Toronto 949 babies under 2 years of age during the summer months. Most of these were from preventable disease as most of the deaths were due to bottle-feeding. One hundred and twenty of the babies visited by the Department of Health nurses died during the summer months and fifty-eight of these had working mothers. Only two were breast fed.

Personal.—The survivors of the *Empress of Ireland* disaster commended most highly the coolness, resourcefulness and courage of the ship's surgeon, Dr. James F. Grant, a graduate of McGill University of last year.——Dr. Perry G. Goldsmith, Toronto, has gone to England.——Dr. Price Brown, the well-known Toronto laryngologist, had one eye removed in New York for glaucoma.——Dr. Herbert S. Birkett, Montreal, has been elected to succeed Dr. Francis J. Shepherd as dean of the medical faculty of McGill University.——Dr. Kennedy C. McIlwraith, Toronto, has returned after spending several months abroad.——Dr. Chester P. Brown, Toronto, has been appointed assistant medical officer and bacteriologist at the William Head Quarantine Station, British Columbia.——Dr. Herbert W. Hill, director of the Hygienic Institute at London, Ont., has been granted a year's leave of absence and will take part in public health work in the state of Minnesota.——Dr. Thomas G. Roddick, Montreal, has been made a knight commander of the Order of St. George and St. Michael by King George V. The honor is in recognition of the long, faithful and successful services of Dr. Roddick to Dominion Registration.

LONDON LETTER

London, June 12, 1914.

House-Flies and Manure as a Nuisance

A somewhat peculiar case has been before the courts in which the owner of a house and grounds brought an action for damages and for an injunction to restrain a neighbor—a market gardener—from depositing manure so as to constitute a danger to his health and interfere with his comfort by reason of the collection of flies and the offensive smell. The defendant pursued the French system of intensive cultivation, necessitating the application of a large quantity of manure, which was accumulated and matured near the plaintiff's wall. The expert evidence was most conflicting. On the one hand Sir Ronald Ross and others stated that the flies and smell constituted a nuisance, and on the other hand, Professor Kenwood and Mr. Ousten (entomologist of the British Museum) denied this. The judge said that the question was whether the defendant interfered with the comfort of the plaintiff in the occupation of his house according to the ordinary notion of English men and women. He found that during the warm months he did so. With regard to flies the evidence was that the house-fly and lesser house-fly bred by choice in horse-manure, and he could only come to the conclusion that the flies of which the plaintiff complained came from the defendant's manure-heap. He was reluctant to interfere with industry, but he must grant an injunction restraining the plaintiff from depositing manure so as to cause a nuisance.

Opening of a Research Laboratory at Bath

At Bath, the fashionable watering-place of the eighteenth century, a new departure has been made. The Royal Mineral Water Hospital has opened a research laboratory in connection with its wards for the study of the pathology of rheumatoid arthritis—a disease which is much treated by hot mineral water. The laboratory was opened by Sir William Osler, who said that the time had come when the most careful laboratory work was absolutely necessary, and there was no place in England which possessed a richer store of clinical material for that work than Bath. Laboratory work was of two kinds—routine and research. The former was of immediate, the latter of permanent value. To the latter we looked for knowledge of the causes of obscure diseases. There were two essentials to any really useful laboratory—a good museum and a modern library. The museum should be made of national use, so that any medical man might come to it and study the pathology of rheumatoid arthritis from a wealth of specimens of all kinds. Osler announced that he would contribute $50 toward the founding of the library. Bath had a splendid medical history and it was a pleasure to him to see that it remained worthy of that record, and that in an age of change it was changing with the times.

A New Veterinary Diploma

The Royal College of Veterinary Surgeons has decided to establish a diploma in veterinary state medicine. It is hoped that this will have the effect of bringing human and animal medicine into more intimate relation in the field of public health. It is proposed that the new diploma shall be known as "the diploma in veterinary state medicine," and that the qualification period necessary before entering into competition for it shall be twelve months of membership of the college. Candidates will be required to receive six months' practical instruction in meat inspection, hygiene of byres, stables and markets, under veterinary inspectors or teachers recognized for that purpose by the Royal College of Veterinary Surgeons, and in addition to fulfil a period of six months' attendance at approved courses of instruction on the following subjects at an affiliated school: (1) epizootiology, (2) veterinary hygiene and toxicology, (3) veterinary bacteriology and protozoology, and (4) chemistry as applied to veterinary hygiene. They will be examined orally and by written paper in epizootiology, veterinary hygiene, including meat and dairy inspection, sanitary laws, administration and reporting and toxicology, and veterinary bacteriology and protozoology. Just as the creation of the public health service opened the way to a general and systematized attack on the problems of life conditions, epidemics and food-supply, so, it may be expected, will this departure insure a wide understanding of animal diseases in their various relations, and contribute to the great work of eliminating sources of infection and rendering the public health secure.

Reform in the Law of Divorce

A bill has been introduced into the House of Lords to reform the law of divorce, embodying the principal recommendations of the recent royal commission (reported in a previous letter to The Journal). It enables husband and wife equally to obtain divorce on the ground of adultery (including any unnatural offense). It enables a judicial separation to be obtained for habitual drunkenness or indulgence in drug habits which render the person a danger to himself or others. A degree of nullity of marriage may be obtained on the grounds (1) of incapacity of either party to consummate the marriage or failure to do so owing to the unreasonable refusal of the defendant; (2) that the defendant was at the time of the marriage of unsound mind or in a state of incipient mental unsoundness which became definite six months after the marriage, or was at the time of the marriage subject to epilepsy or recurrent fits of insanity; (3) "that the defendant at the time of the marriage was suffering from venereal disease in a communicable form" or "pregnancy by some person other than the applicant."

PARIS LETTER

Paris, June 12, 1914.

Fourth Meeting of the French Medicolegal Society

This was held in Paris, May 25-28, under the presidency of Dr. Guilhem, professor of legal medicine at the Faculté de médecine de Toulouse. A number of foreign members from Switzerland and Belgium were present. Among the questions considered, three were most noteworthy: traumatic pleuropulmonary tuberculosis, the necessity of a medical examination for the young delinquent, and natural mummification.

TRAUMATIC PLEUROPULMONARY TUBERCULOSIS

Drs. G. Brouardel and L. Giroux, in their address, began by establishing an important distinction between traumatism occurring to a person already afflicted with tuberculosis which can then aggravate the existing lesions, and that happening to a person who seems absolutely healthy, but who develops tuberculous lesions following the traumatism. In the first case, the responsibility of the traumatism is limited, since it has only aggravated a state which previously existed; in the second case, the responsibility is unrelieved, because by its influence an apparently healthy person is made an invalid. The name of traumatic tuberculosis should be reserved for the latter form. The determining traumatism, as a rule, affects the thoracic wall; in the majority of cases it is a simple contusion of the thoracic wall; more rarely, a fracture of the ribs; still more rarely, a penetrating wound. So-called traumatic pleuropulmonary tuberculosis develops immediately, or from several days to some weeks after the traumatism, so that the maximum lapse of time cannot be fixed with any exactness. The pulmonary lesion appears sometimes in a place which corresponds exactly to the wounded region; as a rule it is on the same side; more rarely it develops on the opposite side. Pleurisy generally occurs in the bruised side. Traumatism would seem most often to provoke the development of a latent local tuberculosis anteriorly; but recent researches permit the belief that the circulation of bacilli in the blood plays a more important part than has hitherto been supposed.

MEDICAL EXAMINATION OF JUVENILE DELINQUENTS

Dr. E. Martin, professor of legal medicine in the Faculté de médecine de Lyon, pointed out the rapid and constant increase in juvenile criminality. It has become so marked that the prison at Lyons has had to build special quarters for these children. The proportion of illiterates among them is 14 per cent. The accusations are divided as follows: robbery, 45 per cent.; vagabondage, 29; assault and battery, 2 per cent. In 46 per cent. of the cases the child's family had been broken up. Tuberculosis was found in the parents of 20 per cent,. and alcoholism, incontestably, in 20 per cent., very probably in 85 per cent. A psychiatric examination of these children should be obligatory. The majority are mentally weak. Except the unmoral children, they are amenable to attempts at education. Dr. Regis, clinical professor of mental diseases at the Faculté de médecine de Bordeaux, remarked that the law of 1912 concerning juvenile courts, while excellent in theory, could not be applied because the schools for that purpose do not exist. It is necessary, therefore, to confide these children to the Assistance publique, which is not intended or equipped to care for these abnormal children. The situation is deplored on every side. Therefore the following resolution was unanimously passed: "Considering that the majority of these young delinquents are abnormal, the meeting declares that the inquiry enjoined by the law of 1912 cannot be satisfactory or give certain results unless a biologic and psychiatric examination is required as well in the case of every juvenile delinquent."

NATURAL MUMMIFICATION

Drs. H. Verger and P. Lande of Bordeaux reported a case of a woman, aged 70, who had died in the room in which she lived, and whose body had mummified. The death had taken place more than six months previously. Dr. Lacassagne, former professor of legal medicine at the Faculté de médecine de Lyon, reported that a man who had been hanged had been found in a cupboard, through the middle of which a chimney passed, and that the upper part of his body was dried, or rather mummified. Dr. Ollive, professor of clinical medicine at the Ecole de médecine de Nantes, recalled having seen the body of a woman which had been lying on straw in a cellar; it was found in a state of mummification: a limb of this mummy is still in the museum of the Ecole de médecine de Nantes.

Fatal Tetanus Following the Treatment of Scoliosis by Abbott's Method

Abbott's method of straightening the veretebral column in scoliosis calls for the application of felt pads at the point of the costal gibbosity, which, thanks to their elasticity, have the effect of correcting the abnormal protuberance because of their efficacious compression. At the meeting, June 2, of the Académie de médecine de Paris, Dr. Kirmisson, professor of surgical clinics on infants' diseases at the Faculté de médecine de Paris, reported two cases in which the use of this felt had brought on fatal tetanus. The first case was that of a girl aged 17½ years with a large dorsal scoliosis of the right convexity. February 10, she was fitted with a plaster corset, according to Abbott's method. February 14 and 21, and on March 7 and 21, layers of felt were successively slipped between the apparatus and the costal protuberance. April 1, trismus set in; the plaster corset was immediately taken off and a little eschar was found on the right costal projection. The patient died about forty-eight hours after the crisis. The second case, noticeably similar, was observed in a girl of 19½, who also died from a very acute tetanus in forty-eight hours, in spite of an injection of 20 c.c. of antitetanic serum.

From these two cases, Kirmisson immediately suspected the felt, and when scraps of the felt were planted in bouillon, numerous colonies of virulent tetanus bacilli were found.

Without wishing to incriminate Abbott's method in itself, Kirmisson considers that these facts should be known by all orthopedic surgeons who have recourse to it. It is, of course, very difficult in this method, which involves the use of an energetic pressure, to escape excoriations or even eschars, which, in contact with the tetanus-breeding felt becomes an open door for inoculation. It is accordingly imperative to sterilize the felt before using it. Considering the numerous uses of felt, these facts should be brought to the attention of the Conseil d'hygiéne, that the manufacture of felt may be submitted to inspection and the public protected from like disasters.

Nursing-Bottles with Tubes

The law of April 6, 1910, forbids the sale and importation of nursing-bottles with tubes (The Journal, Oct. 1, 1912, p. 1211), but it makes no mention of the detached pieces. Therefore, the court of Bayeux has just sentenced a dealer in herbs who, without selling complete nursing-bottles with tubes, had in his store all the pieces which, put together, make them.

Monument to Professor Marey

June 3, in the presence of the president of the republic, a statue of the famous physiologist, Marey, was unveiled in the park of the institute which bears his name at Boulogne-sur-Seine. The monument is the work of the chisel of the sculptor Auban. The illustrious scholar is represented seated, observing attentively a group of runners and horsemen. This idea synthesizes in a degree the work of Marey and his favorite study, the graphic representation of motion.

J.-E. Marey was born March 5, 1830, at Beaune. He was an intern in the hospitals in 1855, and a doctor of medicine in 1859; ten years later he held a chair at the Collège de France, and was elected a member of the Académie des sciences and the Académie de médecine, and founded the physiologic station which has become the Institut Marey. He died in Paris, May 16, 1904. The starting-point of Marey's work was the graphic representation of the movements of men and animals; and to analyze these movements exactly by his method of "chronography," Marey constructed a set of tools. By means of these he set about registering physiologic phenomena (sphygmograph, cardiograph, pneumograph, etc.). All these records were made with a stylus in the form of curves; but Marey did not stop there, and as soon as the first rapid plates appeared he conceived the idea of analyzing movements by successive instantaneous photographs—an idea which led logically to the invention of the cinematograph. Marey's graphic method gave valuable aid not only to physiologic researches, but also to the arts of painting, sculpture and music. Moreover, by his numerous researches on the flight of birds and insects, Marey placed himself in the first rank of the French precursors of aviation.

Personal

At its session, June 2, the Académie de médecine elected Dr. Leon Fredericq, professor of physiology at the University of Liége, and Sir William Osler of Oxford as foreign associates.

BERLIN LETTER

Berlin, June 13, 1914.

Personal

German physiology lost two prominent representatives on June 5. In Königsberg, Ludimar Hermann, for many years the director of the physiologic institute, died at the age of 75. His literary works are chiefly in the same field in which his teacher, Du Bois-Reymond, secured so many important results of investigation, namely, the field of muscle and nerve physiology. But as has often happened, he reached different results and from a pupil became an opponent. Hermann's Text-Book of Physiology has passed through not less than twelve editions and has been translated into all the civilized languages. He founded and edited the physiologic part of the *Jahresbericht über die Fortschritte der Anatomie und Physiologie* and founded and edited for some years the *Zentralblatt für medizinische Wissenschaft*. Of his popular writings, his treatise on vivisection is particularly well known.

Kronecker, also a former pupil of Du Bois-Reymond and director of the Bern Physiologic Institute, died on the same day as Hermann and at the same age. His chief works were in the field of the circulatory system, and especially he discovered as a result of the investigations of his two pupils, Aronsohn and Sachs, a center for coordination of the movements of the ventricles of the heart. In his laboratory there was also found by Aronsohn, a heat center in the brain by the so-called heat-puncture. The center for swallowing, discovered by him, is also of importance. Other articles dealt with the physiology of smell, voluntary muscle movement, the fundamental laws of reflex action and also the innervation of the respiration. He was the author of an improved technic for therapeutic intravenous infusion of sodium chlorid, and other improvements. A few days before his sudden decease, he participated in the meeting of the German Physiologic Society in Berlin and has left a posthumous work on the action of the Nauheim baths. He died at Nauheim, succumbing to apoplexy during a short vacation trip.

E. Rose, formerly director of the surgical department of the Berlin Bethanien Hospital, died at the age of 78 years. Licensed in 1859, he came to the Bethanien Hospital in 1861 as assistant of the surgeon, Wilms. In 1865 he became a member of the faculty as privat-docent for surgery and ophthalmology. In 1867 he was called to the chair of surgery at Zurich. In the summer of 1870 he was given leave of absence by the Zurich University in order to take charge of the Tempelhof Military Hospital at Berlin. In 1871 he was on the battle-field on the Lisaine where he organized the voluntary hospital service of the city of Héricourt and the vicinity of Belfort. In spite of the great respect in which he was held in Switzerland, the love of his native land drove him to return to Berlin where he was made the successor of Wilms in the Bethanien Hospital in 1881 and professor in the Berlin University.

Rose began as early as 1863 to publish important scientific articles, a treatise on vesicovaginal fistula, and in 1864 an article on the treatment of the sick in tents, which was the precursor of our modern fresh-air treatment. Among his important publications the most notable are on the color-scale invented by him for the investigation of color-blindness, errors of color perception, night-blindness, etc.; also on operations for hernia and operations on the head. Considerable attention was attracted early in the seventies by the announcement of his method for operation on the upper jaw with the head pendent; this rendered superfluous the prophylactic tracheotomy until then regarded as essential. There was scarcely any field of surgery to which he did not render important contributions. In 1903, at the age of 67, he voluntarily resigned the superintendence of the surgical department of the Bethanien.

Friedmann's Remedy

The discussion which followed Karewsky's communication and continued through three sessions of the Berlin Medical Society is essentially a complete condemnation of this preparation which was introduced into the world with so great acclaim. Only one physician, who came from the country, could report any favorable results but these were contested for the most part on the basis of opposite observations by competent judges. Eric Mueller, a Berlin pediatrician, who originally was somewhat favorable to the remedy, had nothing to say in spite of the fact that he had announced that he would discuss the subject, and Kraus, who had given a favorable opinion of the method on the occasion of the demonstration of Friedmann's patients, based more on temperament than on facts, had a statement read by a former assistant which varied from the opinions of the other speakers in no important respect. For the present, the question in regard to this remedy may be assumed to have been settled.

Libel Suits on Account of Salvarsan

Two days ago at Frankfort-on-the-Main a suit was tried against the editor of the *Freigeist* who had made the charge against the Frankfort city administration as well as against Herxheimer, the director of the dermatologic department of the municipal hospital of that city, that the city government was deceiving the public and was taking an inconsiderate attitude in the matter of salvarsan; that helpless prostitutes in the city hospitals were being forced to undergo treatment with salvarsan which is a remedy dangerous to life. It was charged that these women were used as experiments the same as if they were rabbits; that the physicians were won with titles and money to become the agents of certain profit-seeking business firms to whom nothing was any longer sacred, and the avarice of these people was extending even to deliberate murder. On account of these and similar accusations, the magistrates and Herxheimer brought a criminal action.

The trial, to which a large number of witnesses and experts were summoned, among whom were both the partisans and opponents of salvarsan, ended with the condemnation of the writer to a year in prison. From the account of the proceedings the impression must be gained that the author of the article is at least mentally inferior, but as he was found on the investigation of a psychiatrist to be responsible, he must pay the full penalty of the law. The judge in the sentence gave the decision that the accused had on the ground of frivolity, avarice, desire of advertisement and of sensation, calumniated a prominent municipality and physicians who were doing their duty in a proper manner.

This trial will be followed after a time by a second libel suit which the editor of the *Muenchener med. Wochenschrift* has instituted against Dr. Kanngiesser of Neuchatel, a privat-docent for toxicology. Kanngiesser, who like the Berlin dermatologist Dreuw, has taken the field in the public press against salvarsan, Ehrlich and all those who favor the new remedy, claims among other things, that the medical press and especially the *Muenchener med. Wochenschrift*, are interested in salvarsan in a business way. From the actions of Kanngiesser it would appear there will be reasons also to examine this man for his mental condition. There is every reason to expect that he will also be convicted of libel if his responsibility is conceded.

Museum for Infant Hygiene

June 4, there occurred the ceremonial opening of a museum for infant hygiene which is established in connection with the Kaiserin Augusta Victoria House with a fund of $7,500 (30,000 marks). The mother will find especially in the departments devoted to birth and development, nutrition and care of infants, all that she needs to enable her to care for her child properly. Also she will find good advice with reference to the care of her own person. In the department for birth and development, the changes which the female body undergoes in pregnancy are illustrated by models, preparations, photographs, etc. She will obtain an idea of the process of birth, and at the same time a rational hygiene of pregnancy and the puerperium. In the same department, she will find the laws illustrated according to which a healthy child develops normally.

A more exact idea of artificial feeding is given by the department on milk and artificial feeding. Here is an ocular demonstration of all that is to be observed in securing cow's milk and what must be done to the milk to adapt it for the infant. The dangers of overfeeding and of one-sided feeding with cereals are shown both by word and by picture. In the department for nursing, models and photographs are collected of everything that serves for the nourishment and care of infants. Here are found the best examples of bedsteads, children's carriages, and of bed- and body-linen. One sees what is necessary for an infant's outfit, whether one has a small or a large purse. It is also shown how the individual pieces must be made and how the child should be clothed in the course of the first month.

In the departments for physical care, general hygiene and diseases of infants, a systematically arranged teaching collection of anatomic preparations, models and illustrations demonstrates the difference between the infant's body and that of an adult, and the abnormalities of the former are also shown by pathologic preparations, photographs and models.

In the department of statistics and hygiene, one can inform himself from tables and curves with reference to the number of births and deaths in the German Empire, the reduction in the birth-rate and its significance, the excess of births, the progress in the growth of the population, the number of deaths and the development of infant mortality, its causes and means to remedy them

The department for hygiene gives an illustration of the best and most advantageous means of maintaining the health of infants and the general subject of hygiene.

The especially interesting department of art presents historical pictures from artists of various nations and from all ages showing the life of the nursing mother and the child.

Session of the German Central Committee for the Campaign against Tuberculosis

At this year's meeting, June 4, of the German Central Committee for the Campaign against Tuberculosis, Langstein, director of the Kaiserin Augusta Victoria House for the campaign against infant mortality, delivered an address on prophylaxis against tuberculosis in infants.

PROPHYLAXIS OF TUBERCULOSIS IN INFANTS

Children in the first and second year of life are from eight to nine times more liable to tuberculosis than adults. The very careful statistics of Pollack in Vienna have given the following convincing, although alarming, facts: Among 285 children from families in which there were persons with open tuberculosis (*Bazillenspucker*) there were found 275 with a positive tuberculosis reaction. Among these there were 57 who were first brought into close relation with the bacilli carriers in the third year of life. Among these only 7 showed clinical tuberculosis. Among the 61 who were exposed in the second and third year, there were 45 clinical cases with 7 deaths, and among the 207 who had been exposed since birth, 200 exhibited clinical tuberculosis, of whom 21 died.

The most radical measure against this tremendous danger is to separate the infant from the tuberculous individual. Some years ago Baginsky advised this measure, beginning with the sixth month, but it must be carried out immediately after birth. To be sure, this is difficult to accomplish. A preferable way is that pointed out by Effler of Danzig. He investigated separately the children of parents who were under hygienic care for tuberculosis before the birth of the infant, those of parents who received such care from the time of birth, and those who received no care at all. This investigation showed a very marked difference in favor of the early care and evidenced the value of instruction at the right time.

Another possibility of prevention consists in protecting the infant constitutionally against infection. Many regard the substances conveyed by the mother's milk as the best remedy. This has not yet been scientifically investigated with sufficient accuracy, and there remains the difficulty that tuberculous mothers who nurse their children may easily infect them and, besides, weaken themselves. Nothing is to be expected from the so-called method of hardening the infant as a protective against tuberculosis. No one can predict whether or not any further success will be obtained from protective inoculation. There remains, therefore, as the best remedy, early isolation and thorough instruction of families in which the agencies which care for the tuberculous and for infants must cooperate.

The infants of the rich are endangered by the carelessness with which nurses are chosen, and the danger from tuberculous midwives needs attention. Isolation, at least for the first few months, is best carried out in institutions, as there is a danger even with the best foster-mothers. By care in institutions, better views with reference to the question of congenital tuberculosis and the constitutional resistance of tuberculous children will be obtained.

An interesting discussion followed the address in which Umber of the Westend Hospital gave statistics from 600 children, confirming the views of Langstein, while von Drigalsky of Halle expressed uncertainty as to whether the failure to react to the von Pirquet test in the first months of life may not depend on a physiologic lack of capability for reaction. Of those infants which received early protection, he had met a great portion later as school pupils; they had survived, but a large portion of them were scrofulous.

Contagious Diseases among Hospital Employees.—A study of the occurrence of contagious diseases among city hospital employees in New York for the years 1907 to 1913, inclusive, shows that the number of infected varies from twenty to thirty-three for each of these years. The number of employees varied from 349 in 1907 to 856 in 1913. The average of those infected for the second half of the period is distinctly lower than that of the first half, which may signify either lessened susceptibility or greater care among the workers. A large percentage of persons infected were nurses, and the medical interns did not escape. Of the total number infected, however, approximately two-fifths were domestic employees.

Marriages

Leo D. Harman, M.D., Forbes, Mo., to Miss Dorothy Newcombe of Provo, Utah, in Omaha, Neb., June 5.

George Kirby Collier, M.D., Sonyea, N. Y., to Miss Clara Louise Prophet of Mt. Morris, N. Y., June 16.

William A. T. Ryan, M.D., Dayton, Ohio, to Miss Catherine Uminger of Pomeroy, Ohio, June 16.

Thomas Harold Reagan, M.D., Canton, Ill., to Miss Bertha Rhenstrom, in Chicago, June 18.

Franklin Eugene Hagie, M.D., Elizabeth, Ill., to Miss Nellie Wells Rae of Chicago, June 30.

Adolph Krebs, M.D. Pittsburgh, Pa., to Miss Mary Margaret Wampler of Irwin, Pa., June 17.

Ross William Griswold, M.D., to Miss Camilla Seymour, both of Litchfield, Ill., May 27.

Charles E. Park, M.D., DeWitt, Ark., to Miss Gussie Burnett at Anna, Ill., June 10.

Robert P. Devereaux, M.D., to Miss Blanche E. Salfingere, both of Philadelphia, June 17.

Harry Lyman Whittle, M.D., to Miss Juanita Whittle, both of Baltimore, June 16.

Herman Friedel, M.D., to Miss Marion Levanthal, both of New York City, June 9.

Deaths

Edward Mansfield Shipp, M.D. Medical College of Virginia, Richmond, 1891; a Fellow of the American Medical Association; surgeon lieutenant-commander, U. S. Navy; who entered the Navy in 1893, and whose last duty was that of commander of the U. S. Naval Hospital, Puget Sound; died in that institution, June 17, after ten years and ten months of sea service, and eight years and five months of shore or other duty, aged 45.

William Henry Pomeroy, M.D. Harvard Medical School, 1886; assistant in therapeutics and materia medica in his Alma Mater in 1886-1887; a Fellow of the American Medical Association; contract surgeon, U. S. Army, since 1902; visiting surgeon to the Springfield (Mass.) Hospital and Children's Home; physician on duty at the Armory Barracks and Recruiting Station; died at his home in Springfield, Mass., about June 10, aged 56.

William Spear Ross, M.D. Wooster University, Cleveland, Ohio, 1876; a Fellow of the American Medical Association; and an eye and ear specialist of Altoona, Pa.; local surgeon for the Pennsylvania System at Altoona; surgeon to the Altoona Hospital, and oculist and aurist to Nason Hospital, Altoona; died in the Altoona Hospital, June 12, from uremia, aged 60.

Simon Marx, M.D. College of Physicians and Surgeons in the City of New York, 1884; a member of the Medical Society of the State of New York, New York Obstetrical Society and New York Academy of Medicine; surgeon to New York Maternity Hospital and gynecologist to the Red Cross Hospital; died at his home in New York City, June 16, aged 50.

Lucien Bowyer Robinson, M.D. University of Virginia, Charlottesville, 1851; a surgeon in the Confederate service throughout the Civil War; and until the abandonment of Andersonville Prison, Georgia, on duty at that post; local surgeon of the Norfolk and Western Railway at Shawsville, Va.; died at his home in that place, recently, aged 76.

James A. Martin, M.D. American Medical College, Eclectic, St. Louis, 1884; a member of the Nebraska State Medical Association; while returning from a professional call, June 10, received glass wounds from the broken wind-shield of his motor-car, which caused his death at his home in Minden, Neb., two hours later, aged about 60.

John M. Coonan, M.D. University of Maryland, Baltimore, 1861; for two years health warden of the Ninth ward of Baltimore; assistant surgeon of volunteers during the Civil War, and for twenty years connected with the medical department of the army for Indian Service; died at his home in Baltimore, June 6, aged 79.

Abram L. Haines, M.D. College of Physicians and Surgeons in the City of New York, 1883; major and surgeon of volunteers during the Spanish-American War, with service in the Philippines, and later one of the medical staff stationed at Empire, Canal Zone; died at his former home in Fultonham, N. Y., April 23, aged 55.

Robert Nelson McConnell, M.D. Wooster University, Cleveland, Ohio, 1865; a veteran of the Civil War, during the last year of which he served as assistant surgeon of the One Hundred and Twenty-Third Ohio Volunteer Infantry; died at his home in Upper Sandusky, Ohio, June 16, from cerebral hemorrhage, aged 71.

Charles M. Butterworth, M.D. Medical College of Ohio, Cincinnati, 1889; a Fellow of the American Medical Association; and formerly president of the St. Joseph County Medical Society; for three years county physician and later city health officer of South Bend, Ind.; died at his home in that city, June 12, aged 48.

Daniel E. Cranz, M.D. Hahnemann Medical College, Chicago, 1877; for many years a member of the staff of the Akron (Ohio) City Hospital, and for many years a practitioner of that city; died at the home of his daughter in Oklahoma City, Okla., June 6, from malignant disease, aged 58.

Richard C. Foulke, M.D. University of Pennsylvania, Philadelphia, 1869; a member of the Medical Society of the State of Pennsylvania; for four terms burgess of Newhope, Pa.; president of the borough council, and secretary of the school board; died at his home in Newhope, June 11, aged 70.

John Senter Davis, M.D. Vanderbilt University, Nashville, Tenn., 1892; of Lone Oak, Ky.; a member of the Kentucky State Medical Association; one of the directors of the Paducah Banking Company; died in a sanatorium in Memphis, Tenn., June 15, from heart disease, aged 46.

Arthur Rogers Tiel, M.D. Eclectic Medical College of the City of New York, 1878; at one time secretary of the Medical Examining Board of the State Board of Regents, and health officer of the village of Matteawan, N. Y.; died at his home in Beacon, N. Y., June 1, aged 59.

Maus Rosa Vedder, M.D. College of Physicians and Surgeons in the City of New York, 1861; assistant surgeon in the army during the Civil War; a member of the Medical Society of the State of New York; died at his home in Caldwell, N. J., June 12, aged 79.

John F. Campbell (license, Missouri, 1883); of La Plata, Mo.; for nearly fifty years a practitioner of Macon County, Mo.; a representative in the legislature in 1901 and 1902; died in a hospital in Chicago, June 8, two weeks after a surgical operation, aged 74.

Thomas Smith Hunter, M.D. Jefferson Medical College, 1866; hospital steward of the One Hundred and Sixty-Ninth Ohio Volunteer Infantry during the Civil War; of Ashland, Ohio; died at the home of his daughter in that city, June 7, from heart disease, aged 74.

Francis A. Bizzell, M.D. Southern University Medical Department, Greensboro, Ala., 1877; University of Alabama, Mobile, 1879; of Fillmore, Cal.; was found dead in his automobile near his ranch at Sespe, Cal., June 3, from valvular heart disease.

Thomas Trenaman, M.D. College of Physicians and Surgeons in the City of New York, 1869; for many years president of Kings College, Windsor, N. S., and health officer of Halifax, N. S.; died at his home in Halifax, April 7, aged 70.

James Garvin Schall, M.D. Hahnemann Medical College, Chicago, 1900; a member of the Colorado State Medical Society; and an oculist and aurist of Leadville, Colo.; died in a bank building in that city, June 17, from heart disease, aged 38.

Daniel Langan, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1863; a veteran of the Civil War; for several terms president of the Clinton County Medical Society; died at his home in Clinton, Iowa, June 13, from nephritis, aged 78.

Frederick Ferdinand Rudolph Berlin, M.D. University and Bellevue Hospital Medical College, New York City, 1900; a Fellow of the American Medical Association; died at his home in New York City, June 14, from hemorrhage, aged 55.

Edgar H. Neyman (license, registration Wisconsin, 1900); a practitioner since 1890; died at his home in Milwaukee, June 7, from pneumonia, aged 48.

Samuel H. Moore, M.D. Indiana Medical College, Indianapolis, 1870; a veteran of the Civil War; and for forty-two years a practitioner of Indianapolis; died at his home in that city, June 15, from cerebral hemorrhage, aged 71.

Edward Anderson Reiley, M.D. New York University, New York City, 1881; for thirty years a practitioner of Atlantic City, N. J.; died at his home in Atlantic City, June 9, from malignant disease of the throat, aged 59.

Calvin George Mohn, M.D. College of Physicians and Surgeons, Baltimore, 1882; for four years postmaster of Laurelton, Pa., and for two terms a member of the general assembly; died at his home in Lewisburg, June 4, aged 56.

Edmond Henry Kyle, M.D. University of Pennsylvania, Philadelphia, 1876; a member of the Medical Society of the State of New York; and for thirty-three years a practitioner of Ithaca, N. Y.; died about June 9, aged 65.

Robert Norton, M.D. Harvard Medical School, 1893; a Fellow of the American Medical Association; assistant superintendent of Johns Hopkins Hospital, Baltimore; died in that institution, June 19, from typhoid fever, aged 47.

Alfred L. Trigg, M.D. New Orleans School of Medicine, 1859; assistant surgeon in the Confederate service during the Civil War; for forty-six years a practitioner of Lockhart, Tex.; died at his home, June 15, aged 79.

Henry T. McKee, M.D. Missouri Medical College, St. Louis, 1884; of Sparta, Ill.; aged 56; a Fellow of the American Medical Association; died in a hospital in St. Louis, June 3, after an operation for mastoid abscess.

Herbert Snowden Fairall, M.D. State University of Iowa, Iowa City, 1903; county physician of Itasca County, Minn., and city physician of Deer River; died at his home in Deer River, June 9, from pneumonia, aged 35.

Thomas G. Fox, M.D. Jefferson Medical College, 1852; one of the oldest graduates of that institution; a member of the state legislature from 1860 to 1862; died at his home in Hummelstown, Pa., June 18, aged 86.

George W. Newman, M.D. New York University, New York City, 1864; surgeon of the Fifth New York Heavy Artillery during the Civil War; died at his home in Brooklyn, June 13, from senile debility, aged 71.

Marcus E. Brown (license, practitioner, Iowa, 1886); for more than half a century a practitioner of Illinois and Iowa; a veteran of the Civil War; died at his home in Clinton, Iowa, June 14, aged 76.

Erastus Monteith Gaston, M.D. Miami Medical College, Cincinnati, 1871; a member of the Ohio State Medical Association; died at his home in West Union, Ohio, February 9, from nephritis, aged 64.

Oliver Perry Mahan, M.D. University of Cincinnati, 1859; a veteran of the Civil War; a graduate in law of the University of Michigan in 1871; died at his home in Lebanon, Ind., June 2, aged 77.

Thomas N. Lownsdale, M.D. Cincinnati College of Medicine and Surgery, 1875; a veteran of the Civil War; died at his home in St. Bernice, Ind., June 15, from cerebral hemorrhage, aged 72.

Thomas McUrgan Hudson, M.D. Washington University, St. Louis, 1894; mayor of Perryville, Mo., for six years; died at his home in Perryville, June 8, from pulmonary tuberculosis, aged 48.

Edwin S. Parker, M.D. Northwestern University Medical School, 1885; a Fellow of the American Medical Association; died at his home in Vermont, Ill., recently, from cerebral hemorrhage, aged 55.

Frederick Johnson Kinney, M.D. Northwestern University Medical School, Chicago, 1912; postmaster of Olds, Iowa; died at his home, June 10, from meningitis due to heat prostration, aged 27.

Harry H. Carnes, M.D. State University of Iowa College of Homeopathic Medicine, Iowa City, 1888; of Champaign, Ill.; died in a hospital in Peoria, Ill., June 8, from disease of the liver, aged 54.

Hugh Willis, M.D. Kentucky School of Medicine, Louisville, 1876; of Summerfield, N. C.; died in St. Leo's Hospital, Greensboro, N. C., June 14, from cerebral hemorrhage, aged 60.

Edgar Augustus Clark, M.D. Dartmouth Medical School, Hanover, N. H., 1884; a member of the New Hampshire Medical Society; died at his home in Concord, May 4, aged 56.

James M. Arnold, M.D. Tulane University, New Orleans, 1871; for more than thirty years a resident of Houston, Texas; died at his home in that city, June 10, aged 76.

William S. Howell, M.D. Atlanta, (Ga.) Medical College, 1893; a member of the Medical Association of Georgia; died at his home in Moultrie, Ga., April 16, aged 47.

Harvey F. Smith, M.D. University of California, San Francisco, 1894; a Fellow of the American Medical Association; died at his home in Pony, Mont., June 11, aged 40.

Winfield Scott Wells, M.D. Rush Medical College, 1890; a member of the Rhode Island Medical Society; died suddenly at his home in Providence, May 2, aged 52.

Archelaus A. Stanley, M.D. Starling Medical College, Columbus, Ohio, 1872; a veteran of the Civil War; died at his home in Rutland, Ohio, March 13, aged 72.

Levi Secord, M.D. McGill University, Montreal, 1876; mayor of Brantford, Ont., in 1893 and 1894; died in the Brantford General Hospital, May 8, aged 60.

Charles B. Lake, M.D. Queen's University, Kingston, Ont., 1866; for more than forty years a practitioner of Ridgetown, Ont.; died at his home, March 18, aged 71.

L. W. Clark (license, years of practice, Illinois); for many years a resident of Rushville, Ill.; died in Carterville, Mo., May 7, from acute gastritis, aged 72.

Martin A. Nelson, M.D. Physio-Medical College of Indiana, Indianapolis, 1894; of Minneapolis, Minn.; died in the St. Paul City Hospital, June 12, aged 54.

William Madison Woodson, M.D. Bellevue Hospital Medical College, 1869; a Confederate veteran; died at his home in Temple, Tex., June 14, aged 74.

Louisa J. Darnstaedt Kean, M.D. Women's Medical College of Pennsylvania, Philadelphia, 1887; of Meriden, Conn.; died in Boston, April 11, aged 69.

Rush Parmenter Brown, M.D. New York University, New York City, 1873; was found dead in bed in his home in Addison, N. Y., April 9, aged 67.

Daniel William Flemming, M.D. Jefferson Medical College, 1889; died at his home in Philadelphia, June 14, from carcinoma of the throat, aged 54.

Alfred Henry Scott Hill, M.D. University of Toronto, Ont., 1874; died at his home in Norwich, Conn., May 16, from cerebral hemorrhage, aged 64.

William B. Richmond, M.D. University of Michigan, Ann Arbor, 1899; of Terre Haute, Ind.; died suddenly in a church in that city, May 10, aged 38.

John N. Lucas, M.D. Pulte Medical College, Cincinnati, 1873; died at his home in Shelbyville, Ind., June 9, from arteriosclerosis, aged 68.

Sanford Junius Deemer, M.D. Western Pennsylvania Medical College, Pittsburgh, 1894; died at his home in Pittsburgh, June 14, aged 56.

Francis Hart Kelley, M.D. University of Louisville, Ky., 1870; died at his home in New Harmony, Ind., from cerebral hemorrhage, aged 78.

Samuel Henry Clay Bixler, M.D. University of Michigan, Ann Arbor, 1870; died at his home in Greencastle, Pa., March 28, aged 69.

Henry H. Pilling, M.D. Hahnemann Medical College, Chicago, 1870; of Tucson, Ariz.; died in Los Angeles, Cal., June 12, aged 68.

George W. C. James, M.D. University of Pennsylvania, Philadelphia, 1864; died at his home in Orbisonia, Pa., April 7, aged 83.

William L. Newlin, M.D. Eclectic Medical Institute, Cincinnati, 1872; died at his home in Los Angeles, June 11, from myocarditis.

John W. Stewart, M.D. College of Physicians and Surgeons, Baltimore, 1878; died at his home in Elmira, N. Y., May 25, aged 63.

Benjamin H. Todd, M.D. University of Maryland, Baltimore, 1874; died at his home in Ridgeville, Md., April 23, aged 50.

Eli R. Tullis, M.D. Hahnemann Medical College, Philadelphia, 1879; died at his home in Camden, N. J., June 12, aged 76.

Lyndsey Oliver Patterson (license, Arkansas, 1903); of Winfield, Ark.; died in Heavener, Okla., June 5, aged 44.

Hiram Luce Chase, M.D. Harvard Medical School, 1846; died at his home in Cambridge, Mass., April 24, aged 89.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ROBINOL AND SEVETOL

Revamping Discarded Theories for Commercial Purposes

It is astonishing how rapidly medical hypotheses become theories and theories are accepted for established facts, when such alleged facts are favorable to commercial enterprise. Yet, as a matter of fact, the manufacturers of proprietary preparations are under a moral obligation, at least, to tell the truth with reference to the scientific basis for their claims. To draw from exploded theories reasons for the use of proprietary preparations is reprehensible, not only because it may lead physicians to use preparations which are worthless, but also because it tends to confirm in the physician's mind, opinions which science has discarded.

Robinol

John Wyeth and Brother put up a mixture of glycerophosphates which they call Robinol. In their description of the properties of this mixture they say:

> "Phosphorus exists in the brain, nervous system, and vital organs as lecithin, of which glycerophosphoric acid is the most important constituent and is essential to the vital processes for the reproduction of life and maintenance of metabolism in old age, impotence, etc."

The first impression on reading this sentence is that it suggests that *glycerophosphates* are essential to the vital processes, although the statement strictly applies to phosphorus. The next sentence confirms this impression and the mind glissades from the accepted fact of the existence of phosphorus in nervous tissue to the unfounded hypothesis that the glycerophosphates are necessary to supply the essential element. In the next sentence the circular continues:

> "In nervous and general debility the glycerophosphates as exhibited in Robinol, are preferable to the mineral phosphates as they contribute the essential constituent of nerve tissue and are absorbed by the cells more readily than any phosphate of vegetable or inorganic origin."

This statement is utterly unfounded. It is in direct opposition to the conclusions of pharmacologists. The glycerophosphoric acid radical is, to be sure, found in the lecithin of nervous tissues, but its source is not known. There is no evidence either that it must be present in the food or that it must be taken as medicine in order that the brain and nervous tissues shall be nourished. When the glycerophosphates are taken there is no evidence that they enter into the composition of the brain or nervous tissue. They are excreted in the urine and feces as phosphates. It has never been shown that glycerophosphates are absorbed any more readily than other phosphates.

But the advertising circular has still more information to impart to physicians:

> "In that group of maladies characterized by faulty nutrition, due to the excessive elimination of phosphorus from the body, as is evidenced by the fatigue and weakness following acute attacks and present in many chronic affections, during the course of fevers and in the later stages of phthisis and all diseases of the nervous system, physicians will find the tonic chalybeate properties of the glycerophosphates of great value."

Physicians know, if the nostrum makers do not, how difficult it is to determine whether there is an excessive elimination of phosphorus from the body. The bulk of the phosphates found in the urine are derived from the food and so little comes from the metabolism of the nervous system that it is not easy to prove that any disease is due to excessive elimination of phosphorus from the body. That fatigue and weakness are due to such a loss of phosphorus is mere assumption, a convenient theory for the exploiters of glycerophosphates. But admitting that nervous waste or faulty nutrition is characterized by the loss of phosphorus, it is easier, cheaper and more rational to supply such loss by the use of phosphorus-containing foods such as milk and eggs, and there is not the slightest evidence that the loss of phosphorus will be influenced in any way by giving a supply in the form of glycerophosphates. Thus, in order to bolster up the sale of a simple solution of glycerophosphates, vague theories and improbable hypotheses are dressed in all the dignity of scientific facts.

Sevetol

There was a time, perhaps a generation ago, when physiologists taught that fats were absorbed into the blood in the form of a fine emulsion. This theory has been definitely disproved and it is now known that fats enter the blood only after a chemical splitting into glycerol and fatty acids, the latter being, to a large extent, combined with alkalies in the form of soaps.

"Sevetol," another Wyeth preparation, is presented to the profession under the claim that it is a very fine emulsion of fats, every portion of which "is readily absorbed through the intestinal wall." To quote:

> "The administration of Sevetol, therefore, does not tax the digestive power of the patient, for it is absorbed with very little effort on the part of the digestive apparatus; and even if the organs of digestion be involved, neither the weakness of the patient nor the severity of the symptoms necessarily contra-indicates its use. The amount ingested is limited only by the power of assimilation exhibited in the tissues, and it may be given in large doses for a continued period of time, or until symptoms of overfeeding are produced, such as coated tongue, anorexia, constipation, headache and lassitude. When these symptoms appear, the administration of Sevetol should be temporarily discontinued and a mild but effective laxative given for several days, after which its use may be resumed."

While the language just quoted is a little more exalted and dignified than that found in typical "patent medicine" advertisements, the thought it expresses qualifies it for a place in the "Lydia Pinkham" or "Peruna" class. Every sophomore medical student knows, if he gives the matter any thought, that Sevetol must undergo the same process of digestion as any other fat. It must be broken up into a fatty acid and glycerol, and saponified before it can be absorbed. It is plainly evident that the amount of Sevetol which can be taken is limited not only by the power of assimilation, but also by the power of digestion. The symptoms mentioned in the advertisement and ascribed to overfeeding, are the symptoms, not of a system saturated with absorbed fat, but of digestive organs rebelling against an unusual diet.

The exploitation of Sevetol is but one more case of turning to commercial account an exploded theory. Isn't it about time that our profession demanded that the purveyors of medicinal products tell the truth? And isn't it time, too, that we cease taking our pharmacology and therapeutics from proprietary manufacturers?

Correspondence

Proposed Pneumothorax Association

To the Editor:—The treatment of pulmonary tuberculosis by means of artificial pneumothorax has become quite general all over the country. It frequently happens that a patient who has been under treatment has to remove to another locality for economic or other reasons. In many of these cases it is greatly desirable and necessary that the pneumothorax be "kept up." In the past year, several of my patients have left Denver for Chicago, New York and other cities, and I have wished, in several instances, that I might know of some one to whom I might refer them for further treatment and observation.

For the benefit of such patients and for the furtherance of all questions connected with pneumothorax therapy, I think it would be a good idea that the men who are doing this work form an association. This would enable us to refer such cases to each other and feel that we are placing our patients in competent hands.

I would therefore ask those interested in pneumothorax work, and in the idea of forming an association, to communicate with me.

H. Schwatt, M.D., Edgewater, Colo.
Superintendent, Sanatorium of the Jewish Consumptives' Relief Society.

Cooperatively Conducted Local Hospitals

To the Editor:—I have learned that in a number of localities the physicians of small country towns have joined together and conducted a successful hospital for the community. Please give me plans or methods of undertaking the establishment of a hospital of the kind in a county seat town of about 2,000 inhabitants, by-laws governing the physicians interested, etc. Please give me the addresses of physicians who have adopted such methods of work and all the information you can to get a movement of this kind started in our community.

M. P. O.

[Comment.—We shall be glad to receive information regarding the proposition, either for publication or to be forwarded to the writer of the letter.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TOOTH DETERGENTS

To the Editor:—Has The Journal published any report on the detergent and antiseptic effects of the various preparations advertised for cleansing the teeth? If not, would it not be well in the interest of many readers who must wish accurate information on the selection of an effective agent to have the Council examine and report on this question?

S. T. A.

Answer.—The Journal has published recently in the Department of Therapeutics (Nov. 8 and 15, 1913, pp. 1719 and 1812) an article on oral cleanliness which discusses the principles involved in the use of tooth-powders and other preparations for cleansing the teeth. One of the constituents of many tooth-powders is soap, and this ought to be a harmless substance except for the objection to its alkalinity. The reason for employing an alkaline substance seems to be that it is recognized that dental decay is due to the effect of acids formed by fermentation. These acids, however, do not accumulate on the teeth in the free state but unite with the lime-salts of the enamel or dentine as soon as they are formed. The alkalinity of the ordinary tooth-powder can be of little service because its occasional application can do nothing to check the action of acids which are continuously formed during the intervals. Moreover, the use of an alkaline application to the teeth may be a positive detriment by depressing the secretion and alkalinity of the saliva on the principle that a secretion which is no longer needed ceases to be formed. Pickerill ("Stomatology in General Practice," p. 100) has shown that alkalies applied to the teeth and gums reduce both the amount and alkalinity of the saliva secreted subsequently to the application of the alkali, while the reverse effect is produced by acids. Hence he recommends a weakly acid application rather than the alkali. Another reason for the use of acid has been advanced by W. J. Gies (*Household Arts Review*, May, 1913, p. 12; The Journal, Nov. 8, 1913, p. 1719), who found that alkaline applications did not readily dissolve the mucus which retained the fermenting food on the teeth and hence were not efficient cleansers. He also advocates the substitution of acid solutions. Pickerill has found that daily rubbing the teeth with a weak solution of tartaric acid did not remove any appreciable amount of the material of the tooth. It seems, therefore, that tooth detergents should be made of weak acids rather than weak alkalies.

An antiseptic is usually added to these preparations with a view to hindering the proliferation of the numerous micro-organisms which are found in the mouth or introduced with the food. It is time that physicians should have clear ideas as to what can be expected from antiseptics applied to the oral cavity. To disinfect the mouth would be a difficult matter, and in practice is not worth attempting, unless by the direct work of a skilful operator. To give the patient an antiseptic with which to treat the mouth is worse than useless. If the object is to prevent putrefaction or fermentation it is much simpler to remove mechanically the fermentable material than to attempt to preserve it with an antiseptic. Pickerill suggests that not only is an antiseptic which is in contact with the organisms not more than three minutes a day of no use, but not improbably it has the reverse effect—that of producing a more vigorous and resisting strain of organisms due to the *slight* and *intermittent* opposition to their growth and to the survival of the fittest. This author states that for a chronic and slowly progressing lesion like caries of the teeth, the intermittent use of antiseptics is of no value. Their use should be limited to acute conditions and then they should be used frequently and in full strength, that is, as strong as can be tolerated, with the object of rapidly reducing the number and virulence of the organisms.

OPERATING-ROOM SLUMBER SONGS

To the Editor:—In your issue of June 6, I read with interest Dr. Kane's account of his musical operating-room. No doubt it is an admirable way of assisting the anesthetist, although I can imagine some of the disadvantages. For example, a patient given to dancing might become uncontrollable on hearing the "Argentine Tango," and then, again, the surgical nurse might be the cause of complications were one to play the "Matrimonial Glide." But outside of these unforeseen accidents good results could no doubt be obtained.

As a historical note I would add that Dr. Kane is not a pioneer in this respect. Henri de Mondeville (1260-1320), a shining light in his time and possessed of a most delightful line of sarcasm, advocated the following:

"Keep up your patient's spirits by music of viols and ten-stringed psaltry, or by telling him that he has been elected to a bishopric if a church man, or by forged letters telling him of the death of his enemies."

R. W. Mendelson, M.D., Des Moines, Iowa.

Answer.—Apropos of this we quote the following suggestions from B. L. T.'s Line-O'-Type Department of the Chicago *Tribune:*

select your record [June 8]

"I owe to Dr. Burdick, our anesthetist, thanks for his selection of records admirably adapted to the tastes and temperament of the subjects."—Evan O'Neil Kane, M.D., Kane, Pa.

This opens up a new avenue of fancy. When you are laid on the table and the saw is called for, what would be your choice of phonograph records? M. F. votes for "This is the Life."

the anesthesiest way [June 10]

Select your phonograph record before you go "under the knife."
Chick: "You can put me down for 'Good-Bye, Everybody.'"
L. C. W.: "'If You Talk in Your Sleep, Don't Mention My Name.'"

the anesthesiest way [June 12]

When I am on the table
And the surgeon's saw I see,
Let the intern start the record,
"What Will the Harvest Be?"
—Martha.

Dandy: "Just Tell Them that You Saw Me."
F. R.: "Please Go 'Way and Let Me Sleep."
W. M. B.: "Any hymn found in the appendix—to be followed by a collection."

the anesthesiest way [June 15]

C. E. B.: Turn on the record, "How happy could I be with Ether were t'other dear charmer away."
P. B. D.: "I Don't Know where I'm Going, But I'm on My Way."
F. G. F.: "Good Night, Nurse."
M. L. P.: "She Sleeps in the Deep."

the anesthesiest way [June 20]

Prize record, besought by H. M.: "Let a little sunshine in."

ARTICLES ON INTESTINAL OBSTRUCTION DUE TO WORMS

To the Editor:—Kindly refer me to any literature on the subject of ascariasis.

H. Robenstein, M.D., Chicago.

Answer.—The following is a list of articles on the subject:

Van Meter, B. F.: Intestinal Obstruction Due to Roundworms, *Surg. Gynec. and Obst.*, April, 1909.
Venning, R. E.: Intestinal Obstruction from Ascarides Lumbricoides, The Journal, June 18, 1910, p. 2041.
Whelan, Charles: Intestinal Obstruction Due to Ascarides Lumbricoides, with Autopsy, The Journal, Oct. 22, 1910, p. 1442.
Roll, J.: Oxyuris as a Cause of Ileus, *Norsk. Mag. f. Laegevidensk.*, 1910, lxxii, No. 1.

Burn, V.: Helminths Complicating Operations on Children, *Policlinico*, Rome, Oct. 6, 1912, p. 1481; abstr., The Journal, Nov. 9, 1912, p. 1757.
Braun, M.: Animal Parasites of Man, New York, William Wood & Co., 1906, $5.
Doflein, F.: Lehrbuch der Protozoenkunde, Ed. 3, Jena, Fischer, 1911.
Mense, C.: Handbuch der Tropenkrankheiten, Ed. 2, Leipsic, Barth, 1913. (D. A. Looss contributes a large part of this.)
Fertig, J.: Incision of Common Bile-Duct for Obstruction by Ascarides, *Deutsch. Ztschr. f. Chir.*, April, 1912; abstr., The Journal, June 1, 1912, p. 1729.
Rosenthal, R.: Ascaridiasis of the Bile-Passages Simulating Cholelithiasis in the Elderly, *Deutsch. Ztschr. f. Chir.*, March, 1913.
Allen, M. D.: Ascaris Lumbricoides as a Complication of Surgical Operation, The Journal, June 21, 1913, p. 1953.
Echeverria, E.: Remarkable Resistance to Combined Ascaris and Hookworm Infection, *New York Med. Jour.*, Feb. 24, 1912.
Fraser, T. A.: Intestinal Parasites, *Kentucky Med. Jour.*, Nov. 1, 1913.
Row, T. G. S.: Roundworms and Pregnancy, *Indian Med. Gaz.*, October, 1913.
Lechler, A. and Plew, H.: Ascarides in Children, *Arch. f. Kinderheilk.*, 1913, lxii, Nos. 1 and 2.
Pflugradt, R.: Ascarides in the Bile-Passages, *Deutsch. med. Wchnschr.*, Jan. 29, 1914.

PUBLICATIONS ON CHRISTIAN SCIENCE

To the Editor:—I am writing for information on Christian Science. If you have something on that subject I would appreciate your sending it to me, or putting me in touch with some one from whom I can secure an article concerning it.

C. D. Dixon, M.D., Dixon, Ill.

Answer.—The following is a list of recent publications on this subject:

Peabody, F. W.: Religio-Medical Masquerade, Boston, Hancock Press, 1910.
Paget, Stephen: Faiths and Works of Christian Science, New York, the MacMillan Company, 1909.
Books on Christian Science, Queries and Minor Notes, The Journal, Aug. 29, 1908, p. 778. This contains a list of books and articles.
Faith Without Works, Current Comment, The Journal, Oct. 11, 1913, p. 1383.
Chapin, H. D.: Christian Science in Operation, *Med. Rec.*, New York, Dec. 16, 1911.
Christian Science and the Sex Problem, *Outlook*, Sept. 13, 1913.
MacCulloch, C.: Concerning Christian Science, *Independent*, Aug. 28, 1913.
Knott, J.: Christian Science, *St. Paul Med. Jour.*, April, 1911.
Stevens, B. N.: Failure of Christian Science to Differentiate Dropsy and Pregnancy, The Journal, Dec. 21, 1912, p. 2274.
Mrs. Eddy and the National League for Medical Freedom, Current Comment, The Journal, Feb. 24, 1912, p. 559.
Senator Works and the Los Angeles County Society, Current Comment, The Journal, Dec. 2, 1911, p. 1843.

DISTINCTION BETWEEN "TUBERCULOUS" AND "TUBERCULAR"

To the Editor:—Will you kindly inform me concerning the proper distinction between the terms "tuberculous" and "tubercular"?

Sanford B. Hooker, M.D., Boston.

Answer.—Careful writers apply the term "tubercular" to lesions characterized by the presence of nodes or tubercles, whether caused by the tubercle bacillus or by any other agent; and "tuberculous" to lesions produced by the *Bacillus tuberculosis* or to conditions associated in one degree or another with tuberculosis. That is to say, the word "tubercular" applies to the external form of a lesion; the word "tuberculous," to the cause, actual or possible, of a lesion or a condition. Thus, tubercular leprosy, caused by the *Bacillus leprae*, is so called because of the nodular character of the lesions, while tuberculous pleurisy is so called because produced by the tubercle bacillus. A "tuberculous diathesis" is a predisposition toward tuberculosis; the tubercle bacillus, whether capable of being demonstrated or not, is regarded as a factor, potential or operative, in the condition.

Sanitary Environment in Places of Employment.—The sanitary conditions of the places of employment have a distinct and direct bearing in the causation of disease through poor general conditions, poor lighting, heating and ventilation, overcrowding, excessive humidity and special conditions of deleterious gases, fumes, dust, poisons and the like. These conditions are so obviously causing disease and are so prevalent in so many industries and causing so much direct injury to the workers that the general public have come to consider these as the full extent of the damages for which industrial conditions are responsible.—B. S. Warren in *Pub. Health Rep.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.

Alaska: Juneau, July 7. Sec., Dr. Henry C. De Vighne, Juneau.

Arizona: Phoenix, July 7-8. Sec., Dr. John Wix Thomas, Phoenix.

Colorado: Denver, July 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Indiana: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.

Maine: Augusta, July 7-8. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, July 14-16. Sec., Dr. Walter P. Bowers, Room 159 State House, Boston.

New Mexico: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.

North Dakota: Grand Forks, July 7. Sec., Dr. G. M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.

Oregon: Portland, July 7-9. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

South Dakota: Deadwood, July 14. Sec., Dr. P. B. Jenkins, Waubay.

Utah: Salt Lake City, July 6-7. Sec., G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Vermont: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Underhill.

Washington: Seattle, July 7. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Wyoming: Laramie, July 9-11. Sec., Dr. H. E. McCollum, Laramie.

Teaching Fellowships in Medicine

The University of Minnesota Medical School has adopted the principle of teaching fellowships in the clinical departments, with the end in view of providing well-trained full-time assistants and research workers and at the same time giving a basis for graduate instruction in the various specialties. It is arranged that the fellowships be in three grades, namely, first year, $500; second year, $750, and third year, $1,000.

To be eligible to a first-year fellowship, a candidate, as a general rule, must have received his M.D. degree from an acceptable school and have served one year as intern in a good hospital. The fellows appointed under this system will give their entire time to study, research and such assisting in clinics as they may be prepared for. A course of study will be laid out for each fellow, adapted to prepare him for the specialty chosen by him. This course will include work in the laboratory branches, dispensary service, hospital service and investigation. It is probable that the course (of two or three years) will lead to a degree properly recognizing the specialty in which the candidate has worked. Arrangements may be made whereby these fellows can spend one year at the Mayo Clinic and count the same toward the advanced degree.

In order to inaugurate the system the Board of Regents of the university has authorized the following teaching fellowships for the next school year: one each in medicine, in surgery, in obstetrics and gynecology, and in eye, ear, nose and throat work, each of $500. There is also provision for one $500 fellowship and one $1,000 fellowship in mental and nervous diseases, or in lieu of these a $1,500 instructorship.

District of Columbia Reports

Dr. George C. Ober, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, April 8-10, 1913. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 10, of whom 8 passed and 2 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University	(1911)	90
George Washington University	(1911)	91.6
Howard University	(1912)	80.6, 83.8

Columbia University, College of P. and S.	(1905)	85.1
Temple University	(1910)	81.3
Women's Medical College of Pennsylvania	(1910)	82.9, 87.4

FAILED

Maryland Medical College	(1912)	71.4
College of Physicians and Surgeons, Boston	(1910)	73.2

At the examination held July 8-10, 1913, the total number of candidates examined was 24, of whom 20 passed, 2 failed and 2 were refused license. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University (1902) 83; (1912) 79.6;	(1913)	81.1, 82.1, 91.5, 96.4.
George Washington University (1912) 85.4;	(1913)	88.3, 89.7, 93
Howard University	(1913)	80.1
Bennett Medical College	(1913)	81
Hering Medical College	(1906)	77.1
University of Maryland	(1912)	81
College of Physicians and Surgeons, Boston	(1910)	75.8
New York Homeo. Medical College and Hospital	(1913)	78.4, 83.1
University of Pennsylvania (1907) 84.8;	(1913)	81.7
Vanderbilt University	(1912)	88.6

FAILED

Maryland Medical College	(1913)	69.2, 74.9

At the examination held Oct. 14-16, 1913, the total number of candidates examined was 13, of whom 12 passed and 1 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University	(1912)	84.4, 86.2
George Washington University (1912) 78.4;	(1913)	86.6
Howard University (1911) 91.7; (1912) 79.4;	(1913)	76.1
Johns Hopkins University (1912) 81.9;	(1913)	90.8
Maryland Medical College	(1913)	75.8, 75.8
University of Maryland	(1912)	75.4

FAILED

Maryland Medical College	(1911)	67.2

Five candidates were licensed through reciprocity from July 12 to Nov. 18, 1913. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University	(1909)	Texas
Baltimore Medical College	(1907)	Louisiana
College of P. and S., Baltimore	(1906)	W. Virginia
University of Missouri	(1887)	N. Carolina
Jefferson Medical College	(1897)	W. Virginia

Oklahoma January Report

Dr. J. W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, Jan. 13-15, 1914. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 8, of whom 5 passed and 3 failed. Twelve candidates, including 1 osteopath, were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Georgetown University	(1912)	87
George Washington University	(1912)	87
Bennett Medical College	(1913)	82
College of Physicians and Surgeons, Baltimore	(1887)	75
St. Louis University	(1913)	83

FAILED

College of Physicians and Surgeons, Little Rock	(1910)	64
University of Arkansas	(1911)	70
Vanderbilt University	(1893)	65

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1909)	Arkansas
Howard University	(1912)	W. Virginia
University of Georgia	(1908)	Georgia
Central College of Physicians and Surgeons	(1904)	Indiana
State University of Iowa, Coll. of Homeo. Med.	(1900)	New Mexico
Eclectic Medical University, Kansas City	(1911)	Arkansas
Epworth College of Medicine	(1910)	Arkansas
Chattanooga Medical College	(1910)	Tennessee
Memphis Hospital Medical College	(1909)	Mississippi
University of the South	(1906)	Mississippi
Vanderbilt University	(1886)	Texas

ANATOMY

1. What passes through the foramen magnum? 2. Give origin and insertion of sartorius muscle. 3. Name the parts severed in amputation of the lower third of the thigh. 4. Name the organs in the thoracic cavity. 5. Locate and describe the popliteal space. 6. How long is the alimentary canal in the adult? 7. Locate and describe the atlas. 8. Give origin of the gastric artery. 9. How many different bones in the body? 10. Give articulations of the humerus.

BACTERIOLOGY AND PATHOLOGY

1. Name four modes by which disease is extended, and the process of extension. 2. Define necrosis. Give four causes for same. Illustrate each. 3. What is fatty degeneration? Name three causes for same. 4. What do you understand by pathologic pigmentation? Give three methods by which the same is derived. 5. Define degenerative, exudative and proliferative inflammation. 6. Name three ways by which connective tissue may be derived. 7. Name three pathologic results which usually follow the softening of a thrombus. 8. What is tinea tonsurans and its effect on the body? 9. In a suspected tuberculous brain, name the parts you would first examine. Why? 10. Give the pathologic change that takes place in the blood of pellagra patients.

PHYSICAL DIAGNOSIS

1. What are râles? 2. Name the varieties of râles usually met with. 3. What do pulsations at the base and border of the heart indicate? 4. What is a murmur? 5. How are murmurs best heard and timed? 6. Name the physical signs of the lung cavity. 7. Name the methods of auscultation. 8. Diagnose aortic aneurysm. 9. Differentiate aortic aneurysm from tumors. 10. Diagnose first, second and third stages of lobar pneumonia.

TOXICOLOGY AND MEDICAL JURISPRUDENCE

1. What are the symptoms of acute poisoning from arsenic? Give antidote. 2. The body of a new-born baby found dead. How could it be determined whether the child had been born alive or not? 3. What are the symptoms of acute poisoning from bichlorid of mercury? Give the antidote. 4. What are the symptoms of acute poisoning from antimony? Give the antidote. 5. What is the maximum dose of morphin sulphate? 6. What is the maximum dose of strychnin sulphate? 7. Give some of the symptoms of traumatic hysteria. 8. Give a definition of melancholia; mania; katatonia. 9. Define criminal malpractice. Civil malpractice. 10. If a person should be improperly committed to an insane asylum what legal procedure would be necessary to secure his release?

OBSTETRICS AND HYGIENE

1. (*a*) What is the pelvis? (*b*) False pelvis? (*c*) True pelvis? 2. What are the straits of the pelvis? Give diameters of each. 3. (*a*) What is the liquor amnii? (*b*) How is it useful and what are the dangers of scanty liquor amnii? 4. (*a*) State the probable cause of face presentation. (*b*) How would you manage a case? 5. What are the dangers of feeble uterine contractions in the different stages of labor? Give your treatment in each stage. 6. Give two causes for post-partum hemorrhage and describe your treatment in each case. 7. (*a*) Name three diseases of the mother in which you would not allow the child to nurse the breast. (*b*) What is Colles' law? 8. At what temperature should a schoolroom be kept? 9. How would you examine a child to determine its physical fitness to enter public school? 10. (*a*) How would you ventilate a sick-room in pneumonia? (*b*) Would you advise a different temperature of the sick-room for a patient with pneumonia and one with typhoid?

MATERIA MEDICA AND PRACTICE

1. What is cresol? Salol? Give uses and action. 2. Give therapeutics, of water, hot and cold. 3. Compare the physiologic action of aconite and digitalis. 4. Give etiology and diagnosis of cholelithiasis. 5. Diagnose and treat acute appendicitis. 6. Define cretinism. Give treatment. 7. How do tinctures differ from spirits? Give example of each. 8. Name the principal potassium salts and give use of each. 9. What is the difference between irritants and counterirritants? 10. What diseases most commonly occur in the right inguinal region?

GYNECOLOGY

1. Describe a normal menstruation and state the changes that take place in the uterine mucous membrane. 2. From what must you differentiate an ovarian cyst? 3. Treat pruritus vulvae. 4. What are the causes of pelvic abscess? Outline treatment. 5. Diagnose cancer of cervix. 6. Define pyosalpinx. Endometritis. Vaginismus. Cystocele. 7. Give the causes and treatment of non-specific vaginitis. 8. Give the causes of sterility. 9. Give the causes of metrorrhagia. 10. Treat ulcer of cervix.

PHYSIOLOGY

1. Give origin, distribution and function of phrenic nerve. 2. Give origin of the brachial plexus, and give the origin and function of the median nerve. 3. What agents of digestion change starch into sugar? 4. Locate crypts of Lieberkuhn and tell their function. 5. Define digestion. 6. What is the function of the clitoris? 7. What is the function of the white corpuscles of the blood? 8. Give origin, length and termination of cystic duct. 9. What nerve arises in the floor of aqueduct of Sylvius, is motor in function and supplies all the muscles of the eye except external rectus, superior oblique and orbicularis palpebrarum? 10. Tell where the enlargements of the spinal cord are found and what causes them.

SURGERY

1. What is a dislocation? Define the various kinds of dislocations. 2. What are the complications of dislocation of the hip? 3. Mention the causes of delayed union and give the treatment. 4. In what portion of the base of the skull may fractures lead to the escape of cerebrospinal

fluid? 5. Give the cause, symptoms and treatment of chilblain. 6. What is harelip? 7. How are foreign bodies to be removed from the trachea? 8. Give the technic of a gastro-enterostomy—any one method. 9. Give the treatment of stone in the common duct. 10. What conditions of the kidneys require nephrectomy?

CHEMISTRY

1. What is an element? Name an element that is univalent, bivalent, trivalent and quadrivalent. 2. Give the chemical antidote to silver nitrate; also strychnin poisoning. 3. What is the chemical name and formula for iodoform? 4. What is albumin, and give test for albumin in urine. 5. What is the difference between an atom and molecule? Name the lightest element; the heaviest element; the most precious element. 6. What is allotropism? Amorphism? Endosmosis? 7. Give the characteristics of (*a*) nephritic urine, (*b*) cystitic urine. 8. Complete the equation, $2NaNO_3+H_2SO_4=?$, 9. Name the chemical changes in the body after death (not physical). 10. What organic acids are present in vegetables and fruits?

Book Notices

Chemical Pathology; Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Professor of Pathology in the University of Chicago. Second Edition. Cloth. Price, $3.25 net. Pp. 616. Philadelphia: W. B. Saunders Company, 1914.

When the author wrote this pioneer work on chemical pathology he performed a most timely service. He marshaled from widely scattered sources the existing information about the chemistry of pathologic processes and presented it in an orderly and attractive form. The result no doubt greatly facilitated the study of chemical pathology at the opportune period when it was being realized that further progress in the understanding of pathologic processes had to come through chemical rather than morphologic methods of investigation. Since the first edition was issued (1907) the literature on chemical pathology has received more substantial contributions than in all the previous history of the science. Naturally the consequent changes in views and the added knowledge have necessitated many and radical alterations in the revised edition. This is especially the case in the parts dealing with immunity and the ductless glands. R. T. Woodyatt writes anew the chapter on carbohydrate metabolism and diabetes, subjects which he is especially well qualified to discuss. The book presents the existing state of knowledge with masterly thoroughness, discrimination and clearness. It is a product of genuine scholarship. The reception on its first appearance was uniformly favorable; it quickly became accepted as a reliable and authoritative source of information in regard to its subject and as a useful guide to further study, not only for the student and physician, but also for the investigator in biologic chemistry. The revised edition will enjoy this enviable distinction in even larger measure.

Geriatrics: The Diseases of Old Age and Their Treatment. Including Physiological Old Age, Home and Institutional Care and Medico-Legal Relations. By I. L. Nascher, M.D. Introduction by A. Jacobi, M.D. Cloth. Price, $5 net. Pp. 517, with 81 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

The subject discussed in this book is nowhere defined except by antithesis. Old age is compared and contrasted with childhood, but the essential characters that mark off the senile organism are only vaguely outlined. Still Dr. Nascher insists that we cannot deal understandingly with senile diseases if we do not understand the senile organism, and that we cannot understand the senile organism unless we study it as a physiologic entity entirely apart from maturity. He then proceeds to show that "the irregularity in the order and the wide variations in time and extent of the senile changes in different individuals make it impossible to establish a norm or standard for these changes." What then becomes of the entity entirely apart from maturity?

The size of the book precludes an exhaustive analysis. There is much vague statement of hypotheses that produces a sense of confusion in the mind of the reader. For the most part, the diseases of old age are described like the same diseases occurring in middle life. A few sentences suffice to indicate the modifications due to age. As a result the book is burdened with matter which covers the entire field of medicine often given with necessarily insufficient detail, and available in other text-books. One subject Nascher discusses with considerable fulness, namely, the arteriosclerosis of old age. Several theories of the origin of this condition are given, and finally the experiments of Weil are referred to. The theory founded on these experiments is developed at considerable length, the reason given being that there "are favorable reports of a method of treatment based on this theory." (The method of treatment referred to is, we presume, the use of amorphous phosphorus). "Weil," Nascher reports, "found that while the normal daily elimination of CaO through the kidneys was 0.39 gm., in over 50 per cent. of his arteriosclerosis cases, the elimination was less than 0.2 gm. and in no case did it reach the normal, notwithstanding abundant lime introduction. The conclusion is that there is an excessive lime retention with consequent disproportion of salts in the blood. Lime deposits occur late in the disease and this theory does not explain the early degenerative process." No reference is given by Nascher to Weil's article. It may be noted here that the determination of an abnormally small excretion of calcium in the urine affords no ground for concluding that there is retention of calcium, because the greater part of ingested calcium is excreted by the intestine. In representing the character of the old the author is inclined to dwell on the darker lines of the picture and to portray the aged as examples of inconsiderate selfishness, forgetting the many examples of men and women working to advanced age in the interest of humanity, or waiting quietly and uncomplainingly for their discharge from their accomplished warfare. Notwithstanding these defects the author has included a good deal of important information which it may be worth while to extract by a patient reading of the whole book.

Flies in Relation to Disease. Non-Bloodsucking Flies. By G. S. Graham-Smith, M.D., University Lecturer in Hygiene, Cambridge. Cambridge Public Health Series. Cloth. Price, $3.50. Pp. 292, with 32 illustrations. New York: G. P. Putnam's Sons, 1913.

This book is an excellent discussion of the mechanical conveyance of disease germs by non-bloodsucking flies. It is well written, beautifully illustrated, and deals with the subject in a thoroughly interesting fashion. A comprehensive bibliography is appended. One feature that will appeal to practical workers is the definite way in which the gaps in our knowledge are pointed out. The writer clearly shows the insufficiency of the evidence on which are based the extravagant claims made by some popular writers regarding the share of house-flies in spreading disease. The present position of our knowledge is summed up in the statement: "It is certain that the house-fly is a potential disease carrier and a constant frequenter and disseminator of filth, but much remains to be done before Howard's name 'typhoid fly' . . . can be completely justified." Again: "The general evidence relating to the spread of typhoid fever by flies in cities in temperate climates is at present far from conclusive." A few misprints of proper names are noticed, as on page 75,. "Glossona" and on page 135, Kartle (for Kastle) and Lennoden (for Lumsden), but in general the proof-reading seems to have been carefully done. Altogether the book launches the new Cambridge Public Health Series most successfully.

A Reference Handbook of the Medical Sciences, Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Authors. Third Edition. Edited by Thomas Lathrop Stedman, A.M., M.D. Volume 3. Cloth. Price $7 net. Pp. 930 with 665 illustrations. New York: William Wood & Co., 1914.

A striking feature of the present volume is the number of short articles. With the exception of articles relating to the ear, which aggregate nearly one hundred pages, the articles on important subjects seldom exceed fifteen pages, many such as that on diabetes mellitus, not reaching ten pages. Though short, the articles are excellent. The illustrations are plentiful, some of them being colored plates.

Medicolegal

Valid Regulations of the Sale of Milk

(*Koy vs. City of Chicago et al. (Ill.), 104 N. E. R. 1104*)

The Supreme Court of Illinois affirms a decree dismissing for want of equity a bill filed by the plaintiff to restrain the city of Chicago and its officers from revoking licenses issued to him as a milk-dealer, and from interfering with the distribution of milk products by him, and others similarly situated, for failure to comply with certain provisions of an ordinance of the city. The court says that the plaintiff did not question the power of the city to require the pasteurization of milk, but only the reasonableness of requiring the use of the temperature-recording apparatus mentioned in the ordinance. He alleged that he was furnishing clean, pure, and properly pasteurized milk, and that the requirements of the ordinance were no more reasonable than would be a requirement that he should furnish equipment for the city laboratory or pay an inspector for ascertaining whether he was complying with the ordinance. But the court cannot say that the requirements complained of in the ordinance are not adapted to the object sought or are not reasonable.

The regulation of the sale of milk and its products is essential to the preservation of the public health, and authority for its regulation is clearly given to the city council by paragraphs 50, 53, 66 and 78 of Section 1 of Article 5 of the cities and villages act of Illinois. The object of the ordinance is not to benefit persons engaged in the milk business or to enable them to comply with the ordinance in regard to pasteurizing milk, but is to make sure that the milk offered for sale within the city shall be of a quality which will not be detrimental to the public health. The city having power to require milk to be pasteurized is not limited to the imposition of a penalty for a violation of this requirement, but may prescribe the conditions under which the pasteurization shall be done in order to prevent an evasion of the ordinance and insure that the product shall be such as the ordinance requires.

There is no article of food in more general use than milk; none whose impurity or unwholesomeness may more quickly, more widely, and more seriously affect the health of those who use it. The regulation of its sale is an imperative duty which has been universally recognized. This regulation in minute detail is essential, and extends from the health and keeping of the cows which produce the milk, through all the processes of transportation, preservation, and delivery to the consumer. Not only may laws and ordinances require that milk offered for sale shall be pure, wholesome and free from the bacilli of any disease, but they may and do, in order to produce this result, prescribe the manner in which such purity, wholesomeness, and freedom from disease shall be secured and made to appear. The cows may be required to be registered with a designated public authority; the dairies to be conducted and managed according to prescribed regulations, and, together with the dairy utensils, subjected to inspection; the receptacles in which milk is contained to be of prescribed character and capacity; the labels to be placed according to fixed regulations, and to contain certain required information; the milk to be prepared in the manner, at the times, and by the means directed, and at all times to be subject to inspection. These may be drastic restrictions on a private business; but experience and the increasing knowledge of the causes of disease and the agencies of its propagation have demonstrated the necessity of such restrictions to the preservation of the public health. The object of all such restrictions is the preservation of the public health, and as a means to that end the protection of the general public against dishonest vendors of milk. They all impose inconveniences and expense on the dealers in milk, but they are not on that account unreasonable, unjust or oppressive. Legislatures and city councils, in the exercise of the police power, may prohibit all things hurtful to the health and safety of society even though the prohibition invade the right of liberty of property of an individual.

If the apparatus required should not record the temperature accurately at all times or should not indicate the length of time the temperature was maintained, or if it can be manipulated so as not to show an accurate record, these are matters for the city council to consider. Courts cannot overrule the determination by the city council that a particular method of protecting the public should be adopted unless it is so clearly and manifestly wrong that there can be no doubt about it. A personal inspection of all milk sold in the city would be manifestly a requirement difficult, if not impossible, to carry out. Even though the recording apparatus may be manipulated by a dishonest dealer so as to show an untrue record, the city council may have thought its use better for the protection of the public than a system by which no record was preserved, but the health officers were compelled to rely wholly on the dealer, and the court cannot say that they were clearly and unmistakably wrong. Whether officers of the health department shall be provided in sufficient number to visit the places where pasteurization takes place between each pasteurization and the next is also a question for the council.

No Charter for Chiropractors' Association

(*Appeal of Chiropractors' Association of Pennsylvania (Pa.), 90 Atl. R. 335*)

The Supreme Court of Pennsylvania affirms an order refusing an application for a charter for a chiropractors' association. The court declares that it cannot say that the court below was wrong in its conclusion that approval of this application ought to be withheld until the incorporators have attained a legal status under the laws of the commonwealth governing all medical practitioners. After examining the application and considering the testimony taken before a commissioner in support thereof, the court below was unable to approve of the grant of the charter. Several reasons were given. First, it appeared from the report of the commissioner and from the petition that the applicants as "chiropractors" had no legal status under the law of Pennsylvania, and that the main object in procuring the present charter was to give the association a legal status, prior to that which they would endeavor to obtain under the law of the state. This fact of itself, the court said, was a sufficient reason for withholding approval of this charter until the status of the incorporators was recognized and defined by laws. Another reason assigned was the implied purpose of the proposed corporation to create subordinate organizations throughout the state of Pennsylvania subject to the central organization. This, the court felt, was beyond its authority to sanction. A third reason which influenced the court was its inability to ascertain what was meant in the application by the term "chiropractors," or what the real purpose was which was to be effected by the organization. The court said that examination of the testimony of the incorporators gave rise to considerable doubt as to which of the purposes of the act of assembly the incorporators might be chartered under. Its exact position seemed to be doubtful in the minds of the incorporators themselves. One answer seemed to indicate that they were engaged in general practice in the treatment of almost every known disease, which would bring them within the requirements of the laws of the state regulating medical practice.

Reference Changed

The opinion of the Supreme Court of Colorado in the case of *Graeb* vs. *State Board of Medical Examiners et al.* appeared first in the advance sheets of 135 Pacific Reporter, 776. This was given as the legal reference in the Medicolegal Department of The Journal (Jan. 31, 1914, p. 402). For some unexplained reason, however, the decision was omitted from the bound volume of 135 Pacific Reporter, and now appears in the advance sheets of 139 Pacific Reporter, p. 1099. It has to do with the validity of a statute providing for the revocation of licenses of physicians obtaining fees on representations that manifestly incurable diseases can be permanently cured.

Society Proceedings

COMING MEETING

Montana State Medical Association, Lewistown, July 8-9.

AMERICAN PEDIATRIC SOCIETY

Twenty-Sixth Annual Meeting, held in Stockbridge, Mass., May 26-28, 1914

(Continued from page 2050)

The High Caloric Diet in Typhoid of Infants and Young Children

Dr. L. E. LaFetra and Dr. Louis C. Schroeder, New York: Our series comprises 48 cases. The children were fed at intervals of three hours, beginning at 6 a. m. and continuing until 9 p. m. The articles given were very much those prescribed for the child in health, with the exception that the only meat used was creamed chicken. In no case was an exclusive milk diet used. Every patient took cereal in some form. Eggs and toast were offered from the beginning. The number of calories that were actually taken after the first few days and that seemed from a clinical standpoint to have been utilized satisfactorily varied from 100 to 3,000 per kilo of body weight. The urine in these cases seldom showed any traces of indican. It was found that a high range of temperature interfered somewhat with the taking of so much food. The so-called typhoid state occurred in a much smaller proportion of the cases than under the older method of treatment. Abdominal distention was present in only six cases and in only one was it troublesome. Five of the patients had blood in the stools at some time during the course of the disease. In only two instances were the hemorrhages severe enough to cause apprehension. One patient was transfused three times and lost in weight, but during convalescence took the largest amount of food recorded, viz., 8,000 calories in twenty-four hours. There were but three relapses and one recrudescence. During the course of the fever 60 per cent. of the patients gained weight.

DISCUSSION

Dr. Frank S. Churchill, Chicago: Do you think there was any connection between the hemorrhages and the high caloric diet?

Dr. Charles Gilmore Kerley, New York: After having had typhoid myself I felt that patients should have a more generous diet and have been following out this plan for several years. The diet I have given is similar to that just advocated, but I have not been allowing meat until the third week. We find much less tympanites after getting away from the milk diet.

Dr. John Lovett Morse, Boston: I also had typhoid and learned my lesson. With the more liberal diet one does not get the constipated stools that one gets with a milk diet. We are feeding our typhoid patients on a varied diet and try to keep up the calories as high as Dr. LeFetra does. As it is difficult to give the high caloric diet during the febrile period, the feeding of typhoid cases should be divided into two periods, the febrile and the post febrile.

Dr. L. E. LaFetra, New York: As to the effect of the high caloric diet on hemorrhage, the diet was not very high in caloric value at the time of the hemorrhage. When the children are very sick they do not take so much food, but one can gradually work them up to the larger amounts.

The Caloric Value of the Diets of Sick Infants

Dr. J. C. Gittings, Philadelphia: The caloric value of 125 infants' diets was calculated and compared with two standards—the number of calories required on the basis of the weight on admission to the hospital and the number of calories required by a normal child of the same age and the average height. The percentage of deficiency in caloric requirements based on weight on admission was reasonably small, but the small gain, one-fifth of an ounce a day, for all cases, two-fifths of an ounce for recoveries, suggests that it might have been possible to exceed the caloric minimum with benefit. The complicated atrophy cases showed about the same deficiency as the recoveries, but in the uncomplicated atrophies and in the miscellaneous groups the diet exceeded the minimum requirement and the gain was proportionately large. In the gastro-intestinal group a similar difference was noted, but the uncomplicated cases showed an actual deficiency instead of excess and received less food than careful attention to caloric requirements would have indicated. The tuberculous meningitis patients showed an actual gain in weight because of the forced feeding. The percentage of admission weight deficiency of all cases compared with that of the normal child of the same age was 32 per cent. The percentage of caloric deficiency was 36 per cent. Those cases which showed the greatest deficiency were babies under 3 months of age, and cases of infantile atrophy and gastro-intestinal disease complicated with vomiting, diarrhea or fever.

DISCUSSION

Dr. Charles Hunter Dunn, Boston: I have always felt the fallacy of the minimum caloric requirement. We have tabulated the caloric value of the diet taken by about all the infants in our wards and found that the extremes were so great that no conclusions could be drawn from any system of averages that could be of practical value.

Dr. Henry Dwight Chapin, New York: We have overestimated the value of the caloric method of feeding infants. It is the assimilation of nutrition and not the heat production that is of value. The elements in the food should be in proper proportion and are not interchangeable. In feeding infants we must provide for growth.

Dr. Rowland G. Freeman, New York: Fat babies require less food than the poor marasmus ones.

Dr. Charles Gilmore Kerley, New York: Some children require more than the estimated standard. In older children the number of calories required is dependent on activity.

The Feeding of Malnourished Infants with High Proteins and Carbohydrates and Very Low Fat Values

Dr. D. J. Milton Miller, Atlantic City, N. J.: The successful feeding of cases of malnutrition is by means of human breast-milk, and too much time is wasted in seeking substitutes before wet nursing is resorted to. A number of foods characterized by low fat and high protein and carbohydrate percentages have been tried, such as buttermilk, *Eiweissmilch,* Keller's malt food, etc., and all are applicable for a short period only. The series on which I made my observations belonged to the extremely atrophic and marasmatic class. Skimmed milk formed the basis of the diet with 1.0 to 1.75 per cent. fat. The children were not kept long on a fat-free diet, though the percentage of fat might always be below that of the normal formula. Eleven children were fed on this principle and the results were favorable.

The Results of Low Fats and High Proteids in Cases of Artificial Feeding in Infants

Dr. Percival J. Eaton and Dr. Edward B. Woods, Pittsburgh: We wish to present a series of cases showing what can be done for infants whose heredity is not of the best and whose environment has been bad. The patients were uniformly in poor condition. Certified milk and gravity cream alone were used. No formulas were pasteurized or sterilized. Dextri-maltose was used in each case and a proper quantity of citrate of soda, about 1 grain to each ounce of milk. When the children were first admitted they were put on barley water and then on defatted milk in small amounts. The milk was added in increasing proportions until a modified milk formula was used. The percentage of fat did not exceed 2.5 per cent. The most important point is that babies fed according to this general plan are less inclined to be ill and have a more stable life as well as very consistent growth.

(Continued on page 131)

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Meeting held May 6, 1914, at 8 P. M.

The President, Dr. James C. Wilson, in the Chair

The Bureau of Child Hygiene of the Department of Health of New York City

Dr. S. Josephine Baker, New York: New York City was the first community to take cognizance of the importance of child welfare work. The Bureau of Child Hygiene was organized late in 1908 as a division of the Sanitary Bureau. The main work was the prevention of disease and the education of the public to do its share. All activities relating to the health of children were coordinated and placed under the bureau's control. The work at present starts with the prenatal care of the child, and intensive studies show a probability of a distinct lessening in infant mortality. The bureau has felt that the unsupervised, uneducated midwife, even at her best, is a distinct source of danger and should be subject to some definite control, and recommended to the board of health a resolution prohibiting any midwife who had not previously practiced from doing so after Jan. 1, 1914, unless she had received a diploma from a school for midwives recognized by the board of health.

Ophthalmia neonatorum has practically disappeared in New York City. Last year about 16,000 babies were under the care of our nurses with a mortality of 1.4 per cent. There are probably about 5,000 babies who at present are not properly cared for, and we hope within the next year to have such an equipment that no baby shall be neglected. Educational publicity has been widely used. Instruction of groups of girls over 12 in the care of babies has been one of the most valuable factors of the work. The point of attack has been the well baby, and our efforts have been directed to keeping the well baby healthy. To secure the fullest efficiency, effective cooperation has been obtained with all infant welfare organizations in the city. Since the organization of the Bureau of Child Hygiene, the death-rate of babies under 1 year of age has been reduced from 144 per thousand births in 1907 to 101.9 in 1913. Of the ten largest cities in the United States, New York ranks second in its low rate of infant mortality, being outdistanced only by St. Louis with its rate of 99.5. The bureau controls the matter of the foundling baby by supervision of homes in which these children are boarded out from the big foundling asylums.

The care of the child before school age is a most difficult problem. The day nurseries and orphan asylums of the city are under the control of the bureau. The main care of the child from 5 to 15 years falls within the work which is known as the medical inspection and examination of schoolchildren. Since the organization of the bureau it has not been necessary to close any public school in New York City because of an epidemic of contagious disease. Our methods are those of prevention with the exclusion from school of any child presenting premonitory symptoms of a contagious illness. In the most congested parts of New York it is difficult to discover cases of ringworm, scabies or impetigo. Trachoma has been reduced from 20 to 3 per cent. In 1909, 13.1 per cent. of the children examined had defective vision; in 1913 this was reduced to 8.5 per cent. The percentage of defective nasal breathing has decreased from 18.7 per cent. in 1909, to 8.9 per cent. in 1913. Adequate systems of ventilation have not yet been put into effect in the New York schools. This matter is under the control of the board of education. It is hoped that all schools will soon recognize the value of the open-window class.

The enforcement of that part of the child labor law relating to the issuance of employment certificates falls naturally as the last of the bureau's activities. The year previous to the organization of the bureau, but one child was refused an employment certificate because of physical inability. Last year, practically 600 were refused outright and nearly double that number had their applications held pending their obtaining the necessary care to secure good health. When we allow children to work we believe it is the duty of the community to see that they are physically able, and that their work may not react injuriously on them at the most important stage in their development. The bureau has 705 employees, including physicians and nurses. Its budget appropriation for 1913 was $652,000. It is the youngest and the largest bureau of the department of health. The results of its five years' work show that it is possible for any community to have a constructive program for the health of children, and that such a program to be effective must be founded on the idea of educational hygiene in preventive medicine.

Municipal Sanitation

Mr. M. N. Baker, president Board of Health, Montclair, N. J.: Broadly, municipal sanitation embraces all those works or activities which it is the duty of the city to conduct or regulate in the interest of public health. By a municipal program I mean not merely the planning of a city's activities for a single year but for many years to come, all with careful regard to the city's financial resources. Current practice in most American cities consists altogether too much in considering each division of municipal activity entirely by itself without regard to the other financial needs of the city. The result often is that the activity which has the most able orator, or whose administrative head has most political influence or backing, gets an undue share of the municipal funds, while other activities suffer accordingly. We must measure relative values in the field of public sanitation by vital statistics which, applied impartially and intelligently to the whole field, show that many lines of endeavor classed as sanitary must seek their justification chiefly from serving other than health protective functions.

When the promotion of public health is being considered, far greater weight should be given to water purification than to sewage treatment. While water purification purifies, sewage purification does not, so far as the removal of the germs of communicable disease is concerned. Sewage purification is a misnomer. A clear-cut distinction should be made between municipal health on the one hand, and municipal cleansing or some other form of decency or convenience on the other. In my opinion, the work of municipal boards of health should be confined almost wholly to direct measures for the control of communicable and perhaps occupational diseases, to the reduction of infant mortality extended to cover child hygiene, and to certain regulatory and educational work designed to promote general health. With a proper delimitation of the work of health departments so as to exclude all responsibility for the construction and operation of cleansing and other municipal work, which can best be entrusted to the engineer, and with the great improvements which have recently taken place in medical education, the medical rather than the engineering schools should be drawn on for the vast majority of health officers; but the medical schools are not yet equipped and probably never will be equipped to give, nor do medical students have time to take, all the instruction needed to make a good health officer. Fortunately, a number of schools of public health have been started during the past few years, which will meet in large measure the increasing demand for specific training to health officers.

DISCUSSION

Dr. A. C. Abbott: I do not believe that those of us living in Philadelphia realize what it has meant for New York to accomplish the results that have been laid before us. In that city there is an area more densely populated than any other known spot on earth, and in twenty-six years there has been a reduction of mortality among children under 1 year of age of over 50 per cent. They are far ahead of us in New York on the matter of saving infant life. We are glad to be told that good health is purchasable. When one decides to purchase a thing or a condition, one must not have in mind the purchasing of all outdoors. One should contemplate that which can be paid for. Mr. Baker has clearly indicated this idea. The prevention of illness is the function of our health authorities and should come first. The activities of our health boards in matters of general sanitation are diverting energies from the more important phase of health work. At the University of Pennsylvania, we have been offering instruction in public hygiene since 1906. Our effort is not to train specialists but to give the student a comprehensive understanding of the many-sided problem. It is significant of the spirit of the times that several other important educational institutions are also offering instruction in problems of public health. A health officer should have a medical training, because he is dependent on the professional men of the community for support, and he is much more apt to get it if he has had medical training, and is in sympathy with medical ideals. The man who has had, in addition to medical training, special instruction in public hygiene, is a much better health officer than he who has not.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Thirty-Third Annual Session held at Watertown, May 26-28, 1914

The President, Dr. F. A. Spafford, Flandreau, in the Chair

Nervous Symptoms in Nephritis

Dr. E. H. Grove, Hetland: I saw a case of nephritis in which the prominent symptom was persistent uncontrollable vomiting without nausea. The vomiting was hysteric in type; when under close observation the patient was kept from vomiting; when in bed she did not vomit. Her general health and nutrition had remained good.

DISCUSSION

Dr. T. J. Billion, Sioux Falls: The vomiting in this case corresponds with cerebral or hysteric vomiting. I really think the well-preserved condition of the patient and the character of the vomiting are suggestive of hysteria. I have not been able to find any other condition that would cause the vomiting.

Dr. Henry L. Ulrich, Minneapolis: Nephritis means not only a change in the metabolism, but a chromatolysis of the nerve centers, sensory or motor. I do not think that in subacute nephritis the symptom of nausea is an absolute essential to cause vomiting. A patient can have vomiting without nausea. We are beginning to think that every acute nephritis is of infective origin. The kidney is not alone at fault; we must consider other organs, particularly the liver. Take the cases of hypertension, with slight evidences of nephritis: we cannot blame the kidney for the retention of toxic products alone. There must be some changes in the metabolism which cause the hypertension products and which, in turn, are causing the high blood-pressure. In regard to vomiting, we are dealing with a chromatolysis due to malnutrition of nerve-cells, and whether this malnutrition is due to liver metabolism, to stomach, intestinal lining, or digestive metabolism, we do not know.

Dr. G. Eusterman, Rochester, Minn.: In all cases of chronic intoxication we have a symptom-complex which runs more or less parallel with cases of hyperthyroidism. These symptoms may simulate the intoxication which is associated with Bright's disease. Very frequently patients present themselves with the symptoms characteristic of exophthalmic goiter. In other words, we are dealing with a chronic intoxication, with perhaps parenchymatous degeneration of the kidney and liver, which intoxication results in a similar train of symptoms. It is very important to be sure of excluding chronic Bright's disease in a certain percentage of these cases, and we have been surprised in making a careful examination of the twenty-four-hour specimen of urine and the condition of the blood and the blood-pressure and eye-grounds, to find we were not dealing with exophthalmic goiter, but with a chronic glomerular or interstitial nephritis.

Dr. S. M. Hohf, Yankton: The more I study the subject of nephritis, the more I am convinced that the old theory of the etiology of the disease is not based on sound principles. Bright's disease means no more to me than a headache. I am convinced that the nephritides are due to some central nerve disturbance, because frequently the condition present in the kidney is one in which we find high blood-tension and cardiovascular disturbances. These are due not always to nutritional disturbances, but may be found in persons who are under constant high nerve-tension.

Afebrile Convulsions in Infancy and Early Childhood

Dr. F. W. Schultz, Minneapolis: The convulsions and similar manifestations develop on the basis of congenital neuropathic and psychopathic constitutions. Favorable conditions make them more manifest. These are, first, feeding. A breast-fed child is almost immune; only the artificially fed are very liable. Second, disorders of nutrition, quantitative (overfeeding), qualitative (one-sided feeding with milk or farinas, and acute intestinal disorders favor the development). Third, season of the year. The condition manifests itself particularly during the winter and spring months and abates or ceases altogether during the summer and fall months. Fourth, intercurrent febrile affections, like grip, pneumonia, etc., precipitate active manifestations. Fifth, the age of the child. From the third month up to the second year the condition is very common. Under eight weeks, spasmophilia can be ruled out. Spasmophilic convulsions can occur after the third year. We have, then, conditions similar to the tetany of adults. Sixth, hereditary and familial tendencies, which are predisposing factors. In this condition, as in epilepsy, teething and intestinal parasites have no bearing on either the cause or development of the disease. Spasmophilic convulsions consist of tonic contractions of the muscles of the face and extremities. They lead eventually to clonic convulsions.

The food for the spasmophilic child under 1 year should be breast-milk. Over 1 year the food for a long period should consist exclusively of carbohydrates. Cow's milk and a fat, rich food seem to have a specific unfavorable effect. It is well to exclude some of the meat, especially beef, from the diet. The brusque attack of convulsions is almost immediately controlled, certainly favorably influenced, by starvation, combined with a vigorous sedative, as, for example, chloral hydrate, 1 gm. by rectum, repeated at intervals, if necessary. Following this treatment, the child is placed on a strict, prolonged carbohydrate regimen combined with the phosphorus-cod-liver-oil therapy first advocated by Kassowitz. The use of calcium salts in this condition is of doubtful value. If any are used, calcium bromid should have the preference. If the dietetic regimen is carefully carried out, the child will be free for life from convulsions and most, if not all, the spasmophilic symptoms.

DISCUSSION

Dr. J. M. Freeberg, Watertown: Most of the convulsions that we see in these cases unquestionably come from infection or from an effect on the cortical cells of toxins in the system. If the case is of the fever type, the cause is most apt to be from the alimentary system.

Dr. Henry L. Ulrich, Minneapolis: At present it is held that asthma, hay-fever, pylorospasm and laryngospasm may be due to hypersensibility to proteins. In spasmophilics the conclusion is in favor of this being a hypersensibility reaction. It never occurs, as a rule, in breast-fed infants. Take the spasmophilic child off of cow's milk and the spasmophilia disappears. Recent experiments in rabbits show that hypersensibility to casein will produce the same reaction as in spasmophilics.

Dr. Percy D. Peabody, Webster: Following this regulation diet, is there a change in the electrical reaction toward the normal in these subjects, or is there a diminution in the symptoms?

Dr. F. W. Schultz: It is singular that spasmophilics cannot have carbohydrates exclusively. Some cases of spasmophilia arise from carbohydrate feeding, and when we reverse the food and put the patients on different milk, we check it in that way. The reactions change to normal if the proper diet is carried out. With the phosphorus-cod-liver-oil therapy you can have the child return to a normal state with the reactions and everything.

Emergency Surgery in Country Practice

Dr. M. M. Grove, Dell Rapids: The important factors in successful emergency surgery are: (1) to establish early diagnosis by careful and thorough examination; (2) good judgment in the choice of operation and necessary skill in its performance; (3) familiarity with the technic best adapted to the case; (4) favorable surroundings; (5) free drainage in all cases in which any chance of infection is possible, and (6) last but not least, the use of a little common sense. Unless one is familiar with the proper technic and has shown the necessary skill in doing major surgery under favorable conditions, he is not justified in attempting major emergency work under adverse conditions.

Lesions of the Urinary Tract Produced by Disease of the Genital Tract in the Female

Dr. A. C. Stokes, Omaha: Hydronephrosis must be regarded as of mechanical origin in the great majority of cases, and except in a few instances of congenital origin may be traced to malpositions, strictures, stones or inflammations obstructing the ureter or the pelvis of the kidney. With the advent of the cystoscope and the use of bismuth and wire ureteral catheters we have shown that malpositions of the ureter are not uncommon; also, that a certain number of these conditions originate from pelvic inflammations, displacements and growths. Hydronephrosis is one of the most commonly overlooked conditions with which we deal. Its symptoms are often regarded either of no particular moment and dismissed by the physician, or they are placed at the door of the appendix, the gall-bladder, the stomach or colon.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

May, XXXV, No. 5, pp. 243-302

1 *Treatment of Parasyphilitic Nervous Diseases and Late Syphilitic Nervous Manifestations by Intraspinous Therapy. A. Krida, Schenectady.
2 Saratoga and Its Mineral Waters. A. W. Ferris, Saratoga Springs.
3 Bender Hygienic Laboratory. H. S. Bernstein, Albany.
4 Laboratory Diagnosis of Syphilis of Nervous System. H. P. Carpenter, Poughkeepsie.

June, No. 6, pp. 303-350

5 Psychosis of Adolescence. J. M. Mosher, Albany.
6 Abdominal Symptoms. D. C. Moriarta, Saratoga Springs.
7 Medical Inspection and Examination of Schoolchildren. P. V. Winslow, Wappinger's Falls.

1. **Parasyphilitic Nervous Diseases.**—Clinically, of 8 cases of tabes treated by Krida, 4 were improved, 4 were unimproved. Of the latter, 3 had Charcot's joint lesions, and were of the most unsatisfactory type to treat; the fourth, had there been opportunity for further observation and treatment, Krida says, might well have responded to subsequent injections. In the cases of general paresis, the focal symptoms yielded quite promptly to treatment, while the mental condition was but little influenced. The septic paraplegias presented the most definite clinical improvement, every case being favorably influenced. From the laboratory standpoint, changes in the 3 reactions in the spinal fluid: cystosis, protein content, and Wassermann reaction, in contradistinction to the favorable outcome in the large majority of the reported cases, were more resistant to treatment, and did not keep pace with the clinical improvement. In only 1 case did a positive Wassermann reaction become even temporarily negative.

Among the other cases, there were several in which one or more of the three reactions were not pathologic or where subsequent comparisons could not be made for various reasons. Excluding these, there were 12 cases that had strongly positive Wassermann reactions. In 4 the reaction was diminished in intensity; in 7 it was practically uninfluenced. Of 13 cases the cytosis was greatly diminished in 6, and only moderately diminished or uninfluenced in 7. Of 10 reduced to normal in 6, and diminished in 4.

Archives of Diagnosis, New York

April, VII, No. 2, pp. 101-200

8 Living Pathology. J. B. Deaver, Philadelphia.
9 *Fundamental Considerations in Differentiation of Gastric Neurosis from Organic Abdominal Disease. H. Z. Giffin, Rochester, Minn.
10 Carcinoma of Stomach with Acute Onset. Importance of Recognizing Early Symptoms of Disease. E. H. Goodman, Philadelphia.
11 Abdominal Rigidity. J. N. Hall, Denver.
12 Diagnosis of Malignancy. J. C. Stewart, Minneapolis.
13 Ante-Mortem and Post-Mortem Diagnosis. A. L. Benedict, Buffalo.
14 *Macroscopic Differential Diagnosis between Tuberculosis and Papilloma of Peritoneum. R. T. Morris, New York.
15 *Valuable Diagnostic and Prognostic Signs in Chorea of Children. H. Heiman, New York.
16 Mixed Infections in Tuberculosis. L. C. Ager, Brooklyn.
17 *Hitherto Undescribed Sign in Diagnosis of Chronic Uremia. T. F. Reilly, New York.
18 Case of Complete Heart-Block, with Post-Mortem Findings. R. D. Rudolf and G. W. Loughead, Toronto.
19 Anencephalia: with Special Reference to an Important Etiologic Factor. A. Gordon, Philadelphia.
20 Study of Deformity Curves in Tuberculosis of Spine, with Special Reference to Operative Procedure. W. Truslow, Brooklyn.

9. **Gastric Neurosis from Organic Abdominal Disease.**—Giffin states that it is the common experience of large surgical clinics that too many patients suffering from various types of abdominal and pelvic neurosis have been advised to undergo surgical treatment and the greatest number of mistakes is apparently made in connection with those cases in which the diagnosis and prognosis should not be difficult. On the other hand, most searching examinations are often required in cases which, at the first examination, appear to be neurotic, in order to avoid the occasional mistake of not recognizing an abdominal lesion. Cases of gastric neurosis demand a very general kind of consideration. Important general factors which enter into this consideration are: 1. The analysis and grouping of those symptoms referable to hypersensitiveness and instability of the nervous system; 2. The careful exclusion of those diseases which, in a reflex manner, so commonly produce an indigestion of the functional type; 3. The realization that variability, both in the story that the patient tells and in the symptoms from time to time, is most important; 4. The application of the Roentgen findings; 5. The recognition of certain psychic elements; 6. A review of these data in the light of the personal and family history of the patient.

14. **Peritoneal Papilloma and Tuberculosis.**—A certain number of cases of tuberculosis of the peritoneum present macroscopic characteristics which are very different from those of the familiar miliary tuberculosis of the peritoneum. Morris cites a case in which on opening the peritoneal cavity it was found that various loops of bowel thickened with interstitial infiltrates were so massed together by adhesions that it was impossible to approach the pelvic cavity without tearing fragile bowel walls. Free peritoneal surface was studded with large elevated masses of neoplastic deposit, but without accompanying areas of acute inflammatory character. Morris' diagnosis was that of malignant papilloma, and a prognosis to the effect that the patient had a very short time to live. A drain was inserted and the abdomen closed. About a year later he happened to meet one of the consultants in the case and ask how long the patient had lived. He replied that she was quite well, and gained twenty or thirty pounds in weight and that her cure had been ascribed to Christian Science.

Morris' opinion having been accepted as final from responsible medical sources, the family had yielded to the importunities of friends and allowed the patient to be cared for by Christian Scientists. Up to this time Morris had been so sure of the diagnosis of malignant papilloma that the specimen which had been placed in a bottle of alcohol had not even been examined. The specimen on being examined showed that characteristic feature of tuberculosis. Recovery had apparently occurred in the ordinary way through hyperleukocytosis excited by the opening of the peritoneal cavity.

15. **Diagnostic and Prognostic Sign in Chorea.**—The sign described by Heiman may be produced in the following manner: the palm of the patient's left hand is placed on the palmar surface of the observer's right hand. Then the thumb of the patient is embraced by the index and middle fingers of the physician and the other four fingers firmly grasped by the remaining fingers of the examiner. The right hand of the patient is similarly grasped by the left hand of the physician. The attention of the patient is then invited by asking him a simple question, for instance, his name, age, address, etc., at the same time having him look directly into the eyes of the examiner. If the patient has chorea, the twitchings of the hands will be distinctly augmented each time his attention is engaged by the mental concentration required to answer a question. The firmer grasp the observer has on the patient, and the more he is able to disengage the patient's attention from the examination, the more surely will he be able to discern the finer muscular twitchings indicative of the early stage of chorea. This test is said to be very delicate and is often present when choreic movements of the extremities cannot be seen.

17. **New Sign in Chronic Uremia.**—Reilly found that in very many cases of high arterial tension without any digestive symptoms, a sense of bad taste would occur, often antedating other symptoms by months. The patient rarely complains of it because he thinks that it only represents an upset stomach. In forty cases of high arterial tension associated with other signs of nephritis, seen within the last year thirty had experienced the symptom for a greater or lesser period of time. As a rule, the complaint in the beginning was restricted to the time shortly after awakening in the morning, and disappeared first on washing the mouth, and later only after breakfast. Then it might disappear entirely for a few weeks to reappear later on. In this way it closely resembles the severe uremic headache so characteristic of the early morning hours. In other cases, the bad taste was complained of after exertion or at the close of the day when the patient was fatigued. The bad taste diminishes and disappears just in proportion as the general underlying condition improves. In general it may be stated that the more constantly it is present, the worse the prognosis.

Archives of Pediatrics, New York

May, XXXI, No. 5, pp. 321-400

21 *Pneumococcic Meningitis and Meningismus. Report of Cases. F. Huber, New York.
22 Case of Gaucher's Disease in Boy Thirteen Years of Age. Splenectomy with Recovery. C. Herrman, H. Roth and E. P. Bernstein, New York.
23 Organization of an Out-Patient Clinic. R. M. Smith, Boston.
24 Care of New-Born. C. G. Leo-Wolf, Buffalo.
25 *Case of Anorexia Nervosa in an Infant. N. G. Orchard, Rochester.
26 Chondrodystrophia Fetalis. J. K. Young, Philadelphia.

21. **Pneumococcic Meningitis and Meningismus.**—The four cases detailed by Huber present a number of special features in common. The well-marked cerebral symptoms with coma, the cerebrospinal fluid being free from bacteria were striking. The presence of eye symptoms, etc., rendered the diagnosis less difficult. From a study of pneumococcus infection, Huber says, it is evident that the underlying anatomic changes inducing the cerebral manifestations in the class of pneumonia discussed vary within wide limits. We may have a well-developed meningitis or meningo-encephalitis without any focal symptoms; that is, when the process involves the so-called silent areas in the brain. On the other hand, we may have cerebral disturbance equally pronounced, in which the post-mortem findings are limited to a leukocytic and lymphocytic infiltration with slight edema of the involved parts of the brain and meninges. The pneumococci are found in the spinal fluid in cases in which the entire cerebrospinal canal is involved. Localized meningitis or meningo-encephalitis with or without a plastic exudate reveals the organism at the local seat of trouble, the cerebrospinal tract not being involved as a whole in the process. In practice, therefore, it is essential that the clinical history be taken into consideration — for lumbar puncture may not throw any light on the case. A negative result is not conclusive; only positive findings are of value.

25. **Case of Anorexia Nervosa in Infant.**—A healthy infant, unincumbered by parental taint, manifested a determination not to take food. So far as could be determined the sole cause was the substitution of a new nipple for an old one. A persistent refusal to take any food offered in any manner resulted in a loss of nearly three pounds. Added to this was the lack of any organic lesion to explain the disease. Gavage lasting four days, was followed by a gradual surrender on the part of the infant.

Arizona Medical Journal, Phoenix

May, II, No. 4, pp. 5-23

27 Carcinoma of Cervix. J. T. Stoddard, Pueblo, Colo.
28 Treatment of Pneumonia. J. J. P. Armstrong, Douglas.
29 Subparietal Rupture of Kidney. J. M. Pearson, Glendale.
30 Syphilis, Prophylaxis and Treatment. W. G. Bryan, Bisbee.

Boston Medical and Surgical Journal

June 11, CLXX, No. 24, pp. 897-936

31 Present Status of Psycho-Analysis. J. J. Putnam, Boston.
32 Some Personal Results in Psycho-Analysis and Future of Psychotherapy. L. P. Clark, New York.
33 Indications for Operation on Seminal Vesicles. J. B. Squier, New York.
34 Cancer of Uterus. F. Cobb, Boston.

Bulletin of Johns Hopkins Hospital, Baltimore

June, XXV, No. 280, pp. 165-194

35 *Continuous Propagation of Amebic Dysentery in Animals. W. A. Baetjer and A. W. Sellards, Baltimore.
36 *Blood-Picture in Hodgkin's Disease. C. H. Bunting, Madison, Wis.
37 *Hodgkin's Disease. C. H. Bunting, Madison, Wis.
38 *Clinical Consideration of Hodgkin's Disease. J. L. Yates, Milwaukee, Wis.
39 Charles Bell: His Artistic Qualities. E. R. Corson, Savannah, Ga.

35. **Propagation of Amebic Dysentery in Animals.**—Two strains of amebic dysentery were investigated by Baetjer and Sellards with the object of securing continuous propagation by subinoculation through a series of animals. The first strain was lost in the second passage by accident. The second strain was carried through eleven successive passages in kittens. This strain increased in virulence and no degenerative changes appeared in the morphology of the entameba obtained at the site of active lesions. The characteristics of the clinical course and pathologic lesions were retained throughout the eleven passages. The propagation proved to be considerably complicated by the virulence of the accompanying bacteria. The successful propagation of one strain through eleven passages in animals, with an increase in virulence of the entameba and a retention of the typical features of their morphology, is in conformity with the general laws of protozoan and bacterial infections. The authors consider that the general behavior of this strain of amebic dysentery will prove to be typical of this species and that entameba histolytica will conform to the general rules of parasitology in regard to the subinoculation of a susceptible species of animals, especially with regard to the retention of virulence, through at least a moderate number of passages.

36. **Blood-Picture in Hodgkin's Disease.**—The series of cases studied by Bunting includes fifteen males and ten females, a somewhat higher percentage of the latter sex than is usually given. It is further rather striking that the great majority of the males are under the 33d year, while the majority of the females are above that age. The study of the blood in these cases has shown that there is a deviation from the normal leukocytic picture in all cases, but that there is not a single constant picture found in them. Instead, it is possible to divide the cases into two

distinct groups according to the differential count of the leukocytes. The first group, including cases of a year or less in duration, shows a normal or slightly increased total leukocyte count with a normal or decreased percentage of polymorphonuclear neutrophils.

The second group includes the cases of greater duration, for the most part, and shows a sharp leukocytosis, running in one case (as far as could be determined from the smear ratio of one white cell to twenty-nine red cells) to at least 100,000 leukocytes per cubic millimeter. This leukocytosis is accompanied by an increase of the neutrophils to a percentage between 72 and 90—a percentage not ordinarily considered of value in diagnosing a suppurative process in the body, yet occurring in Hodgkin's disease in the complete absence of pus formation. Throughout the disease there are two constant features, an increase in blood-platelets and an absolute increase in the transitional leukocytes. In regard to the other elements, in early cases there is a transitory increase in lymphocytes and basophils, and a deficiency in eosinophils, with a normal or low neutrophil count, followed by a gradual decrease in lymphocytes and a moderate eosinophilia. In late cases there is a marked neutrophil leukocytosis and a diminution in percentage in all other elements except the transitional leukocyte. All of these features of the blood-picture in Hodgkin's disease have been reproduced in the monkey following inoculation with the diphtheroid organism isolated from cases of the disease.

37. **Hodgkin's Disease.**—Hodgkin's disease Bunting claims is an infectious disease due to a diphtheroid organism, the *Bacterium hodgkini.* There may often be found a primary lesion at the portal of entry. While in some cases the organisms may remain for a long time localized in the vicinity of the portal of entry, in other cases they early gain entrance into the general circulation, and may be widely distributed. The organism and its toxin show a special affinity for lymphoid tissue, and produce in this the characteristic changes of Hodgkin's disease, changes varying somewhat according to the intensity of the toxin but resulting ultimately in the sclerosis of the glands. There is at the same time an interglandular inflammatory process, at times very acute, but resulting finally in a dense sclerotic tissue. There are also characteristic blood changes in the disease. The glandular changes can then be considered only as the result of a toxic action, and contribute to the patient's death merely incidentally, when certain gland groups are extensively enlarged. The cells of the enlarged glands, though atypical, show none of the antagonism to the other body cells characteristic of malignant neoplasms.

38. **Clinical Consideration of Hodgkin's Disease.**—Hodgkin's disease Yates regards as a localized process, susceptible of cure when properly treated as a malign, though chronic infection. It may persist for years without manifesting itself save in the blood-picture so that cures may not be assumed until after an uninterrupted duration of years of persistently normal conditions. A sovereign remedy for all cases is not now conceivable. At present the greatest need is some therapeutic agency to control glands not directly accessible; for once extension, which may occur early, has reached either the thorax or abdomen the prognosis becomes relatively, if not absolutely, hopeless.

California State Journal of Medicine, San Francisco

June, XII, No. 6, pp. 219-262

40 Social and Industrial Insurance. F. C. E. Mattison, Pasadena.
41 Ununited Fractures. J. T. Watkins, San Francisco.
42 Los Angeles Deaths from Intraspinal Neosalvarsan Injections. E. S. May, Oakland.
43 Intracranial Complications Following Abscess in Middle Ear. A. Baer, San Francisco.

Canadian Medical Association Journal, Toronto

June, IV, No. 6, pp. 469-564

44 Development of Obstetrics. B. P. Watson, Toronto.
45 Hemorrhagic Diseases. J. W. McIntosh, Vancouver.
46 Roentgenoscopy in Diagnosis of Gastric Ulcer. W. A. Wilkins, Montreal.
47 *Traumatic Asphyxia. Report of Six Cases. L. B. Robertson, Toronto.
48 Four Cases of Thrombosis of Lateral Sinus with Recovery. G. H. Mathewson, Montreal.

47. **Traumatic Asphyxia.**—All of the cases reported by Robertson were admitted to Bellevue Hospital on the evening of Feb. 2, 1913, having sustained their injuries in a stampede from a moving picture theater after a cry of "fire" had been raised. The condition is usually produced by pressure about the abdomen and chest persisting long enough to cause a cessation of respiration for an appreciable length of time. In a typical case the patient may be unconscious if seen immediately or shortly after the injury. Cyanosis of the scalp, face, neck and chest down to the third or fourth rib anteriorly is present. The lips and tongue may be somewhat swollen and together with the mucous membranes exhibit the same purplish tint as the skin. The discoloration extends just over the prominence of the shoulders, and for a short distance down the back, sometimes even outlining the double triangle of the lower portion of the trapezius muscle. Closer examination of this discolored area reveals the presence of more or less scattered petechial hemorrhages.

A prominent and sometimes startling feature is the subconjunctival hemorrhage. The cyanosis and hemorrhage obtain only in the upper part of the body, apparently on account of the lack of competent valves in the veins of this region, and in support of this explanation it has been shown that the veins of the neck can be injected in a direction against the blood-stream with comparative ease, while considerable difficulty is encountered if this is attempted in the veins of the arm or leg. The infrequency of cerebral hemorrhage is explained by the support given to the blood-vessels of the brain and meninges by the intracranial pressure, analogous to the support of the retinal vessels by the intra-ocular pressure. External pressure on the skin sufficient to give support to the superficial capillaries will also prevent distension or rupture of the latter. The discoloration of the skin is due to the mechanical over-distension of the vessels with resultant stasis and hemorrhages from the small capillaries.

The only treatment given by Robertson, apart from that indicated for the associated injuries, was rest in bed, light diet and sedatives for the nervous reaction which followed the shock of the injury. In two cases showing pulmonary conditions the therapy usual in such conditions was carried out. Only two deaths occurred in this series — the result of pneumonia.

Illinois Medical Journal, Chicago

June, XXV, No. 6, pp. 357-419

49 Increasing Death-Rate in People Past Middle Life and Possibility of Its Reduction. C. J. Whalen, Chicago.
50 Roentgenography in Diagnosis of Diseases of Children. J. P. Sedgwick, Minneapolis.
51 Appendicitis in Infancy. G. E. Baxter, Chicago.
52 Bovine Tuberculosis. M. P. Ravenel, Madison, Wis.
53 Silver Dento-Maxillary Splint. W. J. Thompson, Chicago.
54 Infant-Feeding in Earlier Months. A. H. Roler, Evanston.
55 Intravenous Medication. A. F. Stotts, Galesburg.
56 Intravenous Administration of Salvarsan in Treatment of Syphilis. C. A. Buswell, Chicago.
57 Recent Advances in Our Knowledge of Pertussis. J. R. Gerstley, Chicago.

Journal of Biological Chemistry, Baltimore

June, XVIII, No. 1, pp. 1-132

58 Nutritive Properties of Proteins of Maize Kernel. T. B. Osborne and L. B. Mendel, New Haven, Conn.
59 Comparative Chemistry of Muscle: Betain from Scallop, Periwinkle and Lamprey: Creatin from Lamprey. D. W. Wilson, New Haven, Conn.
60 *Certain New Principles Concerning Mechanism of Hyperglycemia and Glycosuria. A. A. Epstein and G. Baehr, New York.
61 Formation of Amino- and Hydroxy-Acids from Glyoxals in Animal Organism. H. D. Dakin and H. W. Dudley, New York.
62 *Urea: Its Distribution in and Elimination from Body. E. K. Marshall, Jr., and D. M. Davis, Baltimore.
63 Chemistry of Gluconeogenesis. VIII. Velocity of Formation and Elimination of Glucose by Diabetic Animals. A. I. Ringer and E. M. Frankel, Philadelphia.

64 *Studies of Carbohydrate Metabolism. VI. Influence of Thyreoparathyroidectomy on Sugar Content of Blood and Glycogen Content of Liver. F. P. Underhill and N. R. Blatherwick, New Haven, Conn.
65 Formation of Benzoyl Carbinol and Other Substances from Phenyl Glyoxal by Action of Fermenting Yeast. H. D. Dakin, New York.
66 *Suppression of Growth and Capacity to Grow. T. B. Osborne and L. B. Mendel, New Haven, Conn.
67 Metabolism of Endogenous and Exogenous Purines in Monkey. A. Hunter, Ithaca, N. Y.
68 *Formation of Glucose from Citric Acid in Diabetes Mellitus and Phlorhizin Glycosuria. I. Greenwald, New York.
69 On Chondroitin Sulphuric Acid. P. A. Levene and F. B. La Forge, New York.
70 Non-Interference of "Ptomaines" with Certain Tests for Morphin. J. Rosenbloom, Pittsburgh.

60. **Hyperglycemia following Hemorrhage.**—Contrary to Bang's opinion, the observations made by Epstein and Baehr seem to demonstrate that the hyperglycemia following simple bleeding is not merely psychic, but that it is a compensatory response on the part of the organism to keep the total blood-sugar up to a level commensurate with the needs of the tissues. In view of the diminished blood volume this is accomplished by an increase in the concentration. Similarly, if the total volume of fluid in circulation be not diminished, the blood withdrawn being immediately replaced by saline solution, the percentage concentration of the diluted blood rapidly rises (with occasional exceptions) to what it was before the experiment. In other words the total sugar in the circulation remains unchanged. It would seem therefore that at least under such conditions as in the experiments, cited an increase in the percentage of sugar in the blood is only indicative of a relative, that is to say percentile, but not of an absolute hyperglycemia.

The experiments suggest very strongly that glycosuria is the result of an absolute hyperglycemia and need not occur when the hyperglycemia is only relative. This would help explain the presence in certain individuals of glycosuria without hyperglycemia, and conversely the absence of glycosuria when hyperglycemia is present. The authors suggest the advisability of studying blood volumes and computing therefrom the total blood-sugar in cases of diabetes mellitus, for therein may lie the explanation for the disproportion between the degree of hyperglycemia and the intensity of the glycosuria, which occurs so frequently in this condition.

62. **Distribution and Elimination of Urea.**—The conclusions drawn by Marshall and Davis from their experiments are: Urea is present in all the organs and tissues of normal animals. The urea content of all organs and tissues is approximately uniform, and approximately equal to that of the blood, both in normal conditions and when there is an abnormally large amount of urea present. Exceptions to this rule are fat, which has a low content, and the urinary tract, which has a high content. When urea in solution is injected intravenously, it diffuses to all parts of the body almost instantly, the diffusion being complete in a few minutes. Urea is eliminated very rapidly by the kidneys; the rate of excretion may rise to 16 gm. per kilo of body weight per day, or much higher. The rate of excretion of urea in normal animals is directly proportional to the concentration of urea in the blood; it may be retarded, however, by dehydration of the organism. When excretion of urea is prevented, the entire amount formed is stored in the body—except small amounts secreted in the bile, sweat, etc.—and there is no evidence of the conversion of urea into other substances.

64. **Thyreoparathyroidectomy.**—Underhill and Blatherwick report experiments, the results of which demonstrate that the thyroid-parathyroid mechanism stands in an intimate connection with carbohydrate metabolism. It is also indicated that the parathyroids are the active agents of the mechanism under discussion. Their experiments show that during the tetany which develops after thyreoparathyroidectomy glycogen entirely disappears from the liver and blood-sugar content is markedly lowered or may even be reduced to zero. It is also indicated that this action may be ascribed to the lack of parathyroid tissue since the phenomena may be observed when all the parathyroids are removed and some thyroid tissue remains. The reverse operation, that of removing the thyroids and leaving the parathyroids intact, has not been carried through in the present investigation since there is little to indicate that any abnormal effect would be produced inasmuch as dogs in their laboratory have lived with four parathyroids only for two years without visible metabolic disturbances. The data yielded after thyreoparathyroidectomy resemble closely those obtained as a result of phosphorus and hydrazin poisoning.

66. **Suppression of Growth.**—The experimental results reported by Osborne and Mendel give no support to the widespread view that the capacity to grow, or growth impulse, is lost with age, independently of whether it has or has not functioned during the period usually associated with increase in size. It appears as if the capacity to grow is only lost by the exercise of this fundamental property of animal organism. Whether the span of life can be prolonged by delaying the completion of growth has not yet been ascertained under conditions that preclude disease or other anomalies of nutrition.

68. **Formation of Glucose from Citric Acid.**—The administration of sodium citrate to phlorizinized dogs and to a patient with diabetes mellitus was followed by an increased excretion of glucose indicating the conversion of the six carbon atoms of citric acid into glucose.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

May, XLI, No. 5, pp. 273-344

71 Coordination of Movement. W. J. M. A. Maloney, New York.
72 Syphilitic Tests in Latent and Treated Syphilis. E. P. Corson-White and S. D. W. Ludlum, Philadelphia.

Lancet-Clinic, Cincinnati

May 30, CXI, No. 22, pp. 619-646

73 Present Status of Typhoid Vaccine in Prophylaxis and Treatment. T. Potter, Indianapolis.
74 Dermatitis Exfoliativa. Case-Report. J. W. Miller, Cincinnati.
75 Practical Differential Tests of Hearing. A. Randall, Philadelphia.

June 6, No. 23, pp. 647-686

76 Tetany. H. H. Hoppe, Cincinnati.
77 Radium Treatment of Cancer. J. and J. L. Ransohoff, Cincinnati.
78 Complications and End-Results of Bile-Duct Infection. J. E. Pirrung, Cincinnati.
79 Medical Teaching. J. W. Rowe, Cincinnati.

Medical Record, New York

June 13, LXXXV, No. 24, pp. 1059-1104

80 Word of Caution Concerning Palpation under Fluorescent Screen. J. T. Case, Battle Creek, Mich.
81 Trigger Finger: Its Cause and Mechanism. A. B. Judson, New York.
82 Pruritus Ani. J. M. Lynch, New York.
83 *Needle Protruding through Wall of Stomach. O. C. Smith, Hartford, Conn.
84 Subsequent Report of Patients Who Received Injections of Friedmann Vaccine over Year Ago. G. Manheimer, New York.
85 Should Sanitary Control of Prostitution Be Abandoned? J. Rosenstirn, San Francisco.
86 Clinical Estimation of Cholesterinemic Index. C. K. Austin, Paris.
87 Management of Cardiorenal Disease. C. E. Nammack, New York.
88 *Vaccine Treatment of Chronic Rheumatism. H. Greeley, Brooklyn.

83. **Needle Protruding through Wall of Stomach.**—A woman, aged 37 years, of neurasthenic tendency, was operated on for calculous nephritis and the right kidney was removed. Following her operation she regained her weight, and from a condition of invalidism became quite well. Early in August three years later she experienced sharp, transitory pains at the epigastrium, both at meal time and in the intervals. She gradually became afraid to eat, lost weight, and early in September vomited small quantities of a bloody mucopurulent fluid. The patient had no recollection of having swallowed any foreign body or poisonous material, nor was she in the habit of holding pins or needles in her mouth.

A roentgenogram revealed a normal stomach in size and contour, but showed clearly a foreign body, pin or needle, protruding 1½ cm. through the anterior stomach wall at a point 3½ cm. proximal to the pylorus, on the lesser curvature. The stomach was exposed and the pointed end of the needle, dark but not corroded, was found protruding through the wall of the stomach in the peritoneal cavity.

The needle was drawn out of the wall of the stomach by forceps, breaking immediately after its removal, the portion of the needle lying within the cavity of the stomach being extensively corroded. The small opening in the stomach wall was closed with two purse-string sutures and the wall of the abdomen was closed without drainage. The stomach regained its normal function within a few days, and the patient regained her lost weight.

88. **Vaccine Treatment of Chronic Rheumatism.**—As it is apparent from the remarkably large masses of streptococci that can be scraped from the pharynx of most of these patients that such abnormal quantities must be consequent on diminished specific general resistance, and as in all cases a vaccine prepared from them gives diagnostic focal reactions, under conditions aforementioned, Greeley states it is hardly worth while to attempt the difficult and sometimes impossible isolation from the blood or the joint. However, if one prefers, a similar and equally effective streptococcus may be isolated from the urine in all cases. Of the fifty-three vaccines which he has prepared for such treatment during the past year, five only were from the blood and some fifteen from the urine. As there appeared to be no difference in effectiveness between these and those made from the pharynx he took all others from the latter.

In the series cited by Greeley, varying in severity from occasional attacks of pain and stiffness in one or more joints to disabling swelling of both knees often lasting for weeks, universal improvement was effected by autogenous vaccines. This ranged from total cure, in the mild cases, to disappearance of all symptoms except transitory slight stiffness in the most severe, which improvement has now endured from six months to a year. Of course, Greeley says, such patients may experience other attacks, but if they should a repeated treatment would soon pick them up again, and as it is neither painful nor expensive it would not be feared. Entirely similar results are now being obtained in the other cases now under the same treatment. Greeley emphasizes that as a first principle of such treatment no case should be given a dose of vaccine during an exacerbation, marked by acute joint swelling, attacks of pain or temperature elevation. Furthermore, the vaccine must be autogenous—made from the patient's own organisms.

Michigan State Medical Society Journal, Grand Rapids

June, XIII, No. 6, pp. 355-416

89 Modern Treatment of Fractures. M. L. Harris, Chicago.
90 Crotalin Treatment of Epilepsy—Tabulated Report of Twenty-Two Cases. J. H. Douglass, Lapeer.
91 Carcinoma of Breast. H. J. Van den Berg, Grand Rapids.
92 Vaccines and Immunity in Their Relation to Surgery. O. A. Hart, St. Johns.
93 Ether Anesthesia. W. C. Huyser, Kalamazoo.
94 Intravenous Anesthesia. C. L. Candler, Detroit.
95 Non-Gravid Hydrorrhea Due to Hysteria. II. Abdominal Cesarean Section for Contracted Pelvis in Child of Twelve. III. For Threatened Eclampsia. R. Peterson, Ann Arbor.
96 Two Cases of Paraplegia Operation Followed by Improvement. C. D. Camp, Ann Arbor.
97 I. Chancre of Lip with Early Involvement of Nervous System. II. Dermatosis in Patient Exhibiting Neurologic and Psychiatric Findings. U. J. Wile, Ann Arbor.
98 Bilateral Specific Disease of Labyrinth with Left Facial Paralysis of Peripheral Type. II. Otitic Thrombosis of Sigmoid Sinus without Symptoms. R B. Canfield, Ann Arbor.
99 Four Unusual Cases of Strabismus. G. Slocum, Ann Arbor.
100 Demonstration of Electrocardiograph. F. N. Wilson, Ann Arbor.

New Jersey Medical Society Journal, Orange

June, XI, No. 6, pp. 271-324

101 Bone and Joint Surgery. G. H. Sexsmith, Bayonne.

New York Medical Journal

June 13, XCIX, No. 24, pp. 1165-1216

102 *Insolation. P. G. Woolley, Cincinnati.
103 *Treatment of Rheumatic Fever. H. C. Wood, Jr., Philadelphia.
104 Urethral and Prostatic Symptoms Caused by Large Internal Pile. V. C. Pedersen, New York.
105 Modern Trend in Treatment of Malignancy. R. H. Boggs, Pittsburgh.
106 Hypertrichosis in Women. J. H. Claiborne, New York.
107 Practice of Medicine Act. W. J. Cruikshank, New York.
108 Post-Mortem Examinations among Jews. C. D. Spivak, Denver.
109 *Teaching of General Medicine. C. H. Neilson, St. Louis.
110 Cesarean Section for Double Multilocular Ovarian Cyst. G. L. Brodhead, New York.
111 Magnetized Needle Holder. C. M. Stimson, Philadelphia.
112 Facilitating Crile Method of Transfusion. A. Kahn, New York.

102. **Insolation.**—Treatment of an attack of insolation, Woolley says, combines refrigeration with elimination, both active enough to produce good effects without embarrassing organs, such as the heart, which are already damaged. To accomplish the former the practice is to give ice cold packs or baths. To compass the latter recourse is commonly had to stimulants. This latter in Woolley's opinion seems not to be best, except as a last resort. Stimulation of an already burdened organ can do little good and much damage. Hydrotherapeutic methods he believes are of more value in insolation than drugs. Ice packs or iced baths have a great value, but should not be continued for more than a few minutes at a time and should be discontinued when the rectal temperature has reached 104 F. To replace the water lost to the body before the attack, and to increase elimination, there is no better method than infusion of saline solutions. If it is true that the oxygen content of the body is low and the acid content high, then such solutions should be alkaline. Woolley believes that such alkaline solutions as those recommended by Fischer are extremely efficacious whether given by rectum or intravenously, in neutralizing the acids of the body and increasing water elimination by the kidneys. The solution for rectal use he urges should be prepared as follows:

Sodium chlorid	30 gm.
Sodium carbonate (crystallized)	20 gm.
Water	1,000 c.c.

The injection should be given slowly enough to allow retention. The time consumed in injecting a liter should not be less than one hour.

For intravenous injection the following solution may be used:

Sodium chlorid	14 gm.
Sodium carbonate (crystallized)	10 gm.
Water	1,000 c.c.

This also should be given very slowly.

The effect of these solutions on the secretion of urine, Woolley states, is remarkable, and as a rule they will make it unnecessary to use digitalis. When this latter drug is used, it should be very carefully administered and its effects carefully watched. The use of strychnin is not advised in the active stage of the disease.

Such treatment will dispose of the immediate danger, and when this has been done treatment is symptomatic. In apyrexial heat exhaustion external hydrotherapeutic measures are uncalled for, and treatment should be eliminative and stimulative. The internal hydrotherapeutic methods should be very useful in these cases and should be combined with friction, massage, warm packs with sufficient internal stimulant medication. After recovery from an attack of insolation great caution must be observed by the patient to prevent recurrences from subsequent exposures to heat.

103. **Treatment of Rheumatic Fever.**—Wood believes that the local treatment should aim at encouraging rather than diminishing the joint congestion. By far the most important local measure is the immobilization of the inflamed joint, and protection. Measures which encourage the hyperemia, such as wrapping the limb in cotton batting, hot applications and mild counterirritation are of sufficient usefulness to justify their employment if they do not interfere with the efforts at restraint of motion. Fever is a defensive reaction. Unless it becomes excessive, as however it rarely does in this condition, it does not demand active interference. But the disturbed metabolism, the result of the high temperature, necessitates the employment of measures to maintain the nutritive condition of the patient. Foremost among these is rest in bed. This is important, not only, as in other fevers, to lessen tissue waste and conserve strength, but also because of the peculiar danger of cardiac complications of this infection.

As regards the diet, he gives milk with the addition of some form of starchy food, preferably a thoroughly cooked cereal, such as toasted bread, or rice which has been boiled six or eight hours. The monotony of the diet may safely be varied, not only by serving the milk in the form of junket or flavored with chocolate, but also by the use of eggs. Small amounts of coffee or tea, to those who are accustomed to their use, add greatly to the comfort of the patient and are not injurious.

There is no necessity, in Wood's opinion, of upsetting the stomach by the use of the alkaline carbonates. The acetates and citrates are oxidized in the body into carbonates, and therefore act as systemic antacids; but because of their neutrality they do not interfere with gastric digestion. On the other hand if we administer a sodium or potassium carbonate or bicarbonate, a portion of it will combine with the hydrochloric acid of the gastric contents. The resulting chlorid is not only incapable of neutralizing any systemic acidity, but is also much less actively diuretic than the citrates. For these reasons Wood greatly prefers either acetate or citrate. The potassium salts, he believes, are slightly more active as diuretics than the corresponding salts of sodium, and increase the completeness of the oxidative processes in the body, thereby lessening the amount of uric acid to be excreted. The most pleasant way of administering potassium citrate is by acidulating with lemon juice or citric acid. From twenty to thirty grains of the salt should be given every two or three hours, or until the urine becomes alkaline in reaction.

109. Abstracted in The Journal, March 14, p. 880.

Old Dominion Journal of Medicine and Surgery, Richmond

May, XVIII, No. 5, pp. 237-277

113 Spartein Sulphate: Its Cardiovascular and Renal Actions. L. B. Wiggs, Richmond.
114 Case of Apoplexy Observed from Onset. B. M. Randolph, Washington, D. C.
115 Case of Cerebral Thrombus Following Injury. B. R. Tucker, Richmond.
116 Relation of Paroxysmal Hemoglobinuria and Raynaud's Disease. Report of Two Cases. R. S. Preston, Richmond.

Vermont Medical Monthly, Burlington

May 15, XX, No. 5, pp. 105-130

117 Arteriosclerosis. J. Gibson, St. Albans.
118 An Appeal to Cancer Research Institutions. A. F. A. King, Washington, D. C.
119 Case of Hystero-Epilepsy with Recovery and Comments on Psychanalysis. W. D. Berry, Burlington.

Washington Medical Annals

May, XIII, No. 3, pp. 173-231

120 Fundus Oculi. W. T. Davis, Washington.
121 Case of Polyposis Gastrica (Polyadenoma). D. S. Lamb, Washington.
122 Case of Breech Presentation at Eight and One-Half Months Complicated by Fibroids; Confirmed by Roentgenograms. P. Willson and J. H. Selby, Washington.
123 Tonsillectomy: Its Indications and Choice of Operation. W. H. Huntington, Washington.
124 Surgical Mortality from Standpoint of Anesthetist. H. W. Kearney, Washington.
125 Arteriovenous Anastomosis for Threatened Gangrene; Case-Report. H. H. Kerr, Washington.

West Virginia Medical Journal, Wheeling

June, VIII, No. 12, pp. 395-432

126 Cases of Nasal Reflex. G. A. Aschman, Wheeling.
127 Surgical Treatment of Nephritis. J. E. Cannaday, Charleston.
128 Pituitrin Displacing Forceps. G. R. Davis, MacDonald.
129 Alcoholism. R. M. McMillen, Wheeling.
130 Cancer of Breast. W. H. Young, Sistersville.

Wisconsin Medical Journal, Milwaukee

June, XIII, No. 1, pp. 1-34

131 *Serodiagnosis of Pregnancy. C. M. Echols, Milwaukee.
132 Indications for Vaccine and Serum Therapy. J. K. Chorlog, Madison.
133 Legal Responsibilities of Surgeon in Cases of Fracture. H. Reineking, Milwaukee.
134 Tumors of Carotid Body. A. H. Levings, Milwaukee.
135 Cancer and Cancer Problem. W. E. Ground, Superior.

131. Abstracted in The Journal, Nov. 1, 1913, p. 1657.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 30, I, No. 2787, pp. 1165-1220

1 *Infantile Paralysis (Acute Anterior Poliomyelitis). Its Early Treatment and Surgical Means for Alleviation of Deformities. R. Jones.
2 *Type of Tubercle Bacilli Occurring in Sputum of Phthisic Persons. A. S Griffith.
3 *Alterations in Blood Occurring in Hay-Fever. E. Emrys-Roberts.
4 Variations in Leukocytes in Certain Diseases. D. Thomson.
5 Suspension Laryngoscopy and Its Practical Use. G. Killian.

1. **Early Treatment of Infantile Paralysis.**—Jones lays down the lines on which medical treatment should be given to cases of poliomyelitis in their earliest stages, and emphasizes the fundamental importance of beginning that treatment at the earliest moment possible. Treatment at this stage habitually falls into the hands of the medical man in attendance and not into those of the surgeon; and Jones would make it a general rule that in every case the head and spinal column should be kept at rest from the very beginning of the attack. If the child has much pain in the spine and limbs, as not rarely happens, fixation of the spine and limbs gives more relief than any other procedure. In any case, to keep the spinal cord and head at rest, so far as possible, in acute poliomyelitis, is only to act in accordance with the general principles regulating the treatment of inflamed organs or areas in other parts of the body. It is important that this rest, continued through the acute and early convalescent stages, should be continued so as to prevent the adoption of faulty positions by the affected limbs in order that the deformities that are likely to follow the paralysis may be minimized. Until the tender stage of the disease has passed away—a matter of from three to eight weeks or even more, Jones says, no active treatment should be undertaken; it is argued that active myelitis may be present throughout the tender stage, so that treatment by massage or electricity would be premature.

Having drawn attention to the importance of complete rest during the early stages of infantile paralysis, Jones points out the necessity for great care when active treatment is begun. It is not the nervous part only of the neuromuscular apparatus that is damaged in infantile paralysis; the motor nerve cells in the anterior horns of the spinal cord are injured in this disease; but Jones believes it is not so generally realized that the affected muscles may suffer doubly—first, in their nerve-supply; and, secondly, by being themselves overstretched while thus disabled. Hence it is of great importance that from the first they should not be stretched, and to avoid this attention must be given to the position of the limb; and, again, that when massage and active movements are prescribed care should be taken to avoid the possibility of straining or overstretching the injured muscles. The massage must be very gentle at first, the movements must be carefully limited, and the limb must be put up in apparatus so as to keep the paretic muscles in a position of relaxation until they have improved in tone. The success of treatment depends on the maintenance of this muscular relaxation continuously until there is evidence that the damaged muscles have begun to recover. When this occurs, the position of relaxation may be gradually discontinued.

Jones gives a very clear and careful account of the various methods of treatment he has found effective in infantile paralysis, and he emphasizes and explains his points with a number of illustrative cases.

2. **Type of Bacilli in Sputum of Phthisic Persons.**—The object of Griffith's inquiry has been not only to discover cases of pulmonary tuberculosis which were expectorating bovine tubercle bacilli with the sputum, but also, and especially, to study the clinical course of such cases, and, if they ended fatally and a necropsy was obtained, to make careful investigation of the distribution, character and bacteriology of the tuberculous lesions.

The number of strains of tubercle bacilli obtained in culture from the sputum of 148 persons suffering from pulmonary tuberculosis was 186. From 115 of the sputum samples (115 individual patients) the cultures were isolated direct by means of antiformin. From 63 sputum specimens (63 patients), of which 30 had yielded cultures direct, cultures were obtained through the guinea-pig. The cultures derived from 147 of the patients were eugonic, while those (9 strains) obtained from several samples of sputum from the remaining patient were dysgonic. The 177 strains isolated from the sputa of the 147 patients produced on all the test media employed the luxuriant growths which are characteristic of the human type of tubercle bacillus.

The virulence of the tubercle bacilli present in 80 of these sputa has been tested on the rabbit. Of 27 rabbits inoculated subcutaneously with sputum from 27 patients, 2 died in 55 and 58 days, and showed a local caseous abscess, and slight tuberculosis of the lungs. The rest of the rabbits were killed after periods varying from 84 to 104 days. In 2 of these 25 rabbits a local lesion only was found, in one there was a local lesion and slight tuberculosis of the nearest glands. All the rest showed a local caseous abscess and tuberculosis of the lungs, the disease in the latter organs being slight in 22 rabbits and moderately severe in 2 rabbits; the nearest glands were affected in 6, and the kidneys in 5 of these 21 rabbits.

Of 43 rabbits inoculated subcutaneously with 10 to 50 mg. of culture from 43 patients, 3 died in 41 to 53 days, and showed a local caseous abscess and slight tuberculosis of the lungs, the nearest glands of one of the rabbits also being tuberculous. The remaining 40 rabbits were killed (a few died, but not of tuberculosis) in periods varying from 86 to 160 days. One of these showed a local lesion only. All the rest showed besides a local caseous abscess, some amount of dissemination; the lungs were tuberculous in each of the 39 rabbits, slightly in 33 and moderately severe in 6; the kidneys were slightly tuberculous in 11 rabbits; the nearest glands were tuberculous in 25, normal in 14 rabbits; in 1 rabbit there was tuberculosis of the mamma.

Rabbits to the number of 15 were inoculated intravenously with culture from 12 patients,the dose for each rabbit being 0.01 mg. The pathogenic effects produced by these cultures exhibited the range of variation which is usual after the intravenous inoculation of human tubercle bacilli. There was no indication from the pathogenic effects produced in any of the 85 rabbits, whether inoculated with sputum or with culture, of the presence in any of the sputa of tubercle bacilli of higher virulence than typical human tubercle bacilli.

3. **Alterations in Blood in Hay-Fever.**—Emrys-Roberts, himself a victim of hay-fever, made daily examinations of his blood for about eight weeks throughout the attack. The hemoglobin content varied from 65 to 80 per cent., the color index from 0.4 to 0.8 and the red blood-count showed an almost consistent polycythemia, while the leukocyte count showed an equally marked leukopenia. The polycythemia is unassociated with either an enlarged spleen or cyanosis.

The differential leukocyte count showed a diminution of polymorphs, a marked increase of large mononuclears and transitionals, a definite increase of eosinophils and the presence of occasional mast cells. The variation in rouleaux formation was not great. No correlation to the symptoms could be adduced in the case of the blood-platelets, the presence of phantom cells was noted throughout, and particularly noticeable were the large numbers, sometimes amounting to 5 per cent. of the total count, of "dead" leukocytes—that is, leukocytes whose nuclei had undergone complete degeneration and whose protoplasm had become unrecognizable. By the study of forms intermediate between healthy leukocytes and "dead" leukocytes it was possible to determine that by far the largest proportion were derived from large mononuclears and transitionals. In addition it was also noted that, throughout the attack, many of the leukocytes, more especially the large mononuclears and transitionals, exhibited well-marked vacuoles both in protoplasm and nucleus.

It was also noticed that the red blood-corpuscles showed decided variations in relative size, macrocytes and microcytes being always commonly found while distortions in shape were by no means uncommon, almost amounting to a definite poikilocytosis. The fusion of several red blood-corpuscles into the form of a rosette was noted from time to time. Polychromatosis was noted twice. No nucleated reds were seen at any time. The size and staining properties of the blood-platelets varied considerably, sometimes they were uniformly small, at other times there would be many large forms scattered about, while sometimes they would be stained deeply, at other times quite lightly. The blood during the interval between the attacks has become distinctly healthier, though it did not conform with the recognized standard of a normal blood

Indian Medical Gazette, Calcutta

May, XLIX, No. 5, pp. 169-212

6 Itinerating Dispensaries. H. E. Drake-Brockman.
7 Chronic Intestinal Stasis. F. Barnardo.
8 Relationship between Laboratory and Clinical Work. A. Whitmore.
9 Sclerocorneal Trephining for Staphyloma of Cornea—Seventeen Cases. C. H. Reinhold.
10 Abdominal Surprises. A. Neve.
11 New Operation for Cure of Vesicovaginal Fistula. F. C. Fraser.
12 Ascaris Infection. R. F. MacGregor.
13 Case of Bilharzia Disease. A. Hooton.

Journal of Obstetrics and Gynecology of British Empire, London

April, XXV, No. 4, pp. 175-230

14 Case of Superior Rectovaginal Fistula Dealt with by Abdominal Route after Preliminary Colostomy. T. W. Eden.
15 Treatment of Pregnancy Complicated by Morbus Cordis by Means of Cesarean Section under Spinal Anesthesia. J. Barris.
16 Advanced Extra-Uterine Pregnancy with Tuberculous Peritonitis. J. H. Croom.
17 Uterus Bicornis Bicollis; Six Months' Pregnancy Right Horn, Pyometra Left Horn. G. B. Marshall.
18 Acute Hydramnios Occurring with Uniovular Twins about Eighteenth Week of Pregnancy. G. B. Marshall.

Journal of Tropical Medicine and Hygiene, London

May 15, XVII, No. 10, pp. 145-160

19 Vaccine Lichen in Natives. A. J. Chalmers and W. Byam.
20 List of Blood-Sucking Arthropods from Lower Congo, with Vocabulary. M. Gamble.

Lancet, London

May 30, I, No. 4735, pp. 1515-1588

21 Surgical Treatment of Infantile Paralysis. R. Jones.
22 *Case of Intrinsic Cancer of Larynx. S. Thomson.
23 *Method by Which Remedial Agents May Be Mingled with Cerebral Cerebrospinal Fluid. C. A. Ballance.
24 Treatment of Parenchymatous Syphilis by Intracranial Medication. H. Campbell.
25 *Intrathecal Injection of Salvarsanized Serum. G. W. Spencer.
26 Occurrence of Ascites of Non-Tuberculous Origin in Chronic Recurrent Diarrhea in Childhood. F. J. Poynton and H. Paterson.
27 *Operation for Undescended Testicle. R. Thompson.

22. **Intrinsic Cancer of Larynx.**—Cancer of the vocal cords according to Thomson is, in early stages, a very slowly progressive and strictly limited process. In his case hoarseness dated from eight months, the cord was still mobile, and the disease was still superficial. Alteration of voice is the principal and may be the only symptom. Persistent hoarseness in any patient calls for a definite diagnosis. Diagnosis is based chiefly on inspection of the larynx. Only in certain cases, in which the growth is a superficial and not an infiltrating one, can it be confirmed by microscopic examination. The growth, even when it occupies almost the entire length of a vocal cord, can sometimes be completely removed by endolaryngeal operation in early cases. But this completeness can only be ascertained when, by laryngofissure, the remains of the vocal cord and adjoining soft parts have been removed and submitted to the pathologist.

Laryngofissure is, therefore, the operation of choice in all cases of endolaryngeal cancer. The operation offers the best prospects: (1) because the disease remains for some time superficial and limited, and (2) because laryngofissure cannot be considered a dangerous operation. Statistic results show a lasting cure in 80 per cent. of cases, and if all cases presented themselves and were diagnosed early there is no reason why the results should not be even more satisfactory.

Thomson's patient is in good health, with a useful voice, and has no recurrence at the present date—that is, one and a half years after operation.

23. **Remedial Agents and Cerebrospinal Fluid.**—In a case cited by Ballance in which this method was employed the patient was anesthetized and the head arranged in a position as nearly vertical as possible. A trephine opening was made to the right of the middle line just in front of the bregma. The dura was then opened and the inner surface of the right cerebral hemisphere was gently drawn outward by means of a retractor (1 cm. wide) bent at a right angle. It had previously been ascertained that the anterior cornu of the lateral ventricle was distant 6½ to 7 cm. (roughly 2½ to 2¾ inches) from the surface of the scalp at the mid-line on the vertex. A cannula (having a lumen of 1 mm. and a length of 3 inches) was then passed through the anterior part of the corpus callosum about a quarter of an inch to the right of the middle line. It was felt to enter a cavity, namely, the anterior cornu of the lateral ventricle.

The cannula was fitted with a stylet whose rounded end projected beyond the end of the cannula. The passage of the stylet and cannula through the corpus callosum could not divide any vessel and might be thought of as pushing aside rather than cutting any of the commissural fibers of the corpus. On the entrance of the cannula into the lateral ventricle the stylet was withdrawn and cerebrospinal fluid escaped, not continuously, for there was a distinct ebb and flow due to the arterial pulsations or to the respiratory movements. A rubber tube attached to a graduated glass vessel was then fixed to the cannula and the infusion into the ventricle commenced, at first with normal saline solution and then with salvarsanized serum; of the serum varying quantities have been used from 35 c.c. to 60 c.c. As the infusion proceeded it was noticed that the brain bulged into the trephine opening, but on closer inspection it was clear that the bulge was not a brain hernia, but that the cortical subarachnoid space was filling up with fluid. The 90 c.c. of fluid (salt solution and serum) took about twenty minutes to infuse and the pressure varied from 6 inches to 18 inches. No ill effects have occurred from the injection of the serum into the ventricle. In the first case the fluid flowing very slowly the glass vessel was raised when a little respiratory difficulty occurred which was probably due to pressure in the fourth ventricle, the fluid not escaping quickly enough through the foramen of Majendie. It only remained at the conclusion of the infusion to withdraw the cannula from the lateral ventricle and to stitch up the scalp, which in each case has healed by first intention. No ill effects have followed the infusion.

Ballance has introduced salvarsanized serum on five occasions into the lateral ventricle; twice in two patients and once in a third patient. Ballance suggests that the method be useful for introducing remedial agents into the cerebral cerebrospinal fluid in other diseases of the brain besides that caused by syphilis. Sleeping sickness, meningitis, tetanus and epilepsy are such diseases. The passage of the cannula through the corpus callosum appears to be innocuous, and the operation as a whole with reasonable care is free of all danger.

25. **Intrathecal Injection of Salvarsanized Serum.**—Spencer believes that the intrathecal injection of salvarsanized serum offers a hopeful method of treating and arresting the progress of tabes and other parenchymatous diseases of the spinal cord. A cure of the lightning pains can almost definitely be promised. The injections, if carried out with special aseptic care and technic, do not endanger the patient's life.

27. **Operation for Undescended Testicle.**—The usual incision is made by Thompson for the exposure of the external opening of the inguinal canal, with two exceptions—it is longer and it is curved. The incision commences just internal to the anterior superior spine, and proceeds in a sinuous manner into the scrotum. The first part lies half an inch above, and parallel with, the outer half of Poupart's ligament. The second part is curved with its convexity directed downward and outward. It begins just above the middle of Poupart's ligament and terminates near the pubic spine. The third part curves downward into the scrotum, and is of equal length to each of the two other parts of the incision. Its convexity is directed upward and inward. The external ring is exposed and any hernia treated in the usual way. The vas is isolated with its accompanying artery and vein. The cremasteric plexus of blood-vessels and lymphatics is removed between ligatures.

A finger is introduced into the cavity of the scrotum and the testicle is brought down and placed in the scrotum, in which it is retained by an assistant. The extremities of the middle part of the incision are then united by a curved incision whose convexity is directed upward and inward, and an oval flap of skin and subcutaneous tissues, extending down to the external oblique muscle, is dissected and isolated. This oval flap is then transferred to the scrotal part of the incision and sutured to both sides of this part, so that its lower apex lies in the lowest part of the scrotal portion of the incision. The rest of the wound is then sewed up in the usual way. By this means the scrotum is appreciably enlarged and, as it were, stiffened by a portion of tissue which contains no "dartos" muscle, and therefore remains uncontracted.

Annales de Gynécologie et d'Obstétrique, Paris

May, XLI, No. 11, pp. 257-320

28 *Trismus Uteri Decapitating Fetus. (Rétraction de l'utérus sur la tête foetale séparée par décollation.) Potocki and Sauvage.
29 Retro-Uterine Hematocele from Rupture of Ovarian Cyst. P. Lecène and R. Taitz.

28. **Trismus Uteri.**—Potocki and Sauvage report the decapitation of the fetus from spasmodic contraction of the uterus in a case of shoulder presentation at the middle of the seventh month. The mother was 17. The retraction was such that neither with the hand nor with instruments was it possible to evacuate the uterus during twenty-four hours of efforts. After the embryotomy, signs of infection became evident, compelling immediate action. Parotitis developed the day after the hysterectomy, probably a simple infection from the mouth favored by the repeated application of general anesthesia in the course of a few hours. The girl left the hospital in good condition a month later.

Bulletin de l'Académie de Médecine, Paris

May 19, LXXVIII, No. 20, pp. 665-669

30 Experimental Tuberculous Reinfection of the Lung. (Le concept bactériologique du terrain tuberculeux.) F. Bezançon.
31 Operations on Diabetics. M. Labbé. See Paris Letter, June 13, 1914, p. 1906.

Journal de Chirurgie, Paris

May, XII, No. 5, pp. 561-688

32 Treatment of Ankylosis by Murphy's Method Applied to the Knee. M. Guillot and G. Dehelly.
33 Compression of the Rectum by Fibrous Masses Relics of Old Uterine or Tubal Processes; Two Cases. (Les fibroses périmétro-rectales.) J. and P. Fiolle.

Journal de Médecine de Bordeaux

LXXXV, Nos. 21-22, pp. 357-386

34 Value of Association of Physiotherapy with Psychotherapy in Treatment of Psychoneuroses. A. Fraikin.
35 Simple Technic for Estimating Sugar and Lactic-Acid Content of the Blood. (Considérations générales sur la dégradation des hydrates de carbone dans l'organisme.) L. Chelle and P. Mauriac.

Journal d'Urologie, Paris

May 15, V, No. 5, pp. 545-680

36 Pneumaturia; One Case. M. Cealic and V. Ceocalteu.
37 *Suture of Ruptured Urethra. (Résultats éloignés des urétrorraphies circulaires suivies de dérivation.) G. Marion.

38 Vaccine Therapy of Acute Gonorrhea. (Traitement de la blennorragie aigue par le vaccin atoxique.) Jungano.
39 *Regional and Local Anesthesia in Urology. G. Lemoine
40 Papillomas Hiding Ureter Mouth. (Extirpation dans la vessie des papillomes volumineux à implantation péri-urétérale.) S. Rolando.
41 Tuberculosis of the Kidney. (Tuberculose rénale et constante d'Ambard.) G. Marion. (Tuberculose rénale à forme anormale.) M. Pillet.
42 Expulsion of Ureter Calculus after Injection of Glycerin. M. Perrier.
43 *Cystic Disease of the Kidneys. M. Mickaniewski.
44 Examination of the Urine. (La méthode des trois verres en urologie.) Grimani.

37. **End-to-End Suture of Urethra.**—Marion described in the April number of the *Journal*, 1912, the method of circular urethrorrhaphy over a large catheter, with temporary diversion of the urine, which he had then applied in four cases for rupture or stricture, traumatic or uncontrollable from any cause, or chronic fistulas in the perineum. He briefly summarizes the technic here and reports six further cases, all recently reexamined from six months to three years after the operation. The urethra was found permeable in all, the diversion of the urine having permitted the urethra to heal rapidly and smoothly.

39. **Local Anesthesia in Urology.**—Lemoine states that in his service at Brussels general anesthesia has long been entirely abandoned for urogenital work. This has much widened the field of operability, as the local anesthesia or blocking the nerve involved is comparatively harmless. His experience has been that the Sellheim-Kappis technic for blocking the dorsal and lumbar spinal nerves is easy, harmless and certain. The Danis technic is better for the sacral nerves. This induces analgesia of the pelvis in the simplest and most harmless manner. The epidural technic (Cathelin-Läwen) was not found practicable or reliable. Nine illustrations accompany the description of the technics and the areas which each renders insensible.

43. **Cystic Disease of the Kidney.**—The literature on this subject is reviewed, the conclusion being that the disease is almost inevitably bilateral and treatment can be only palliative as a rule unless intolerable pain, suppuration of the cysts, persisting hematuria or anuria compel intervention. Decapsulation of the kidney and cutting out all of the cysts or partial nephrectomy has given by far the best results to date. In case of suppuration, nephrotomy alone is justified if it cannot be avoided, but it should never be done in case of anuria. Puncture, incision and suturing the lips of the cyst to the skin have long been abandoned, except possibly when there is suppuration. The above conclusions are based on 194 cases compiled by Mickaniewski. Nephrectomy deprives the patient of some still functionally capable kidney tissue, and 30 per cent. of the 127 nephrectomized patients died. Conservative operations have a record of 49 per cent. mortality in 27 nephrotomies; 30 per cent. in 15 cases of punctures or incision. On the other hand, partial nephrectomy gave excellent results in the 3 cases in which it was applied, and even better results were obtained in all the cases by decapsulation plus excision of the cysts.

Lyon Chirurgical

May, XI, No. 5, pp. 425-548

45 Diverticula of the Small Intestine Other than Meckel's Diverticulum. A. Latarjet and J. Murard.
46 Regeneration of Nerve Tissue in the Test-Tube. (Régénération des cylindraxes in vitro.) R. Ingebrigtsen.
47 *Stoffel's Operation for Spastic Paralysis. J. Anzilotti.
48 Obliteration of Space Below the Liver with Gall-Stone Operations. (L'exclusion de la loge sous-hépatique en chirurgie biliaire.) X. Delore and L. Arnaud.

47. **Operative Treatment of Spastic Paralysis.**—Stoffel's method was discussed in The Journal, Feb. 8, 1913, p. 485, abstract 154.

Lyon Médical, Lyons

XLVI, Nos. 18-19, pp. 969-1068

49 Frequent Coincidence of Gall-Stones and Diabetes. Dufourt.
50 *Miliary Tuberculosis of the Meninges and Peritoneum Secondary to Tuberculous Metritis. M. Brette.
51 Heliotherapy of the Larynx. Collet.

50. **Miliary Tuberculosis from Caseous Metritis.**—Brette gives the history of the case described in the title and of another fatal case of tuberculous peritonitis in which an area of cheesy degeneration was found in the uterus. He concludes that in all cases of metritis the nature of which cannot be determined by clinical examination, tissue should be removed for inoculation and microscopic examination. In these cases the microscope showed the lesions characteristic of tuberculosis.

Presse Médicale, Paris

XXII, Nos. 42-43, pp. 401-420

52 *Psychoneuroses with Low Blood-Pressure. (Les psycho-névroses hyposphyxiques.) G. Maupetit.
53 *The Nervous System in Occupational Skin Diseases. (Rôle du système nerveux dans les dermites professionnelles.) P. Jourdanet.
54 *Prognosis in Chronic Nephritis from Urea Content of Blood. (Recherches sur la Constante uréo-sécrétoire d'Ambard.) F. Widal, A. Weill and P. V. Radot.
55 Etiology of Typhoid. H. Plotz (New York).

52. **Neurasthenia and Other Psychoneuroses with Abnormally Low Blood-Pressure.**—Maupetit refers to the syndrome described by Martinet in 1913 as *le syndrome hyposphyxique et insuffisance pluriglandulaire*. The trouble is essentially a weakness of the circulation and variability in the blood-pressure in different arteries while at the same time there is hypertension in the veins. The result is a vicious circle unless it can be broken up by raising the tone of the cardiovascular system, giving the appropriate organ extract, stimulating the muscle system and increasing blood production and nutrition in general by subcutaneous injections of oxygen, subcutaneous injections of physiologic salt solution and regulation of the diet to avoid eggs and restrict the amount of fluid at the noon meal to a single half glass. The patients otherwise eat at will at breakfast and at noon, but they skip the evening meal or at most take a single dish of some vegetable or cooked fruit, no bread. An hour and a half or two hours later a cup of tea is allowed. This mode of dieting is not depressing while it puts an end to the gastro-intestinal intoxication responsible for lack of sleep or restless sleep, nightmares, fetid breath and flatulence. The cure is hastened by taking a teaspoonful of sodium sulphate in a half glass of water on rising. A further measure he insists on is that the patient must not sleep more than eight hours during the twenty-four. Muscular exercises are indispensable and the patients recuperate so rapidly on the above that they soon cease to shrink from exercising. He relates in conclusion a typical case of neurasthenia of the melancholia type with neuralgia, membranous colitis, etc., in a woman of 32 who had been treated for years in the most varied ways—all to no avail, but she was promptly cured by the above course of treatment.

53. **Rôle of the Nervous System in Skin Affections.**—Jourdanet takes as an example occupational eczema or other skin affections, showing how they are liable to break out suddenly on the occasion of some fright or other emotional stress. He cites a number of examples of housewives doing a big washing, in varnishers and others. The conflict or the convergence of the external irritation with one or more internal irritations proves the last straw and the cellular reaction follows. This convergence of irritations, he emphasizes, is a law of general biology that reigns throughout all pathology.

54. **Prognosis of Chronic Nephritis Based on Urea Content of the Blood.**—Widal here presents the valuable record of numerous patients with chronic nephritis to whom the various tests for estimation of the functional capacity of the kidneys have been repeatedly applied in the course of several years. They demonstrate that the mere estimation of the urea content of the blood serum from time to time is a reliable and accurate means of keeping an oversight of the azotemia in chronic kidney disease. The technic is extremely simple. As long as there is no more than 0.5 gm. of urea to the liter, there can be no question of azotemia. When the proportion surpasses this or reaches 1 gm., the

tests should be frequently repeated. When the proportion runs up to 2 gm. he regards the patient as in more danger than many persons with cancer.

Revue Médicale de la Suisse Romande, Geneva

May 20, XXXIV, No. 5, pp. 301-384

56 *Rigidity of the Abdomen. (La défense musculaire et le ventre de bois.) Roux.
57 *Influence of Salvarsan on Syphilitic Meninges. (La séreuse sous-arachnoidienne en regard de la syphilis. Influence du traitement salvarsanique.) Dind.
58 Present Status of Treatment of Paresis. (Les acquisitions récentes dans le domaine de la paralysie générale.) Bonhomme.
59 Induced Pneumothorax. Meyer.

56. **Rigidity of the Abdominal Wall.**—Roux emphasizes the necessity for discriminating between the sudden, circumscribed and transient contraction of the muscles, forming the "muscular defense," and the true and persisting contracture forming the "wooden" abdomen; with the latter the patient seems to be trying to hold his abdomen rigid even against his will, and nothing can simulate or arrest it. The "wooden" abdomen is the extreme degree of the "muscular defense." It imparts no decisive information as to what is going on below, and after an accident to the abdomen it is of no practical importance, as a rule. But when the abdominal wall grows suddenly hard as a board, without an accident to explain this, it suggests intense irritation below, generally of chemical origin, from perforation of the stomach or upper bowel. It was not evident in a number of his cases of spontaneous hemorrhage in pancreas or adrenals and he noticed it only once, and then very slight, with extra-uterine pregnancy, torsion of genital organs, appendicitis and spontaneous rupture of the rectum. As it is the exception which tests the rule, he concludes by reporting a case in which intense pain throughout the abdomen and kidneys and the persisting rigidity of the abdominal walls compelled a laparotomy. Nothing pathologic was found in the accessible organs but the symptoms subsided. Another attenuated attack seventeen days later terminated in the expulsion of three small kidney stones, since which time there has been no further disturbance.

57. **Influence of Salvarsan on Syphilis of Central Nervous System.**—Dind has been examining repeatedly the cerebrospinal fluid in a number of syphilitics in the secondary stage, especially just before, during and following skin manifestations; also in a number two or more years after infection, and in sixteen with paresis, tabes or other affection of the central nervous system. The findings on lumbar puncture in 190 cases demonstrate that the pressure is abnormally high as a rule when there is involvement of the nervous system, and occasionally without such. There is also pronounced lymphocytosis as a rule during the stage of septicemia—evidenced by the exanthem—and also when the nervous system is impaired as shown by ataxia, paresis, intense headache or ictus. In four cases in this last group the findings on repeated lumbar puncture showed remarkable changes for the better under the influence of a course of neosalvarsan. These objective findings, he says, are more convincing testimony than the euphoria presented by the patients, as this is common with almost any new remedy.

Archiv für Gynäkologie, Berlin

CII, No. 3, pp. 411-659. Last indexed April 18, p. 1289

60 *Permanent Cures after Operations for Recurrence of Uterine Cancer. E. Zweifel.
61 Action on Smooth Muscles of Hypophysis Extract from Gravid and Non-Gravid Animals. (Vergleichendes Studium über die Wirkung des Hypophysenextraktes von trächtigen und nicht trächtigen Tieren auf die glatte Muskelfaser.) E. Santi.
62 *Morphology and Functioning of the Ovary in Health and Disease. B. Aschner.
63 Vaginal Myomas. R. Müller.
64 Lack of Inhibitor Reflex Cause of Surprisingly Rapid Delivery with Spinal-Cord Disease. (Ursache des überraschend schnellen Geburtsablaufes bei Rückenmarkserkrankungen.) R. Zimmermann.
65 *Proteolytic Serodiagnosis of Pregnancy. (Bedeutung der Antitrypsinmethode für die serologische Schwangerschaftsdiagnostik.) R. Franz.
66 Uterine Sarcoma Secondary to Infectious Granuloma. T. Nagy.
67 History of Obstetrics in Ancient Rome. (Beiträge zur ältesten Geschichte der Geburtshilfe in Rom.) S. E. Wichmann.

60. **Ultimate Outcome after Operations for Recurrence of Cancer.**—Zweifel reports from the Jena clinic what he thinks is the longest survival on record after an operation for recurrent uterine cancer. Vaginal hysterectomy was done in 1902 and the following year an extensive recurrence was removed by an abdominal operation. The patient is still in robust health, working in the field. The clinic has a record for 1903 to 1909 of twenty-three operations for recurrence, and the outcome to date is known in twenty cases. Five women were operated on twice for recurrence, one three times and another five times. In only 6 was the primary operation vaginal. In 3 cases the supposed recurrence proved to be of another nature. Five of the remaining 17 are free from recurrence to date. One woman developed recurrence seven years after the first operation. The interval in the permanently cured cases is over ten years in two, and over four, five and six in the others, the average being seven and a half years. The woman of 66 operated on five times for recurrence is now 75 and has had no sign of trouble during the last four and a half years. In another case a woman of 44 had to have one kidney and part of the bladder removed in 1903 on account of involvement of the ureter in the recurring cancer. She is in good health to date. The clinic now insists that women should return for regular examination every three months during the first three years. Only about 10 per cent. of the recurrences developed later than this.

62. **Functions of the Ovary.**—Aschner devotes sixty-four pages to this study of the morphology and functioning of the ovaries in normal and pathologic conditions, in various animals and man. He notes that defective development of the ovaries does not modify the sexual characters so strikingly as defective development of the testicles. The relations between the ovaries and the nervous system are twofold: the functioning of the ovaries is regulated by the nervous system and the ovaries regulate both the vegetative and the central nervous system. There is much to sustain the view that some disturbance in the internal secretion of the ovary is responsible for hysteria. By testing for protective ferments according to Abderhalden it may prove possible to control hysteria by organotherapy, reducing or supplementing the functioning of the ovaries by partial castration or giving ovarian extract. Radiotherapy and organotherapy, he thinks, have a future in this field, especially when combined with measures for enteroptosis, etc. Many cases of neurosis can undoubtedly be benefited along these lines, although it is beyond our power to cure constitutional inferiority.

65. **Antitryptic Serodiagnosis of Pregnancy.**—Franz made 223 tests of the proteolytic power of the serum from 47 women at different stages of pregnancy or the puerperium. The serum of 68 women in labor and of 95 in the puerperium was also tested, and of 4 with toxic pregnancy, skin affections or eclampsia. The results are tabulated in detail and compared with the findings in a number of non-pregnant women. All the evidence confirms the fact that the antiproteolytic property of the serum is very much higher toward the end of a pregnancy than in non-pregnant women. All the affections causing increased absorption of albumin in the body augment the titer still farther. The reaction is not specific at all but it may aid in the diagnosis of pregnancy, especially if the titer of the serum before conception had occurred is known.

A negative reaction, he declares, may be regarded as always excluding the possibility of pregnancy. With a positive reaction, nephritis, cancer, tuberculosis, etc., must be excluded before the reaction can be accepted as a sign of pregnancy. He suggests that sufficient attention may not have been paid to this point in applying the Abderhalden test. The proteolytic test permits, he adds, the positive exclusion of pregnancy in thirty minutes after drawing the 3 or 5 cm. of blood from the patient for the purpose, while the simplicity and ease of the technic commend it still further. The test depends on the digestion of a sodium-casein solution to the point at which it no longer gives a precipitate with dilute acetic acid. Franz has slightly modified the original Fuld-Gross technic for the purpose, as he describes in detail. (The original technic is given in the new edition of New and Nonofficial Remedies (in press), under the heading "Digestive Ferments: Determination of Tryptic Value.")

Correspondenz-Blatt für Schweizer Aerzte, Basel

XLIV, Nos. 20-22, pp. 609-704

68 Typhoid Epidemic in Zurich District, 1913. R. Frey.
69 *Etiology of Goiter. (Zum Kropfproblem.) T. Dieterle, L. Hirschfeld and R. Klinger.
70 Necropsy Findings in Paratyphoid. (Sektionsbefund bei Infektionen mit Bakterium enteritidis Gärtner.) J. L. Burckhardt.

69. **The Goiter Problem.**—Dieterle and his coworkers assert that Bircher's conclusions as to the incidence of goiter in Switzerland are untenable as they are based on alleged facts which later research has shown to be incorrect. Bircher's statements therefore in regard to the drinking water as a factor in goiters must be disregarded. (His views were briefly summarized in The Journal, March 26, 1910, p. 1094, and discussed editorially Feb. 14, 1914, p. 538.)

Deutsche medizinische Wochenschrift, Berlin

May 28, XL, No. 22, pp. 1097-1128

71 *Treatment of Pulmonary Edema. Grober.
72 *Recurrences of Syphilis in Nervous System under Salvarsan. (Ueber Abortivheilungen und Neurorezidive bei der modernen Syphilisbehandlung.) Werther.
73 *Exercises to Strengthen Expiration in Treatment of Asthma. (Die Summtherapie des Bronchialasthmas.) L. Hofbauer.
74 "Pulsions"-Diverticulum. (Das pharyngo-ösophageale Pulsionsdivertikel und seine Operation nach der Goldmannschen Methode.) W. Albrecht.
75 Tumor in Spinal Dura. Amberger and Schenk.
76 *Alimentary Disturbances in Infants. (Ernährungsstörungen der Säuglinge.) H. Schelble.
77 Latent Tuberculosis in Children. H. Kleinschmidt.
78 Isolated Rupture of the Mesentery. Saalmann.

June 4, No. 23, pp. 1145-1200

79 *Excessive Obstetric Hemorrhage. (Behandlung bedrohlicher Blutungen während der Geburt.) P. Jung.
80 *Deep Roentgenotherapy in Internal Medicine. (Erfahrungen mit der Tiefentherapie in der inneren Medizin.) A. Schittenhelm and F. Meyer-Betz.
81 *Occult Bleeding as Sign of Open Ulcer. (Ueber das Vorkommen und Verhalten der okkulten Blutungen beim Ulcus ventriculi und duodeni.) I. Boas.
82 Duodenal Ulcer Stimulates Stomach Motor Functioning. (Das röntgenologisch Erkennbare beim Ulcus duodeni.) E. Schlesinger.
83 *Importance of Preventive Antitoxin Treatment of Diphtheria. (Diphtheriebekämpfung und Diphtherieprophylaxe.) W. Braun.
84 Salvarsan in Abortive Treatment of Syphilis. E. Hoffmann.
85 Efforts of Organism to Maintain the Normal Alkaline Reaction of the Blood. (Bedeutung der Wasserstoffionenkonzentration des Blutes und der Gewebe.) L. Michaelis.
86 Industrial Disease and Mortality in Hungary. (Die Berufs-Erkrankungs-, Sterblichkeits- und Unfallverhältnisse der ungarischen Industriearbeiter.) H. Pach. Commenced in No. 22.

71. **Pulmonary Edema.**—Grober emphasizes the importance of stimulating the heart action, relieving it of some of its task by venesection in case of the full-blooded, and by revulsion. Expectorants and narcotics are seldom needed as there is already sufficient impulse to cough and the usual accumulation of carbon dioxid in the blood has a narcotic action. These may fail, however, and each case should be studied individually. He gives an illustration of the preferable technic for intravenous injection of digitalis—there is no time to wait for its action by the mouth—and for venesection.

72. **Treatment of Syphilis.**—There is no doubt, Werther declares, that with salvarsan we can cure at least 50 per cent. of all cases of primary syphilis. He urges that in the secondary stages salvarsan should never be given in a single dose and never alone. A two-weeks' course of mercury should precede it to avoid danger of a reaction on the part of the brain; then salvarsan should be given in addition once a week until three or four doses have been taken. With primary syphilis salvarsan should be given boldly (0.6 gm.), he thinks, and without preliminary mercury. These rules are based on what he has learned in his experiences at Dresden. The spirochetes in the secondary stage must not be allowed to get out from under the influence of the specific treatment as the mercury and salvarsan are eliminated, and consequently treatment must be chronic. The courses should be repeated until the Wassermann is permanently negative. When this has been accomplished a brief but intensive "provocation course" should be given, and if the Wassermann still persists negative, the cerebrospinal fluid should be examined and tested for its sterility. All this is practical for private patients and should be done before we can assure the patient that he is cured. It is of course impossible with hospital patients. Werther gives each as he leaves a card record of treatment to date.

Sixteen cases of neurorecurrence are reported. The symptoms ranged from mere headache, vertigo and tinnitus to epilepsy and dementia. These neurorecurrences generally developed about six weeks after the close of the first course of treatment, begun in the early secondary stage; this includes, he says, the phase of the primary stage when the Wassermann becomes positive. Neurorecurrences used to be encountered before salvarsan was heard of, but they seem to occur now more frequently than before. He has had thirty cases of them among his 3,000 syphilitic patients. The salvarsan has no special affinity for the nervous system but the spirochetes have. Any left from the previous courses of treatment settle in the nervous system by preference.

73. **Expiration Treatment of Asthma.**—Hofbauer has devised an apparatus to record the expiration, neglecting inspiration. This stresses the expiration phase of breathing and has been found extremely useful in curing emphysema and asthma. In some of the worst chronic cases a complete cure was realized with no recurrence in the more than three years to date.

76. **Alimentary Disturbances in Infants.**—Schelble remarks that ten years ago his article would have been entitled "Gastro-intestinal disturbances." The progress made since has permitted the various disturbances to be analyzed and the exact cause for each recognized. He classifies them according as the children are normal or constitutionally or structurally inferior. The food, infection and heat are the subsidiary factors, and he discusses each of the above five categories in turn, holding up the clinical picture of each and pointing out the measures to be applied in each. By such analyses it is possible to apply measures that will ensure successes beyond those realized in any other field of medicine. For the constitutionally inferior, it may be necessary to stop breast-feeding or to reduce all kinds of feeding to the minimum in case of exudative diathesis; rachitis calls for reduction of milk as this often has a lime-wasting influence; other food rich in lime should be given, and a mixed diet with phosphorus and cod liver oil; with anemia the iron metabolism is at fault and less milk should be given as this is poor in iron; a mixed diet should be given early, with meat juice. With a tendency to dropsy, lime salts are needed to combat the accumulation of water in the subcutaneous cellular tissue. Congenital neuropathies and psychopathies may reduce the tolerance for any kind of food, but even then careful guidance of breast-feeding may bring the children into a thriving condition.

79. **Obstetric Hemorrhage.**—Jung remarks in the course of this article that with placenta praevia extraction should never follow version immediately unless the os is completely dilated. Otherwise the cervix is liable to tear and this is extremely dangerous with placenta praevia. It nearly always entails severe hemorrhage, and it is almost impossible to suture the tissues. He says of cesarean section with placenta praevia that it must be reserved for institutions. In the home, constriction of the waist with a rubber tube, suspenders or rope, according to Momburg's technic, has often proved a life-saving measure both with placenta praevia and premature separation of the normally situated placenta.

80. **Deep Radiotherapy in Internal Medicine.**—Schittenhelm and Betz give an illustrated description of fourteen cases to

emphasize the frequent importance of deep roentgenotherapy in lymphemia, lymphosarcoma and cancer. Less benefit was realized in acute leukemia. Most of the patients had been given Roentgen treatment by the older technics previously, and the outcome with the "deep" technic showed the superiority of the latter.

81. **Appreciation of the Importance of Occult Blood with Gastro-Intestinal Ulcer.**—Boas has long been emphasizing the importance of this subject but the last year has demonstrated, he says, that unless blood can be detected in the feces any symptoms suggesting ulcer must come from the complications of the ulcer, adhesions, retraction, etc., as an open ulcer cannot exist without some blood being found in the stool—allowing for the fallibility of all human judgments. The occult blood may not be evident except with the most sensitive tests, and he has found the phenolphthalin test extremely delicate. The one drawback is that the patient has to abstain from meat and fish for eight to twelve days beforehand, but then even the minutest admixture of blood is manifest. This test has shown that occult bleeding is of far greater frequency than hitherto supposed, especially when there are hyperacidity, gastrosuccorrhea, typical tender points or subjective stomach symptoms. The test is so sensitive that after repeatedly determining for several days the complete absence of blood from the stools by the test, ten persons were given from 1 to 3 c.c. of their own blood, obtained by venesection, and stirred into soup. In the following stools the test gave positive findings even with the 1 c.c. of blood, while other technics gave positive findings only with the 3 c.c. The intensity of the reaction in the stools did not always correspond to the amount of blood that had been ingested. Either the hematin was not regularly distributed through the stool or there were inhibitor influences at work. It is possible that many conflicting results can be explained by this.

The scrap of feces is rubbed up with alcohol and 3 to 5 drops of acetic acid and filtrated. Then 10 to 15 drops of the phenolphthalin solution are added and 3 to 5 drops of a 3 per cent. solution of hydrogen dioxid. If blood is present the fluid turns pink or red; if not, it persists yellow or grows yellower. The test is said by Kastle to have proved positive with one part blood in 8,000,000 parts of water. The phenolphthalin solution is an alkaline solution of phenolphthalein reduced by zinc to phenolphthalin: 1 gm. of the phenolphthalein and 25 gm. of potassium hydroxid are dissolved in 100 gm. water and 10 gm. of zinc dust is added. The red mixture is constantly stirred or shaken over a small flame until it is entirely decolored and is then filtered while still hot. A little excess zinc dust helps to keep the solution better. The technic of the test is otherwise that of the ordinary guaiac or Weber test for blood. (It was described in detail in The Journal, Feb. 18, 1911, p. 546.)

83. **Preventive Antitoxin in Treatment of Diphtheria.**—Braun here presents the results of his systematic campaign for prophylaxis during the last two years. In 1909 only about 20 per cent. of the diphtheria patients reached the hospital within the first thirty-six hours of the disease but the educational propaganda since has improved matters so that last year 60 per cent. were received within this interval. The stormier the onset of the disease the more promptly the sick child is taken to the hospital for treatment, and hence the mortality is no higher in the severe epidemics than under ordinary conditions. He gave preventive injections to the other children in the families and only 1.62 per cent. of the 2,218 developed diphtheria later and mostly in a mild form, with four deaths, while nearly 35 per cent. in the non-treated families developed the disease. His experience speaks further for the assumption that the immunity conferred by the antitoxin lasts a long time, possibly for years. He never witnessed anything suggesting anaphylaxis, even on reinjection of the antitoxin, except an exanthem in two cases and in one of these it was the first time any serum had been injected.

Medizinische Klinik, Berlin

May 24, X, No. 21, pp. 879-918

87 *Connection of Appendix with Disease of Genital Apparatus. J. Fabricius. Concluded in No. 22.
88 Swelling in the Vicinity of the Nose with Nasal Affections. (Schwellungen in der Umgebung der Nase bei Nasenerkrankungen.) A. Blumenthal.
89 Fracture of Vertebrae; Diagnosis and Prognosis. (Wirbelbrüche.) P. Ewald.
90 *Salvarsan versus Mercury. (Statistischer Nachweis der Vorzüge der Salvarsanbehandlung vor der Behandlung mit Quecksilber im Frühstadium der Syphilis.) F. Pinkus.
91 Mud Baths in Treatment of Menstrual Disturbances. (Können Gebärmutterblutungen durch Moorbäder geheilt werden?) N. Cukor.
92 Balneotherapy of Chronic Nephritis. Zörkendörfer.
93 Diagnosis of Heart Insufficiency by Changes in Distribution of Blood during Test Work. (Verwendbarkeit der während der Arbeit registrierten Blutverschiebungen zur funktionellen Diagnostik bei Herzkrankheiten.) F. Meyer.
94 Relation of Bacteria to Movements of Nitrogen. (Beziehungen der Bakterien zum Kreislaufe des Stickstoffs.) W. Wangerin.

June 7, X, No. 23, pp. 961-1002

95 Mutilating Obstetric Operations. (Zerstückelnde geburtshilfliche Operationen.) W. Zangemeister.
96 Indications with Calculi in Upper Urinary Passages. (Therapeutische Indikationen bei Steinerkrankungen der oberen Harnwege.) P. Janssen.
97 Post-Diphtheric Polyneuritis Cured by Tonsillectomy. G. L. Dreyfus and J. Schürer.
98 *Friedmann's Remedy. (Ueber Erfahrungen mit dem Friedmannschen Tuberkuloseheilmittel.) B. Scholz.
99 The Seashore in Treatment of Surgical Tuberculosis. (Thalassotherapeutische Erfolge.) Häberlin.
100 Effect of Thermal Baths on Circulation. (Verhalten des Circulationsapparats bei natürlichen kohlensäurehaltigen Thermalsolbädern.) J. Strasburger.

87. **Relations between Appendix and Disease of Genital Apparatus.**—In this review of his experience Fabricius remarks that in two cases he found the appendix soldered to the left ovary and tube and once to the umbilicus. In the latter case there was a tuberculous process in the appendix. In a boy of 12 the appendix was soldered to the testicle. Criminal abortion with perforation of the uterus and secondary appendicitis caused death in one of his two cases of this kind. In several cases of supposed acute appendicitis the trouble proved to be merely the localization in the appendix of a general typhoid infection or of enteritis. In a large group of cases of supposed acute appendicitis, the normal temperature, pulse up to 140 and signs of anemia corrected the diagnosis to ruptured extra-uterine pregnancy. In 6 out of 200 cases of the latter, there was concomitant acute disease in the appendix. The probabilities are in favor of acute appendicitis when the temperature is high and the extra-uterine pregnancy ruptures secondarily to this. A tendency to extra-uterine pregnancy and disease of the adnexa is often entailed by appendicitis, even when mild, and a tuberculous process in the appendix region is responsible for many a chronic appendicitis. The slight rise in temperature in the afternoon is seldom traced to this, its true cause. In one case a young woman's appendix was removed for acute trouble, and a year later the right ovary developed a tuberculous process.

90. **Salvarsan versus Mercury.**—Pinkus is chief of the service giving specific treatment to prostitutes at Berlin and it is said to have been the experiences here which inspired Dreuw to his recent attack on salvarsan. Dreuw stated that the results under the old mercury were better than at present. To this Pinkus replies that recent reexamination of 1,000 prostitutes who had been given mercury treatment years before showed a positive Wassermann in over 80 per cent. and tertiary manifestations in over 50 per cent. which he regards as the complete *Fiasko der symptomatischen Hg-Behandlung*. Comparing the patients with recent primary syphilis treated with and without salvarsan, he found that 84 per cent. of 100 in the latter class had further manifestations during the first year, while this was true of only 69 per cent. of 174 given salvarsan treatment. Among 300 syphilitics in his private practice, 81 per cent. of 250 given mercury alone had further manifestations during the first year, but only 35 per cent. of 50 given salvarsan alone or

with mercury. It is impossible to compile such accurate records for prostitutes as they are given treatment only when manifest symptoms develop.

98. **Friedmann's Remedy.**—Scholz reports from Frankfurt twenty cases of pulmonary tuberculosis given the Friedmann treatment with no benefit in any instance. All reacted to the *Simultaninjektion* with high fever and severe malaise, slight cyanosis and headache preventing sleep. In four cases the disease continued a rapidly progressive course; one lost four pounds and in another patient with surgical tuberculosis a new process developed in the foot under the treatment. He remarks in conclusion that the injections of the Friedmann remedy are in various directions dangerous and even in cases without direct injury to the patient they are frequently followed by right annoying phenomena. He consequently wishes to be classed with those who warn urgently against further application of the remedy.

Therapie der Gegenwart, Berlin

June, LV, No. 6, pp. 241-288

101 *Importance of Repeated Examination of the Sick. (Ueber fortlaufende Krankenbeobachtung.) E. Neisser.
102 Salvarsan in Scarlet Fever; Forty-Seven Cases. Lenzmann.
103 *Treatment of Tuberculous Laryngitis by the Pfannenstill and Friedmann Technics. W. Sobernheim.
104 *Pulmonary Tuberculosis in Children. H. Vogt.
105 *Friedmann's Remedy in Surgical Tuberculosis. R. Mühsam and E. Hayward.

101. **Repeated Examinations.**—Neisser has made a point for three years of keeping patients under prolonged observation at the Stettin hospital. His method is to keep an alphabetical record of the interesting internal cases. One of the nurses keeps a calendar with the names of these patients entered at various dates, and she sends to each when she comes to his name a printed notice asking him to return to be examined and advised. No treating is done, but the patients realize that an interest is taken in them and that it is to their benefit to return and be examined anew. The prosector of the institution also keeps an alphabetical record of all those under this continuous examination in the institute. Of the 126 patients thus registered and reexamined in the last three years, only 11 failed to appear in response to the notice. Neisser hopes in this way to throw light on the connection between the tonsils and recurring articular rheumatism, on the true significance of albuminuria, on what becomes of those with anacidity, and on similar problems. The plan requires the collaboration of only the chief of the service and one nurse until the case comes to the prosector.

103. **Friedmann's Remedy.**—Sobernheim reports thirteen cases of tuberculous laryngitis treated by the Pfannenstill two-route method—potassium iodid taken internally with ozone or hydrogen dioxid applied locally—the aim being to generate a chemical reaction in the diseased tissues. He was not favorably impressed with the results in these cases but the method proved very useful in two cases of lupus of the nasal mucosa, a complete cure being obtained in both cases after a few weeks. He applied the Friedmann remedy in four cases of laryngeal tuberculosis; one patient died, one required an operation later and in the others the disease has progressed. The treatment is qualified as having completely failed in these laryngeal cases.

104. **Pulmonary Tuberculosis in Children.**—Vogt remarks that it is a tendency of the day to pay far greater attention to treatment than to conscientious testing of what is accomplished by our treatment. He says that experience has shown that induced pneumothorax is quite effectual for young children, even when both lungs are involved if the other side is not too extensively diseased. He regards the pneumothorax treatment as the most important and reliable measure at our command for severe and progressing cases in children. It is rarely applicable for infants as the disease generally spreads too rapidly to other organs, but with older children we may be able with it at least to prolong life for years. Time alone will tell whether the cure is permanent. He does not consider that there is any testimony to date that tuberculin treatment is really effectual for pulmonary tuberculosis in children. There is no evidence to date that any animals have been cured by tuberculin. He agrees with Czerny that the results of tuberculin treatment do not surpass in any respect those obtained without it.

105. **Friedmann's Remedy.**—Mühsam and Hayward report from the Moabit Hospital at Berlin 15 cases of surgical tuberculosis given Friedmann treatment, including 5 children. In 10 cases no benefit was apparent; in the 5 others the progress was favorable but whether to attribute this to the injections or to the other measures applied is a question. The only case in which the serum seemed to benefit was in tuberculous peritonitis in a child, and of course it is impossible to ascertain the actual pathologic-anatomic conditions in the peritoneum. Most of the patients suffered materially from the direct consequences of the injections and their general health became impaired. Some of them developed hematuria, diarrhea and eruptions. Their final conclusion is that the Friedmann remedy is unadapted for and ineffectual in the treatment of surgical tuberculosis. They give full details of their 15 cases.

Wiener klinische Wochenschrift, Vienna

May 28, XXVII, No. 22, pp. 741-784

106 Induced Transient Albuminuria. (Auslösung transitorischer Albuminurien beim Menschen.) A. Schiff.
107 Experiences with Treatment of Uterine Myoma. R. Marek.
108 *Habitual Dislocation of the Patella. H. Lorenz.
109 Myomas of Esophagus and Cardia. M. Milovanovic.
110 *Hexamethylenamin Urine Reaction. S. Grosz.

108. **Habitual Dislocation of the Patella.**—Lorenz took a tuck in the capsule according to Mikulicz' technic. This shortening of the capsule proved a simple procedure and a complete success. It is not even necessary to open the joint as the fold can be taken up and sutured without direct inspection. One case is reported in detail.

110. **Reaction from Hexamethylenamin.**—Gross states that in testing the urine for minute amounts of albumin by Freund's method, he noticed a fine-grained sediment in a number of cases and investigation always revealed that these persons had been taking hexamethylenamin. This is proving a sensitive test for the presence of hexamethylenamin. He adds to the urine enough 10 per cent. acetic acid or hydrochloric acid to bring the total to five-fourths or four-thirds of the original amount. Then he adds, a drop at a time, a saturated aqueous solution of mercuric chlorid (about 7 per cent.), continuing this as long as the fluid continues to grow more turbid. He adds that the presence of free formaldehyd in the urine is best evidenced by the inability of micro-organisms to proliferate when the urine in question is inoculated with bacteria and kept at 37 C.

Zeitschrift für klinische Medizin, Berlin

LXXX, Nos. 1-2, pp. 1-216. Last indexed May 9, p. 1516

111 Estimation of Diabetic Acidosis by Determination of Carbon-Dioxid Tension in the Air in the Lungs. L. S. Fridericia.
112 Determination of Acidosis and Its Clinical Availability in Diabetes. M. Lauritzen.
113 Modified Technic for the Blood-Count Apparatus. (Eine Modifikation der Hayemschen Lösung.) G. Jörgensen.
114 Orthodiagraphy for Controlling Action of Digitalis in Therapeutics. W. Libensky.
115 Landry's Paralysis; Fatal in Eight Days. M. Chanutina.
116 *Typhoid Bacilli in the Blood. (Ergebnisse der bakt. Blutuntersuchung in 50 Fällen von Abdominaltyphus.) S. Saski.
117 Tubercle Bacilli in the Blood-Stream and Inoculation of Animals. F. Klemperer.
118 *The Manifold Symptoms of Uremia. (Zur Klinik und Einteilung der Urämie.) E. Reiss.
119 Transfusion of Blood with or without Its Serum Content. M. Levy.
120 Abnormal Proliferation of Myeloid Tissue Without the Blood-Picture of Leukemia. (Die generalisierte aleukämische Myelose und ihre Stellung im System der leukämischen Erkrankungen.) H. Hirschfeld.
121 *Availability of Different Sugars for Testing Liver Functioning. (Bedeutung der verschiedenen Zuckerproben für die Beurteilung der Leberfunktion.) F. Wagner.
122 *Objective Signs of Neurasthenia. O. Schellong.

116. **Typhoid Bacilli in the Blood.**—Saski found typhoid bacilli in the blood during the first week of typhoid fever in nearly all the fifty patients examined. They disappeared

from the blood in the following weeks in most of the cases, but in some, including some mild cases, they could be found in the blood all through the fever period. The findings during the first week were positive in larger numbers of cases than the agglutination test, but after the first week the proportion was reversed.

118. **Uremia.**—Reiss discusses in this first installment of his article the asthenic and epileptiform types of uremia, giving a detailed history of six cases of the former and two of the latter. The first type is distinguished by drowsiness, apathy, increasing lassitude and possibly sudden death from heart failure. The metabolic findings show defective elimination of substances through the kidneys, and loss of power of concentration, inhibition of the diluting power of the blood-serum, increased residual nitrogen and higher osmotic tension in the blood. There may be headaches, vertigo, vomiting and pruritus, but the clinical picture is dominated by the progressive weakening in body and mind.

The other type is distinguished by epileptiform convulsions; they return periodically with exacerbation of the nephritis and subside as the nephritis improves and likewise under potassium bromid. The mind is unimpaired during the intervals between attacks, and no appreciable modification of the urine or composition of the blood is apparent. No influence from change of diet can be detected in this form of uremia. In one of the cases reported no benefit was observed even from restriction to tea and sweetened water, but the tendency to convulsions was promptly arrested by potassium bromid. The patient was a man of 43 with kidney disease for four years. In the last year he had had three attacks of convulsions; they resembled in nearly every respect an epileptic seizure with unconsciousness for five to fifteen minutes.

121. **Alimentary Sugar Test of Liver Functioning.**—The findings in 196 cases are compared, with tabulation of the details, all testifying, Wagner asserts, to the great importance of galactosuria for the differential diagnosis of liver diseases. It indicates functional derangement, and generally of the entire parenchyma of the liver. It differentiates between catarrhal jaundice and other forms of jaundice, especially that with gall-stones and disease of the gall-bladder. The only restriction to be made is that in the jaundice in the second stage of syphilis there is the same response as with simple catarrhal jaundice. The levulose test proved far less exact and reliable in his experience than the galactose test. No connection between alimentary dextrosuria and liver affections was discovered in his research. He found that the sensitiveness of the galactose test could be materially enhanced by using with it Liebig's meat extract. Alcohol, especially brandy, taken in large amounts with or before the galactose, reduced very much the tolerance for galactose.

122. **Signs of Neurasthenia.**—Schellong discusses the exaggerated knee-jerk, vasomotor reddening, tremor of the eyelids, tongue and fingers, and acceleration of the pulse as objective indications of neurasthenia. He has been examining for these signs in hundreds of healthy persons and found each of them in from 25 to 65 per cent. of those examined. A pulse of 88 and over was evident in 37 per cent. of 1,300; tremor of the eyelids in 64 per cent. of 524, and exaggeration of the knee-jerk in 65 per cent. of 800. None of these signs indicates neurasthenia, but when several are noted in one person instability of the nervous system is beyond question, but this does not necessarily mean neurasthenia. The knee-jerk and tremor of the lids are the least significant of the above.

Zeitschrift für Urologie, Berlin

May, VII, No. 5, pp. 353-432

123 Modern Tests of Functional Capacity of the Kidneys. (Nierenfunktionsprüfung.) R. Bauer and P. Habetin.
124 *Disturbances in Urogenital Functioning with Disease of the Posterior Urethra, Especially of the Colliculus Seminalis. J. Leyberg.

124. **Urogenital Disturbances with Irritation in the Posterior Urethra.**—Leyberg gives a colored plate of the endoscopic findings in four cases. They cleared up a long puzzling syndrome which included various urogenital disturbances, even impotence in some of the cases. There was a history of abnormal sexual habits, coitus interruptus, etc., in every case, evidently entailing an irritable condition in the verumontanum. This in turn may induce psychic impotence, and correction of the local affection may have to be supplemented by psychic treatment. But the latter alone is sure to fail, while once convinced of the local cure the mind of the patient is at rest and a complete cure often follows without further psychotherapy.

The symptoms in one case, after eight years of coitus interruptus, were periods of erections and unduly frequent desires to urinate during the day, with smarting and itching. The man of 40 was otherwise healthy and with a healthy family. A six-weeks' course of irrigation treatment for the assumed catarrhal affection gave no relief; endoscopy then revealed extreme congestion and swelling of the colliculus and numerous papillomatous excrescences. They were destroyed with the actual cautery under local anesthesia, and the region was cauterized ten days later with 20 per cent. silver nitrate. Two weeks later the still very large colliculus was cauterized anew with the actual cautery. The posterior urethra was rinsed out every second day through the course with 1 per ten thousand silver nitrate, and normal conditions were completely restored at last in every respect.

Zentralblatt für Chirurgie, Leipsic

XLI, Nos. 20-21, pp. 841-928

125 High-Curving Laparotomy Incision. (Der bogenförmige Bauchschnitt im Epigastrium.) Drüner.
126 Advantages of Resection of Cancer of the Cardia from the Rear. (Die Radikaloperation des Karzinoms der Cardia und des abdominalen Oesophagus.) H. Boit.
127 *Direct Implantation of Nerve in Muscle and Neurotization of Muscle Corrects Paralysis of Trapezius. (Direkte Nerveneinpflanzung in den Muskel und muskuläre Neurotisation bei einem Falle von Cucullarislähmung.) V. v. Hacker.
128 Improved Technic for Plaster Bandage with Hare-Lip Operation. (Zweckmässige Modifikation des Heftpflasterverbandes bei Hasenschartenoperationen.) R. Hagemann.

127. **Neurotization of Paralyzed Muscles.**—Hacker reports most excellent results in a case of complete paralysis of the trapezius muscle consequent on injury during an operation on tuberculous lymph-nodes in the neck. He implanted the central stump of the spinal accessory motor nerve in the midst of the paralyzed trapezius muscle, and also implanted the nerve entering the margin of the muscle in a lengthwise slit in a nerve of the plexus. Supplementary to this he sutured together the intact levator ang. scap. and the paralyzed trapezius. The patient has gradually recovered almost perfect functional control of her arm, confirming the practicability and success of these methods of neurotization of a paralyzed muscle.

Zentralblatt für Gynäkologie, Leipsic

XXXVIII, Nos. 20-21, pp. 713-792

129 *Medicolegal Differentiation of Maternal and Fetal Blood. (Ist die Unterscheidung mütterlichen und fötalen Blutes nach neueren Methoden möglich?) W. Vollhardt.
130 Changes in Ovary under Radiotherapy. J. Schiffmann.
131 Abdominal Operations for Uterine Cancer. (Abdominale Radikaloperation des Gebärmutterkrebses nach dem Material des Obuchow-Frauenhospitals.) L. A. Kriwsky.
132 Laceration of the Perineum. (Sekundärnaht bei kompletten Dammrissen.) S. R. Rosenstein.

129. **Medicolegal Differentiation of Maternal and Fetal Blood.**—Vollhardt states that he was unable to obtain decisive findings with the Abderhalden reaction applied to blood that was not fresh and sterile or to hemolytic serum or extracts of blood-stains, not even with the Corin and Welsch modification. This method is therefore not practical for medicolegal purposes in this line. But he found the Neumann and Herrmann test extremely reliable, so much so that negative findings speak positively for child's blood. This technic is based on the constant increase in the fat and lipoid

content of the blood during pregnancy. In the new-born the lipoid content is far below the normal standard. There is much to suggest that increased lipoidemia is connected in some way with the functioning of the ovaries. Vollhardt applied this test to 500 specimens of retroplacental and umbilical-cord blood, drying them on linen protected from the sunlight. An alcoholic maceration of the separate spots was then treated with water or acid and the maternal blood always grew turbid while the child's blood mixture was always limpid or only faintly opalescent.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 56-64, pp. 585-680

133 Total Gangrene of Kidney from Phlegmonous Perinephritis. P. Azara.
134 Extraperitoneal Suspension of Uterus to Cure Prolapse. G. Frattin.
135 Possibility of Making a Collateral Outlet for the Parotid Gland into the Submaxillary Gland. G. Ferrarini.
136 Three Children in One Family Taken with Severe Typhoid the Same Day. E. Tognoli.
137 Much's Granula a Hibernating Form of Tuberculosis Virus. S. Mircoli.
138 Favorable Experiences with Antityphoid Vaccination in Italy. G. Collina.
139 *The Urochromogen Reaction. (Valore e natura della reazione urinaria di Weisz.) D. P. Tuliato.
140 *Tetanus Antitoxin in Prophylaxis. (Efficacia delle iniezioni contemporanee di siero antitetanico nella profilassi del tetano.) G. Tizzoni.

139. **The Urochromogen Reaction.**—Tuliato has been studying Weiss' potassium-permanganate reaction and found it positive in 67 per cent. of all the cases of various diseases which terminated fatally. It is not specific for any one disease, but is a sign of the gravity of the condition indicating a fatal outcome if it persists constant and intense. He explains it as due to oxidation of albuminoid substances originating in the decomposition of cells under the direct or indirect action of pathogenic germs. (Compare article in The Journal, June 13, 1914, p. 1886.)

140. **Tetanus Antitoxin in Prevention.**—Tizzoni states that tetanus antitoxin has abundantly proved its efficacy as a preventive in the recent Italian campaigns in northern Africa. The only question now is one of dosage, and this depends on the antitoxin units in the separate specimens. They may vary widely in this respect even in the same makes. The manufacturers should specify on each vial the exact unit content. In the cases in which the dose was too small to ward off the tetanus entirely, it proved exceptionally mild in his experience.

Policlinico, Rome

XXI, Nos. 19-20, pp. 669-740

141 Disturbances from Diverticulum of Meckel; Three Cases. V. Craglietto.
142 Neosalvarsan in Progressive Paralysis; Five Cases. V. Massarotti.

May, Surgical Section, No. 5, pp. 205-256

143 Indications for Tardy Extraction of Bullets from Skull. (Estrazione tardiva dei proiettili dall'interno del cranio.) G. Mingazzini and R. Alessandri.
144 Plastic Operations to Close Defects in the Dura. (Omoioplastiche della pachimeninge.) L. C. Zapelloni. Commenced in No. 4.
145 Wounds of Vertex by Way of the Base of the Skull. (Sulle ferite da punta dell'encefalo attraverso là base del cranio.) S. Solieri.

Riforma Medica, Naples

May 23, XXX, No. 21, pp. 561-588

146 *Functional Disturbances in the Pancreas. (Ricerche sulle alterazioni funzionali del pancreas.) S. Fichera.
147 Jaundice from Pressure of Echinococcus Cyst in the Liver. O. Finzi.

146. **Disturbances in Pancreas Functioning.** — Fichera reviews the technic of and the findings with various means for testing the functional capacity of the pancreas. The list is a long one but none seems to be reliable. We have no means to date for correct estimation of the functional condition of this organ, and we can judge of it only by comparing the results of various tests.

Brazil-Medico, Rio de Janeiro

May 8, XXVIII, No. 18, pp. 173-182

148 Syphilitic Arthritis. N. Barbosa.

Semana Medica, Buenos Aires

XXI, Nos. 15-18, pp. 793-1004

149 Action of Artificial Organic Stains on Diastasic Hydrolysis of Albuminoids. (Influence de la concentration des solutions de colorants acides et basiques sur la protolyse de l'albumine par la pepsine dans un milieu acide.) H. Damianovich and L. Guglialmelli.
150 *Sanitary Regulation of Railroad Transportation. (Reglamentacion de la higiene en los ferrocarriles.) M. S. Ortiz.
151 Difficulty of Diagnosing Glaucoma under Certain Circumstances. J. S. Fernandez.
152 Spectrum and Crystallization of the Blood. (Nueva tecnica para la espectroscopia y cristalografia sanguinea.) Maestre and A. Lecha-Marzo.
153 Present Status of Treatment of Ozena. J. C. Correa.
154 Natural and Synthetic Organic Bodies. P. J. Pando.
155 Chorio-Epithelioma. P. S. Mimbela.
156 *Diagnostic Import of Diastase Content of Urine. E. Mariño.
157 Polar Cataract. J. M. Zubizarreta.
158 Regulations Proposed for Industrial Hygiene. J. M. Obarrio.

150. **Sanitary Regulation of Railroads.**—The official decree regulating in Argentina the hygiene of trains, transportation of the sick, of animals and foodstuffs, and the hygiene of employees is here given in full. The regulations are very progressive and are as suggested by Dr. J. Penna, chief of the National Board of Health.

156. **The Starch-Digesting Ferments in the Urine as Aid in Differentiating.**—Mariño has been studying the elimination of diastase in the urine in the course of kidney and pancreas disease and diabetes, following Wohlgemuth's technic. In health the figure ranges from 25 to 100 units, but with nephritis and diabetes the diastase content is much below these figures. With pancreas disease, especially necrosis of the pancreas, an excessively large amount of diastase is eliminated in the urine. With pernicious anemia and with secondary anemia the proportion is also subnormal. The test is made with a 1 per cent. solution of starch and a set of test-tubes with progressively diluted urine. In 19 cases of diabetes the figure ranged from 0 to 12.5 units with a single exception in which it reached 25; this case was distinguished further by the rapid recovery of the patient. In 32 cases of nephritis the figure ranged from 6 to 12.5 and 25 in six cases and 50 in two. In the eleven cases of pernicious anemia the range was from 6 to 12.5 in all; and in twenty-five cases of secondary anemia from 6 to 12.5, with a few reaching 25.

In the case of a woman of 38 with acute necrosis of the pancreas the figure reached 200, as also in a case of cancer of the pancreas in a man of 66. The pancreas affection was diagnosed by this excessive diastase content in the urine in this latter case. In two cases of sclerosis of the pancreas, without complete obstruction of the outlet, the figure was 100.

Hospitalstidende, Copenhagen

May 20, LVII, No. 20, pp. 609-672

159 Glaucoma and Prophylaxis. (Om Aarsag og Opstaaelsesmaade for det saakaldte Glaukoma malignum og om Midler til dets Modvirkning.) C. F. Heerfordt.

Ugeskrift for Læger, Copenhagen

May 14, LXXVI, No. 20, pp. 911-970

160 *Hour-Glass Stomach. (Om Timeglasventrikler.) T. E. H. Thaysen.

160. **Hour-Glass Stomach.**—Thaysen says that repeated roentgenoscopy will reveal that spasmodic contraction of the stomach is responsible for disturbances far more often than generally credited. The apparent stenosis or constriction may be then seen subsiding and returning, instead of the persisting condition otherwise assumed from the findings at a single examination. Four cases are described and illustrated of this intermittent hour-glass stomach. In a further series of six cases the hour-glass contraction was the work of adhesions or cicatricial retraction. Treatment of course is that for gastric ulcer; if not very pronounced, as the ulcer heals the spasmodic contraction will cease. But with organic persisting hour-glass contraction there is little hope of improvement from any but surgical measures. This can be insisted on with greater emphasis as ulceration is almost inevitable in an hour-glass stomach sooner or later.

PROCEEDINGS OF THE ATLANTIC CITY SESSION

MINUTES OF THE SIXTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ATLANTIC CITY, JUNE 22-26, 1914

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 22

The House of Delegates met in the Solarium of the Traymore Hotel and was called to order at 10:10 a. m. by the President, Dr. John A. Witherspoon, Nashville, Tenn.

The preliminary report of the Committee on Credentials was called for.

Dr. D. Chester Brown, Connecticut, Chairman, reported that the Committee on Credentials had seated seventy-one delegates who had presented credentials which conformed to the rules of the House. (During the morning meeting twenty-three additional members were seated.)

Dr. Dwight H. Murray, New York, moved that the report be received and the accredited delegates be seated as members of the House of Delegates.

Motion seconded by Dr. G. Lane Taneyhill, Maryland, and carried.

The roll recorded seventy-three delegates in attendance.

On motion of Dr. Arthur T. McCormack, Kentucky, duly seconded, the reading of the minutes of the sixty-fourth annual session was dispensed with and approved as published.

The President asked the indulgence of the House, saying that he would make no formal address as he had just risen from a sick bed to come to the meeting. He expressed his appreciation of the work done by the House, however, and of the honor done him in electing him to the presidency.

Reference Committees

He then appointed the following reference committees:

SECTIONS AND SECTION WORK

Hugh Cabot	Massachusetts
Melville Black	Section on Ophthalmology
W. T. Mulligan	New York
J. A. Koch	Illinois
F. C. Warnshuis	Michigan

RULES AND ORDER OF BUSINESS

G. Wythe Cook	District of Columbia
C. H. Beecher	Vermont
William R. Tipton	New Mexico
G. Lane Taneyhill	Maryland
G. V. I. Brown	Section on Stomatology

MEDICAL EDUCATION

H. Bert Ellis	California
Fred Lund	Section on Surgery
W. H. Sanders	Alabama
Adolph Koenig	Pennsylvania
C. D. Shelby	Ohio

LEGISLATION AND POLITICAL ACTION

E. J. Goodwin	Missouri
Edwin Walker	Indiana
Hugh Young	Maryland
E. J. McKnight	Connecticut
Holman Taylor	Texas

HYGIENE AND PUBLIC HEALTH

John W. Kerr	U. S. P. H. Service
W. S. Lalor	New Jersey
Morgan Smith	Section on Preventive Medicine and Public Health
A. M. Harvey	Illinois
Frank Y. Gilbert	Maine

AMENDMENTS TO CONSTITUTION AND BY-LAWS

W. A. Jayne	Colorado
Floyd M. Crandall	New York
Charles Richard	U. S. Army
Claude A. Thompson	Oklahoma
Perry Bromberg	Tennessee

REPORTS OF OFFICERS

Thomas D. Davis	Pennsylvania
E. A Hines	South Carolina
Robert M. Kennedy	U. S. Navy
A. R. Mitchell	Nebraska
Rock Sleyster	Wisconsin

CREDENTIALS

D. Chester Brown	Connecticut
Henry L. Elsner	New York
H. A. Royster	North Carolina
B. R. McClellan	Ohio
C. E. Cantrell	Texas

MISCELLANEOUS BUSINESS

A. T. McCormack	Kentucky
W. E. Anderson	Virginia
L. J. Hirschman	Michigan
W. C. Lyle	Georgia
A. W. McAlester	Missouri

The Secretary presented his report.

Report of the Secretary

To the Members of the House of Delegates of the American Medical Association:

For the year 1913-14, I submit the following report:

MEMBERSHIP

The membership of the various constituent state associations, which constitutes the membership of the Association, according to the records in the Secretary's office, May 1, 1914, is shown in the table on page 30.

FELLOWSHIP

The Fellowship of the American Medical Association on May 1, 1913, was 37,913. During the past year, 344 Fellows have died, 1,553 have resigned, 491 have been dropped as not eligible, 457 have been dropped for non-payment of dues and 29 have been removed from the rolls on account of being reported "not found," making a total of 2,850 names to be deducted from the Fellowship roll. There have been added 5,990 names to the Fellowship roll, of which 4,416 were transferred from the subscription list. The Fellowship of the American Medical Association on May 1, 1914, was 41,029, a net increase for the year of 3,116.

This gain in the number of Fellows is due largely, as in previous years, to circularizing subscribers to The Journal who were eligible, urging them to become Fellows.

AD INTERIM COMMITTEE CHANGES

Since the last meeting of the House of Delegates, June 19, 1913, the following appointments have been made by the President:

Committee on Mode of Commemorating the Completion of the Panama Canal, J. H. White, New Orleans, Chairman, vice Isadore Dyer, New Orleans, resigned. William C. Braisted, U. S. N., vice Presley M. Rixey, U. S. N., resigned.

In addition, the death of Dr. S. Weir Mitchell, chairman of the Committee on Memorial to Medical Officers who Died in the Civil War, leaves a vacancy on that committee.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

At the Minneapolis session, the House of Delegates adopted the recommendation of the Reference Committee on Sections and Section Work, endorsing the "formation of a section to be entitled the 'Gastro-Enterologic and Proctologic Section of the American Medical Association' under the following conditions:

"First: That the American Gastro-Enterologic Society and the American Proctologic Society be disbanded and hold their meetings jointly as a section of the American Medical Association to be designated as above.

"Second: We also recommend that the number of papers to be read at any annual session be limited to fifteen."

This section has not been formed, as these conditions were not met. We quote from a letter addressed to the chairman of this Reference Committee of the last house, by Dr. Franklin W. White, secretary of the American Gastro-Enterological Association:

> "The American Gastro-Enterological Association was not represented at Minneapolis, and has taken no part as an Association in the movement to bring about the formation of a new Section of the A. M. A.
>
> "A vote of our members was taken by letter this fall with the result that about 90 per cent. are opposed to disbanding."

Constituent Association of	No. Counties in State	No. Component Societies in State Assn.	No. Co.'s in State Not Org'z'd		No. Physicians in State (4th Ed. Directory)	No. Members of State Association		No. A. M. A. Fellows in State	No. Subscribers to Journal in State*
			1913	1914		1913	1914		
Alabama	67	67	...	...	2,518	1,617	1,760	364	220
Arizona	14	11	4	3	291	139	169	118	60
Arkansas	75	70	9	5	2,652	994	1,255	386	205
California	59	37	21	22	5,353	2,445	2,463	1,831	755
Colorado	63	37	25	26	1,782	740	791	535	225
Connecticut	8	8	...	...	1,630	864	914	512	205
Delaware	3	3	...	...	263	102	99	54	29
Dist. of Columbia	.....	.....	...	...	1,421	587	557	379	311
Florida	50	25	27	25	1,177	353	412	228	221
Georgia	148	86	60	62	3,255	1,106	1,314	493	575
Idaho	33	13	15	20	446	95	116	89	83
Illinois	102	101	...	1	10,286	5,275	6,055	3,917	1,625
Indiana	92	89	4	3	5,001	2,392	2,420	1,115	402
Iowa	99	96	3	3	3,733	1,653	2,019	1,339	346
Kansas	105	81	23	24	2,840	1,370	1,240	689	301
Kentucky	120	116	3	4	3,621	2,250	2,132	688	187
Louisiana	64	39	21	25	2,030	957	962	416	2[illegible]
Maine	16	15	1	1	1,200	623	625	314	77
Maryland[1]	23	22	2	2	2,232	1,081	1,089	628	435
Massachusetts[2]	14	18	...	...	5,798	3,450	3,440	1,953	812
Michigan	83	81	4	2	4,180	2,232	2,390	1,469	691
Minnesota	86	83	5	3	2,381	1,426	1,380	1,193	370
Mississippi	79	76	7	3	2,047	875	1,090	279	126
Missouri[1]	114	101	9	14	6,224	2,938	3,160	1,591	521
Montana	35	15	18	20	578	243	260	172	114
Nebraska	93	68	25	25	1,867	832	996	541	262
Nevada	16	3	11	13	155	82	74	59	26
New Hampshire	10	10	...	...	705	502	503	232	49
New Jersey	21	21	...	...	3,012	1,483	1,575	902	305
New Mexico	26	9	11	17	447	175	196	123	63
New York	62	58	4	4	15,301	7,330	7,410	4,430	1,824
North Carolina	100	93	10	7	1,987	1,115	1,130	376	308
North Dakota	50	47	10	3	577	350	345	267	77
Ohio	88	85	...	3	7,912	3,495	3,650	1,959	795
Oklahoma	77	68	5	9	2,612	1,111	1,131	449	195
Oregon	34	31	6	4	1,150	393	442	271	223
Pennsylvania[3]	67	63	4	4	11,611	6,014	6,528	3,930	1,824
Rhode Island[2]	5	6	...	...	761	370	377	271	166
South Carolina	44	37	7	7	1,362	712	728	335	337
South Dakota	65	58	8	7	674	292	304	238	110
Tennessee	96	61	35	35	3,389	1,380	1,453	503	323
Texas	250	175	91	75	6,024	3,059	3,065	1,110	435
Utah	27	9	20	18	446	234	218	161	70
Vermont	14	14	3	...	685	387	353	169	87
Virginia[4]	100	38	...	...	2,420	1,591	1,593	483	281
Washington	39	21	19	18	1,644	874	840	571	251
West Virginia	55	43	12	12	1,678	865	915	449	181
Wisconsin	71	70	...	1	2,737	1,700	1,760	1,147	401
Wyoming	22	5	11	17	237	121	120	62	52
Canal Zone	.....	.....	...	...	89	86	75	21	0
Hawaii	.....	.....	...	...	146	73	73	29	7
Porto Rico	.....	.....	...	...	274	......	151	23	26
Philippine Is.	.....	.....	...	...	745	105	116	29	51
Totals	2,984	2,383	553	547	143,586	70,538	74,235	39,892	17,865
Honorary Fellows and Fellows listed at foreign addresses								71	......
Fellows in government services								1,068	......
Journals to foreign addresses, etc.								......	2,177
Grand totals								41,031	20,042

* Not including Fellows of American Medical Association.

Note.—The number of members of the different associations stated in this table is in accord with the membership of the several associations as they were reported to the Secretary on May 1, 1914.

The lack of an effective uniform system for reporting the membership of the state associations accounts for whatever discrepancies this table shows and detracts from the value of the statement.

Component societies are those societies which compose the state association. A component society may include one county or more.

1. The state of Maryland has 23 counties and the city of Baltimore; Missouri has 114 counties and the city of St. Louis.

2. These state associations are divided into district societies, and these are listed in the table as component societies. Some of these districts are smaller and some larger than the county, the county lines being ignored.

3. Provision is made for the physicians in each of these counties to join the component society in an adjoining county.

4. Virginia has recently adopted the plan of organization and is now establishing component county medical societies.

RESOLUTION FROM THE SECRETARIES OF SECTIONS

In accordance with the action taken by the House of Delegates at the Minneapolis meeting a conference of secretaries of the sections of the Association was held at the headquarters in Chicago on Nov. 6, 1913. The day was devoted to a discussion of the work of the Scientific Assembly and on motion the conference requested the House of Delegates to consider the advisability of dividing the sections into two groups—general sections and special sections, the former to include Practice of Medicine, Surgery, Pharmacology and Therapeutics, Pathology and Physiology and Preventive Medicine and Public Health; the second group to comprise the remaining sections, i. e., Obstetrics, Gynecology and Abdominal Surgery, Ophthalmology, Laryngology, Otology and Rhinology, Diseases of Children, Stomatology, Nervous and Mental Diseases, Dermatology, Genito-Urinary Diseases, Hospitals, Orthopedic Surgery—and that Section 13, Chapter 11 of the By-Laws be so amended as to provide that at any annual session of the Scientific Assembly a Fellow shall be privileged to present one paper before a general section and a second paper before a special section.

Preambles and resolutions adopted by the Medical Society of the State of California inviting the American Medical Association and other organizations to arrange for their 1915 sessions to be held in San Francisco are herewith transmitted to the House of Delegates, together with a record of the action of the Medical Faculty of the Leland Stanford Junior University on the same topic.

ACTION OF THE MISSISSIPPI ASSOCIATION

The Mississippi State Medical Association reports through its secretary to the Secretary of the American Medical Association that at its annual session the Committee on Secretary's Report offered the following recommendation which was unanimously passed

> We recommend that the secretary be instructed to inform the A. M. A. that the component county medical societies of this state, *and they alone,* will pass on applications for membership in this body.

Preambles and resolutions adopted by the Medical Society of the State of New York recommending an amendment to Section 7 of the Food and Drugs Act are herewith transmitted to the House of Delegates, as is a communication from the Legislative Committee of the Medical Society of the County of Suffolk, conveying preambles and resolutions urging that provisions be made for the mental examination of immigrants.

Respectfully submitted,
Alexander R. Craig, Secretary.

Dr. Arthur T. McCormack, Kentucky, moved that the report be received and the various resolutions be referred to the appropriate committees, and the report itself be referred to the Reference Committee on Reports of Officers. Motion seconded and carried.

Dr. Arthur T. McCormack, Kentucky, moved that in the presentation of the published reports the chairmen be asked merely to emphasize the important matters presented in the several reports, rather than to read the reports as published in the Handbook. Motion seconded.

Dr. William L. Noble, Illinois, moved to amend that any additions to the present reports be read.

The amendment was seconded, accepted, and the original motion as amended was carried.

Dr. W. T. Councilman, Massachusetts, Chairman, read the Report of the Board of Trustees, which was referred to the Reference Committee on Reports of Officers.

Report of the Board of Trustees

The past year has been distinguished by no unusual events in the Association; all of the forms of activity by which it serves the medical profession and the public have been marked by successful effort. All Fellows and members of the Association may be proud of the demonstration which its yearly reports give, that the ideal of service to man is dominant in the minds of the medical profession of this country. It is perhaps natural that this ideal of service should dominate medicine for its members know more intimately than the members of other professions the sorrows of man. In pursuance of such ideals, it is natural that animosities should be excited, for the efforts of the Association oppose the interests of those who prey on humanity. The Judicial Council, the Councils on Medical Education and on Health and Public Instruction, will each present to you a detailed report of their activities.

COUNCIL ON PHARMACY AND CHEMISTRY

Of all the activities of the American Medical Association, none has aroused more antagonism than those connected with the work of the Council on Pharmacy and Chemistry. The publicity department of our pharmaceutical manufacturers and the journals which depend on advertising for their existence are ever ready to find fault with, to condemn and to misrepresent the Council. Nevertheless, it is gratifying to note that there is a gradually increasing appreciation of its aims and objects and what it is accomplishing. The medical profession is slowly but surely appreciating the value of the work and the manufacturers, also, both foreign and domestic, are recognizing that the reports of the Council are authoritative and final, and must be respected. Unfortunately most of the proprietary articles are merely simple mixtures of substances marketed under meaningless or misleading names, and advertised by means of extravagant if not false claims. As few of their products can receive recognition, these firms naturally feel it is to their interest to oppose and ignore the work of the Council. Of course, the real remedy lies in the hands of the medical profession which should refuse to accept and prescribe proprietary preparations on information supplied by those interested in their sale. Still, it is a satisfaction to note that all those firms which have products that really are new and of therapeutic value are asking the Council to pass on them.

While it is difficult to single out any particular activity of the Council as especially deserving notice, the following may be mentioned:

DIABETIC FOODS

Most of these are fraudulent or nearly so and are put out by a number of manufacturers with the view of supplying the demand of physicians for a suitable food in diabetes. An investigation of these by the Council showed that while two or three seemed to come up to the government standard and were reasonably clear as to the carbohydrates, practically none was sold under claims which could be regarded as legitimate. After considerable investigation the Council has admitted two of the preparations to N. N. R., while the product of another concern will soon be accepted. While accepting these, The Journal has published reports on some of the more fraudulent among these foods. This particular work is of vast importance; it not only protects the doctor, and through him the public, but it is stimulating other manufacturers who want to do right, to bring their products up to the standard required.

RUSSIAN MINERAL OIL

A decided interest in this as a laxative has been excited by the recommendations of Sir Arbuthnot Lane and his followers. The mineral oil used by him is called Russian Mineral Oil and slightly differs from the liquid petrolatum of the U. S. Pharmacopeia. It is probable that as a result of the investigation the Council will, in a report soon to be published, define Russian Mineral Oil and explain to the profession its relation to the liquid petrolatum of this country. It is hoped that in this way a check may be put on the introduction of this preparation as a proprietary under a host of meaningless names, with more or less fraudulent claims as therapeutic agents. It will be a reflection on our profession if such proprietaries already on the market are allowed to exist.

USEFUL DRUGS

The work of the committee on a selected list of drugs has resulted in the publication of the book called "Useful Drugs." This has already been adopted as a text-book by a number of our best schools; its adoption has been considered by the state licensing boards, one already having adopted it, and there is every indication that this enterprise will have a most beneficial effect.

Among other constructive work by the Council is that conducted through its Committee on Therapeutic Research. Under the auspices of this committee a large amount of pharmacologic research work has already been accomplished and much is under way. Eventually this work will result in bringing back into use well-known drugs—non-proprietary preparations that have been swept aside by the commercial propaganda for proprietaries.

Those who are particularly interested should get the annual publication of the Council which is sold for 50 cents a volume. It is to be regretted that more physicians do not take sufficient interest in the Council's work to obtain these and other reports of the Council.

CHEMICAL LABORATORY

Not the least of the enterprises of the Association is the work done in our chemical laboratory. An idea of what is done here can be only a slight degree obtained from the material that is published in The Journal from week to week. The unpublished work includes examinations made for the Council on Pharmacy and Chemistry, on the results of which often depends the action of the Council; also, a large amount of work is done in connection with our propaganda department, in the investigation of "patent medicines," much of which is never published. Still further, considerable chemical work is done at the request of individual physicians.

During the past year the laboratory force has been increased so that in addition to the director of the laboratory, who is also secretary of the Council, there are now employed three chemists, who devote their entire time to the work.

PROPAGANDA DEPARTMENT

The original purpose for which the Council on Pharmacy and Chemistry was created was to investigate and enlighten the profession concerning the so-called "ethical" proprietary medicines; that is, those sold through or prescribed by physicians. It was soon found, however, that there was no dividing line between such medicines and the ordinary "patent medicines" sold direct to the public. There gradually developed a demand, on the part of the profession, and later, on the part of the public, for information regarding proprietary medicines. Our attempt to meet this has in course of time so broadened out that it has been necessary to create a new department—the Propaganda Department. This has become one of the most important phases of the Association's work and it is rapidly increasing in scope and extent.

As a type of the work which the Propaganda Department is doing, through The Journal, the following is worth referring to: Early in the year one Peter P. Duket appeared with a new "cure" for tuberculosis. He would probably have attracted little attention and have done but little harm had he not received the financial support of a prominent politician and the professional support of a Chicago medical college. These two elements gave the man and his "cure" a certain standing in the eyes of the public that otherwise they would never have received. The Propaganda Department had in its files material, in the way of correspondence and advertising matter, that Duket had issued some few years previously. Realizing that the amount of publicity Duket and his "cure" were getting was productive of wide-spread harm, the facts developed up to that time were printed in The Journal, May 10, 1913. In addition, an investigation was started of Duket's "cure" and the results were published in full in The Journal for May 24, 1913. In spite of the overwhelming evidence presented by The Journal in regard to the worthlessness of this vaunted "cure," the professional and financial backers of Duket continued to exploit it. The sequel to this story appeared in The Journal, April 25, 1914, where it was reported that both the college which had stood sponsor for it and the individual who had furnished the money had come to the conclusion that the Duket "cure" was worthless. Specific attention is called to this case for the reason that no other agency apparently was ready or willing to stand between the consumptive public that was being deceived and the organized backers of the deception.

This case is but one out of many in which the American Medical Association has spent time and effort in obtaining and disseminating evidence for the protection of the exploited sick, and in nearly every case the Association has been the only source of protection these unfortunates have had. That the public is beginning to recognize this fact is evidenced by the large number of letters we are now receiving from laymen. Five years ago a letter from a layman was such an unusual event as to cause comment; now such are received in nearly every mail. During 1913 there were received and answered over 4,200 such letters of inquiry regarding frauds in medicine, as compared with 2,450 letters received in 1912. Many, if not most of these letters, called for information about more than one product. The data sent out from this department alone, therefore, can be roughly estimated. Of these letters 2,990 were from physicians and 1,213 from laymen, and this does not include the correspondence from the laboratory or from the Council on Pharmacy and Chemistry.

One of the most encouraging features of the work done by the Propaganda Department is the interest it seems to have awakened on the part of the lay magazines and newspapers in censoring the advertisements of a medical or quasi-medical nature that appear in their pages. There is a very evident desire on the part of the better class of lay publications to exclude from their pages fraudulent medical advertisements. A number of such publications are constantly referring to the Propaganda Department for information regarding the different preparations or devices whose manufacturers seek advertising space. Not a few newspapers are submitting medical advertising copy to the Propaganda Department.

This state of affairs contrasts strangely with the attitude of the majority of the so-called independent medical journals. It is but rarely that inquiries come from these publications regarding the character of the advertisements of medicinal products they are carrying. More than once the Propaganda Department has had to advise newspapers against carrying advertisements of certain products that were at the same time being advertised in medical journals—and the advice has been taken. It is an unfortunate fact that the effect of the work against frauds in medicine is more evident in lay than in medical journals; the writer of this report has several times had his attention called to this fact by laymen who sought an explanation for this strange condition.

A national organization of advertising men has established vigilance committees in various parts of the United States to work toward the elimination of fraud in advertising. The Association's publications on frauds in medicine have been placed in the hands of these committees and the chairman of each committee is on our mailing list to receive all new pamphlets dealing with the subject. We have been liberal with these committees, supplying them with material asked for. The committees are doing most effective work, and while the results may not be evident to the average man, they are to those who are watching the progress of events. The stereopticon slides that have been prepared in the Propaganda Department, illustrating various phases of quackery and the nostrum evil, have been ordered by the National Vigilance Advertising Committee for use in lectures before advertising men's associations.

The Propaganda Department is being recognized as a clearing-house of information on the subjects with which it deals. Federal departments at Washington, state health officials, municipal health departments, editors of magazines and newspapers, and in some instances health officials in Europe, Australia, India and other countries have referred to this department for information on medical and medicinal frauds.

Nearly three thousand copies of the second edition of "Nostrums and Quackery" have been distributed during the past year. The fourth edition of "The Great American Fraud" was exhausted early in 1913, and a fifth enlarged edition has been issued. This contains an addition to Mr. Adams' original series, extending from 1905 to 1907, and two of his later articles that appeared in *Colliers* in 1912. More than 1,100 paper bound and 250 cloth bound copies have been sent out during the year. Additional pamphlets on frauds in medicine have been issued during the year, putting into this form matter which later will appear in the next edition of "Nostrums and Quackery." The number of individual pamphlets has increased to a point where it seemed wise to combine them in groups, and such combined pamphlets are now to be had on such subjects as: "Consumption Cure Fakes," "Cancer Fakes," "Deafness Cure Fakes," "Obesity Cure Frauds," and "Female Weakness Cures." During the past year more than 46,000 pamphlets dealing with frauds in medicine have been sold or distributed gratuitously among the laity.

The enormous influence of this work of the Association on both the medical profession and the public is difficult to realize. The great advance in medicine in the past thirty years is that it is becoming scientific. The physician seeks knowledge of the conditions of disease in the individual by all possible methods which may assist in the quest and remedial methods are based on the knowledge so obtained. Necessarily, the investigation of disease led to the study of the social factors which are often dominant, and with this there has been developed that spirit of service and altruism which characterizes to-day the profession of medicine. Never before has medicine so completely possessed the confidence of the public. The Fellows and members of the American Medical Association may feel a just pride in what the Association is doing in upholding and assisting in the upbuilding of the highest ideals of the profession through the work of its various councils.

The work of the Propaganda Department has been very greatly assisted by the interesting character of the literature it has published. The story of vice will always have an interest as well for the virtuous as for the vicious; the virtuous find in it the satisfaction which comes from the exposure of vice in others, the vicious in that they may follow or avoid methods according to the degree of success or failure which attends them. The philosopher also reads with interest for the story tells him much of the ignorance and credulity of man.

PUBLICATIONS

The details concerning the circulation of The Journal will be found in the addenda to this report. As will be noticed, the average weekly circulation for 1913 was over sixty thousand copies, and there was an actual increase in the regular mailing list of 3,333 over the previous year. During the year 14,087 names were placed on the list and 10,754 taken off. Those dropped include physicians who have died, others who were ineligible to fellowship, voluntary discontinuances and those dropped for non-payment. The increase in the mailing list comes from the extended efforts made during the year to increase the circulation.

While in rough numbers the circulation is 60,000, if we take into consideration the fact that a single copy of The Journal is often read by two or three physicians, we believe we are making a conservative statement in saying that at least 90 per cent. of the members of our profession who are capable of appreciating The Journal have access to it.

During the year 1913, 4,298 names were transferred from the subscription to the fellowship list. This large number of transfers was the result of inviting to become fellows those subscribers who were eligible to fellowship. A very large number of those who are now fellows originally took The Journal as subscribers, and such transfers are continually being made.

It should be understood that the increase in the circulation of The Journal is not from the voluntary act of individuals. It was accomplished in three ways: through circular letters and sample copies of The Journal; through agents working on commission, and through agents acting as organizers and working on basis of salary, expenses and commission.

A large proportion of the medical profession of this country are on our mailing list at the present time, and a much further increase in circulation cannot be expected; in fact, it will take persistent effort to keep it up to the present mark.

ARCHIVES OF INTERNAL MEDICINE

A comparison of the circulation statement of the last two years shows a loss of fifty-two in 1913. The total number of copies printed last year was 30,272—a little less than in 1912. The financial loss for the year was $45.68.

There is every reason to believe that the circulation will continue as at present. The slight loss in one year will be counterbalanced by a corresponding gain in another.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

The circulation of the Children's Journal in 1913 was 2,066—a gain of 188 over the year 1912. The total number of copies printed in 1913 was 27,747; and there was a net loss of $169.32.

The statement made in regard to *The Archives of Internal Medicine*, however, also applies to this publication.

THE DIRECTORY

The American Medical Directory, just off the press, merits a passing notice. It is the Fourth Edition, and as each preceding one has been improved over its predecessor, so also has this edition been improved. One of the new features is an attempt to indicate the specialty, if any, practiced by each individual. The previous edition contained a list, arranged by states and cities, of the members of the various national and special societies. This has been retained, but a symbol now follows the name of the individual to indicate to what societies he belongs. In addition, the specialty is indicated of all those who, while not members of special societies, have designated their desire to be classed as specializing in such and such lines. This, it is believed, will be of value when one desires to learn the standing of a physician.

By the aid of symbols and abbreviations, a large amount of information is included in small space. For instance, the following is a statement concerning one individual as it appears in the Directory, except that "John Doe" has been substituted for the name of the doctor:

> **DOE, JOHN M.** (b'69)⊕—Pa.1,'91; (l'91); 931 Chase Ave.; Assoc. Clin. Prof. Opth. Pa.7; (B4, 22); Op *

If this information were written out in full, it would appear like this:

> **DOE, JOHN M.** Member of his County Medical Society and State Medical Association, Fellow of the American Medical Association, born in 1869, graduate of the University of Pennsylvania, department of medicine in 1891, licensed in Pennsylvania in 1891, residence and office 931 Chase Ave., Associate Clinical Professor of Ophthalmology in the Woman's Medical College of Pennsylvania, Member of the American Ophthalmological Society and the Section on Ophthalmology of the College of Physicians and Surgeons, Philadelphia. Practice limited to Ophthalmology.

"John Doe," it should be emphasized, is not a subscriber to the Directory, nor has he paid to have this information concerning him recorded. This illustrates one of the rules governing the publication of the Directory: It is absolutely non-commercial in every respect, and all individuals are treated alike, whether or not they subscribe for the Directory.

Another point that should again be emphasized is that the information, especially that regarding graduation and licensure, is official and therefore reliable. This is true even of those who are practicing under a degree obtained abroad. Through the state department at Washington and the Consular Service a list of graduates from most of the foreign medical schools has been obtained. However, when an individual claims to have graduated from a foreign school whose list of graduates we have not secured, his statements are verified through the Consular Service.

The approximate cost of the present edition of the Directory is $58,000 to $60,000, and the receipts are estimated at from $54,000 to $56,000; that is, there may be a loss of from between $4,000 and $6,000. However, since all the fundamental facts, the gathering of which has involved great expense, are now obtained, much of this expenditure will in the future be eliminated, so that we may hope soon to be able to issue the Directory without any loss.

We feel confident that those who have received the book and have looked into it must regard it as a credit to the Association, not only from the character of its contents and the information therein given, but also from the mechanical viewpoint. All the work on the Directory, except the binding, has been done in the Association's own building. For the purpose of reducing the bulk, special thin, opaque paper was imported from Belgium.

COOPERATIVE MEDICAL ADVERTISING BUREAU

Concurring in the action of the President, who, in compliance with the direction of the House of Delegates, appointed George H. Simmons, E. J. Goodwin and Will C. Braun a committee on the Bureau of State Medical Journals, the Board of Trustees followed up a plan it had devised prior to the action taken by the House of Delegates establishing this committee and empowering this same committee to act as the agent of the Board.

The Board now reports: The Cooperative Medical Advertising Bureau has been in operation since December 1, 1913. The Board underwrote this enterprise by appropriating the sum of $5,000, or so much thereof as might be necessary for the establishment of this Bureau. Twenty-two state journals are represented by the Bureau. Orders for advertising in these journals to the extent of $9,000 have been secured through the Bureau; and apparently the work is appreciated by the state journals. Business is handled by this Bureau on a commission basis, and it is expected that eventually the Bureau will be self-supporting.

FINANCIAL

A reference to the Auditors' report, which follows as an addendum, will show that the profits for the year 1913 were very near to the vanishing point, viz., $1,191.73. As a matter of fact, the report shows that the present worth on December 31, 1913 was $540,261.58, while on December 31, 1912 it was $541,492.41; so that the present worth on January 1 this year was $1,230.83 less than on January 1 last year. This reduction in actual profits comes from two causes:

First, an increase in General Association Expenses (See Exhibit B). Running back five years these expenses were as follows:

1909	$38,302
1910	40,350
1911	44,841
1912	59,188
1913	79,479

Showing practically a doubling of the General Association Expenses during the last five years, and an increase last year over the preceding one of over $20,000. It should be explained that under the head "General Association Expenses" are included all expenses incurred in conducting the various activities of the Association, aside from the publication of The Journal. For instance, Association expenses (under which come expenses connected with the annual meeting, those connected with the Secretary's office—including salaries, printing, postage, supplies, etc.—section reporting, Trustees' meetings, scientific research, Judicial Council, Section Secretaries' meeting, etc.—see Auditors' report Exhibit B) were $18,084; Council on Health and Public Instruction, $18,465; Council on Pharmacy and Chemistry and the Chemical Laboratory, $13,321; Council on Medical Education, $8,617; Propaganda, $10,509; Therapeutic Research, $1,278; Organization, $9,202. Under the last head, "Organization," are included salaries and expenses paid to organizers in the field, which amount to $8,262.

Second, there was an abnormal decrease in the receipts from fellowship subscriptions, which may be thus explained:

As we have already stated, the great majority of those who are at present on the Fellowship list were originally subscribers. These subscribers commenced taking The Journal at any time during the year and their subscription runs for a year; whereas membership covers the calendar year—January 1 to December 31. Thus the subscription and the Fellowship of the majority of those who previous to becoming Fellows had been subscribers expired on different dates. On Jan. 1, 1913, a general effort was put forth to make these dates uniform. Some 25,000 bills were sent out for a fraction of $5.00; whereas in other years each individual would have been billed for the full amount. It is estimated that in this way there was a falling off in the normal receipts from fellowship dues and subscriptions of some $12,000.

One other fact should be mentioned to explain the apparent falling off in receipts, i. e., there was an unusually large number of sample copies of The Journal sent out during the last few months of the year in soliciting fellowships and subscriptions, and the great majority of the new subscribers and Fellows who entered during the last three months of the year were given to January 1 to remit.

We go into this rather minutely to show that while there was a seeming falling off in the proportionate amount of receipts, it is more apparent than real. There is nothing discouraging so far as this part is concerned. But it is important that we consider carefully before extending in any way the activities of the Association. The Trustees feel that the time has arrived to seriously consider curtailing, rather than increasing, the expenses connected with the work of the Association. The appropriations made at the October meeting of the Board amounted to over $62,000, but this provides for only a part of the Association's expenses—that is, simply for those connected with the various councils and committees; it does not include expenses connected with the Secretary's office, trustees' meetings, organization expenses, propaganda work etc.—and these will probably amount to over $25,000.

On January 1 the cash capital including bonds and certificates of deposit was $140,207. While this might have looked large ten years ago, it is a very small reserve for a business of nearly half a million a year. We do not know what reverses may come; unforeseen circumstances may develop that will bring about a reduction in the circulation of The Journal, thereby affecting its revenue, not only from subscription but also from advertising; financial reverses in the condition of the country, etc., may at any time precipitate financial trouble. While these conditions are not threatening or imminent in any way, we must remember that they can arise. The contest against the social medical legislation in England reduced in a short time a large surplus to a big deficiency in the British Medical Association. The American Medical Association should have a reserve fund of at least $300,000 in order to safely meet reverses that may come. Ten years ago the trustees urged that conservatism in the expenditures of the Association should prevail until it had at least $150,000 reserve fund. If it was thought ten years ago that $150,000 was a conservative reserve fund, certainly with the enormous increase in the actual business of the Association $300,000 is none too much at the present time.

In conclusion, your Board of Trustees will suggest this thought: No other organization is doing as much altruistic work as is the American Medical Association at the present time, for 75 per cent. of the expenditure to which we have been referring is absolutely for altruistic purposes. All this work is made possible by the profits from The Journal. And these profits come from the application of business principles in its management and the fact that the Association finally owns a splendidly equipped modern plant, making it possible to do its printing and publishing at a much lower cost than would be the case under other conditions.

Respectfully submitted,

W. T. Councilman, Chairman. M. L. Harris, Secretary.
Philip Marvel. W. W. Grant.
Philip Mills Jones. Frank J. Lutz.
W. T. Sarles. Oscar Dowling.
Thomas McDavitt.

Addenda to Trustees' Report

SUBSCRIPTION DEPARTMENT

The regular weekly issue of The Journal of the American Medical Association, from Jan. 1, 1913, to Dec. 31, 1913, inclusive, 52 issues, was as follows:

January 4	58,922		July 5	59,625	
January 11	58,488		July 12	59,308	
January 18	58,100		July 19	59,201	
January 25	57,882		July 26	59,201	
		233,392			237,335
February 1	57,983		August 2	59,200	
February 8	57,743		August 9	59,383	
February 15	57,054		August 16	59,137	
February 22	57,102		August 23	60,092	
			August 30	59,121	
		229,882			296,933
March 1	57,222		September 6	59,000	
March 8	57,387		September 13	59.080	
March 15	57,430		September 20	62.829	
March 22	57,561		September 27	58,674	
March 29	58,092				
		287,692			239,583
April 5	57,891		October 4	59,199	
April 12	58,001		October 11	59,322	
April 19	60,372		October 18	59,332	
April 26	62,527		October 25	67,037	
		238,791			244,890
May 3	60.400		November 1	72,193	
May 10	65,421		November 8	68,175	
May 17	60,360		November 15	67,063	
May 24	61,675		November 22	66,000	
May 31	62,445		November 29	61,281	
		310,301			334,712
June 7	59,049		December 6	66,061	
June 14	59,036		December 13	71,080	
June 21	59,300		December 20	68,061	
June 28	59,300		December 27	61,550	
		236,685			266,752
Total				3,156,948	
Weekly average				60,710	

PERCENTAGE OF PHYSICIANS RECEIVING THE JOURNAL

This table gives the number of physicians (based on the third edition of the American Medical Directory) in the United States, number receiving The Journal and the approximate percentage in each state. Copies to physicians in the United States Army, United States Navy, Public Health Service, etc., omitted.

State	Number Receiving Journal.	Physicians in State 3d A. M. Dir.	Approx. per cent. 3d A. M. Dir.
Alabama	581	2,409	24
Arizona	165	247	67
Arkansas	595	2,580	23
California	2,636	4,764	55
Colorado	780	1,738	45
Connecticut	698	1,562	45
Delaware	72	246	30
District of Columbia	562	1,350	42
Florida	395	973	41
Georgia	803	3,007	27
Idaho	212	420	50
Illinois	5,680	9,885	57
Indiana	1,593	4,979	32
Iowa	1,768	3,658	48
Kansas	1,038	2,635	40
Kentucky	917	3,599	25
Louisiana	689	1,924	36
Maine	430	1,176	37
Maryland	1,008	2,083	50
Massachusetts	2,895	5,631	51
Michigan	1,797	4,095	44
Minnesota	1,576	2,253	70
Mississippi	477	2,003	24
Missouri	2,171	6,025	36
Montana	283	512	55
Nebraska	832	1,777	48
Nevada	98	144	68
New Hampshire	288	704	41
New Jersey	1,205	2,870	42
New Mexico	187	430	46
New York	6,334	14,805	43
North Carolina	576	1,836	31
North Dakota	373	593	60
Ohio	2,804	7,552	37
Oklahoma	697	2,633	26
Oregon	547	1,041	52
Pennsylvania	5,895	11,299	52
Rhode Island	472	751	63
South Carolina	442	1,275	35
South Dakota	353	651	54
Tennessee	860	3,309	26
Texas	1,588	5,829	27
Utah	233	427	55
Vermont	246	679	36
Virginia	789	2,350	34
Washington	845	1,620	52
West Virginia	632	1,634	38
Wisconsin	1,600	2,637	60
Wyoming	116	235	50

The following table shows the number of Fellows and Subscribers for each year commencing with 1900:

Year.	Fellows.	Subscribers.
Jan. 1, 1900	8,445	4,633
Jan. 1, 1901	9,841	8,339
Jan. 1, 1902	11,107	10,795
Jan. 1, 1903	12,553	12,378
Jan. 1, 1904	13,899	14,674
Jan. 1, 1905	17,570	15,698
Jan. 1, 1906	20,826	17,669
Jan. 1, 1907	26,255	20,166
Jan. 1, 1908	29,382	20,880
Jan. 1, 1909	31,999	18,983
Jan. 1, 1910	33,032	19,832
Jan. 1, 1911	33,540	20,504
Jan. 1, 1912	33,250	21,620
Jan. 1, 1913	37,493	19,863
Jan. 1, 1914	41,203	19,751

During the year 1913 there were 4,298 names transferred from the Subscription to the Fellowship Department. This year also special letters were sent out to subscribers who were eligible to fellowship. Many of them were transferred without any payment as they were already paid in advance. This also accounts for the decrease in the number of subscribers.

The weekly average number of subscriptions for 1912 was 20,130; the average for 1913 was 19,137. This shows a decrease of 993. The number of transfers to the fellowship department will account for this decrease in the average number of subscribers.

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the year ending Dec. 31, 1913.

1913			
Jan. 2—Balance—	Bonds	$40,000.00	
	Certificates of Deposit	90,000.00	
	Checking Account	5,025.44	
			$135,025.44

Receipts

Feb. 8—By Cash	Editor and General Mgr.	$30,000.00	
8— "	Interest-Certificates	900.00	
8— "	' Bank Balance	6.62	
April 4— "	" Bonds	400.00	
4— "	" Certificates	965.01	
4— "	" Bank Balance	14.74	
June 1— "	' Bonds	671.87	
5— "	Editor and General Mgr.	10,000.00	
6— "	Interest Bank Balance	34.03	
July 1— "	" Bank Balance	20.25	
Sept. 15— "	" Certificates	942.50	
15— "	" Bank Balance	40.61	
Oct. 4— "	" Bonds	400.00	
25— "	" Certificates	66.66	
Dec. 9— "	" Bank Balance	59.19	
31— "	" Bank Balance	14.30	
31— "	" Bonds	962.50	
			$ 45,498.28
			$180,523.72

Disbursements

Sept. 15—To Cash-Requisition Editor and General Manager	$15,000.00	
Oct. 25—To Cash-Requisition Editor and General Manager	15,000.00	
Dec. 9—To Cash-Requisition Editor and General Manager	10,000.00	
		$ 40,000.00
Dec. 31—Balance		$140,523.72

Summary of Balance

Bonds	$64,750.00	
Certificates of Deposit	70,000.00	
Checking Account	5,773.72	
		$140,523.72

DAVIS MEMORIAL FUND

1913		
Jan. 2—Balance	$ 3,299.43	
July 1—By Interest	45.81	
Dec. 31— "	46.50	
		$3,391.74

Disbursements

Jan. 2—To Cash, Model of Bust	$ 200.00	
2— " Pedestal for Bust	45.00	
		$ 245.00
Dec. 31—Balance, Northern Trust Co. Savings Dept.		$3,146.74

W. A. Pusey, Treasurer.

AUDITOR'S REPORT

Marwick, Mitchell, Peat & Co., Chartered Accountants
105 South La Salle Street

Chicago, Ill., Jan. 14, 1914.

To the Board of Trustees of the
American Medical Association, Chicago, Ill.

Dear Sirs:

In accordance with your instructions, we have audited the accounts of the American Medical Association for the year ended Dec. 31, 1913, and now submit our report thereon, together with the following statements:

Exhibits
"A" Balance Sheet as at Dec. 31, 1913.
"B" Income and Profit and Loss Account for the year ended Dec. 31, 1913.

Schedules
"1" Bonds owned as at Dec. 31, 1913.
"2" Journal Expenses for the year ended Dec. 31, 1913.
"3" . Provision for Depreciation for the year ended Dec. 31, 1913.

We examined the securities representing the investments of the Association, verified the cash on hand by actual count and the cash in banks by certificates from the bankers. The following is a statement of the cash on hand and in banks, apart from the insurance cash fund:

Cash on Hand	$ 473.02
Cash Fund	50.00
Continental and Commercial National Bank	96.55
First Trust and Savings Bank	5,773.72
Total	$ 6,393.29

We also examined the vouchers for disbursements and found the same in order, and made a satisfactory test of the revenue.

The balance sheet submitted herewith, Exhibit "A," is, in our opinion, a correct statement of the financial position of the Association as at Dec. 31, 1913, subject to provision for taxes accrued and for subscriptions paid in advance, less subscriptions and memberships due and unpaid.

The following is a condensed comparative balance sheet as at Dec. 31, 1913 and 1912:

	December 31			
Assets	1913	1912	Increase	Decrease
Property and Plant	$337,971.16	$345,613.70	$........	$ 7,642.54
Investments	133,813.75	129,063.75	4,750.00	....
Current and Working	50,804.03	67,722.94	....	16,918.91
Prepaid Accounts and Reserves	3,807.38	907.84	2,899.54	....
Medical Directory—Fourth Edition and Biographical	31,050.69	....	31,050.69	....
Total Assets	$557,447.01	$543,308.23	$38,700.23	$24,561.45
Liabilities	17,185.43	1,815.82	15,369.61	....
Surplus	$540,261.58	$541,492.41	$........	$........

Assets:	
Increase	$38,700.23
Decrease	24,561.45
Net Increase	$14,138.78
Liability Increase	$15,369.61
Net Increase	14,138.78
Surplus Decrease	$ 1,230.83

The net income for the period under review is $1,191.73, as shown in Exhibit "B." This amount to the surplus account, and a deduction made for the loss on the Directory—Third Edition—applicable to the year 1912, making the net decrease in surplus $1,230.83, as shown above.

During the calendar year 1913, depreciation to the amount of $14,313.02 has been written off the property accounts, particulars of this amount being recorded in Schedule "3."

The revenue for the year has also been charged with $1,463.17 in respect to bad debts.

EXHIBIT "A"

Balance Sheet as at Dec. 31, 1913

ASSETS

Property and Plant, at Cost Less Depreciation:			
Real Estate and Buildings			$257,960.32
Machinery			53,462.88
Type and Metal			9,578.10
Furniture and Fixtures			14,687.50
Laboratory			1,082.36
Library			1,200.00
Total Property and Plant			$337,971.16
Investments:			
Bonds at Cost (Schedule "1")		$63,813.75	
Certificates of Deposit		70,000.00	
Total Investments			$133,813.75
Current and Working Assets:			
Inventory of Material and Supplies		$22,441.15	
Accounts Receivable:			
Advertising	$17,605.07		
Reprints	894.54		
Miscellaneous	3,077.35		
		21,576.96	
Notes Receivable		392.63	
Cash in Bank and on Hand	$ 6,343.29		
Office Fund	50.00		
		6,393.29	
Total Current and Working Assets			50,804.03
Insurance Fund—Cash in Bank			$ 3,056.97
Prepaid Accounts—Insurance			750.41
Biographical			2,614.41
Directory—Fourth Edition (1914):			
Labor and Material			28,436.28
Total			$557,447.01

LIABILITIES

Accounts Payable		$ 14,758.05
Advance Payments on Publications		2,427.38
Surplus:		
As at Dec. 31, 1912	$541,492.41	
Less: Directory—Third Edition (1912). Balance written off	2,422.56	
	$539,069.85	
Net Income for the year ended Dec. 31, 1913	1,191.73	
Total Surplus		$540,261.58
Total		$557,447.01

EXHIBIT "B"

Income and Profit and Loss Account for the Year Ended Dec. 31, 1913

Journal American Medical Association:

Revenue:		
Membership Dues		$ 40,461.87
Subscriptions		223,832.57
Advertising		188,986.82
Jobbing		3,762.18
Books		3,862.94
Reprints		2,861.91
Buttons		511.14
Miscellaneous Sales		4,000.97
Interest		658.00
Total Revenue		$468,938.40
Expenses:		
Per Schedule "2"	$382,753.71	
Provision for Depreciation—Schedule "3"	14,313.02	
Loss on Bad Debts	1,463.17	
Total Expenses		$398,529.90
Net Revenue		$ 70,408.50

General Association Expense:

Expenses:			
Association		$ 18,084.26	
Health and Public Instruction		18,465.14	
Pharmacy and Chemistry and Chemical Laboratory		13,321.79	
Medical Education		8,617.54	
Propaganda		10,509.47	
Organization		9,202.68	
Therapeutic Research		1,278.17	
		$ 79,479.05	
Less:			
Interest on Bonds	$2,434.37		
Interest on Treasurer's Account	3,063.91		
Rentals	4,764.00		
		10,262.28	
Net Association Expenses			$ 69,216.77
Net Income			$ 1,191.73

SCHEDULE "1"

Bonds Owned as at Dec. 31, 1913

No. of Bonds	Description	Value	
		Par	Book
5	Atchison, Topeka & Santa Fe Railway Co. 100 year 4 per cent. Gold Bonds	$ 5,000.00	$ 4,988.75
5	Atchison, Topeka and Santa Fe Railway Co., 100 year 4 per cent. Gold Bonds	5,000.00	4,532.50
5	Baltimore and Ohio Railway Co., First Mortgage 4 per cent Bonds	5,000.00	5,032.50
5	Baltimore and Ohio Railway Co., First Mortgage 4 per cent. Bonds	5,000.00	4,767.50
5	Erie Railroad Co., 100 year 4 per cent. Gold Bonds	5,000.00	4,932.50
5	Reading Company, General Mortgage 4 per cent. Bonds	5,000.00	4,870.00
5	Reading Company, General Mortgage 4 per cent. Bonds	5,000.00	4,732.50
5	Union Pacific Railroad Co., First Mortgage 4 per cent. Bonds	5,000.00	5,207.50
25	City of Omaha Water Works, 4½ per cent. Gold Bonds	25,000.00	24,750.00
	Total	$65,000.00	$63,813.75

SCHEDULE "2"

Journal Expenses for the Year Ended Dec. 31, 1913

Wages and Salaries	$142,628.08
Editorials, News and Reporting	11,100.11
Paper	111,244.02
Ink	3,490.27
Electrotypes	5,374.64
Binding	142.09
Miscellaneous Paper	4,304.27
Postage—First Class	15,539.61
Postage—Second Class	26,167.27
Journal Commissions	9,899.94
Collection Commissions	4,213.01
Discounts	3,216.09
Express and Cartage	2,366.32
Exchange	1,471.12
Office Supplies	490.82
Telephone and Telegraph	750.01
Office Jobbing	3,579.32
Miscellaneous	7,068.64
Power	$ 2,651.97
Light	949.95
Fuel	2,522.39
Factory Supplies	4,226.68
Insurance and Taxes	4,567.58
Legal	8,703.32
Repairs and Renewals—Machinery	3,509.69
Repairs and Renewals—Buildings	2,361.50
Archives	45.68
Children's Journal	169.32
Total	$382,753.71

SCHEDULE "3"

Provision for Depreciation for the Year Ended Dec. 31, 1913

Classification	*Rate*	*Amount*
Building "A"—Old	5 per cent.	$ 904.78
Building "B"—New	2.5 per cent.	3,670.91
Machinery	10 per cent.	5,940.32
Furniture and Fixtures	10 per cent.	1,224.57
Type	15 per cent.	839.33
Metal	20 per cent.	1,205.48
Factory Fixtures	10 per cent.	407.37
Laboratory Equipment	10 per cent.	120.26
Total		$14,313.02

We found all books and records in good order and well and accurately kept, and, in conclusion, desire to express our appreciation of the courtesies extended to us during our examination of the accounts. Yours truly,

Marwick, Mitchell, Peat & Co.,
Chartered Accountants.

Dr. Alexander Lambert, New York, Chairman, presented the report of the Judicial Council, which was referred to the Reference Committee on Reports of Officers.

Report of the Judicial Council

To the Members of the House of Delegates of the American Medical Association:

At the meeting of the House of Delegates in Minneapolis, at the suggestion of the Board of Trustees, the House referred to the Judicial Council for investigation the appeal for funds from the Home for Widows and Orphans of Physicians in Baltimore. The Judicial Council has very thoroughly considered this matter, one of its members taking a special trip to Baltimore to investigate fully the subject.

This institution is doing a generous and splendid work caring for physicians and members of physicians' families who are left penniless and destitute. The Home is a most deserving endeavor to help the unfortunates of the medical profession, but the question presented to the Judicial Council is one of broader policy than that of individual benevolence. The funds of the American Medical Association are now devoted to raising the standards of medical education; to educating and enlightening the public on matters of public hygiene and public health; to disseminating weekly to the profession the active changes in the development of medical knowledge, as evidenced by The Journal; to the endeavor to protect the profession and the public from medical frauds, and to keep the standards of drugs and other therapeutic agencies above reproach. This at present is the work of the American Medical Association — using its funds for developing the growth and usefulness of the profession. The question now arises: Must the Association also take on and bear the burden of the weak and the unfortunate who have been in the profession or who have been left by former members of the profession? Such benevolence would entail a large outlay of money It would cost $500 in original expense for each inmate annually for support and care. The institution would have to receive from all the forty-eight states any worthy individual who would apply, and to carry on this benevolence properly would require not only all the surplus of the American Medical Association but in a short time would use the entire funds of the Association

The Judicial Council feels that this philanthropy should not be undertaken by the American Medical Association. As has been pointed out the aims of the American Medical Association are for the development of the education and active work of the profession and the burdens of benevolence should be left to the local constituent state associations or better to the local branches thereof. The constituent state associations and their component county societies are better able to perform this work because they look on their needy fellow members with more personal interest than a large, impersonal, national organization can ever do.

The Judicial Council therefore recommends to the House of Delegates that charity and benevolence toward the unfortunate members of the Association be left to the local organizations. It recommends specifically that the request for support and maintenance by the Home for Widows and Orphans of Physicians in Baltimore be not granted.

AMENDMENT TO BY-LAW RELATING TO THE JUDICIAL COUNCIL

The Judicial Council recommends that Section 4, Chapter VII of the By-Laws be amended so that this section shall read as follows:

Section 4. Judicial Council.—The Judicial Council shall consist of five Fellows who shall be nominated by the President and elected by the House of Delegates. At the annual session in 1911, one member of the Council shall be elected to serve for five years, one for four years, one for three years, one for two years and one for one year, and thereafter one member of the Council shall be elected each year to serve for five years. It shall select a chairman from its membership. The Secretary of the Association shall be, *ex-officio*, Secretary of the Council. It shall expend money and contract debts only on the authority of the Board of Trustees. It shall keep a permanent record of its action at its office which shall be at the headquarters of the Association. It shall make an annual report of its decisions and the results of its investigations to the House of Delegates.

"The judicial power of the Association shall be vested in the Judicial Council whose decisions shall be final. This power shall extend to and include (1) all controversies arising under this constitution and by-laws to which the American Medical Association is a party; and (2) controversies (a) between two or more recognized constituent associations, (b) between a constituent association and a member or members of another constituent association or other constituent associations; (c) between members of different constituent associations. In all these cases the Judicial Council shall have original jurisdiction.

"The constituent associations herein referred to are those defined in Article 4 of the Constitution, and the component societies are the county or district medical societies which unite to support and maintain the several constituent state associations.

"In all cases which arise between a constituent state association and one of its component county societies; between component county societies of the same constituent state association; between a member of a constituent state association and the component society to which said member belongs; or between members of different component societies of the same constituent state association, the Judicial Council of the American Medical Association shall have appellate jurisdiction.

"The Judicial Council may, at its discretion, investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, and shall make such recommendations to the House of Delegates and the constituent associations as it deems necessary."

THE JUDICIAL COUNCIL AN EFFICIENT AGENCY

These changes recommended by the Judicial Council define more clearly and more fully the proper functions of the Judicial Council. If it is the desire of the House of Delegates to make the Judicial Council amount in reality to a competent and dignified court which shall adjudicate controversies between individuals, component societies or constituent associations and the American Medical Association; or the constituent associations themselves, or between these constituent associations and the individuals composing them, or between individuals themselves, there must be some definitely stated conditions under which the Judicial Council shall have primary jurisdiction, or an authorized appeal may be made to the Judicial Council. At present the Judicial Council has only original jurisdiction in cases in which the American Medical Association or one of its constituent associations is a party. There is no appellate function which it can exercise. Any case which has come to the Council in which a Fellow of the Association has demanded protection from what he considered an unjust decision of his state association, the Judicial Council has been forced to ask, as a favor, the reconsideration of the case in which an appeal would naturally have come to the Council if it had had appellate powers.

This is not an endeavor on the part of the Judicial Council to gain more power, although the Council realizes that such accusation may be made against it. In considering this appellate function, we must consider, at any rate, the necessity of the control of its own Fellowship by the American Medical Association. To-day the American Medical Association has no control over its own membership or Fellowship beyond the fact that if a member be proven guilty of secret fee-splitting, he drops mechanically, without further action, from membership in the American Medical Association. The American Medical Association is, by its present By-Laws, forced to enroll any member of any component society who makes application for Fellowship on the prescribed form and pays his annual Fellowship dues for the current year together with any indebtedness to the Association outstanding against the applicant. No matter what crimes against society, what flagrant, disgraceful breach of ethics or decency such an one may commit, the American Medical Association to-day cannot deny him Fellowship, nor has the Association power to remove from its Fellowship a member who disgraces its name or brings its Fellowship into disrepute. The American Medical Association has no power whatever to control the injuries that may be done the individual Fellow through jealousy or mistaken persecution that may arise at any point. There is no appeal open to any Fellow in the American Medical Association by which he may protect his Fellowship in the Association if he deems himself unjustly condemned by a component or by a constituent organization and deprived of membership and consequently of his Fellowship. This is not right; it is not reasonable; and such conditions should not be permitted to exist. For this reason the Judicial Council asks of the House of Delegates appellate jurisdiction in the cases mentioned above.

PRINCIPLES OF MEDICAL ETHICS

The Council also recommends that to Section 4, Chapter VIII of the By-Laws, there be added:

"Fellowship shall be further conditioned on a Fellow conducting himself in accordance with this constitution and by-laws and Principles of Medical Ethics of this Association."

In the opinion of the Judicial Council the time is ripe for the House of Delegates to proclaim that Fellowship at least in the American Medical Association is a right that must be protected. The section here recommended is not an endeavor to make the Principles of Ethics a code of rules and punishments. It is simply a demand that the rules of decency and honorable action shall be observed by the Fellows. The Principles of Ethics of the American Medical Association are only those broad rules of conduct which are naturally and spontaneously followed by honorable physicians in their dealings with their fellow men. It may be said of these rules, as of all duties, it is no credit to perform them; it is personally discreditable to leave them unperformed. They are analogous to the standards of the Army and the Navy which require that a man shall conduct himself as an officer and a gentleman.

AFFILIATE FELLOWSHIP FOR AGED FELLOWS

The Judicial Council further recommends that in Section 7, Chapter VIII, there be added the clause:

"Affiliate Fellowship.—A Fellow who has been a Fellow for a continuous term of fifteen (15) years, who is not less than sixty-five (65) years of age, and who is an honorary member of his county society and of his state association, or is connected with these organizations in an equivalent manner whereby he is relieved from the payment of dues or fees; on request of the Council of his state association may be made an Affiliate Fellow by a majority vote of the House of Delegates. Affiliate Fellows shall be privileged to participate in the scientific assemblies of the Association; they shall not be required to pay Fellowship dues and shall not receive The Journal of the American Medical Association except by personal subscription. Affiliate Fellowship shall be conditioned on the continuance of the relationship with his state association herein defined."

FELLOWSHIP DUES

The Judicial Council recommends that, wherever in the By-Laws the term "annual dues" appears, the words "annual Fellowship dues" shall be substituted. The use of the word "Fellowship" in defining the dues of those now known as Fellows will help correct a mistaken opinion which has long prevailed concerning the actual membership of the Association — the organization as a whole.

COORDINATING THE BRANCHES OF THE ORGANIZATION

The Judicial Council believes that the several functions of the different branches of the organization of the American Medical Association should be carefully preserved. It believes that this should be carefully carried out in the work of the councils of the American Medical Association and in the work of the committees. There is no question that if a national committee or a national council shall deal directly with county societies, ignoring or going over the heads of the component state associations, that such action will soon become a disintegrating force and will disturb and antagonize the relationship between the component state associations and the national body. In all matters in which the action of the county society is necessary, these same societies should report directly to the constituent state associations, and these state organizations in turn should report to the American Medical Association. This should be true whether it be for the action of councils or of committees, or for the national body itself. The Judicial Council, therefore, desires to draw attention to Section 8, Chapter VII, of the By-Laws relating to the Committee on Red Cross Medical Work, and it desires to recommend that the words "and county" be stricken out from this section so that it shall read, "This Committee is authorized to cooperate with the National Red Cross and shall have advisory supervision over state committees having charge of the same subject, etc."

INVITED GUESTS DEFINED

It is further recommended by the Judicial Council that Section 10, Chapter VIII, of the By-Laws concerning invited guests be amended to read as follows:

"Scientists resident in the United States who are not engaged in the practice of medicine and eminent physicians and scientists from foreign countries, may be invited by the general officers, or by the officers of a section, to attend an annual session and take part in the scientific work. They shall be designated as invited guests, and shall be entitled to participate in the scientific and social functions."

ADVERTISING IN THE PUBLIC PRESS

In pursuance of its duty to investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public, the Judicial Council calls the attention of the House of Delegates to the subject of advertising in the public press by physicians. The Judicial Council finds that the profession is restive under the flagrant misuse of the public press by certain members of the profession and certain prominent and nonprominent Fellows of the American Medical Association itself.

The Principles of Ethics of the American Medical Association define clearly the methods which are objectionable for physicians to use to bring themselves into the public notice in their endeavor to gain a livelihood. They state clearly the methods by which a man may rise by honorable endeavor to the fame of a well-earned reputation, and suggest the different methods by which a man may gain an unsavory notoriety. The standards of the medical profession have always demanded that physicians shall not exploit their ability or achievements to the laity. The medical profession condemns such advertising as quackery. The refraining from or the employment of advertising is the clearly defined difference between a reputable physician and a quack — the physician, one who quietly, through his professional work and attainments, seeks by daily honorable dealing to spread the truth among his patients; the quack, one who endeavors to obtain his livelihood by playing on the credulity of the ignorant and the timid, imposing on the public statements known to be false, stopping at nothing in his effort to enhance his notoriety or fill his pocket.

POPULAR WRITEUPS OF SCIENTIFIC SUBJECTS

Of late years the American Medical Association, through its Council on Health and Public Instruction has endeavored to spread broadcast knowledge of preventive medicine and public hygiene. It has endeavored to educate the public to an appreciation of what the physicians and surgeons are doing and what are their aims and ideals in medicine. This has aroused a widespread interest in the public mind, and the public press has eagerly seized on this propaganda as news which interests its readers and which is, therefore, something to be sought and published. This has been legitimate work of public benefit and for the public good, and no one questions that it should be highly commended. It has, however, produced the following situation: The public is eager to hear and learn all it can of the most recent advances in the cure of diseases that so far have baffled the efforts of men to cure, such as cancer and tuberculosis; it is eager to hear of the brilliant operations by which men have seemingly been saved from certain destruction and brought back to useful existence. It is anxious to learn and put in practice the best methods of public hygiene and of preventive medicine. The daily press has correctly considered such subjects as news, as that is what interests its daily readers, but the medical profession has been placed at a disadvantage. The members of the profession who value the kind of reputation which they may bear before the public and from whom the most accurate information could be obtained, have been forced to see the most garbled statements published as medical facts, or have been refused opportunities to have the truth published unless they were willing to put themselves in the false position of self-exploitation. Certain other members of the profession, however, with a very wide-awake commercial spirit, have quickly seen the means by which they may appear in the press as doing extraordinary things above their fellows, as being the ones to whom all men refer when new discoveries are to be discussed and considered, and have eagerly seized on the opportunity, which the situation has offered, to have their pictures, their honors and their doings put in the public press. They invited reporters to be present at their clinics that these surely may be reported, and have used various other methods that have appealed to their spirit of commercialism that they might increase their passing notoriety and their incomes. While this may not be quackery; it must be acknowledged to be advertising. It is frequently difficult to decide where one ends and the other begins. Certain newspapers have heralded this stepping over the limits of the former strict adherence of the profession to its non-advertising principles as something laudatory and much to be desired. They seemingly fail to understand and to appreciate that if the barriers which the medical profession has held up, and still holds up, are broken down, quackery will become more and more rampant, and although the ease with which the press will obtain the sensations it desires will increase, the accuracy and the truth and the value of the news which they so eagerly seek will soon be ruined.

The lay press has often done injustice and unconscious injury to the physicians it was endeavoring to aid. In the smaller communities a physician or surgeon may do some act, perform some operation or bring about the cure of some patient in whom the editor of a local paper is greatly interested. This editor appreciates the value of keeping a person's name before the public, and hoping to give the physician help and assistance in establishing his reputation begins to mention the doctor's daily comings and goings or operations. Before long the doctor is suspected of deliberately trying to advertise himself by means of newspaper writeups and his reputation as an upright physician suffers, while he himself may be blameless in the whole matter. In the larger communities, among the men holding appointments on the staffs of hospitals, it is not unusual, when some well-known individual is being treated at such an hospital, for the press eagerly to seek for knowledge of his condition, and many a reputable physician has squirmed to see his name and his work flaunted before the public, to his detriment as he well knows, and for which injury there is no possible redress. This situation is not localized in any one place. It is universal.

PUBLICITY COMMITTEES RECOMMENDED

To all questions there are two sides, and we must realize that if the American Medical Association endeavors to arouse in the public an interest in medical matters and increase their knowledge of public health and hygiene, with this increased knowledge will come a demand for more knowledge concerning the various diseases which may be acquired by any individual. The daily press has a right to publish that which is of interest to its readers; hence it has a right to a knowledge of medical matters that shall be accurate and given by honorable men. On the other hand, there is every reason why the medical profession shall keep up its barriers against the self-advertising of individuals for selfish purposes, and no adequate reason why these barriers should be let down.

The Judicial Council, appreciating this situation, recommends the following plan, which has already been tried and which has met the conditions presenting in a manner satisfactory to all concerned — the public, the press and the medical profession.

A few years ago the conditions which are referred to above were very acute and very flagrant in Kings County, New York, and the county society undertook the solution of the problem. At its April meeting, in 1913, this society appointed a publicity committee consisting of three members, which sought to cooperate with the editors of the public press in order to devise a plan by which articles and interviews on medical topics by members of the society, published in the daily papers, should be truthfully and correctly reported. It was decided that this committee should undertake:

1. To prevent the publication in the daily press of misleading and erroneous statements on medical topics.

2. To prevent the publication of cures and surgical operations so exaggerated and false that mental anguish, physical suffering and expense would be imposed upon the sick and afflicted.

3. To prevent the reporting of ordinary medical cases and surgical operations of no interest to the medical profession which are misunderstood by the public and serve but to exploit the narrator.

4. To act as an advisory committee, if so desired, to members of the Society who contemplate publishing medical articles in the newspapers and who desire to conform to the Principles of Ethics.

5. To further the publication of scientific articles on medical subjects relative to the public health.

6. To seek the cooperation of the editors of the public press to accomplish these purposes.

The Committee added that it desired it to be understood that it did not discourage publicity, but on the contrary advocated the greatest publicity possible on the liberal ethical lines of the American Medical Association, which encourages members of the medical profession to give as wide publicity as possible to all matters pertaining to hygiene, sanitation and public health, but discourages all direct or indirect self-advertising. That the Committee recognized the futility of any attempt on its part to dictate to the press what it should or what it should not publish. It was thought by the Committee that the adoption of these suggestions would relieve members of the Society of any fear of criticism and aid representatives of the press in securing interviews without difficulty. The Committee wished it thoroughly understood that it would in no sense act as a complainant body against offenders, but would willingly extend its advice to those who sought its aid.

As is apparent this committee acts as a means by which, without mentioning any names and without the exploitation of any individual, the daily press can obtain accurate knowledge of all matters in medicine it desires to publish. The public can obtain through the daily press accurate information on medical matters that are of interest to it, and the names of the individuals giving the opinion remain unpublished. It is worthy of note that the Publicity Committee of Kings County in its last annual meeting, after a year of trial of this method, reported that since the appointment of the committee the daily press in Brooklyn had been singularly free from self-exploitative articles by physicians and that the newspapers, to an encouraging extent, had availed themselves of the advice that the committee was able to give them, and, further, that the committee had been able to be of use to various members of the Kings County Society in its advice regarding the wisdom of publishing or not publishing certain articles.

Members of the Judicial Council have consulted with representatives of several of the large daily newspapers in the country, and in discussing the above plan they have met with every encouragement to believe that this plan could be followed and would be fair and just to the public, the press and the profession. The Judicial Council therefore recommends to the House of Delegates the following resolution:

Resolved, That it is the sense of the House of Delegates of the American Medical Association that each county society should constitute a publicity committee whose duties shall be to give to the daily press accurate information on all medical matters of interest to the public, that this shall be freely given without the mentioning of names or from whence the information comes, and that this committee shall further act in an advisory capacity to all physicians of its society in questions relating to publications other than in the medical press. Be it further

Resolved, That the Secretary of the American Medical Association be instructed to forward this resolution, with the reasons calling it forth, to the Secretary of each constituent state association, with the request that it be transmitted to each component society of that constituent association.

Respectfully submitted,

Alexander Lambert, Chairman.
A. B. Cooke,
James E. Moore,
Hubert Work,
George W. Guthrie,
Alexander R. Craig, Secretary.

The report of the Council on Health and Public Instruction was called for and temporarily passed in the absence of the Chairman, Dr. Henry B. Favill.

Dr. Arthur Dean Bevan, Illinois, Chairman, presented the report of the Council on Medical Education, which was referred to the Reference Committee on Medical Education.

Report of the Council on Medical Education[1]

To the Members of the House of Delegates of the American Medical Association:

The Council on Medical Education has now been in existence for a decade and hereby submits its tenth consecutive annual report.

PROGRESS IN TEN YEARS

In 1904 when this Council was established conditions in medical education were extremely unsatisfactory. During the previous fifty-eight years since the organization of the American Medical Association, a large number of medical colleges organized for profit and adhering to no reasonable educational standards had continued to thrive. In spite of investigations and extensive reports by temporary committees made up of some of the best men in the medical profession, conditions continued to grow worse and the number of colleges to increase until in 1904 when the Council was created, the maximum of 160 colleges had been reached. The results that have followed the reorganization of the American Medical Association and the persistent steady efforts of this permanent Council have more than surpassed the highest hopes of those who urged its organization. Instead of 160 medical colleges, there are now about 100. Instead of only four medical colleges holding to fairly high entrance standards, now there are eighty-two colleges which, after Oct. 1, 1914, will require for admission one or more years of collegiate work in addition to a standard four-year high-school education. In a number of cities instead of there being from two to seven weak medical colleges there is now, through mergers, but one college in each instance[2] which is invariably a stronger, better equipped institution. Instead of only a few medical colleges being provided with full-time expert laboratory teachers now at least eighty have ten or more such teachers. To offset the greatly increased cost of maintaining a medical school, the last ten years has seen large sums of money spent in endowments as well as in new buildings, new laboratories, and better equipment. Where ten years ago only a few medical colleges possessed adequate clinical facilities now there are many which have control of at least fairly adequate clinical material. Above all, however, instead of only a few medical colleges in 1904 which were training their students in an atmosphere pervaded by the hopefulness of medical research, now at least some effective research is being carried on in a large number of colleges.

The progress of the decade has not been limited, however, to medical colleges. In state medical practice acts and in the state board rulings regulating the practice of medicine

TABLE 1.—STATE REQUIREMENTS OF HIGHER PRELIMINARY EDUCATION

There are now eighteen states which have adopted requirements of preliminary education in addition to a standard four-year high-school education. These states, the number of college years required and the time the higher requirement becomes effective are as follows:

State Examining Board of—	Number of Years Required	Affects Students Matriculating	Affects All Applicants
Minnesota	2	1908-09	1912
North Dakota	2	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	2	1910-11	1914
Utah	1	1910-11	1914
Iowa	2	1911-12	1915
South Dakota	2	1911-12	1915
Vermont	1	1912-13	1916
Kentucky	2	1914-15	1918
Michigan	1	1914-15	1918
New Hampshire	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island	1	1914-15	1918
Virginia	1	1914-15	1918
Arkansas	1	1915-16	1919
California	1	1915-16	1919

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[1] This report, and the reports of some of the subcommittees of the Council, have been greatly abbreviated for publication in The Journal. The complete report will be sent on receipt of a stamped, directed envelope.

[2] This does not mean that all the possibilities of medical college mergers have been exhausted. On the contrary medical education could still be greatly improved by mergers in New York, Chicago, Philadelphia, Boston, St. Louis, Baltimore and elsewhere.

there have also been marked improvement. In 1904, the laws of only 20 states made provision for preliminary education and in most of these the requirement was low or of little effect. Now 45 states have definite standards and of these 37 require a standard four-year high school or higher education. In 1904 not a single state had adopted more than a high school education for the minimum requirement; now 18 state boards have adopted at least one year of collegiate work as the minimum preliminary requirement and of these 7 have adopted the requirement of 2 years of college work. In 1904 there were 13 states which did not require that candidates for license to practice should be graduates of a medical college. Now all but 4 require graduation and of these only one state, Tennessee, registers any number of non-graduates. [Meanwhile in Tennessee during the last four years 515 or nearly half of all those licensed were non-graduates.]

NON-RECOGNITION OF MEDICAL COLLEGES

In 1904, only two or three states were in any way refusing to recognize low-grade medical colleges. Now, at least thirty-two state boards are refusing to recognize diplomas issued by low-grade medical colleges. This action by State Licensing Boards is the legal power which is forcing the inferior colleges to make the needed improvements or to close their doors. Of the 107 medical colleges which were in session during the year there are 21 which are not recognized in from 24 to 32 states. Because of the requirement of two years of collegiate work as the minimum standard of preliminary education in seven states, graduates of only 32 colleges may invariably count on being eligible to register in these seven states. In six of these states graduates of 65 colleges are eligible for registration if the student had completed two or more years of work in an approved liberal arts' college prior to entering the medical school. The chart accompanying this report was published in the recent State Board Number of The Journal in order that prospective medical students might be in a position to avoid entering a medical college whose degrees are not recognized in a considerable number of states. Of course this knowledge is not published in the announcements of the medical colleges. Meanwhile, unless the remaining 18 states secure the practice acts giving licensing boards power to refuse recognition to low-grade colleges, and unless the licensing boards make use of such powers conferred on them, they will become the dumping ground for the product of these lower standard colleges.

SINGLE BOARDS OF EXAMINERS

Since 1904, New York, Texas, Pennsylvania and Georgia have secured new medical practice acts providing for a single board of medical examiners in place of (formerly) three separate and distinct sectarian boards. In these states therefore, the divided and ineffective legal power has been replaced by a single, undivided and efficient legal control of medical education and licensure. There are four states, Connecticut, Delaware, District of Columbia and New Hampshire, each of which has three separate boards but has a single control making the power equal to that of a single board. In only four states, therefore, is the legal control of medical licensure still divided between two or three boards, these states being Arkansas, Florida, Louisiana and Maryland. Last year all the graduates of the Eclectic Medical University, a low-grade medical college located in Kansas City, Mo., an institution not recognized in its own state, were examined and licensed by the Arkansas Eclectic Board of Medical Examiners. This particular college is reported to be not recognized in Missouri or by 29 other state licensing boards.

PRESENT EDUCATIONAL STANDARDS

Two years ago, the Council on Medical Education, was instructed by the House of Delegates to omit from Class A after Jan. 1, 1914 any medical college which did not require of every student for admission at least one year of collegiate work in addition to a standard four-year high school education, the additional year to include college courses in physics, chemistry, biology, and a modern language.[2] This standard has since been made the minimum requirement for membership in the Association of American Medical Colleges and a joint committee made up of representatives of that Association and of the Council prepared a schedule of the high school and collegiate courses which should be required as a minimum. That standard reported in full a year ago provided that an accredited four-year high school course should be required and which should include seven units of required courses, 2 units in English, 2 units in Mathematics (Algebra and Plane Geometry), 2 units in a foreign language (Latin, Greek, German or French) and 1 unit in American History and Civics. The courses for the remaining seven units were elective.

In the enforcement of the four-year high school standard the medical college is urged to secure for each student, direct from the principal of the secondary school attended, a statement showing the courses taken by the student, the number of weeks covered in each course, the number of periods per week, the length of the period in minutes and the final grade obtained. This simple routine procedure secures official and reliable evidence of the work done by the student, and without it no accurate idea can be obtained regarding the student's work. Meanwhile, in the southern states where the development of high schools is an urgent problem no one thing is more important than the adoption by all liberal arts' colleges of this or some other method where the student's secondary school work can be accurately estimated.

ENTRANCE TO COLLEGE BY EXAMINATION

The weakest point in the administration of satisfactory entrance requirements to medical and to other colleges is in the so-called "equivalent-examination" method. The examination is needed to test the knowledge of the occasional student whose courses in the secondary school are not regularly taken but who may have covered as much ground as the graduates. This method of admitting students, however, has been taken advantage of by some "colleges" and an "easy" examination has been provided in order to admit large numbers of students who otherwise could not qualify. The fraudulent methods by which an institution provided credentials for students seeking admission to a medical college in Chicago were published in The Journal of Feb. 7, 1914. A set of questions with the answers filled in were furnished each "student" who was told to take them home, memorize the answers and return in two weeks to take the "examination," where, of course, the same questions would be asked. In one instance, at least, when the time for the "examination" came around, the farce became even more ridiculous. The examiner deputized the preparatory school officer to conduct the examination, which he proceeded to do in the easiest manner for himself and for the students. Examination paper was given out and the students were instructed to take it home, write out the answers which had already been furnished them and return the written papers next day. Thus they did not even need to memorize the answers to the questions asked! Following this farce, nevertheless, these "students" were furnished with affidavits signed in the presence of a notary public, by a county superintendent of schools of an adjoining state, setting forth that these "students" had "passed" examinations in the required branches of the high school curriculum.

THOROUGH AND RELIABLE EXAMINATIONS ESSENTIAL

The chief evil of the examination method lies in the multiplicity of agencies having to do with such examinations, where there could well be only one in each state. To ascertain the actual value of any examination there is a fairly reliable and simple test, which should be applied—require documentary evidence when and in what school or schools the preliminary preparation was obtained. It is practically impossible for a student to pass an examination which actually proves that he has the equivalent of a standard high school course unless he can show evidence of four years or more of attendance in secondary schools, private tutoring or of other legitimate means of preparation. For example, no student could pass a fair examination in algebra unless he has actually studied algebra. So when a student is found to have attended high school only one or two years and yet easily passes an "examination" in all the subjects of a complete four-year high-school course, then it can be seen at once that something is wrong either with the examination or the examiner. A routine method of verification of every credential presented by the student whether it be a diploma or a certificate of examination should be adopted by every well-regulated college.

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[2] The Council has since voted to work toward a legal enforcement of the requirement of college courses in physics, chemistry and biology, but merely to urge colleges to adopt the foreign language requirement. It is believed that the modern foreign language should not at the present time be made a legal requirement.

TABLE 2.—SCHEDULE OF HOURS FOR PRELIMINARY COLLEGE YEAR

Subject	Lectures or Recitations Per Week	Laboratory Periods* Per Week	Total Hours Per Semester	Total Semester Hours Per Year
Physics, 1......	2	2	4	8
Chemistry, 1....	2	2	4	8
Biology, 1......	2 or 3	2 or 1	4	8
German or French, 2	4 or 3	......	4 or 3	8 or 6
Toatl	10	6 or 5	16 or 15	32 or 30

OR, EXPRESSED IN CLASS HOURS:

Subject	Total Hours Lectures, or Recitations	Total Hours Laboratory Work	Total Minimum HoursDidactic and Laboratory
Physics, 1.......	64	128	192
Chemistry, 1.....	64	128	192
Biology, 1.......	64 or 96	128 or 64	192 or 160
German or French, 2	128 or 96	....	128 or 96
Totals	320	384 or 320	704 or 640

* Each laboratory period must extend over at least two hours.

THE PREMEDICAL COLLEGE YEAR

There are now 82 medical colleges which are already requiring for admission one or more years of collegiate work or which have announced their intentions to do so beginning Oct. 1, 1914, and of these 37 have adopted the standard of two or more years of collegiate work. Following the instructions two years ago that the standard of at least one year devoted to college courses in physics, chemistry, biology and a modern language be required of all medical schools listed in Class A, the Council prepared the following minimum schedule of hours for each of those subjects. (See Table 2.)

This schedule was also adopted by the Association of American Medical Colleges.

ENFORCEMENT OF THE STANDARD

In administering this high requirement it has been found necessary to adopt some general rules for the guidance of the colleges. These rules are as follows:—

(1) "College work" could not be considered as acceptable unless it had been preceded by a course in a standard four-year secondary school or its full educational equivalent.

(2) In excellence of teaching and in content, the work of this premedical college year should be at least equal to the work done in the freshman year in standard colleges of liberal arts.

(3) Credits for two or more years of collegiate work should not be considered acceptable unless courses in physics, chemistry and biology have been completed. It is urged that a reading knowledge of German or French also be strongly recommended.

(4) Candidates[3] holding baccalaureate degrees from approved colleges of liberal arts but who have not taken the required courses in physics, chemistry or biology, may be admitted conditioned in those subjects, such conditions to be removed before entering on the work of the second medical year. So far as possible, however, these deficiencies should be removed during the summer preceding entrance to the freshman medical year and the summer between the first and second medical years.

(5) During the next few years (until 1917) candidates who have completed two or more years of work in an approved college of liberal arts may be admitted conditioned in one-half of the required course in physics or one-half of the course in a modern language, these conditions to be removed before the beginning of the work of the second medical year.

(6) Medical colleges giving these science courses in a premedical year, should provide expert full-time teachers in the various subjects, should provide laboratory equipment sufficient to enable the student to do the work intelligently and should provide a training in the subjects no less thorough than that given in standard colleges of liberal arts.

(7) Postgraduate courses given in high schools by high-school teachers cannot as a rule be considered equal to college courses given by college teachers.

(8) A year of work in a college of dentistry or a college of pharmacy should not as a rule be considered as an equivalent of the required premedical college science year.

The procedure set forth regarding both secondary and collegiate educational requirements is such as will bring the requirements for entrance to medical colleges of the United States into accord with the country's system of general education and not into conflict with it. The administration of these requirements should be such as will aid and not hinder the development of secondary schools and colleges.

THE CLASSIFICATION OF MEDICAL COLLEGES

Three general classifications of medical colleges have been made by the Council following complete tours of inspection. The report of the first was presented to the annual conference and to this body in 1907. That classification was not published but the colleges were notified of their standing and standards based on the data collected were published. Meanwhile it was in that year that the rapid reduction in the number of medical colleges began, and then also began the rapid increase in the number of medical schools adopting higher entrance standards. The Council's second tour of inspection was finished in 1910, and the second classification of medical colleges reported to this body. That classification was ordered published. This same year a report on medical education was published by the Carnegie Foundation, which was of great value in the efforts to secure higher standards.

THE THIRD CLASSIFICATION

The third tour of inspection of medical schools was completed in 1912 and the third classification was published. By that time eight long years of hard work had been spent in the study of medical education and its problems. By that time a systematic routine had been established for the securing of official and reliable information bearing on medical education from state licensing boards, from medical colleges, from liberal arts' colleges, from universities and from other reliable sources at home and abroad. Furthermore a better knowledge had been secured as to what constituted reasonable standards of preliminary and medical education, and these standards had been repeatedly given wide publicity. In the third classification, therefore, the medical colleges were more accurately rated than in the two previous classifications. The ratings now given to medical colleges by the Council are not a mere matter of opinion, nor are they fixed by guess-work. They are based on an abundance of verified and reliable data which can be produced if needed. Nevertheless, the standard by which the colleges have been measured is still comparatively low and in a few years will need to be revised. The improvements in the last ten years have been so marked, however, and the standard of preliminary education has been fixed at a point so reasonably high that it is desirable to go more slowly and to allow time for a careful readjustment under the new order of things.

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[3] At the recent conference on medical education, President A. Lawrence Lowell of Harvard University in discussing the requirement of college courses in physics, chemistry and biology, made a reasonable and timely plea for the college graduate who may not have taken all of those sciences before securing his degree, and asked that some provision be made whereby the subjects in which he was deficient might be made up without the necessity of taking an additional year of work. The Council members believe with Dr. Vaughan, who discussed President Lowell's paper, that a preliminary knowledge of the sciences named is absolutely essential for the student beginning the study of modern medicine. They also believe, however, that these more mature students who have secured a complete college training would not be handicapped if allowed to carry conditions in any of the preliminary sciences in which they happen to be deficient. After careful consideration, therefore, it is believed that this paragraph (4) makes the best provision for such students and at the same time complies with President Lowell's request.

MEDICAL EDUCATION IN THE SOUTH

It is desirable at this time to pay a deserved tribute to the medical colleges of the South for the remarkable manner in which the problems of medical education have been grappled with. Although they have had apparently greater obstacles to work against than were found in other sections of the country, nevertheless it seems these hindrances are rapidly being overcome. They still have to deal with a very large problem, that of preliminary education, but even this is being firmly and admirably met.

In 1907, when the Council's first classification was prepared, the southern section of the country (not including Missouri and Kentucky) had forty-one medical colleges and of these only seventeen, or 41.5 per cent., could be rated in Class A. On the other hand, several were almost entirely without equipment and one was an out-and-out diploma mill. Since that year, however, by mergers or otherwise the total number of medical colleges in this section has been reduced to twenty-four, and of these, 12, or 50 per cent., are in Classes A and A+, and, leaving out of consideration a few of the colleges in Class C, the proprietary feature in medical education has entirely disappeared.

As to requirements for admission, of the twenty-four colleges in the southern section, eighteen, or 75 per cent., are either already requiring the one year of college work in addition to a four-year high-school education, or have announced the requirement to begin this fall. The most serious problems of medical education are no longer to be found in the South, but rather in some of the large cities of the East and North.

THE REORGANIZATION OF CLINICAL TEACHING

In the reorganization of our medical schools one of the most pressing needs is that of placing the clinical departments on a more satisfactory basis. Little has as yet been done in this country with this problem, and the time has arrived when the medical profession and the medical schools must take up this matter vigorously and formulate a general plan of organization of our clinical departments and urge its adoption. With this in view the Council on Medical Education has appointed a strong committee of ten clinicians, who have had great experience in teaching and who are regarded as authorities in their special departments and in medical education, to study this subject and report to the next conference on medical education.

The organization of a clinical department is a more complex subject than that of a department like anatomy, or physiology, where teaching and research are the functions demanded.

In clinical work the head of the department and his associates must be three things; first, great physicians in their special field; second, trained teachers; and third, research workers. The medical school very properly demands that their clinical teachers be men who are recognized as authorities in their special fields, both by the profession and the community. In the organization of a clinical department this fact must not be lost sight of and whatever plan is adopted must make it possible for the clinical teachers to remain the great authorities in their special fields both in the eyes of the profession and of the public.

The plan adopted by the German universities has been on the whole most satisfactory. There a professor in a clinical department is in every sense a university professor just as much as the professor of chemistry, or of physics. His university work commands his time. He must allow nothing to interfere with his teaching, his clinical work in the hospital or his research, and he devotes on the average quite as much time to his university work as does his colleague in chemistry or in mathematics. In addition to this, however, he devotes some time each day to private practice by which he maintains his position before the profession and the public as a great specialist. This can be done without neglecting his university position. In fact, if he does not remain the great physician, he ceases to be of as much value either to his students or to his university. On the other hand, if he should neglect his university work because of the time he devoted to private practice, his services should be dispensed with.

This problem of clinical teaching has been taken up during the year by the General Education Board and, as a result, an interesting experiment is to be tried at Johns Hopkins and possibly at one or two other places. The General Education Board has given Johns Hopkins $1,500,000 endowment with which to pay salaries to the departments of medicine, surgery and pediatrics. The position is taken in this experiment that the head of a clinical department should be given a very large salary and should receive no fees for private practice. It was recognized at once that the rich should not be deprived of the services of these experts, so the grotesque plan is proposed that these men may do private practice but that fees from that practice are to be turned into the university treasury and not into their own pockets.

The men who proposed this plan, and provided the money necessary to make the experiment, are non-medical men; they do not have the medical point of view and they do not understand the complex functions demanded of the clinical teacher.

This plan has not been well received by the clinical teachers and finds its supporters almost entirely among the laboratory men. It is difficult to understand if the teachers in a medical school are to be placed on salaries and not permitted to receive any compensation for outside work, why the clinical teacher should be given a very large salary and his colleague in anatomy, or in pathology a comparatively small one. The sweating of the scientific men who have devoted their lives to teaching and research on miserable salaries is notorious. Advantage has been taken of the fact that their scientific enthusiasm would hold them to their work and they are often as underpaid comparatively as the workers in a sweat shop. Surely, if the medical department of a university receives large endowments for the payment of salaries, the men teaching in the laboratory sciences should receive the first consideration. Again, if a clinical department obtained large sums for salaries, why should they pay a very large salary to the head of the department who in a very limited amount of time devoted to practice could obtain for his services much more than the amount of such salary? Would it not be better to devote the available money to paying several younger men from 25 to 35 years of age—their more productive years—to devote practically all their time to teaching and research? Fortunately for the plan, the men who are responsible for it recognize that it is an experiment and frankly advise that it be not adopted by other medical colleges until it has been tried out on Hopkins.

The fact that such a plan has been seriously proposed by laymen interested in education, emphasizes the necessity of a thorough reorganization of our scheme of clinical teaching along lines to be determined and agreed on by a committee of our best clinical teachers.

THE HOSPITAL INTERN YEAR

During the last year the Council has continued its investigation of the hospital situation of the country and the subject of the required hospital year. The subject is a large one and it will be some time before a complete report can be presented. Sufficient progress has been made, however, so that certain general statements can be made.

I. There are enough good hospitals in the country to afford internships each year to every man now graduating in medicine.

II. The better schools are practically unanimous in favoring the adoption of the compulsory hospital intern year.

III. It is the general opinion that this requirement should be enforced by the state licensing boards. The licensing board of each state, therefore, should be urged to adopt a ruling making this hospital year a requirement for the license to practice in that state or if necessary to secure such modification of the medical act as may be necessary to put such a requirement into force.

IV. In the adoption of this hospital year requirement we would urge that it be made compulsory for students entering medical schools in October, 1914, which would make it apply to all graduates of 1918 and thereafter. This will give ample time for a complete investigation of the hospital situation of the country; time for each school to put itself in touch with the hospitals within its sphere of influence and to provide opportunities for its graduates. It will allow time also for the state boards to develop the machinery necessary to put the requirement into effect.

A first report of the hospital situation will be issued during the present year.

POSTGRADUATE MEDICAL INSTRUCTION

Provision has been made for a careful investigation of postgraduate medical instruction and the inspection of the postgraduate medical schools of the country has already begun. A special committee of the Council with Dr. H. D. Arnold as chairman has the work in charge. A preliminary report was presented at the last conference. Rather than "postgraduate" education, it was shown that it would better be described as "graduate" education, which is the term customarily used by universities. The objects of graduate medical instruction were:

1. To offer advanced instruction and opportunities for research.
2. To prepare physicians for special fields of work.
3. To offer opportunities for review, and for keeping in touch with the advances in medical science since the physician graduated.
4. To make up the deficiencies in previous medical education.

ADMISSION REQUIREMENTS

It is evident from the discussion of the scope of graduate medical instruction that there can be no uniform admission requirements of an educational nature, such as may be reasonably imposed on undergraduate medical schools. Adequate preparation of an individual to take any given course should, however, be insisted on. As a matter of benefit to the public, any earnest, reputable practitioner, licensed by the proper authorities to practice medicine on the public, should be allowed to take such courses as he is qualified for by previous training and experience.

CERTIFICATES

It is generally recognized that the loose regulations about granting certificates for "postgraduate" work often result in a definite evil. Such a certificate usually has a form similar to a diploma. It is suitable for display and is calculated to impress the public. Ordinary people are apt to regard such a certificate, displayed in a doctor's office, in much the same light as a degree, and they look on its possessor as a full-fledged specialist in any subject mentioned on the certificate. Advantage is taken of this fact by unscrupulous physicians who pose as specialists without any real justification in the knowledge or experience they have gained. Such practice is little short of quackery. The American Medical Association should use its influence to correct this evil, for the whole profession suffers in reputation on account of the poor work done by such so-called "specialists." The graduate school should under no circumstances be conducted or considered as a "credential mill."

PROPRIETARY SCHOOLS

While graduate medical instruction has been taken up by many of the regular medical schools, there have arisen a number of proprietary "postgraduate" schools. Some of these are doing excellent work and have satisfactory ideals, but many are little better than commercial enterprises for the direct or indirect financial benefit of those in control. The situation in regard to proprietary graduate schools is the same as existed among regular medical schools before the Council on Medical Education began its campaign. Possibly conditions are worse. There are the same objections to proprietary graduate medical schools as to proprietary undergraduate schools. It is to be hoped that those which are really doing good work will see the advantage of association with a medical school or university of good standing. The standards of instruction and the ideals of the graduate school should be fully as high as those of the undergraduate medical school. Puplic opinion will frown on commercialism in graduate medical instruction just as much as it does in undergraduate teaching.

THE OBJECT OF THE COUNCIL IN INVESTIGATING GRADUATE MEDICAL SCHOOLS

The ultimate object of the Council on Medical Education is to furnish more competent physicians for the community. For the attainment of this object it is not only necessary to raise the standards for the degree of Doctor of Medicine, but it is desirable to encourage and to regulate graduate medical study. Only through the latter means can the Council reach physicians already in practice. Up to the present its endeavors have been concentrated on the undergraduate schools. It believes that the time has now come when it may advantageously take up the other work also.

The recent and rapid improvement in undergraduate medical schools will result in turning into the profession hereafter better trained physicians. Something, however, needs to be done for the multitudes of doctors who are already in practice, many of whom graduated from medical schools which could not give them the desired training. In the interests of the communities where these doctors practice, nothing is more important than that graduate courses in medicine should be developed in this country, so that these doctors can take additional work, to the benefit both of themselves and of their patients. Some of these doctors have realized their needs sufficiently to sacrifice the time and money required to take graduate work abroad. How much more important it is that those who do not at present realize their needs, or those who cannot afford these foreign trips, be given the opportunity nearer home to secure additional training.

AN INVESTIGATION OF PRESENT CONDITIONS ESSENTIAL

Recommendations based on the knowledge thus obtained will follow. The problems are in many respects different from those of the undergraduate schools. It has already been noted that there can be no uniform admission requirements of an educational character. While the scope of a graduate school may reach from elementary to the most advanced courses, few will be able to cover satisfactorily the whole range of such studies. The extent of the course cannot, therefore, be a basis for approval; neither can the length of time the graduate stays at the school. The quality of the work must, of course, be up to the standards already fixed, if the courses are of undergraduate grade. The problem of standards for more advanced courses is a new one.

Whether or not it will be wise to attempt a classification of graduate schools remains to be seen. It is evident that any system of classification must be more complicated than the present classification of medical schools. One school may have excellent opportunities for instruction in clinical subjects, but may be very poor in the laboratory courses; or the reverse may be true. Schools should be encouraged to do only such work as they can do well, but they should in some way receive proper recognition for good work, no mattter how limited the field is. In a medical center, where there are two or more schools, it would seem desirable to arrange some plan for cooperation between the schools in graduate instruction. Each school can do the work for which it is best equipped, or in which it is most interested.

The more the subject of graduate medical instruction is studied the more important it appears in relation to the proper care of the public. The object of the Council is to be helpful to those schools which wish to give good instruction of this sort, and to gather reliable information for the benefit of those who are seeking for such instruction.

RECAPITULATION

The following facts will show in a measure the progress made in medical education during the first decade of the existence of the Council on Medical Education:

(a) Instead of having 160, or one-half of the world's supply of medical schools, this country now has about 100, and these have been greatly improved in every respect.

(b) Instead of only four medical colleges requiring one or more years of college work for admission there are now eighty-two which either have already put that requirement into effect or have definitely voted to do so beginning this fall.

(c) Eighteen state licensing boards have adopted the requirement of one or two years's of college work as their minimum standard of preliminary education, and three other states will have adopted that requirement before the summer is over. Of these twenty-one states, seven require two years of collegiate work as the minimum standard.

(d) The licensing boards of thirty-one states are now using their legal powers to refuse recognition to low-grade medical colleges, leaving eighteen boards which do not have legal authority so to do, or which are not utilizing that power.

(e) In four more states, New York, Texas, Pennsylvania and Georgia, single boards of medical examiners have been secured replacing the old arrangement whereby the authority to enforce the requirements of the practice act had been parcelled out to three separate and often conflicting boards. Single boards are still seriously needed in three or four states, chiefly in Arkansas and Florida.

(f) Great improvements have been made in the administration of entrance requirements of medical colleges, nevertheless, it is now clearly known that the chief remaining evil is in connection with the so-called "equivalent" examination. Entrance qualifications in this respect need to be better safeguarded.

(g) Three general classifications have been reported by the Council in 1907, 1910 and 1913, respectively. The last has been revised in regard to the ratings of several colleges during the last year.

(h) The present classification of colleges is based on a ten-years' study of medical education including four inspections of practically all medical colleges. The ratings, therefore, are not a matter of guess work but are based on reliable data which are on file.

(i) Twenty-eight states are now supporting medical education and in fifteen of these states the only medical school in the state is the medical department of the state university. There are only ten states having medical colleges in which the states do not contribute directly to the support of medical education.

Other portions of the report are summarized as follows:

(j) There needs to be a reorganization of the clinical departments in our medical schools, whereby clinical teaching may be placed on a more satisfactory basis. Toward this end a committee composed of ten prominent clinicians has been appointed who will bring in a report on this important subject at the next conference of the Council.

(k) Investigation shows that at the present time there are enough good hospitals in this country to provide internships for all graduates of medical schools, and the sentiment of all the better medical schools favors the adoption by state boards of a requirement that before he is eligible for a license every candidate must have served such an internship. It is suggested that such a requirement if adopted by state boards should be made to apply to graduates of 1918 or 1919 and thereafter.

(l) A careful study of graduate medical instruction has been started by a special committee of the Council. The problem differs greatly from that of undergraduate instruction. Admission requirements should be that "any earnest, reputable, licensed practitioner of medicine" would be allowed to take such courses as he is qualified for by previous training and experience. There should be definite regulations in regard to the granting of certificates so as to prevent any suggestion of these schools being diploma mills. These schools eventually like undergraduate medical schools should be developed as departments of universities.

(m) The development of graduate medical education is one of the immediate and pressing needs. There is an abundance of clinical material in our large cities which should be developed so that graduate courses may be taken by physicians who cannot spare the time and money necessary to go abroad. The development of graduate medical education is the next great step in the provision for a better trained medical profession in this country.

The work of this Council has been carried on with a remarkable cooperation, both on the part of the colleges and of the state licensing boards. The results of the Council's work speak for themselves. There is still a great deal of work, however, that this Council can accomplish. The abundance of information collected at headquarters and the experience of the last ten years constitute a valuable working capital and give assurance that the future work of this committee will become more and more effective in the efforts of the American Medical Association to provide the public with better-trained physicians and to carry on a more successful warfare against sickness and distress.

Respectfully submitted,

Arthur Dean Bevan, Chairman,
James W. Holland,
George Dock,
William D. Haggard,
Horace D. Arnold,
N. P. Colwell, Secretary,
Council on Medical Education.

Dr. George M. Kober, District of Columbia, Chairman, presented the report of the Committee on Red Cross Medical Work, which was referred to the Reference Committee on Reports of Officers.

Report of the Committee on Red Cross Medical Work

To the Members of the House of Delegates of the American Medical Association:

The Committee on Red Cross Medical Work was created at the 1912 session as the result of a communication from the chairman of the Central Committee of the American Red Cross requesting the appointment of a committee to consult and advise with a committee of the American Red Cross as to the best arrangements to be made for medical relief in times of disaster. In accordance with Section 3 of Chapter VIII of the By-Laws, the President appointed the undersigned Committee.

In February, 1913, a communication was addressed to the secretaries of 1,150 component societies affiliated with the American Medical Association. The circular letter set forth the fact that the American Red Cross desires to enlist the sympathy of the medical profession in general and the active cooperation of representative men of that profession in time of disaster or other emergency which may occur in any section of our country. This communication pointed out that the object could be best attained by the creation of committees on Red Cross medical work in every county medical society.

Your committee believes that after securing the appointment of such committees with names and addresses, the Red Cross will be assured of the services of qualified medical men and that it will not be a difficult matter for that organization to effect a concert of action between the various activities of the Red Cross in any community, by such measures and by such individuals within its organization as might seem best to bring about the result. This circular was reprinted in the *Bulletin* of the American Medical Association in such a manner that it could be removed and placed with the memoranda of the secretary for consideration and action at the next meeting of the county society (Appendix A[1]).

In response to this action, fifty-seven county medical societies in twenty-four states appointed committees by May 1, 1913. During the veterans' encampment at the celebration of the fiftieth anniversary of the Battle of Gettysburg, July 1-4, 1913, the Red Cross was called on to assist the Army in the work of taking care of the veterans, and the physicians who performed the work on that occasion were chosen by the Committee on Red Cross Medical work of the Medical Society of the District of Columbia. The report of Dr. Robert U. Patterson, Major, Medical Corps, U. S. Army, in charge of the First Aid Department, indicates how satisfactorily the plan will work in any and all of the emergencies in which the Red Cross may be called on for the mitigation of human suffering and the saving of lives.

In October, 1913, Dr. Patterson requested your committee to expedite the formation of local Red Cross committees in state and county medical societies. This request was based on the fact that during the summer, matters requiring the intervention of the Red Cross and the services of reputable medical men had come up in various parts of the country, but owing to the lack of local committees in the medical societies there was considerable difficulty in getting reputable men to act for the Red Cross (Appendix B).

In order to solve this difficulty temporarily, the Secretary of the American Medical Association volunteered to furnish the American Red Cross with the names of the president and secretary of any county medical society in which no committee had yet been formed, so that these officers may be called on to recommend competent men for emergency work. This plan will answer as a temporary expedient, but in view of the frequent changes in the personnel of the officers, it will be necessary to telegraph first to the Chicago office to secure the latest list of names and addresses and then to the respective officers for assistance.

All of this involves expense and delay and can be obviated by the organization of permanent committees. The First Aid Department of the Red Cross, on the appointment of such committees, proceeds at once to get in touch with the organization, prepares and keeps for reference a card index of the names of the individual members of the committees, and also of the physicians recommended by them. Committees which have been appointed and have not recommended men for active service are reminded from time to time to do so, as indicated in Appendix C.

In view of the possibility that the Red Cross may be called on to give actual assistance to the armed forces of the United States (which is one of the principal obligations of the Red Cross and the primary reason for its existence), your committee recently addressed a second circular letter to the secretaries of the county medical societies who have not yet responded, urging immediate action. A letter signed by Major Patterson in charge of the First Aid Department accompanies the printed letter and requests the names of the gentlemen composing the committee, and also the names of physicians who are willing to enter the service of the Red Cross, if called on, and who are recommended as fully qualified in the opinion of the local committee (Appendix D).

By these methods it is hoped that the Red Cross will soon have a creditable enrolment of physicians. In this connection it may be of interest to note that the Red Cross has an enrolment of nearly 5,000 trained nurses, many of whom are ready to respond for service on very short notice.

Appendix E was issued by the Bureau of Medical Service of the American Red Cross, May 1, 1914, and is of interest since it contains information as to the classification of individuals needed for work in case of war, the organization of field columns, hospital columns, supply columns, physical requirements, compensation, etc.

The committee takes pleasure in reporting that up to May 1, 214 county medical societies located in thirty-seven states, including the District of Columbia, have organized committees on Red Cross medical work: Alabama 4, Arizona 2, Arkansas 8, California 5, Colorado 2, Connecticut 5, District of Columbia 1, Florida 3, Georgia 5, Illinois 14, Indiana 18, Iowa 16, Kansas 5, Kentucky 9, Louisiana 3, Maine 3, Massachusetts 3, Michigan 3, Minnesota 3, Mississippi 6, Missouri 10, Montana 1, Nebraska 6, New Jersey 1, New Hampshire 2, New Mexico 1, New York 15, Ohio 10, Oklahoma 7, Pennsylvania 10, Rhode Island 3, South Carolina 2, Tennessee 6, Texas 10, Virginia 3, West Virginia 3, Wisconsin 5, total 214.

The clouds of war which appear to threaten our country may pass away, but it is a patriotic duty to be prepared for each and every disaster which may befall some section of our broad land, whether caused by war, floods, tornadoes, forest-fires, mine-explosions or other catastrophies. In order that there may be a comprehensive system of cooperation between the Red Cross and the American medical profession in the mitigation of human suffering and distress, your committee recommends prompt action by all the medical societies in affiliation with the American Medical Association.

Respectfully submitted,
George M. Kober, M.D., Chairman.
William J. Lyster,
Major, Medical Corps, U. S. Army.
E. M. Blackwell, Surgeon, U. S. Navy.

On motion, which was duly seconded, the House of Delegates adjourned until 2 p. m.

Second Meeting—Monday Afternoon, June 22

The House of Delegates reconvened at 2:15 p. m. and was called to order by the President.

The Secretary announced a quorum present.

The minutes of the previous meeting were read and approved.

Dr. D. Chester Brown, Connecticut, Chairman, presented a supplementary report from the Committee on Credentials, naming the delegates entitled to be seated.

Dr. Frank B. Wynn, Indiana, Chairman, presented the report of the Committee on Scientific Exhibit as follows, which was referred to the Board of Trustees:

Report of Committee on Scientific Exhibit

In order to expedite the work of the Scientific Exhibit it is urged that the President of the Association be empowered to appoint at once a Committee on Awards, in order that they may give due consideration to the relative merits of exhibits. The usual appropriation of $1,000 is recommended for the development and maintenance of the Scientific Exhibit for the ensuing year.

It is not the purpose at this time to particularize as to exhibits or exhibitors, these being scheduled in the official program. While the exhibit deals with a wide variety of subjects, yet the thing most apparent is that the live topics related to both medicine and surgery are made prominent. Diagnosis by the Roentgen ray in the nature of things occupies a large space. The cancer problem justly receives conspicuous consideration, being represented by no less than eight exhibits, showing chiefly modern researches; some of them interesting and most suggestive. Most of all, perhaps, the visitor to the exhibit will be impressed by the large number of research exhibits, some representing original work never before shown, and dealing with practical problems of medicine and surgery. These number seventeen. Enumeration of some of the subjects with which these research exhibits deal will give an idea of their scope, the line of investigation pursued and the great interest they must arouse:

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[1] Appendices A, B, C, D and E are here omitted, because of lack of space. All will appear in the reprint of the Proceedings of the House of Delegates. Appendix A also appeared in The Journal, Correspondence Department, May 9, 1914, p. 1493.

Experimentally induced pneumonia.

Experimentally produced hydronephrosis.

Effects of collargol injections of the kidneys in dogs.

Lateral blood-vessel anastomosis in the cure of arteriovenous aneurysm.

Relation of gastric ulcer to cancer.

Effect of diet on tumor growth.

Hereditary factors in mice cancer.

Specimens showing communication of erythema nodosum to dogs.

Effects of chronic lead-poisoning on the livers of guinea-pigs.

The effect of feeding pituitary extract in hastening genital development in rats.

Fortunately those who are presenting these exhibits will take much time and great pains in demonstrating them to the members of the Association.

In this fifteenth year of the Scientific Exhibit's hostory one is prone to revert to some phases of its evolution. The earlier presentations were essentially large, museum-like collections of pathologic specimens. Some such are still presented. They are interesting and teach valuable lessons. Their weakness lies in their heterogeneous make-up. They present a vaudeville-like exhibition of great variety in rapid succession, which entertains and in a limited way instructs. The individual is gorged with miscellaneous facts which are not properly digested. Many excellent men, eminent as teachers, are still laboring under the erroneous impression that what we want in the Scientific Exhibit is the large museum collection. Accordingly they hesitate to participate because of the great labor, expense and loss from breakage in transportation.

Long experience and observation have taught use that from considerations both of economy and of usefulness, the bulky heterogeneous exhibit should give place to the smaller serial exhibit or better still the research exhibit. A single topic, illuminated from every aspect by an exhibit which is systematically arranged and efficiently demonstrated, will drive home a lesson in a manner not to be forgotten. It is like the great play which revolves about one central idea, holding it up with power and impressiveness before the auditor and observer. The memory cannot escape an indelible impression.

Exhibits like those just suggested offer ususual opportunities alike to exhibitor and to observer. To the former it gives the rare privilege of setting before the profession his work, bringing appreciative consideration; it not only enables the visiting member to catch the practical advances in medicine and surgery, but also shows him the keen edge of scientific progress. Thus is the way made plain for the practical in medicine—the art of our profession.

We would urge on the members of the House of Delegates attendance at the Scientific Exhibit, not merely as a perfunctory duty, but as a privilege of this meeting which no member of the Association can afford to miss. The Scientific Exhibit is your child—virile and hopeful and yet needing the poise and practical direction of your sober judgment. The exhibitors are bearing splendidly the light of advancing scientific thought. It is for you to shade that light and reflect its rays into the practical ways of professional life.

Frank B. Wynn, Director,
Louis B. Wilson,
C. C. Rosenow,
C. C. Bass,
R. C. Coffey,
Alfred Stengel,
W. S. Thayer,
S. B. Wolbach,
Ross McPherson.

The President appointed as a Committee on Awards for Scientific Exhibits, Drs. D. H. Murray, New York; Richard M. Pearce, Pennsylvania, and W. J. Means, Ohio.

Dr. Cressy L. Wilbur, District of Columbia, Chairman, presented the report of the Committee on Nomenclature and Classification of Diseases, which was referred to the Board of Trustees. The report follows:

Report of Committee on Nomenclature and Classification of Diseases

To the Members of the House of Delegates of the American Medical Association:

As stated in our report last year, your committee has been in correspondence with the committee of the Royal College of Physicians of London appointed to prepare the fourth decennial revision[1] of the English nomenclature of diseases. In a recent letter to Dr. Leonard Guthrie, Secretary of the Nomenclature of Diseases Committee, I wrote on behalf of our committee:

"In correspondence with the members of our committee there is a general desire to delay our report, making only a report of progress at the next meeting of the American Medical Association, June, 1914, in order that we may be able to learn the results of your preliminary work, to exchange ideas on certain points therein, if it seems feasible to do so, as kindly suggested in your note, with a general view to the promotion of a close correspondence between the nomenclatures used in the two countries.

I would therefore greatly appreciate it if you could furnish me with any information in regard to the progress of your work, any general recommendations, etc., so that our committee may incorporate them in our report of progress to the House of Delegates of the American Medical Association next June."

Should such information arrive prior to the presentation of this report it will be appended. The great advantages of cooperation to the end that the nomenclatures of diseases employed in the English-speaking world may be in close accord are so obvious that it would seem wiser to defer the preparation of a final report for the present. Moreover, in view of the relations of the proposed form of our nomenclature to the International List of Diseases and Causes of Death, employed for morbidity and mortality statistics, and the approaching date for the decennial revision of this system—which may introduce radical changes in its general arrangement—it is believed that more will be gained by deliberation at the present juncture than by precipitate action. It is therefore suggested that the committee be continued, with power to add to the list of its collaborators in order to consider special phases of the work, in conjunction with the English committee as far as practicable, and that it also devote some attention to the preparation of suggestions for the revision of the International List, which, if accepted as the outline or form for the arrangement of general morbidity, mortality and hospital statistics, has important relations to the subject of nomenclature proper.

In this connection it is of interest to state that a second edition of the Physicians' Pocket Reference to the International List of Causes of Death has been sent by the Bureau of the Census to all physicians in the United States. Copies have also been placed, through their instructors, in the hands of senior medical students. The booklet contains a list of undesirable terms, framed as a result of the conferences of this committee, during Doctor Foster's chairmanship, with committees of other national organizations, which are thus brought forcibly to the attention of physicians throughout the country with the recommendation that they be disused. Marked copies of this list are sent to physicians employing such terms in making out certificates of death by the census, state and city registration authorities, and sometimes by other agencies in connection with the request for more definite information. It is apparent, therefore, how readily a standard nomenclature may be made available for the improvement of medical reports.

Respectfully submitted,
Cressy L. Wilbur, Chairman,
Robert J. Carlisle,
Alexander Duane,
Frank B. Mallory,
Wilber E. Post,
George Dock,
J. Chalmers Da Costa,
Warren Coleman.

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[1] Fifth Edition.

Dr. James T. Gwathmey, New York, a member of the Committee on Anesthesia, presented the report of that committee, in the absence of the Chairman, Dr. W. D. Gatch. The report is as follows and was referred to the Board of Trustees:

Report of the Committee on Anesthesia

To the Members of the House of Delegates of the American Medical Association:

In the report of this committee submitted to the House of Delegates last year it was proposed that the work of this committee should in future be conducted along the lines so successfully followed by the Council on Pharmacy and Chemistry: namely, that the Committee on Anesthesia should undertake the preparation of a comprehensive and critical review of the entire subject of anesthesia, and that the information therein contained should be made easily accessible to all physicians either by publication in The Journal of the Association or in pamphlet form. Our well-known shortcomings in anesthesia were cited as evidence for the need of such a report. This proposal was approved by the House of Delegates.

The committee now has the pleasure of reporting that a good beginning has been made in carrying out this plan. The members of the committee who had opportunity to do so have carried out experimental and clinical investigations which have been embodied in the complete report. We have deemed it best to secure the assistance, whenever possible, of original investigators of important questions bearing on anesthesia, thereby making the information contained in our review first-hand. For such assistance we desire to express our thanks.

We have sought to lay especial emphasis on the fundamental scientific principles of anesthesia, since such information is not always easily accessible, and since success and progress in practical anesthesia is largely dependent on a correct understanding of these principles.

The titles and authors of the various articles of the review are as follows:

Intratracheal Insufflation, Samuel J. Meltzer.

The Theory of Anesthesia, Evarts Graham.

Anoci-Association, George Crile.

The Present Status of the Acapñial Theory of Shock, Yandell Henderson.

Present-Day Methods of General Anesthesia, James T. Gwathmey.

Rectal Anesthesia by the Use of Mixtures of Oil and Ether, James T. Gwathmey.

Present-Day Methods of Local Anesthesia, James Mitchell.

Recent Studies of the Physiology of Anesthesia, W. D. Gatch.

We are aware that there are many more subjects which deserve to be covered in this review, but we have deemed it best at the present time not to attempt more than we have. We hope that if the present review is well received, subsequent committees on anesthesia may add to it from time to time.

Respectfully submitted,
W. D. Gatch, Chairman,
Reid Hunt,
James T. Gwathmey,
Thomas S. Cullen,
Evarts Graham.

Dr. Henry B. Favill, Illinois, Chairman, presented the report of the Council on Health and Public Instruction, which was referred to the Reference Committee on Legislation and Political Action.

Dr. Thomas McDavitt, Minnesota, Chairman of the Subcommittee on Uniform Regulation of Membership, presented the report of this committee, which was referred to the Reference Committee on Legislation and Political Action.

The reports of the Council on Health and Public Instruction and its subcommittees follow:

The Report of the Council on Health and Public Instruction[1]

To the Members of the House of Delegates of the American Medical Association:

The plans of the Council have now developed to a point where a comprehensive program can be outlined, which will embrace all of the present and future activities of the Council and will show clearly their relation to each other, their relative importance and the order in which they can be taken up. In outlining such a program, the Council assumes that its primary object is to place before the profession and the public of the United States the objects, purposes and work of the organized medical profession, as represented by the American Medical Association and its constituent and component branches, and to place the Association and its efforts before the public in such a way as to secure public support and endorsement for our efforts for the improvement of public health conditions in the United States.

Careful study of the present situation leads to the conclusion that a rational program must include three general lines of action. These are:

1. A thorough investigation of present public health conditions in the United States, with a view to securing more accurate information on all phases of the public health problem than is now available.

2. Education of the public by every possible means in order that the people may understand the enormous advances in scientific medical knowledge during the last generation and the possibility of utilizing such knowledge in the prevention of disease, the reduction of the death-rate and the prolongation of human life.

3. The crystallizing of such educated public sentiment in necessary public health laws, regulations and ordinances, which will render possible a conservation of human life commensurate with our advancing knowledge and which will render such laws effective through the only force available in this country, namely, educated and enlightened public opinion.

Under the first head, namely, the investigation of the present public health situation, the need for additional knowledge naturally divides itself into four subheads:

(*a*) The first is the need of a survey of the public health activities of the federal government in all of its departments, with a view to determining exactly what the federal government is doing for public health. Closely related to this is the desirability of a similar survey or investigation of the public health activities of other national governments, for purposes of comparison.

(*b*) The second important field for investigation is that of state public health activities. There is to-day, in every state in the Union, some form of public health organization. Owing to our form of government, each of these organizations is working independently. As the reports of the various state boards are not made on a uniform basis, a comparison of their various activities and a tabulation of the results secured by their efforts is difficult. It is, therefore, practically impossible to-day to summarize the public health work which is being done by the different state boards of health, to compare one with another or to establish any standard by which their relative merits may be determined. The first necessity for such a comparative study of state public health activities is clearly a collection of authoritative, official data on the subject. Realizing the importance of this field of investigation, the Council has given the subject careful consideration and has been fortunate in securing the assistance of one of the leading public health authorities of the country in carrying on a study of state public health work. Beginning Jan. 1, 1914, Dr. Charles V. Chapin, Commissioner of Health of Providence, R. I., was appointed as special representative of the Council and directed to make a comparative study of the activities, equipment and accomplishments of the various state boards of health. During the past five months, in accordance with the plans formulated by Dr. Chapin and the

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[1] This report, and the reports of some of the subcommittees of the Council, have been greatly abbreviated for publication in The Journal. The complete report will be sent on receipt of a stamped, directed envelope.

Council, he has been visiting the various state boards, from time to time, and making a personal study of their condition. He plans to complete this study during the present year. The results of his observations will be presented later on in the form of a report on state public health work.

(*c*) Of equal importance to the federal and state public health activities is the work being done by the various municipal health organizations. Any study of public health conditions in the United States, to be complete, must include a careful survey of municipal public health work. In this field, as in that of federal health work, some practical difficulties have been encountered. The Council is planning a study of municipal health activities and hopes to have this work inaugurated during the coming year.

(*d*) The fourth important field of public health work which must be given careful attention, in order that the data on this subject may be complete, is that of voluntary public health organizations. The importance of such bodies, in supplementing and often in stimulating official organizations, is well known. One of the plans which the Council has been developing for the last two years is the coordination of the various voluntary public health organizations. An account of the efforts of the Council in this direction appeared in the report of last year.

The Council . . . deeply regrets that nothing definite has been accomplished in this field during the past year. The Council through its Chairman and Secretary has made every effort to secure some advance without forcing the Association into a position which it was felt would be unwise. The Council greatly prefers that this survey should be taken up and carried on by the organizations themselves, but if this is not done, the Council will be forced to consider plans for carrying on this work on its own initiative.

The object of the foregoing efforts of the Council is the securing and presenting, in concise and easily accessible form of a comprehensive report showing the exact situation in the public health field, the agencies which are at work, what is being accomplished, how much it is costing and who is paying for it. Such a survey seems to the Council absolutely indispensable as a foundation for any permanent, constructive work in this field. The Council, in developing these plans, has encountered some unnecessary difficulties and has found some problems to solve which were not anticipated. It intends to continue its efforts during the coming year in the hope that during 1915 it may present to the profession and the public a report that will be accepted as authoritative in this field.

The second fundamental function of the Council is that of the education of the public on health matters. While theoretically the securing of the information as outlined above ought to precede such educational efforts, the Council has recognized, since its organization, the necessity of wasting no time and of using every means to place before the public the facts regarding disease and its prevention. It has, therefore, while developing its plans for securing necessary information, been carrying on, simultaneously, plans for the education of the public. The activities inaugurated during the last three years have been maintained and developed. These are principally included under the following heads: (*a*) Press Bureau; (*b*) Speakers' Bureau; (*c*) Bureau of Literature.

PRESS BUREAU

The Press Bureau, established two years ago, has been maintained throughout the year. Forty-two bulletins have been sent out to a mailing-list of approximately 4,900 newspapers at a total cost of $2,309.00 The effect of this sustained effort to supply the newspapers of the country with well-written authoritative paragraphs and articles on appropriate health topics of popular interest is becoming apparent.

SPEAKERS' BUREAU

The Speakers' Bureau, established last year, has been maintained throughout the year. The list shows the number of appointments filled by speakers in accordance with arrangements made by the Speakers' Bureau direct; and also the number of meetings addressed by speakers, which were more or less directly inspired by the Speakers' Bureau, but which were arranged independently. The table also shows the total number of meetings for which speakers were furnished, the total expense for the eleven months from July 1, 1913, to May 31, 1914, and the average cost per meeting.

BUREAU OF LITERATURE

The presentation of suitable pamphlets and reprints on public health topics has formed one of the principal activities of the Council during the past year.

Correspondence with the various state board secretaries and further discussion of this plan by the Council resulted in the presentation of plans for a series of twelve public health pamphlets as a nucleus for a standard series to be issued during the coming year:

Tuberculosis	Dr. Edward R. Baldwin, Saranac Lake, N. Y.
Small-pox and Vaccination	Dr. Jay F. Schamberg, Philadelphia
Typhoid Fever	Prof. E. O. Jordan, Chicago
Diphtheria	Dr. A. J. Chesley, St. Paul
Flies	Dr. L. O. Howard, Washington, D. C.
Malaria	Dr. W. S. Leathers, University, Miss.
Hookworm	Dr. John A. Ferrell, Washington, D. C.
Medical School Supervision	Dr. H. M. Bracken, St. Paul
Pure Water	Prof. George C. Whipple, Cambridge, Mass.
Measles	Dr. H. W. Hill, London, Ont., Can.
Baby Welfare	Dr. J. H. M. Knox, Baltimore
Scarlet Fever	Dr. Ludwig Hektoen, Chicago

One of the most satisfactory series issued during the past year is the series of twenty pamphlets on conservation of vision, prepared by the Committee on Conservation of Vision under the enthusiastic leadership of Dr. Frank Allport of Chicago, and issued by the Council. This subject will be discussed in detail in the report of the Committee on Conservation of Vision.

An additional pamphlet has been added during the year to the Defense of Research Series, forming Pamphlet XXVI, entitled "The Charge of 'Human Vivisection' as Presented in Antivivisection Literature," by Prof. Richard M. Pearce, M.D., of the University of Pennsylvania.

Additional pamphlets in the general public health series include a reprint of the New Orleans address by Dr. Henry B. Favill, Chairman of the Council, given before the Mississippi Valley Medical Association on "Child Culture the Function of Organized Medicine," the reprint of an address by Dr. Joseph C. Bloodgood of Baltimore on the "Control of Cancer," the report on the "Municipal Regulation of Milk Supply" by Prof. E. O. Jordan at the Midwinter Conference, February, 1913, and a reprint of the paper read at the Midwinter Conference by the Secretary entitled "Sixty-Seven Years of Medical Legislation."

MEDICOLEGAL PAMPHLETS

Pamphlets on medicolegal subjects include monographs on "Laws Prohibiting Fraudulent Advertising," "State Regulation of Marriage," "Why Should Births and Deaths Be Registered," and "Laws for the Sterilization of Criminals." Other medicolegal monographs are in preparation.

SEX HYGIENE LITERATURE

The need of carefully prepared literature on sex hygiene has been apparent for some time. Owing to the amount of public interest in this subject, we have been receiving constant requests for such literature. Under the direction of the Council, the Secretary arranged for Prof. Winfield S. Hall of Northwestern University Medical School of Chicago to submit manuscripts on four sex hygiene pamphlets, two for girls and two for boys. Dr. Hall prepared these manuscripts in the story form. They have been issued in four attractively printed pamphlets which are having a wide circulation. The titles of these little stories are "John's Vacation," "Life's Problems," "The Doctor's Daughter," and "Chums."

CANCER PAMPHLETS

Owing to the public interest in cancer and its prevention, and the statement in a recent book by Mr. Samuel Hopkins

Adams, "The Health Master," that appropriate literature on this subject could be secured through the Council, it was thought advisable to arrange for the preparation of a series of pamphlets, suitable for public distribution and giving reliable, scientific information regarding cancer and its prevention. In cooperation with Dr. Thomas S. Cullen of Baltimore, chairman of the Committee on Cancer, plans have been made for a series of pamphlets on cancer including the following:

General Pamphlet on Cancer	Dr. Joseph C. Bloodgood, Baltimore
Cancer of the Skin	Dr. Henry H. Hazen, Washington, D. C.
Cancer of the Breast	Dr. William L. Rodman, Philadelphia
Cancer of the Uterus	Dr. Franklin H. Martin, Chicago
Cancer of the Bone	Dr. J. B. Murphy, Chicago
Cancer of the Genito-Urinary Organs	Dr. H. H. Young, Baltimore

Pamphlets on cancer of the stomach and cancer of the rectum are under consideration. The manuscripts of four of the pamphlets have been received and are now in the printer's hands, while the others will soon be completed.

MISCELLANEOUS PAMPHLETS

An accompanying table shows the pamphlets issued by the Council from July 1, 1913, to June 1, 1914, to the number of 57,250.

The preparation of suitable material for direct distribution to the public, the devising of means by which such material can be distributed and the development of writers of high scientific ability endowed with the gift of writing for popular readers are all included in the plans of the Council for development of its Bureau of Literature. It is hoped by steadily increasing the number of suitable pamphlets to build up a series which will cover practically every phase of medicine in which the public is interested.

EDUCATIONAL PLANS FOR THE FUTURE

In addition to carrying on the Press Bulletin, Speakers' Bureau and Bureau of Literature, and adding to their equipment and method of operation from time to time as necessity may demand or as the growing importance of these activities may justify, the Council also has plans for developing in the future several other methods for public education. Probably the most important of these, as well as the one most in harmony with present tendencies toward the use of pictures in education, is the development of a Lantern-Slide Loan Bureau, by which sets of stereopticon slides, prepared by recognized authorities and accompanied by a skeleton lecture or outline containing the essential facts on the subject, can be loaned to officers and members of county societies, physicians and others interested in educating the public on health topics.

Plans for such a bureau have been outlined and this work will be taken up as soon as other activities permit. Equally important is the preparation of small, portable exhibits which can be shipped to different parts of the country for exhibition in connection with conventions and public meetings of all sorts. The preparation of such exhibits, on the part of the Council as representing the Association, involves the consideration of a number of scientific, psychologic, pedagogic and practical problems which can, however, be solved in due time.

MEDICOLEGAL BUREAU

The plans for a Medicolegal Bureau, outlined in the report of last year, have been followed, the principal work at present being the collection of all available material on public health and health legislation. The assistance of secretaries of state boards of health, medical examining boards, officers of medical organizations, editors of medical journals, etc., has been solicited and much interesting and valuable material has been received. Affiliation has also been established with the legislative reference libraries and bureaus which, during the past few years, have been established in many states. Pamphlets and other material have been exchanged with these bureaus and relations established by which we shall be able to furnish all the bureaus of the country with material on public health topics. These workers in the field of constructive legislation are glad to turn over to us the special task of framing public health legislation, as this is a subject on which they are not specially informed. The influence and importance of this relation will be apparent to all those who have followed the growth of laboratory methods in legislation during the past few years.

NATIONAL LEGISLATION DURING THE PAST YEAR

In the field of national legislation, no special activities have been undertaken on the subject of a National Department of Health, principally for the reason that the program adopted by the Conference held May 5, 1913, and reported in detail last year, pledged the Council and the Association to a support of such a public health program as the President might decide to recommend during the next (present) regular session of Congress.

PUBLIC HEALTH SUNDAY IN PHILADELPHIA

One of the most effective means of putting the Association in a favorable light before the people has been the plan of furnishing speakers for the churches on the Sunday preceding the annual meeting of the Association. This plan, inaugurated at Los Angeles in 1911, was particularly successful last year in Minneapolis and St. Paul. This year the small number of churches in Atlantic City and the close proximity of Philadelphia led the Council to propose to the Philadelphia County Medical Society that speakers be furnished for the churches of Philadelphia on Sunday, June 21. This plan being endorsed by the officers of the Philadelphia County Medical Society, arrangements were made for furnishing a member of the Association to deliver an address on a suitable public health topic for every church in Philadelphia desiring to avail itself of this opportunity. Speakers were provided for 50 churches, including organizations for all denominations and sects. In addition, through the courtesy and effective cooperation of the Right Reverend Edmond F. Prendergast, Archbishop of Philadelphia, suitable printed matter was placed in the hands of the 104 parish priests of the Roman Catholic churches in the diocese of Philadelphia. The educational influence of such work cannot be overestimated.

Respectfully submitted,

Henry B. Favill, Chairman.
Henry M. Bracken,
Walter B. Cannon,
Wm. C. Woodward,
Watson S. Rankin,
Frederick R. Green, Secretary.

REPORTS OF SUBCOMMITTEES OF THE COUNCIL ON HEALTH AND PUBLIC INSTRUCTION

Committee on Resuscitation from Mine Gases

To the Council on Health and Public Instruction:

As stated in the last report of the Council, a Committee on Resuscitation from Mine Gases was appointed by the Chairman of the Council at the request of Dr. J. A. Holmes, Director of the Bureau of Mines of the United States Department of the Interior. The committee visited mines in both the soft coal and the hard coal regions of Pennsylvania, met and had discussions with men engaged in first-aid work, witnessed demonstrations of methods used for first-aid and resuscitation, and studied the apparatus employed in the mines as well as that used by the United States Bureau. As a result of these observations and also as a result of further experiments and critical tests of methods employed for artificial respiration, the committee reported on the best manual method to be used in times of emergency, and suggested a greatly simplified means of giving artificial respiration mechanically. The suggestions made by the committee have been put to practical test by field workers in the Bureau of Mines, and the report of the committee will probably be published during the summer and distributed widely for use in mines where conditions of danger are likely to arise. The committee believes that attention to its suggestions will considerably increase the chances of reviving victims of mine accidents.

Walter B. Cannon, Chairman.

Report of Committee on the Protection of Medical Research

To the Council on Health and Public Instruction:

The Bureau for the Protection of Medical Research has given aid through conferences and literature to the New York and Pennsylvania committees of the state organizations that are concerned with the opposition to antivivisectionist activities. In New York a vigorous attempt was made to obtain an investigation into laboratory and hospital conditions based on the claim that in the hospitals children were being unscrupulously used for vivisection purposes. This claim was proved to be baseless and the attempt at legislation failed.

In Pennsylvania the trial brought against certain members of the Medical Department of the University of Pennsylvania resulted in a disagreement of the jury. The charge of the judge has generally been regarded as strongly biased against animal experimentation, and his attitude has been applauded only by the antivivisectionists. Although the trial resulted unsatisfactorily to either side, it has had the remarkable effect in calling forth strong commendation of the experimental method as applied to medicine both from bodies of medical men and also widely from editors of influential journals all over the country.

Dr. Richard M. Pearce, a member of the Bureau, prepared a paper on "The Charge of Human Vivisection," which brings together a large mass of material constantly used by antivivisectionists and presents strong refutation of the claims which they have made. This paper has been published as No. 26 in the Defense of Research pamphlets.

A letter has been sent out to editors of medical journals in various parts of the country asking that they scrutinize carefully original papers submitted for publication, with the view to eliminating expressions which are likely to be misunderstood and to including a statement that anesthesia was employed when in fact that was the case, in order that the occasion for misinterpretation by antivivisectionists may be reduced to a minimum.

The question arose as to the desirability of organizing in connection with the Bureau for the Protection of Medical Research of the American Medical Association, a lay society. This question was considered in conferences both in New York and in Philadelphia. For a number of reasons, which were accepted as having greater weight than the reasons in favor of a lay organization, it was decided at each of these conferences that the establishment of a lay society is not now expedient. Instead of such an organization, a small group of active men was gathered from Philadelphia, New York and Boston and different members of this group were given different responsibilities in order that there might be helpful cooperation in these cities, which are at present the centers of the antivivisection agitation. The opinion was expressed at the New York and Philadelphia conferences that whenever opportunity arose to meet attacks made by antivivisectionists through newspaper letters, some medical man well acquainted with the facts in question should meet the assertions of the antivivisectionists in letters of rebuttal. This has proved a satisfactory method of spreading information in New York, and has been used effectively this year not only in New York, but also in Boston and Philadelphia.

Walter B. Cannon, Chairman.

Report of Committee on Conservation of Vision

To the Council on Health and Public Instruction:

There are various state conservation of vision societies existing under different conditions and under varying degrees of activity. Some are independent organizations; others are committees of state medical societies, while others are commissions of the state governments. There is also an inactive national society.

In June, 1913, the Council on Health and Public Instruction appointed a Committee on Conservation of Vision of which I am chairman. Our first work was to prepare a weekly, non-technical article for the Press Bulletin. The eye articles on such subjects as "The Eyes and the Movies," "Face Powder and the Eyes," "Illumination in Homes, Offices, Schools, Shops, Etc.," have been copied in newspapers all over the United States and have accomplished much good.

Our committee has caused to be written twenty short pamphlets on eye topics by well-known ophthalmologists. They are written and illustrated in popular style, have a uniform appearance and are known as "The Conservation of Vision Pamphlets." They sell for 5 cents a copy or $3.50 per hundred. Many are given away. They sell freely and are well advertised. Some are in their third edition. Sets are sent free to public libraries, women's clubs, legislatures, health boards, etc. Arrangements are being made to send Dr. Carroll's pamphlet on "The Eyes of Transportation Employees" to every railroad surgeon in the United States and we propose to make similar use of other pamphlets, sending them where they will do the most good. These pamphlets are excellent material for ophthalmologists to keep in their offices to give away to patients and parents desiring information of this nature. The titles of the pamphlets and their authors are here given:

Pamphlet I.—Schoolchildren's Eyes, by Dr. Frank Allport, Chicago.

Pamphlet II.—Industrial and Household Accidents to the Eye, by Dr. Harold Gifford, Omaha.

Pamphlet III.—Wearing Glasses, by Dr. W. B. Lancaster, Boston.

Pamphlet IV.—The Relation of Illumination to Visual Efficiency, by Dr. Ellice M. Alger, New York.

Pamphlet V.—Trachoma in Eastern Kentucky, by Dr. J. A. Stucky, Lexington, Ky.

Pamphlet VI.—Auto-Intoxication and the Eye, by Dr. H. D. Bruns, New Orleans.

Pamphlet VII.—Eye-Strain, by Dr. Hiram Woods, Baltimore.

Pamphlet VIII.—Lenses and Refraction, by Dr. Frank Allport, Chicago.

Pamphlet IX.—The Eye and Its Functions, by Dr. Frank Allport, Chicago.

Pamphlet X.—Care of the Eyes, by Dr. Frank Allport, Chicago.

Pamphlet XI.—Infant Blindness, or Ophthalmia Neonatorum, by Dr. F. Park Lewis, Buffalo, N. Y.

Pamphlet XII.—Ordinary Eye Diseases, by Dr. L. W. Dean, Iowa City, Ia.

Pamphlet XIII.—Usual and Unusual Eye Accidents, by Dr. E. C. Ellett, Memphis, Tenn.

Pamphlet XIV.—The Eyes of Transportation Employees, by Dr. J. J. Carroll, Baltimore.

Pamphlet XV.—Ocular Hygiene in Schools, by Dr. S. D. Risley, Philadelphia.

Pamphlet XVI.—Whisky, Tobacco and Drugs and the Eye, by Dr. Edward Jackson, Denver.

Pamphlet XVII.—The Oculist and the Optician, by Dr. Melville Black, Denver.

Pamphlet XVIII.—Preparation for Blindness, by Dr. F. Park Lewis, Buffalo.

Pamphlet XIX.—What to Do for Blind Children, by Dr. F. Park Lewis, Buffalo.

Pamphlet XX.—Blindness from Wood Alcohol, by Dr. Casey Wood, Chicago.

Desiring to create a national sentiment in favor of the conservation of vision, our committee planned a lecture campaign in almost every state. A prominent ophthalmologist was appointed to manage the campaign in his state. He selected his own assistants and lecturers, and solicited invitations for lectures from local medical societies, women's clubs, teachers institutes, Chautauquas, etc. Expenses should, of course, be paid by those issuing the invitations, but if not, would have to be born by the lecturer himself. The Council allowed the committee to send to each state lecture manager a box of transportable stereopticon slides, together with sufficient conservation of vision phamphlets, vision charts for schools, etc., to furnish ample material for lecture talks. In addition, the committee prepared a pamphlet containing a skeleton lecture which would serve as a guide for the lectures in preparing their talks. It was recommended that the lectures should not last more than one hour and should be followed by demonstrations and discussions. It was urged that while all phases of vision conservation should be explained, especial emphasis should be laid on ophthalmia neonatorum and its elimination by the Credé treatment, the prevention of shop accidents by the use of goggles and other safety devices, and the annual and systematic examination of schoolchildren's eyes by schoolteachers. If these ideas could be carried out 80 per cent. of blindness would be eliminated at almost no expense and but little trouble. And if, while the teachers are making the survey of the children's eyes, they would extend their observations to the ears, noses and throats, which would only involve an additional three minutes per child, the benefits to the children would be increased immeasurably.

It costs $15,000,000 a year to care for the dependent blind in this country. It would cost less than $250,000 to use the Credé treatment in the eyes of all newly born babes, to have the eyes, ears, noses and throats of all schoolchildren annually and systematically examined by schoolteachers, and to pay for goggles, etc., in shops to protect the eyes of laboring men. These financial considerations could be carried much further but it is not necessary. These figures alone will show where economy can be found.

The vision charts for schools distributed by our committee to the various states, contain full instructions to teachers—how they can by asking and answering nine simple questions ascertain the existence of 95 per cent. of serious eye, ear nose and throat defects and diseases. These examinations are simple and require no medical education. Teachers should not attempt to diagnose disease; they merely find that something is wrong and urge a doctor of the parents choosing. Five minutes per child is sufficient for each examination and each teacher should examine her own children. By thus subdividing the work all children in any city can be examined in one day. A definite day in the early fall should be set aside for these tests. The tests not only benefit the children but the correction of their defects benefits the teachers, as such corrections add to the intellectual and moral character of the child, thus rendering them more pliable and teachable. Teachers should therefore be glad to make these surveys, not only on account of the children, but because it makes their own school work much easier. If boards of education or health had the money to hire doctors or nurses to do this work, it would be well to place the examinations in their hands but they never have sufficient money, so this method might as well be frankly abandoned and the work given over to the teachers, who can do it sufficiently well and at no expense.

The state lecture bureau campaign has, on the whole, been successful, considering it was new and untried. Some states have failed to produce satisfactory results but the general results have been good, and sufficient to greatly encourage us for future work. As a matter of fact, the past season has been somewhat experimental, but it has laid the foundation for extensive work in the future. Most state managers have already booked lecture engagements for next fall—with medical societies, teachers' institutes, Chautauquas, etc., and the prospects are satisfactory and encouraging. At the end of this report I will tabulate the results of the lecture campaign—up to the time of handing in this report.

As to the future of this committee I beg to recommend:

1. The continuance of a weekly eye article for the Press Bulletin.

2. A few more conservation of vision pamphlets, and an increased circulation of the pamphlets.

3. The continuance of the lecturers, and the changing of the managers where the present managers have shown no real interest in the work.

4. The production of more stereopticon slides.

5. The encouragement and assistance of this committee in enabling the different states to form conservation of vision societies, committees or commissions, these organizations, however, to have no actual connection with this committee, as experience has seemed to show that it is better for the various state organizations to be independent in their nature.

6. The extension of the work of this committee so that it may become a potent power in the community. A central office should be established with the right kind of a secretary, who would supervise the work of vision conservation over the entire country. He should on call go to states requesting his assistance; his traveling expenses being paid for by those seeking his cooperation. He should have sufficient stenographic assistance and should accumulate all printed material on the subject of vision conservation. This office should work under this committee and should be recognized as a central bureau of assistance and information for all interested in this subject. Plans should here be made for model laws, the formation of societies and constitutions; the influencing of legislatures, boards of health, education, etc. A properly equipped and managed office of this kind would be of enormous importance in conserving the vision of the people of this country. It would only cost a few thousand dollars per annum to maintain. I trust some one will be found who will recognize its usefulness and will pay for it.

7. The distribution in all schools of crisply and plainly written leaflets concerning the care of eyes, ears, noses and throats. They should be taken home so that the parents can read them. They should be printed in various languages.

Perhaps even a better plan would be to have suggestions of this kind printed on the blank fly-leaf of all school-books. The expense of printing would be almost nothing and the benefits to be derived would be incalculable.

I wish to thank Dr. H. B. Favill, Dr. F. R. Green and the Council on Health and Public Instruction for the moral and financial assistance they have rendered our committee. I also wish to thank all those who have written for the Press Bulletin and the conservation of vision pamphlets. I also wish to thank all those who have assisted us in the work of the state lecture bureaus.

I herewith append a tabulated report of the state lecture bureau campaign and desire to say that a large part of the work done in Ohio has been done under the auspices of the Ohio Commission for the Blind.

No.	State and Manager	Number of Lectures	Number of Lecturers	Number of Cities	Estimated Size of Audiences
1.	Georgia, Dunbar Roy	10	10	10	1,975
2.	South Carolina, C. W. Kollock	10	8	6	950
3.	Alabama, S. Ledbetter	8	6	7	1,000
4.	Oregon, J. L. McCool	3	1	1	300
5.	North Carolina, C. W. Banner	7	4	4	2,000
6.	Kansas, R. S. Magee	7	5	6	1,050
7.	New Hampshire, E. Fritz	8	7	8	1,725
8.	Wyoming, G. L. Strader	1	1	1	100
9.	Tennessee, E. C. Ellett	4	4	4	850
10.	New York, F. P. Lewis	2	2	2	225
11.	Arkansas, H. Moulton	5	4	5	400
12.	Missouri, C. Loeb	15	12	8	2,350
13.	Utah, D. M. Lindsay	25	12	24	4,675
14.	Maine, J. A. Spalding	23	14	20	3,000
15.	North Dakota, J. H. Rindlaub	19	8	19	4,000
16.	Connecticut, G. H. Warner	2	1	2	850
17.	Washington, R. W. Perry	13	6	10	1,520
18.	Maryland, H. Woods	14	7	7	8,050
19.	Ohio, W. E. Bruner	59	39	59	14,300
20.	Kentucky, J. A. Stucky	35	2	35	10,350
21.	Delaware, J. A. Ellegood	3	2	3	675
22.	Idaho, R. L. Nourse	2	1	1	525
23.	Virginia, J. A. White	4	4	2	500
24.	Minnesota, F. C. Todd	3	3	3	500
25.	Iowa, E. R. Lewis	3	3	3	500
26.	Wisconsin, N. M. Black	1	1	1	250
27.	Washington, D. C., O. Wilkinson	2	1	2	200
28.	Michigan, W. R. Parker	4	1	3	1,430
29.	Indiana, A. E. Bulson, Jr.	45	20	25	5,000
30.	Nebraska, J. M. Patton	2	1	2	225
		339	190	283	69,425

It will thus be seen that thirty states have reported work; 339 lectures have been delivered by 190 lecturers; in 283 cities; to audiences aggregating 69,425.

When to this is added the hundreds of thousands of people who have been reached through the newspapers, by the distribution of the Press Bulletin, and the thousands of people who have been reached by the conservation of vision pamphlets, it will be seen that the work of this committee has not been in vain. I desire to also add that probably through the agency of the lectures, in the various states, school inspection of eyes, ears, noses and throats have been established in, at least, 200 cities.

Respectfully submitted,

FRANK ALLPORT, Chairman.

REPORT OF COMMITTEE ON PUBLIC HEALTH EDUCATION AMONG WOMEN

To the Council on Health and Public Instruction:

The function of this committee is to further public health education among women through the Educational committees of the state and county medical societies, and through the various women's clubs and organizations. At the beginning of the present year it was decided to settle on some one central line of work for the committee. There has never been a time in the history of this committee when such a central line has been so clearly defined by outside influences, or so distinctly within the province alone, of our committee, as at the beginning of my chairmanship. I refer to the baby health movement which has been the work on which we have been centralizing our efforts. While this has been the main line of action, we have urged two other lines of action: the first is the appointment of a woman member of the Committees on Health and Public Instruction of the state medical societies, and Public Health Education Committees of the county medical societies; second, to connect the work of the American Medical Association with the women's clubs of the country and thus draw together the existing forces so that mutual understanding and cooperation may be secured among them.

At the time of the meeting of the American Medical Association, at Minneapolis last June, the baby health movement had grown to such national importance that it seemed wise to bring together, at that meeting, representatives from the different centers of this interest, in order to secure the approval of the Association, and their official sanction of a score card. As it happens, the chairman of this committee belonged to the group of women who inaugurated the baby health movement in Iowa; the history of which can be found in the report of 1911 of the Committee on Public Health Education Among Women. According to the fixed policy of the American Medical Association, of working only through its various boards, councils and committees, the request of the representatives of the baby health movement was placed before the Council on Health and Public Instruction. After due consideration the Council gave the development of this work to the Committee on Public Health Education Among Women, authorizing the executive members of this committee to appoint, subject to the approval of the Council, a subcommittee to prepare a standard score card for the measuring and scoring of babies.

At the same time the executive members of the Central Committee were authorized to prepare such literature as would be necessary to further the baby health movement. The subcommittee on score cards, which was appointed last July, consists of Drs. Henry L. K. Shaw, chairman of Albany, N. Y.; Julius Parker Sedgwick of Minneapolis, Minn.; and Velura E. Powell of Red Oak, Iowa. At the October meeting the Council made the chairman of the Central Committee a member of the Score Card Committee, *ex officio,* and authorized the other members to select the fifth member of the committee. Dr. Godfrey R. Pisek of New York City was chosen for this place at the November meeting of the Score Card Committee in Washington, D. C., which was held in order that we might secure the advice and assistance of members prominent in the American Association for the Study and Prevention of Infant Mortality. That association had already received so many inquiries concerning score cards that a committee had been appointed to formulate some plan of action. When it was learned that our Score Card Committee was to meet there, a joint meeting of their committee and ours was arranged to discuss the baby health movement, and the compilation of a score card for babies. The joint committee meeting was held on Nov. 15, 1913, with the following members present: Drs. L. Emmett Holt, Philip Van Ingen and Miss Ellen C. Babbitt of the American Association for the Study and Prevention of Infant Mortality; Mr. Merriman of the Children's Bureau; Dr. Henry L. K. Shaw, Dr. Godfrey R. Pisek, Dr. Velura E. Powell and Dr. Lenna L. Meanes of the American Medical Association. We discussed the situation at length and received many valuable suggestions and assurance of hearty cooperation. Shortly after my return I received a letter from Dr. L. Emmett Holt in reference to the committee work in which he says:

"As you know, I am greatly interested in the work which you have undertaken and I believe it has in it great possibilities. The educational value of these conferences is bound to have an important influence on mothers in country districts and small towns who have not had the advantages which are offered to those in larger communities."

After a number of preliminary drafts of the score card were prepared by the Score Card Committee and submitted to prominent members of the American Medical Association, as well as to members of the American Medical Association for the Study and Prevention of Infant Mortality, the final draft was submitted to the Council on Feb. 24, 1914, for their approval which it received. This draft has since been printed, together with pamphlets number 4 and number 5, containing suggestions to organizations wishing to conduct baby health conferences and a book list of fifteen approved authorities on the care of the baby. Dr. L. Emmett Holt and Dr. Henry L. K. Shaw have prepared a clear, concise article on how to care for the baby; this is now in press, and will be known as Pamphlet No. 7. It will be distributed wherever contests or conferences are held. Having secured this necessary literature our efforts for the remainder of the year will be to secure the use of it through the state committees and women's organizations. Three thousand copies of the score card have already been distributed throughout the United States within the last thirty days. A corresponding number of duplicates is sent with each order of score cards. These are filled out and returned to the American Medical Association to be filed for statistical purposes.

As soon as it was decided that there was to be a subcommittee to prepare model score cards, with explanatory pamphlets and bibliography, it became necessary to formulate some plan by which we could discriminate in their distribution. After a careful study of the situation, the plan of afternoon conferences to be held by the various women's clubs, mother's congress, child study clubs, etc., appealed to us as a practical way of meeting this necessity. We put these into execution in several places early last fall and have not had occasion to be disappointed in the results.

Perhaps the description of one of these may be the clearest manner of presenting our plan. This particular conference which was held in October in a town of 3,000 people, was given under the auspices of the Child Study Club of that town. On the afternoon of the conference the largest church in town was filled from 2 o'clock until 5. In that county there are eleven physicians, eight of whom were present and responded to a three-minute speech on some phase of the child. Eight children were examined, ranging in age from 6 months to 3 years. Whenever possible the examiners called attention to interesting points as they measured and scored the babies. Literature on the care of the child was distributed and care taken that interest was aroused in these pamphlets so that the parents could, and would, read them intelligently. We measure our success in this one conference by the fact that a number of public health meetings in that community have been exceptionally well attended since that day, and there is, at this time, a movement on foot for a permanent station in that town where babies can be measured on certain days each month throughout the year.

The attractiveness, efficiency and permanent benefit of these meetings must necessarily depend, of course, on the interest which the locality takes in them, and that interest can be originated and fostered, largely through our own Committees on Health and Public Instruction. It is here that the woman member of the committee in her intimate connection with clubs of her district can be of unquestionable value. To give us an additional aid in securing and furthering an interest in the conferences, the Council has granted us the privilege of preparing a list of speakers, to be added to their speaker's bureau, to lecture on some phase of the baby health movement throughout the different states. Some thirty women have signified their willingness to serve in this capacity. It is our desire to secure at least two speakers in each state. Our ultimate hope in connection with the conferences is that they will pave the way for creating permanent stations where babies can be examined from time to time, and also stimulate the interest of the parents to secure private measuring and scoring of their babies. If this hope is realized we feel that the baby health movement will be placed on such a solidly scientific basis that the present marvelous interest will continue permanently.

In order that the position of the American Medical Association may be clearly understood as to the measuring and scoring of babies, the Central Committee of the Committee on Public Health Education Among Women presented certain recommendations to the Council for their approval. In response the Council passed the following resolutions on Feb. 24, 1914:

That, if the awarding of any medals or prizes seems judicious in the baby health conferences, they shall be given to the babies showing the greatest improvement in health between the various examinations, rather than to the naturally healthy child who scores high at the first examination.

That, wherever possible, the establishment of permanent stations shall be urged, in order that we may have a recognized place for the distribution of our literature on the care of the baby; and for the examination of babies from time to time in order that a systematic, scientific knowledge of child welfare may be made of continued interest.

That the age limit for examination of babies at public contests, such as those held at state and country fairs, shall not be under 12 months, in order that unnecessary exposure of the child be avoided; but that the afternoon conferences and permanent stations shall not be confined to any age limit in their examinations, in order that they may have the child at the earliest age possible to correct, or check, defects by succeeding examinations.

Of the two other lines of action which our committee has followed, I wish to say of the first—the appointment of women on the Committees on Health and Public Instruction for the state medical societies, and Public Health Education Committees for the county medical societies—that shortly after my chairmanship began, I sent out letters to the different state medical societies, urging that such appointments be made. I have already received replies from over half of the states, expressing a most cordial desire to cooperate with us in every way possible. This support has been especially grateful to us in connection with the baby health conferences, as it is necessary that they should be held under competent supervision in order to have their value; otherwise not much is likely to be accomplished.

The third line of action, that of rendering to the women's clubs, wherever possible, the assistance of our Public Health Committee, has been one that has been of great interest. In reply to letters sent out to chairman of the Public Health Committees of the General Federation we have received replies from all but seven states, together with a list of the membership of their Public Health Committees and with the expressed desire on their part to cooperate with us in all public health meetings in their locality. We have placed these names on our mailing list and have mailed to them all of the literature so far produced by our committee. It will be gratifying to know that wherever we have made clear the function of our committee to the women's organizations they have expressed the most hearty appreciation of the efforts of the American Medical Association. To illustrate I shall quote from a letter received from one of the state chairmen:

"I feel that I cannot express my appreciation too strongly for the help the Public Health Committee is being to us in our public health work. Not the least part of that help lies in the assurance which is given us of feeling that such an association as the American Medical Association stands ready to give us the efficient and correct assistance which we have so often felt the need of, but did not know how to secure. Please place the names of our Public Health Committee on your mailing list."

Our Medical Literature Committee has given us most efficient help in all these lines of action. Dr. Jane L. Berry, chairman of the Medical Literature Committee of last year, prepared a most excellent list of books on various health topics which we have had printed and which will be circulated as Pamphlet No. 6. The present chairman, Dr. Mary Sutton Macy, submitted to us four valuable lists of fifteen books each, which we have had printed and of which we have already distributed 9,000. We have sent them to 3,000 libraries, and samples of same to organizations wishing to put on baby health contests or conferences. On each slip is the following note: Librarians will be glad to cooperate by furnishing lists of these books for free distribution, and by securing the books for public use. These lists were on the following topics:

Health and Hygiene of Girls.
Health and Hygiene of Women.
Rationale of Social Hygiene.
Health and Hygiene of Babies.

As an illustration I include the last list in full on Health and Hygiene of Babies and Children.

Burbank—The Training of the Human Plant.
Chapin—Theory and Practice of Infant Feeding.
Coolidge—The Mothers' Manual.
Cotton—Care of Children.
Fitz—Problems of Babyhood; Building a Constitution, Forming a Character.
Forsyth—Children in Health and Disease.
Hall—Youth: Its Education, Regimen and Hygiene.
Hogan—How to Feed Children.
Key—The Century of the Child.
Montessori—The Montessori Method.
Oppenheim—The Development of the Child.
Saleeby—Parenthood and Race Culture.
Smart—Mystery of Life Series.
Swift—Mind in the Making.
Warner—The Nervous System of the Child.

May we ask that wherever public health meetings, baby health conferences and contests are held in your respective states, you ask your State and County Public Health Committee to be responsible for the medical supervision of the same; that, in those states where there is not a committee on health and public instruction you take steps to secure the same; that you request that one member of this committee be a woman, in order that she may work more intimately and efficiently through your various women's clubs and organizations, and that you make every effort to secure the cooperation of your medical societies and public health committees among the women's federations?

As a whole we have every reason to be grateful for the progress we have made so far this year; a progress only made possible through the hearty support of all through whom we directly work, or with whom we have had occasion to advise, and because of the impetus given to our committee by the splendid work accomplished by our predecessors, Drs. Everhard and Morton and their coworkers.

Respectfully submitted,
Lenna L. Meanes, Chairman.
Martha A. Welpton, Secretary.

Report of the Committee to Revise the Owen Bill

To the Council on Health and Public Instruction:

Consideration has been given to the action that should be taken in promoting legislation for enlarged public health activities on the part of the federal government. One member of your committee approached the president to elicit his interest, but owing to the stress of other matters, he was unprepared at that time to take up the matter.

This position of the president can be readily appreciated by those having in mind the great national problems that have claimed his attention thus far during his administration. It can be stated, however, that he is deeply interested in measures for the improvement of health conditions and will approach questions of health organization with an open mind.

On account of the president's expressed desire that the whole question be postponed until he is free and prepared to take it up at some future session, it seems wise that your committee take no action on the subject during the present very busy session of Congress. Hugh H. Young, Chairman.

Report of the Committee on Uniform Regulation of Membership

To the Council on Health and Public Instruction:

In the report of the committee last year, the discussion of the state secretaries in attendance at the meeting called by the committee in Chicago, October 23, 1912, was reported as well as the recommendations of the committee which were adopted by the Conference of State Secretaries. These recommendations covered the following points:

1. That the fiscal year coincide with the calendar year throughout the organization.
2. That dues in County Societies be payable on January 1 of each year and that County Secretaries report to State Secretaries not later than March 31 of each year.
3. That prorating of dues, administration fees for membership, use of uniform blanks, etc., be made optional with local societies.
4. That the question of uniform system of transfer for membership be subject to further discussion.

Following the first Conference, the committee considered it advisable to allow the entire question to remain under consideration, giving state societies time to discuss the matter and to make such modifications in their by-laws and methods as might be necessary to bring them into harmony with the rest of the organization. A Conference of State Secretaries was called at the headquarters of the American Medical Association, Wednesday, Feb. 25, 1914, by the Secretary of the Association, at which the recommendations adopted by the previous Conference were again taken up for discussion. Reports from the state secretaries present were as follows:

Arizona: Calendar year and fiscal year coincide. County Secretaries' reports due February 1.
Arkansas: Calendar and fiscal year coincide.
Georgia: Calendar and fiscal year coincide. Other recommendations adopted.
Idaho: County Secretaries' report by March 31.
Illinois: Calendar and fiscal year coincide.
Indiana: Membership roll revised on February 1 of each year. Uniform blanks used.
Iowa: Calendar and fiscal year coincide. New roll made up each year on April 1. Uniform blanks used.
Louisiana: Calendar and fiscal year coincide. Roster made up on January 31.
Maine: Recognizes advisability of having calendar and fiscal year coincide, but has not yet made the necessary changes.
Massachusetts: Calendar and Fiscal year coincides, but has system of membership different from the other State Associations.
Mississippi: Has adopted five recommendations of last Conference.
Missouri: Has adopted first four recommendations, but finds uniform blanks not practical.
Montana: Calendar and fiscal year coincides. Roster made up on March 1.
Maryland: Calendar and fiscal year coincides. Roster made up on March 31.
Nebraska: Calendar and fiscal year coincides. Roster made up March 31.
Nevada: Calendar and fiscal year coincides. County Secretaries' reports due on January 1.
New Jersey: Calendar and fiscal year coincide.
New York: Attempting to enforce uniform regulations, but with partial success.
North Carolina: Has not yet fully conformed to the recommendations of the first Conference.
North Dakota: Has adopted all of the recommendations of the first Conference.
Ohio: Calendar year and fiscal year coincide.
Oklahoma: Calendar and fiscal year coincide.
Oregon: Calendar and fiscal year coincide.
Pennsylvania: Gradually developing uniformity throughout the State.
Rhode Island: Calendar and fiscal year coincide.
South Carolina: Calendar and fiscal year coincide.
Tennessee: All recommendations of former Conferences adopted.
Texas: Calendar and fiscal year coincide. Uniform system now being installed.
Utah: Calendar and fiscal year coincide. Roster made up on March 1.
Vermont: Has adopted all recommendations of the Conferences.
West Virginia: Calendar and fiscal year coincide.
Wisconsin: Has adopted all recommendations of previous Conferences.
Wyoming: Calendar and fiscal year coincide.

The reports from the various secretaries show clearly that practical uniformity in method and results with consequent uniformity in necessary details is gradually becoming prevalent throughout the organization. All of the executive officers of the different parts of the associations have recognized the importance of sufficient uniformity to reduce correspondence and "red tape" on membership matters to a minimum. The general adoption of the calendar year as the fiscal year of the State Societies has alone been of great service in bringing about a better condition in membership regulation. Those who have been interested in this subject for a number of years past will recall that when this committee was appointed in 1908, only twenty-two of the constituent State Associations had a fiscal year corresponding to the calendar year. Today, practically all of them have adopted this plan. In the first report of the committee presented to the House of Delegates in 1909, after reviewing the situation in the different states, the committee said, "If the fiscal year is changed in all cases to coincide with the calendar year, then the reports of the Secretaries, Treasurer's Board of Trustees, etc., will be for the entire fiscal year immediately preceding the annual session at which the report is made. * * * The advantages of having the fiscal year and calendar coincide are obvious. * * * If the County, State and American Medical Associations all adopted the calendar as the fiscal year, membership throughout the organization would expire simultaneously and there would be no overlapping."

Your committee feels gratified at the general adoption of this primary and fundamental provision for uniform regulation.

The second recommendation, regarding the time at which County Secretaries should report and the time when the per capita assessments should be paid, is really a practical problem of administration. It makes little difference what time is agreed upon, so long as there is reasonable uniformity in the different states so that the membership records can be revised throughout the organization at approximately the same time. The question of uniform blanks as well as the exact form of blank which should be used is also unessential so long as the various state associations recognize the general principle that uniformity in essentials is desirable for the proper conduct of the organization as a whole. Your committee feels that its efforts during the past five years have been productive of benefit, largely through the fact that it has endeavored to present the situation to the various state associations without any effort at coercion or pressure and to secure the broadest possible discussion as to the best methods to be adopted. Our organization is still far from perfect in its mechanical details. There is still far too much indefiniteness, uncertainty and confusion in the regulation of membership. We still have too much routine correspondence between county and state secretaries and between state secretaries and the Secretary of the American Medical Association. Improvement in these conditions will come as the executive officers of the various parts of our organization come to realize more and more the need of simple, automatic and easily handled methods for the regulation of membership.

The committee recommends that it be continued and given further time in which to develop practical and effective uniformity. Respectfully submitted,

Thomas McDavitt, Chairman.

Report of the Committee on Cancer

To the Council on Health and Public Instruction:

In 1912 the Clinical Congress of Surgeons of North America at their New York meeting realizing that it was absolutely necessary to educate the public as to the ravages of cancer and to point out to them that a large percentage of patients can be cured by early operation undertook a campaign for which they procured the cooperation of the daily press and weekly and monthly magazines. This committee was fortunate in enlisting the support of Samuel Hopkins Adams who wrote several comprehensive and lucid articles on the subject. The value of the publicity campaign soon became apparent. The knowledge that cancer in the beginning is a local process and not a blood disease, and that in the early stages the chances of its complete removal are good, induced many patients, especially those suffering from breast, lip or uterine cancer, to consult a physician early enough to ensure the best results.

The first annual report of the Cancer Campaign Committee of the Congress of Surgeons left absolutely no doubt as to the great good that can be accomplished by this method of enlightening the public on what can be done by early cancer operations.

It was not long before the laymen commenced to take an interest in the subject and in May 1913 the American Society for the Control of Cancer was launched, the membership including well-known laymen and representative medical men from all parts of the United States. It is expected that this society will be the clearing house for the dissemination of the newer knowledge concerning cancer.

The Council on Health and Public Instruction of the American Medical Association had for some time realized the necessity of having a committee on cancer. When the question came up for discussion Dr. Frederick R. Green, the Secretary of the Council, voiced the general sentiment when he said that the number of philanthropic societies in the United States was already too great and that they were overlapping one another, and hence a loss in potential energy was resulting. Following this line of reasoning the council in the appointment of its cancer committee selected men who were already members of the Cancer Campaign Committee of the Clinical Congress of Surgeons, and also of the American Society for the Control of Cancer. The Council Cancer Committee, consisting of Drs. Joseph C. Bloodgood, C. J. Miller, F. F. Simpson, H. C. Taylor and Thomas S. Cullen, appointed in November, 1913, has thus far limited its individual activities to securing a series of authoritative and popular articles on the subject of cancer. These are to be printed by the Association and will be distributed to any one desiring information relative to cancer. Articles on the following subjects are being prepared by competent authorities.

Cancer of the Skin.
Cancer of the Breast.
Cancer of the Stomach.
Cancer of the Uterus.
Cancer of the Genito-Urinary Tract.
Malignant Diseases of the Bone.

To these will shortly be added an article on cancer of the rectum and others dealing with the rarer varieties of malignant processes.

To any one interested in the betterment of the public health and in the subject of cancer we would urge that he first get a bird's eye view of the whole subject from Samuel Hopkins Adams, "The Health Master," a book that should be read from cover to cover not only by every physician, but by every man and woman who understands the English language—and that he then write Dr. Frederick R. Green, Secretary of the Council on Health and Public Instruction of the A. M. A., 535 North Dearborn Street, Chicago, asking for literature on the particular variety of cancer about which he needs special information at any given time.

Only a few years ago the public knew very little about appendicitis. Now the patient and his friends need not be told that an operation is necessary; they know it just as soon as appendicitis is diagnosed. They are already interested in the subject of cancer and are clamoring for more details. Every physician should read these carefully prepared articles published by the American Medical Association. It will enable him to do a lot of valuable missionary work in his individual community and will enable him to promptly answer any questions that may be asked him relative to cancer.

The number of cancer patients coming early for operation is already rapidly increasing. There is absolutely no reason why every man and woman in the land should not, within the next five years, have a clear knowledge of the fact that early cancer can be cured by the knife and furthermore that any suspicious symptoms should at once be reported to the family physician. Your committee asks the hearty cooperation of every member, without exception, of the medical profession in this important work.

Respectfully submitted,
Thomas S. Cullen, Chairman.

Report of the Committee to Confer with the National Educational Association

To the Council on Health and Public Instruction:

Your committee appointed by the Council on Health and Public Instruction to confer with the committee selected by the Council of the National Educational Association to improve instruction in sanitation, hygiene, physiology and kindred sciences in the rural public school as well as the environment of the rural public school, begs to submit the following report:

At the meeting of the committee at Salt Lake City during the fifty-first annual convention of the National Educational Association, July 5-11, 1913, they carried out the suggestions made at the St. Louis meeting (February, 1912). Your committee had arranged with Dr. W. B. Ewing, secretary of the Utah State Medical Association, to enlist the support of the Utah State Medical Association, and especially the physicians of Salt Lake City. The medical fraternity of the city of Salt Lake and the state of Utah responded most heartily, as indicated by the following letter from Dr. Ewing:

> During the recent meeting of the National Educational Association, at your suggestion, I was able to arouse some interest among the profession in this city in the various papers and discussions on health topics. As nearly as could be the various departments were apportioned and various medical men asked to attend and take part in the discussions or do anything else that would show their interest in the work, and desire to help in so worthy a cause. Among those who attended may be mentioned Drs. Hosmer, Bascom, Carter, Kahn, Beatty, Snow, Irvine, Gowens, Tyndale and Ashley. Several non-medical attendants were present, such as visiting nurses, inspectors of City Board of Health, librarians, etc. Many of us, myself among the number, regret that many of the meetings were at an hour when some could not be present on account of office work.
>
> I am very glad to see the determined stand the American Medical Association has taken in this work and feel that ultimately it will be given such an impetus that it may then be left in the hands of the National Educational Association and we can take up some other line of work.

Your committee replied:

> I beg to acknowledge receipt of your letter of the 11th inst., and personally as well as officially wish to thank you and all the members of your staff most kindly for the efforts in this matter. I shall report this to Secretary Green and your letter will form a part of my annual report to the American Medical Association. I feel that much was accomplished in Salt Lake and with a little effort on the part of the medical profession that we shall soon have the whole matter launched sufficiently for it to continue without special effort of the National Educational Association. Later we shall turn our attention to other matters of equal importance. Will you kindly extend to all the members of your staff my deepest thanks for their valuable aid.

Many meetings were held by the committees while in Salt Lake. Lectures and talks were given by the following: Drs. Favill, Wood, Ewing and Corwin; Commissioner Claxton, Messrs. Winship and Shawan, and others at the meeting of the Council and at various sections during the convention.

Photographs of rural schoolhouses, interior and exterior views, of outbuildings and of grounds, were exhibited, many illustrating the sad need of a more careful sanitary inspection, others showing indifference and some proving positive ignorance.

The following needs were especially dwelt on by the committees: better architectural and sanitary standards; more assistance from states; better education of rural schoolteachers, county superintendents and rural school supervisors, in the principles and practice of school hygiene and sanitation; instillation in rural schoolchildren of interest in, and enthusiasm for, improvement and care of all features in school and surroundings which affect health and happiness; popular education from reliable sources on health information in the public press, and public lectures on health topics.

The committees passed a resolution asking that more information be obtained regarding the hygienic and sanitary conditions of rural school environment, and also regarding the instruction given by schools on sanitation and kindred subjects.

Dr. Henry B. Favill gave a most excellent address on conditions existing in our public schools, needs required and complexities interfering with improvements. A full report appears in the official report of the meeting of the National Educational Association for 1913.

We beg to thank Dr. A. E. Winship for his excellent address and his able assistance given through his admirable journal.

It would make this report too long to give in full the minutes of the meetings and addresses.

During the year your committee planned for the Richmond meeting of the National Council of Education and Superintendence of the National Educational Association.

At Richmond, Va., Feb. 23, 1914, the committees made their report in accordance with the resolution passed at Salt Lake City. At this meeting Dr. Thomas D. Wood made a complete and graphic report of the result of the committee's investigations of rural school conditions throughout the country. It was suggested that from the comprehensive data collected, an abstract be made setting forth minimum requirements which might be circulated immediately, and that later a full report be published as a reference book.

From these data were brought out, at the general meeting on the evening of February 23, when there were several thousand members present, the following facts:

Country schoolchildren are more unhealthy than the city schoolchildren. Whenever urban and rural statistics were compared, the country children were found to be anywhere from 5 to 20 per cent. more defective than the city schoolchildren, in spite of all sanitary deficiencies of the slums of the largest and most crowded cities, and all the benefits that country life is supposed to bestow.

From surveys made, results were amazing.

Out of 1,831 rural districts of Pennsylvania, 75 per cent. of 294,427 children need medical treatment.

Of New York's 287,469, 72 per cent. need medical treatment.

COMPARISON OF LUNG TROUBLE AND MALNUTRITION IN CITY AND COUNTRY CHILDREN

	City, Per Cent.	Country, Per Cent.
Lung-trouble	1	3.7
Malnutrition	23.3	31.2

ILL HEALTH OF COUNTRY CHILDREN COMPARED WITH CHILDREN IN TWENTY-FIVE CITIES

	City, Per Cent.	Country, Per Cent.
Mental defect	.2	.8
Heart-trouble	.5	....
Spine curvature	.13	3.5
Ear-defects	1.	5.
Eye-defects	5.1	21.08
Adenoids	8.5	21.5
Diseased tonsils	8.8	30.

This in a general way gives an idea of the conditions found in the city and country, and the apparent advantage which the urban school has over the rural school. Further investigations may require some modification of these figures, but without question there is a decided need of sanitation in the rural school districts.

The report was received with much surprise and interest, and the doctor was required to answer many questions.

Following Dr. Wood's address, an address by Dr. R. W. Corwin was given on the advantages of the unit school which have been thoroughly worked out at Pueblo. The Unit School pamphlet, model and drawings were exhibited. At the conclusion of this address, interest was on tiptoe, and critics for and against the unit plan were besieging the chair for an opportunity to speak. Among those leading the opposition were Supt. Ella Flagg Young and Mrs. Treadwell of Chicago. Dr. A. E. Winship, who has frequently visited the schools of Pueblo and knew the advantages of the unit plan, spoke in favor of this plan of buildings.

After a most interesting discussion and the asking of many questions by those throughout the audience, President Aley called on Superintendent Keating of Pueblo to speak on the subject of the unit plan. Mr. Keating took the floor and presented the advantages of the unit plan as experienced by him, as superintendent of schools at Pueblo, where the plan has been in vogue for twenty years. His remarks were so convincing that no further questions were asked, but the many demands for the Unit School Pamphlet exceeded the supply.

Dr. Winship offered to publish in the *Journal of Education* the minimum requirements for the rural school; also it was suggested that Commissioner Claxton lend his assistance in obtaining permission from the government to publish and distribute the pamphlet containing minimum requirements. We have recently learned that Commissioner Claxton is hoping to print and circulate through the government Department of Education 50,000 copies of the "Minimum Requirements."

At its final meeting the committee further suggested that each member strive to arouse public sentiment throughout the Union, along the lines of bettering rural school conditions and to endeavor to secure the aid of the educational and medical journals and local papers.

At New York, from March 1 to 15, 1914, several meetings were held by the chairmen of the two committees, arranging and planning for another year. March 20, 1914, a meeting was held in Chicago by Drs. Green, Dodson and Corwin who reviewed the work at Richmond and suggested further means of disseminating general information in hygiene and sanitation to the laity and special instruction to the pupils of the schools.

Respectfully submitted,
R. W. Corwin, Chairman,
John M. Dodson,
M. J. Rosenau.

Report of the Committee on Expert Testimony

To the Council on Health and Public Instruction:

Your committee have had under consideration the questions relating to expert medical testimony for the past three years. A comprehensive survey of the entire field has been attempted, and a special effort made to glean from the mass of criticism of present methods and proposed changes, some constructive propositions.

The committee early reached the conclusion that any invasion of the province of the jury or limitation of cross examination would be impracticable with our institutions and judicial procedure. The appointment of official experts was also deemed inadvisable.

An examination of medical opinion testimony shows that it can be divided into two classes: First, that which is based on a first-hand knowledge of the facts and the opinions that are based on them; second, opinion testimony predicated on a statement usually in the form of an hypothetical question of evidence already introduced. It is evident that these classes are essentially distinct though under present methods they are usually associated. The recognition of this distinction we believe is fundamental in dealing with this subject.

In practice there would be no restriction in the admission of testimony from physicians who had some knowledge of the facts. The examination of a patient, an autopsy or other inquiry could be described and the opinions which could be legitimately arrived at from this data could be stated. Such testimony to be restricted to an opinion based on data within his own knowledge.

The second class will deal with opinion evidence based on the recital of evidence already introduced, and where it is necessary to enlighten the jury. No such witness should be called by the party who examines him, but he must be summoned by the court, and his compensation fixed by the court and either taxed as part of the cost of the case or assessed against the party requesting the testimony.

It is believed that the distinction outlined will cure many of the serious objections to the present system. It will do away with the too frequent summoning of experts when there is no need of opinion testimony. It will get an expert in court with at least some show of fairness. It cannot be said that he was summoned by the party who employed him.

Your committee have discussed these propositions before joint meetings of lawyers and physicians. So far no valid objection has been advanced against the proposed changes. At the next meeting of the Council on Health and Public Instruction the committee will present a draft for a bill that will with few alterations meet individual situations in the several states.

Nothing in the statutory changes presents the adoption of the Leeds plan of having the experts in a given case consult in arriving at an opinion. The Monroe County plan, by which men especially qualified in certain fields, are named by the local medical society supplements the statutory changes here suggested.

Respectfully submitted,
Harold N. Moyer, Chairman.

Dr. G. Lane Taneyhill, Maryland, Chairman, presented the report of the Committee on Memorial to the Medical Officers Who Lost Their Lives in the Civil War, as follows:

Report of the Committee on Memorial to the Medical Officers Who Lost Their Lives in the Civil War

To the Members of the House of Delegates of the American Medical Association:

The other members of this committee beg leave, in sincerity, to pay a tribute to the memory of their esteemed chairman, Dr. S. Weir Mitchell, who at the age of 84 passed peacefully to rest early Sabbath morning, Jan. 4, 1914. As was said of Goldsmith, "He was at once physician, poet and natural philosopher." It was this popular writer, lecturer and savant who, in reading a paper before the Medical and Chirurgical Faculty of Maryland, where many old surgeons were present, a few years since, remarked that the surgeons of both armies who lost their lives in the Civil War deserved a monument for their noble services in the performance of a duty to a common humanity. The idea was at once taken hold of by a member of this committee, who submitted propositions to the House of Delegates of the American Medical Association which were heartily endorsed and subsequently pushed forward. But through the death of our chairman and other unexpected incidents, fate seems against the accomplishment of the desired result under the present directorate.

During part of the past year the enforced absence of one of our members in Africa, and since his return his arduous duties as Surgeon-General of the United States Army, have prevented any active service by him on the committee. The chairmanship has been declined by another member on account of other burdensome work already imposed on him.

Considering the foregoing and the inability at this late date of the committee to secure a willing and satisfactory surgeon who served in the Civil War and is at present a member of the American Medical Association to fill the vacancy in the Central Committee of five, and the difficulty of carrying out the original plan of a General Committee of one from each state has led your Central Committee reluctantly to ask the House to receive the foregoing explanation as their final report and to discharge this special committee from further consideration of the subject.

Your committee hopes that the meritoriousness of the project will, some time in the future, be impressed on younger hearts, and that they will be able to prosecute it to a final consummation.

Respectfully submitted,
G. Lane Taneyhill, Secretary.
William C. Gorgas,
W. W. Keen,
G. B. Thorton.

Dr. Arthur T. McCormack, Kentucky, moved that the report be spread on the minutes of the House of Delegates; that the thanks of the House be extended to the members of the committee for their services, and that the committee be discharged. Motion seconded and carried.

Dr. A. L. Brittin, Ilinois, Secretary, presented the report of the Committee to Consider Mode of Commemoration of the Completion of the Panama Canal, which was referred to the Board of Trustees.

Report of the Committee to Consider Mode of Commemoration of the Completion of the Panama Canal

To the Members of the House of Delegates of the American Medical Association:

The committee appointed by the American Medical Association to consider the mode of commemoration of the completion of the Panama Canal met in joint session with a committee of the Trustees of the American Medical Association at the headquarters of the Association, 535 North Dearborn Street, Chicago, Feb. 26, 1914, at 10 o'clock in the morning. Present at this meeting were J. H. White, U. S. Public Health Service, chairman, at whose call the meeting was held; Jefferson R. Kean, U. S. Army; J. Leaming Wiggins, East St. Louis, Ill., and Albert L. Brittin, Athens, Ill.; the Committee; and from the Board of Trustees, F. J. Lutz, St. Louis, and Oscar Dowling, Shreveport, La. J. H. White was elected chairman, and Albert L. Brittin was chosen secretary of the joint committee.

After full discussion of the subject under consideration, the joint committee submitted the following report and recommendation to be presented to the House of Delegates of the American Medical Association at its next meeting, to be held at Atlantic City, June, 1914.

The joint committee recommends that a monument be erected, to be financed by the American Medical Association, possibly with government aid, located on the Canal Zone at a point to be chosen by the Secretary of War. This monument is to be commemorative of the contributions of the American medical profession to preventive medicine and sanitary science. Designs of the monument submitted by artists should be a figure symbolic of the triumph of science over disease. These designs are to be submitted to the chairman of the joint committee. The names of those men whose work was essential to the attainment of the sanitary condition, which made possible the construction of the Canal, are to be inscribed on the base. These names are to be selected later by the joint committee. This monument is to be dedicated by the American Medical Association on the Canal Zone, not more than two weeks before the meeting of the American Medical Association, presumably to be held in San Francisco, in 1915.

The joint committee further recommends that the House of Delegates of the American Medical Association, at this meeting, request the Board of Trustees to appropriate a sum of money, not less than $30,000, for the monument. It was further resolved that it is the sense of this committee that the Panama-Pacific exposition management be requested to set aside a day during the exposition, to be designated as Honor Day, in recognition of the services of the men, living or dead, who by their contribution to sanitation and preventive medicine have made feasible the construction of the Canal, and that on that day a general session of the American Medical Association be held, which shall be open to the public.

It was unanimously agreed by the joint committee that Albert L. Brittin, secretary of the joint committee, shall present this communication to the House of Delegates at the proper time during the next session of the Association.

Respectfully submitted,
Joseph H. White, M.D., Chairman,
Albert L. Brittin, M.D., Secretary,
J. L. Wiggins, M.D., of Committee, and
Oscar Dowling,
W. W. Grant,
Frank J. Lutz,
of the Board of Trustees.

It was moved that the reports of the Committee on Scientific Research and the Committee to Advise with the British Medical Association Regarding a Joint Meeting with the American Medical Association be received as printed in the Handbook and referred to the Board of Trustees.

Motion seconded and carried.

The House of Delegates having completed the docket for the day, President Witherspoon said:

"It now becomes my duty, as your retiring president, to close this meeting and to declare the House of Delegates adjourned. It is with a great deal of pleasure that I have been with you, and with regret I leave you." (Applause.)

The House of Delegates then adjourned until 2 p. m., Tuesday, June 23.

Third Meeting—Tuesday Afternoon, June 23

The House of Delegates met and was called to order at 2 p. m. by the President, Dr. Victor C. Vaughan, Ann Arbor.

On taking the chair President Vaughan said:

"I consider it the highest honor of my life to preside over the House of Delegates of the American Medical Association. I know the temper, the intellectuality and the motives of the members of this House, and I hope to give you my best service, and that what we may do will result in good for the forward movement of our profession. (Applause.)

The Secretary announced a quorum present.

The minutes of the previous meeting were read and approved.

Dr. D. Chester Brown, Connecticut, Chairman, presented a supplementary report from the Committee on Credentials.

A supplementary report from the Council on Health and Public Instruction was made by Dr. Frederick R. Green, Secretary of the Council, calling attention to a report on rural school health problems prepared by a joint committee of the National Educational Association and the American Medical Association.

Dr. Green then placed copies of this report in the hands of the members of the House.

Dr. W. T. Councilman, Chairman of the Board of Trustees, reported for the Board as follows:

Supplementary Report of Board of Trustees

The Board of Trustees has received a communication from the Medico-Legal Protective Association of New York, and a representative of that association, Mr. William L. Brown, is present and would like to present matters connected with this association to the House of Delegates if it is the desire of the House to hear him.

The Board of Trustees refers this matter to the House of Delegates without comment.

Mr. Brown has suggested to the Board that it might be desirable to have Mr. W. J. Burns present the matter to the House.

There is another matter which came before the Board of Trustees, which will be presented by Dr. M. L. Harris, Secretary of the Board.

Dr. James W. Fleming, New York, moved that Mr. Brown be invited to address the House, and that his time be limited to five minutes.

The motion was seconded and carried.

Dr. Harris, Secretary, reported further for the Board:

The Board of Trustees has received a communication from one of the Fellows, requesting that the Association be custodian of the patent rights of an instrument which he desires to have patented in order that the instrument may be protected both with regard to the form of the instrument and the standard of material and work in its manufacture. The patentee desires no remuneration whatever from the use or sale of the device, but wishes to have the instrument manufactured at the lowest possible cost to the members of the profession consistent with the production of a reliable instrument.

The Board of Trustees has considered this matter and approves of it. The Board believes it is desirable for the Association to provide some means by which it can assume and censor the manufacture and marketing of such instruments.

The Board of Trustees refers this matter to the House of Delegates and recommends that it be received and referred to the Judicial Council, and that, if possible, the Judicial Council report at this meeting as to the practicability of accepting such patent rights.

Dr. Arthur T. McCormack, Kentucky, moved that the matter be referred to the Judicial Council with the request that the Council report during the session, if possible.

Motion seconded and carried.

Dr. H. Bert Ellis, California, Chairman, presented the report of the Reference Committee on Medical Education, as follows:

Report of Reference Committee on Medical Education

Your Committee, to which was referred the report of the Council on Medical Education, report as follows:

It is recommended that the House of Delegates endorse the report as a whole and particularly Sections III and IV on page 132 in which state licensing boards are urged to make a hospital internship compulsory on those who are to obtain the license to practice medicine; this requirement to apply to all students matriculating in medical colleges on and after Jan. 1, 1915; it is further recommended that the Council urge the medical colleges to approve of this requirement and request its adoption by the licensing boards of their respective states.

It is recommended that the House of Delegates reiterate its action taken two years ago—that the courses in physics, chemistry and biology included in the preliminary science year must be of college grade; that this preliminary science year must be preceded by four years of work of high school grade; and that "high school" courses as ordinarily understood be not accepted in these subjects in lieu of college courses.

The action of the Council in seeking the advice of experienced clinical teachers in regard to the needed reorganization of clinical teaching is approved.

The changes in the ratings of medical colleges, made by the Council on Medical Education during the past year, are approved.

The attitude of the Council toward certificates issued by postgraduate medical schools is endorsed, and the Committee recommends that the House of Delegates instruct the Council to make such recommendations as will properly safeguard the issuing of those certificates.

In addition, your Committee recommends that the Council be instructed to grant no rating higher than Class C, hereafter, to any medical college operated as a stock corporation in the interests of the stockholders.

Your Committee also recommends that the Council be instructed to urge all medical colleges to adopt the nomenclature of the Pharmacopeia of 1910 and to use the metric system in their teaching.

The Committee is impressed with the remarkable improvements brought about in medical education during the past ten years as summarized in the report, and wishes to congratulate the Council on the progress made.

Respectfully submitted,

F. B. Lund,
Adolph Koenig,
C. D. Selby,
W. H. Sanders,
H. Bert Ellis, Chairman.

On motion of Dr. J. W. Andrews, Minnesota, which was duly seconded, the report was taken up seriatim.

On separate motions, which were duly seconded, each of the several sections was adopted.

Dr. A. R. Mitchell, Nebraska, moved that the report be adopted as a whole.

Seconded and carried.

The report of the Reference Committee on Amendments to the Constitution and By-Laws was called for.

The Chairman, Dr. W. A. Jayne, asked that the report be passed until after the report of the Reference Committee on Reports of Officers.

Report of Reference Committee on Reports of Officers

Dr. Thomas D. Davis, Pennsylvania, Chairman, read the report of the Reference Committee on Reports of Officers, as follows:

We recommend that the item concerning a new Section on Gastro-Enterology and Proctology be referred to the Committee on Sections and Section Work.

That the resolution from the secretaries of sections be referred to the Committee on Sections and Section Work.

That the resolution from the Medical Society of the State of New York and the communications from the New York Component Society be referred to the Committee on Legislation.

On motion of Dr. G. Lane Taneyhill, Maryland, duly seconded, the latter was spread on the minutes of the House.

That the amendment to the By-Laws be referred to the Committee on Constitution and By-Laws.

That the Principles of Medical Ethics be referred to the Committee on Constitution and By-Laws.

That Affiliate Fellowship for aged Fellows be referred to the Committee on Constitution and By-Laws.

That the coordinating branches of the organization be referred to the Committee on Constitution and By-Laws.

That the item concerning invited guests be referred to the Committee on Constitution and By-Laws.

On motion, duly seconded, the various items were referred to the committee named.

Dr. Henry B. Favill, Illinois, read the following letter, addressed to the Association:

To the Members of the American Medical Association: The Social Service Commission of the Philadelphia Conference of the Methodist Episcopal Church in session this day in the city of Philadelphia do hereby express our sympathy with and hearty commendation of the high ideals of public health and morals presented by the members of the American Medical Association in the churches of this city on Sunday, June 21. Creating in the Christian conscience a responsibility for the health and physical condition of all humanity, and especially for those least able to protect themselves is certainly a movement in the spirit of Christian brotherhood. We believe that such a gospel truly hastens the Kingdom and is a true ministry to mankind.

Rev. John Watchorn, Secretary.

On motion, which was duly seconded, this communication was received and ordered spread on the minutes.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. W. A. Jayne, Colorado, Chairman, read the report of the Reference Committee on Amendments to the Constitution and By-Laws, as follows:

Your Committee respectfully recommends that the following changes be made in the Constitution and By-Laws of this Association:

That the amendment proposed by the Reference Committee on Amendments to the Constitution and By-Laws, at the 1913 Session, and held over under the Constitution, be adopted, by striking out the words "scientific session" and substituting therefor the words "scientific assembly," in Article III.

That the By-Laws be amended as follows:

That the second paragraph of Section 4, Chapter IV, be amended to read:

> Nominations for Affiliate Fellowship shall be made by the Council of the constituent association within the jurisdiction of which he is resident, and those for Honorary Membership by the sections, and must be submitted to the House of Delegates not later than the second day of the Annual Assembly.

That the second paragraph of Section 4, Chapter VII, be amended to read:

> The judicial power of the Association shall be vested in the Judicial Council, whose decision shall be final. This power shall extend to and include (1) all controversies arising under this Constitution and By-Laws to which the American Medical Association is a party; and (2) controversies (*a*) between two or more recognized constituent associations, and (*b*) between the constituent association and the member (or members) of another constituent association (or other associations), or component societies thereof; (*c*) between members of different constituent associations. In all these cases the Judicial Council shall have original jurisdiction.

Strike out No. 3—reading "In all cases," etc.—and substitute the following:

> In all cases which arise between a constituent association and one of its component societies; between component societies of the same constituent association; between a member of a constituent association and the component society to which said member belongs; or between members of different component societies of the same constituent association, the Judicial Council of the American Medical Association shall have appellate jurisdiction.
>
> The constituent associations herein referred to are those defined in Article 4 of the Constitution, and the component societies are the county or district medical societies which unite to support and maintain the several constituent associations.
>
> The Judicial Council may, at its discretion, investigate general professional conditions, and all matters pertaining to the relations of physicians to one another and to the public, and shall make such recommendation to the House of Delegates and the constituent associations as it deems necessary.

That in the thirteenth line of Section 8, Chapter VII, the words "and county" be stricken out.

That to Clause 6, Section 11, Chapter VII, there shall be added (in parentheses):

> The members of the Judicial Council shall be members, *ex officio*, of this Committee.

That in the first line of third paragraph of Section 4, Chapter VIII, the word "Affiliate" be inserted, so that it shall read:

> "There shall be Affiliate, Associate, and Honorary Fellows, who shall be elected," etc.

That to the present Section 5 (Tenure of Fellowship), Chapter VIII, there be added the following paragraph:

> Fellowship shall be further conditioned on a Fellow conducting himself in accordance with this Constitution and By-Laws, and Principles of Medical Ethics of this Association.

That a section be added to Chapter VIII, and numbered Section 5, and read as follows:

> Affiliate Fellowship.—A Fellow who has been a Fellow for a continuous term of fifteen (15) years, who is not less than sixty-five (65) years of age, and who is an honorary member of his component society and of his constituent association, or is connected with these organizations in an equivalent manner whereby he is relieved from the payment of dues or fees, on request of the Council of his constituent association may be made an Affiliate Fellow by a majority vote of the House of Delegates of this Association. Affiliate Fellows shall be privileged to participate in the Scientific Assembly of the Association; they shall not be required to pay fellowship dues and shall not receive The Journal of the American Medical Association except by personal subscription. Affiliate Fellowship shall be conditioned upon such an Affiliate Fellow continuing the relationship with his constituent association herein defined.

That the present Section 10, Chapter VIII, be numbered Section 8, and read as follows:

> Sec. 8. Invited Guests.—Scientists resident in the United States who are not engaged in the practice of medicine, and eminent physicians and scientists from foreign countries, may be invited by the general officers or by the officers of a section, to attend an annual assembly and participate in the scientific work and social functions. They shall be designated as invited guests.

That the sections in Chapter VIII be renumbered as follows:

Sec. 5. Affiliate Fellowship.
Sec. 6. Associate Fellowship.
Sec. 7. Honorary Fellowship.
Sec. 8. Invited Guests.
Sec. 9. Tenure of Fellowship.
Sec. 10. Delinquency.
Sec. 11. Fellowship Restored.

That there be inserted in the first line of Chapter IX the word "Affiliate," so that it shall read:

> "None but Fellows, Affiliate, Associate, and Honorary Fellows, and Invited Guests," etc.

That in line 4, Section 7, Chapter IX, the word "Affiliate" shall be inserted, and the word "and" stricken out, so that it shall read:

> "Fellows, Affiliate, Associate, and Honorary Fellows, and Invited Guests," etc.

That in Section 13, Chapter XI, the second sentence be stricken out.

The Committee recommends that the Secretary be authorized to substitute the word "Assembly" for "Session" in these By-Laws wherever applicable.

The Committee further recommends that wherever in the By-Laws the term "annual dues" appears, that the words "annual Fellowship dues" shall be substituted.

The Committee likewise recommends that in the Constitution the word "Assembly" be substituted for the word "Session" wherever it may appear; and that under the rules it be held over for adoption at the next Annual Session of the House of Delegates in 1915.

Respectfully submitted,

W. A. Jayne, *Chairman*,
Floyd M. Crandall,
Charles Richard,
Perry Bromberg.

It was moved and seconded that the report be taken up seriatim. Carried.

On separate motions, which were duly seconded, each of the several sections was adopted, with the exception of the third paragraph of the proposed revision of Section 4, Chapter VII, defining the appellate jurisdiction of the Judicial Council, which was laid on the table until the next annual session, and the Secretary was instructed to refer this paragraph to the constituent associations for their consideration before final action is taken by the House of Delegates at the 1915 Session.

On motion, which was duly seconded, the report of the committee was adopted as a whole as amended.

At this juncture, Mr. William L. Brown was accorded the privilege of the floor, and spoke of the great increase in malpractice suits in recent years, and stated that, according to insurance statistics, very many of these suits were in the nature of blackmail, and were utterly unwarranted and malicious. It occurred to him that the House of Delegates would like to hear from Mr. William J. Burns on this subject, who had handled many cases of malpractice suits.

Dr. Arthur T. McCormack, Kentucky, moved that this matter be referred to the Judicial Council with power.

Seconded and carried.

Dr. William L. Noble, Illinois, stated that at the last meeting of the House of Delegates of the Illinois State Medical Society, the following resolution was adopted with but five dissenting votes and the Illinois delegates were instructed to present the same to the House of Delegates of the American Medical Association:

> *Resolved*, By the House of Delegates of the Illinois State Medical Society, that we deplore the organization of the "American College of Surgeons" as violating the fundamental democratic principles on which the American Medical Association is based; be it further
>
> *Resolved*, That our delegates to the American Medical Association be instructed to submit this resolution to the House of Delegates of the American Medical Association, and to use all honorable means to secure its adoption.

Dr. J. M. Baldy, Pennsylvania, moved that the resolution be tabled.

Seconded and carried.

Dr. William L. Noble, Illinois, submitted the following resolution:

> Whereas, There has been chartered in the State of Illinois an organization known as the American College of Surgeons, whose avowed object is to elevate the standard of surgery and to indicate to the public and the profession that the surgeon possessing such a fellowship is especially qualified to practice surgery, and
>
> Whereas, The American Medical Association has never taken any action which would indicate to the public and profession those members of its own organization who are especially qualified to practice surgery, and
>
> Whereas, At this time the public has no other means of knowing who are competent to practice surgery, except as it is informed by the American College of Surgery, therefore be it
>
> *Resolved*, By the House of Delegates of the American Medical Association that we heartily commend and endorse the organization of the American College of Surgeons, and that we recognize it as filling a long-felt want, which the American Medical Association has hitherto failed to meet.

On motion, which was duly seconded, the resolution was laid on the table.

Dr. Fred Lund, Delegate from the Section on Surgery, presented a communication from that Section, advising the House that the By-Laws were amended in 1912, changing the title of the "Section on Obstetrics and Gynecology" to the Section on "Obstetrics, Gynecology and Abdominal Surgery," without the knowledge of the Section on Surgery, and that now the Section on Surgery requests that the By-Laws be amended by striking out the words "and Abdominal Surgery" and inserting the word "and" between the words "Obstetrics, Gynecology," so that the title of the Section shall read as it formerly read, "Obstetrics and Gynecology."

Dr. C. E. Cantrell, Texas, moved that the amendment be referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Seconded and carried.

Dr. Henry F. Lewis, Illinois, offered the following resolution:

> Whereas, The Appellate Court of Illinois rendered a decision which casts doubt on the legality of the corporate acts of the American Medical Association during recent years, and the text of the decision, vastly important to the members of the Association, has never been published in The Journal of the American Medical Association, and the Trustees have never satisfactorily explained the situation to the membership.
>
> *Resolved*, That this House of Delegates believes that the questions involved are important enough to be made known to every member and Fellow of the American Medical Association; that the full text of the decision of the Appellate Court should be published in The Journal of the American Medical Association; that the Trustees should hasten, by all means in their power, a final decision by the Illinois Supreme Court.

Dr. E. J. Goodwin, Missouri, moved that the resolution be referred to the Reference Committee on Reports of Officers.

Seconded and carried.

Dr. Joseph E. Willets, Pittsburgh, presented the following in the Section on Ophthalmology, which was, by action of the Section, transmitted to the House of Delegates by the delegate of the section, Dr. Melville Black, Colorado.

> The work of the Commission on Medical Expert Testimony, appointed by the Pennsylvania State Medical Society, has proved conclusively that the ethical members of both the legal and the medical professions are keenly alive to the necessity of some far-reaching action to preserve their honor and integrity, which are assailed by unprincipled attorneys in courts of justice every day, in every state.
>
> The medical expert is handled on the witness-stand to-day in the identical way he was one hundred years ago, when men practiced medicine unlicensed and without diplomas. The obsolete court methods of to-day do not in any way conform to the present-day standard of the scientists, who were evolved from empirics; who stand, to-day, surrounded by the marvelous, almost miraculous, discoveries in medicine, and who deserve a generous gratitude for services nobly performed, instead of character assasination.
>
> Each state medical society has its Committee on Public Policy and Legislation. The jurisdiction of this committee covers such subjects as medical expert testimony, conservation of vision, vaccination, vivisection, reform law, and new legislation, any one of which is a task in itself. In the aggregate the labors demanded become a physical impossibility for successful accomplishment—especially with the limited numbers constituting the Committee.
>
> Whereas, It seems absolutely necessary to have concerted action by a wide organization of a national medical body, to correct the abuses which now exist under the present lax laws governing medical expert testimony; therefore, be it
>
> *Resolved*, That the American Medical Association do hereby create a commission on medical expert testimony, to be known as the "Interstate Commission on Medical Expert Testimony," empowered to confer with the legal profession.
>
> That the commission be composed of a national chairman and a representative medical man for each state.
>
> That the policy of agitation of the subject by the Pennsylvania State Commission be adopted, wherein each member of this commission shall arrange for symposiums to be held in each county medical society of his state—members of the county bar association to be invited.
>
> That the subjects of the "formulation of a stricter definition of medical expert testimony;" the "abolition of the hypothetical question;" and the "right of the trial judge to appoint, on his own initiative, an expert to act as an assessor or to suggest to him questions which might clarify conflicting testimony," be given special consideration.
>
> That each member of the commission be furnished with the Association's stationery.
>
> That an appropriation of $1,000 be made to cover the expenses of the work, as before outlined.
>
> That the results of its work be embodied in a report, to be presented to this body at the next meeting.
>
> That its findings be then referred to the Committee on Public Legislation and the Commission discharged."

Referred to the Reference Committee on Legislation and Political Action.

Dr. J. J. McGovern, Wisconsin, presented the following, which was referred to the Reference Committee on Legislation and Political Action:

Whereas, The report of the Committee on Expert Testimony indicates that a solution of that difficult problem has not been found, the report indicating clearly that no improvement is to be expected along the lines of state or national legislation; and,

Whereas, It is the duty of the medical profession to reduce, as far as possible, the number of members who are dishonest in their testimony before courts and juries; therefore, be it

Resolved, That the Committee on Expert Testimony be made a standing committee and that a similar committee be created in each affiliating state and county society. The duty of the various committees shall be to report to their respective societies, annually, and the committee of the county societies may report at any meeting of their respective county societies, on all testimony given by the medical experts before a court or jury in their respective districts with such recommendations as they see fit to make.

Proposal Concerning Preparation of Scientific Program

Dr. J. Shelton Horsley, Virginia, presented the following, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

The sections of the American Medical Association have two distinct functions. The first is to produce scientific work and the second is to encourage and develop young men. The young man in medicine, surgery or any of the specialties should look forward to the American Medical Association as affording him an opportunity to place his work before the medical profession if it has any value. He cannot become a member of any special society until he has acquired some reputation; and unless he can feel that any work of merit by him will be afforded an opportunity to be placed before the medical profession, he really has no chance. As many of the sections are now conducted, it seems that only the most eminent are permitted to read papers, and the second function of the American Medical Association of encouraging and developing young men is neglected. The habit of filling the program with famous names does not invariably give the best work. In order to overcome these objections, I offer as a part of the By-Laws under Chapter XI the following:

Section 15. Manner of Preparing Program of the Sections.—The Chairman and Secretary of the Section may fill not more than two-thirds of the program of their Section by special invitation. The rest of the program must be filled from articles submitted to the Chairman or Secretary of any section, at least three months before the date of meeting. The Chairman and Secretary shall select from the articles submitted those that appear most meritorious and shall have full power to decide on the value of any article submitted.

Dr. M. L. Graves, Texas, presented the following preambles and resolution at the request of Dr. Albert Woldert, Alternate Delegate:

Whereas, The American Medical Association has for several consecutive years appointed a "Committee to Consider the Mode of Commemoration of The Completion of The Panama Canal," and

Whereas, At a joint meeting of the Board of Trustees and the Committee of the American Medical Association to Consider the Mode of Commemoration of The Completion of The Panama Canal, held in February, 1914, a resolution was adopted to have the House of Delegates request the Board of Trustees to appropriate the sum of Thirty Thousand Dollars ($30,000) for a monument to be erected to those physicians whose scientific work and discoveries subsequently made possible and practicable the building and completion of the Panama Canal, and

Whereas, Dr. Ronald Ross, Surgeon-Major in the British Army, was first to prove that insects (mosquitoes) are capable of carrying and transmitting disease such as malarial fever, this discovery being first made by him, Aug. 20, 1897, and about three years previous to the appointment of the American Commission to investigate the question of the transmission of yellow fever in Cuba, the members of which commission were first to prove that yellow fever is also transmitted by mosquitoes, and

Whereas, Science recognizes no nationality in the bestowal of deserved honors for discoveries made, and in honoring Ross, we do honor ourselves, therefore be it

Resolved, That the House of Delegates of this Association hereby request and instruct the proper committee in charge to insert and include the name of Ross among others to be commemorated by the erection of a monument in Panama under the auspices of the American Medical Association.

On motion of Dr. Arthur T. McCormack, Kentucky, which was duly seconded, the resolution was referred to the Board of Trustees.

Dr. S. W. S. Toms, New York, presented a request for the formation of a new Section on Hydrotherapy, which was referred to the Reference Committee on Sections and Section Work.

On motion, which was duly seconded, the House of Delegates adjourned until 2 p. m., Wednesday.

Fourth Meeting—Wednesday, June 24

The House of Delegates met at 2:15 p. m. and was called to order by the President.

The Secretary announced a quorum present.

The minutes of the previous meeting were read and approved.

Dr. D. Chester Brown, Connecticut, Chairman, presented a supplementary report from the Committee on Credentials.

A telegram was read from Henry C. Lovis, president of the National Association of Manufacturers of Medicinal Products, now in session at New York, extending greetings and best wishes.

Report of the Reference Committee on Amendments to the Constitution and By-Laws

Dr. W. A. Jayne, Colorado, Chairman, presented the report of the Reference Committee on Amendments to the Constitution and By-Laws, as follows:

At the meeting of the House of Delegates, held June 23, 1914, the delegate from the Section on Surgery presented a resolution asking that the By-Laws be amended so that in the third title appearing in Section 1, Chapter XI, the words "and Abdominal Surgery" shall be stricken out, making the title of the section "Obstetrics and Gynecology."

Your Committee recommends that Section 1, Chapter XI, of the By-Laws be amended by adding after the word "Surgery" in the second title, the words "General and Abdominal," making the full title read, "Surgery, General and Abdominal."

[It was moved and seconded that this section of the report be adopted. Carried.]

At the same meeting an amendment to the By-Laws was proposed; viz., to add the following Section to Chapter XI:

Sec. 15: Manner of Preparing Program of the Sections. The chairman and secretary of the section may fill not more than two-thirds of the program of his section by special invitation. The rest of the program must be filled from articles submitted to the chairman or secretary of any section, at least three months before the date of meeting. The chairman and secretary shall select from the articles submitted those that appear most meritorious and shall have full power to decide on the value of any article submitted.

After due and deliberate consideration, your Committee recommends that this proposed amendment be not adopted.

[Dr. Arthur T. McCormack, Kentucky, moved that consideration of this section be postponed until immediately after the report of the Reference Committee on Sections and Section Work. Seconded and carried.]

Respectfully submitted,
W. A. Jayne, Chairman,
Floyd M. Crandall,
Charles Richard,
Perry Bromberg.

Report of Reference Committee on Reports of Officers

Dr. Thomas D. Davis, Pennsylvania, Chairman, presented the report of the Reference Committee on Reports of Officers, as follows:

Your Committee commends the full report and the carefully compiled statistics of your Secretary, and notes with satisfaction the substantial net increase in Fellowships.

The resolution from the California Medical Association we recommend be referred for action to the Committee on Transportation and Place of Session.

In regard to the communication from a committee of the American Institute of Homeopathy, we recommend that as the said committee shows an evident desire to get at the scientific truth concerning their formula, and as there has been no favorable response from either of the three laboratories suggested by them, we recommend that our Secretary inform them of the result of his correspondence with these laboratories and that they be asked to suggest other laboratories, or some practical plan for investigation.

Your Committee is pleased to commend the faithful and extensive labors of your Board of Trustees as shown in their report.

We regret that the increased expense put on them by the action of this House last year has caused a marked decrease in our surplus, and we hope that there will be a decrease in the number of special committees, etc., this year.

We heartily commend the work of the Council on Pharmacy and Chemistry and believe it has accomplished great good for the profession and our citizens.

No more important work has been undertaken, nor none has accomplished more, than that done by the Propaganda Department. We cannot praise its work too highly and recommend its continuance on enlarged lines.

The various publications show an immense amount of labor and gratifying success. We especially note the issuing of the Fourth Edition of the American Medical Directory as a monument of patient investigation, with exceedingly accurate results. It should be in the hands of every physician at all interested in the general profession.

The Cooperative Medical Advertising Bureau fills a great want. It has done much already to raise the standard of the advertisement in state medical journals, and will be the means of securing more and better advertisements for them in the future, at more remunerative terms. We most heartily recommend its continuance.

As to the reserve fund recommended by the Board, there can be no doubt of its business acumen and we recommend that this fund be established as speedily as possible, and to this end we urge the House to be extremely careful concerning unnecessary or extravagant expenditure.

Your Committee most heartily commends the deliverance of the Judicial Council concerning advertising by Fellows of the American Medical Association. The principles of ethics should be observed not only to the letter, but also in the spirit. He who would delight to elevate himself by any such means above his brother practitioner is unworthy of fellowship in this Association, be the advertising covertly or openly done.

Your Committee heartily commends to this House for action the following resolution of the Judicial Council:

Resolved, That it is the sense of the House of Delegates of the American Medical Association that each county society should constitute a publicity committee whose duties shall be to give to the daily press accurate information on all medical matters of interest to the public, that this shall be freely given without the mentioning of names or from whence the information comes, and that this committee shall further act in an advisory capacity to all physicians of its society in questions relating to publications other than in the medical press. Be it further

Resolved, That the Secretary of the American Medical Association be instructed to forward this resolution, with the reasons calling for it, to the Secretary of each constituent state association, with the request that it be transmitted to each component society of that constituent association.

Concerning the resolution offered in the House by Dr. Henry F. Lewis of Chicago, we recommend that the decision designated be not published.

First, because our Association is only very remotely, if at all, concerned with the matter, and the room in our Journal can be used for more valuable subjects.

Second, we commend our Editor and Trustees for not publishing it, because the case was still under consideration by a higher court, and no decision had yet been reached.

Third, it should not be published because the Supreme Court of Illinois, on Feb. 21, 1914, overruled the Appellate Court and decreed that the proper judgment had been entered in the Circuit Court, and therefore the Appellate Court's decision is of no value whatever, and not worth publishing.

Respectfully submitted,

Thomas J. Davis, Pennsylvania,
A. R. Mitchell, Nebraska,
Rock Sleyster, Wisconsin.

The report was taken up seriatim, and on separate motions each section was adopted.

Dr. Arthur T. McCormack, Kentucky, moved the adoption of the report as a whole.

Seconded and carried.

Report of the Judicial Council

Dr. Alexander Lambert, New York, Chairman, presented the following report from the Judicial Council:

The Judicial Council desires to report on the matter referred to it by the House of Delegates, at the suggestion of the Board of Trustees, on the advisability of the American Medical Association holding, in trust, patents for medical and surgical instruments and appliances.

It has long been recognized (and the principles of ethics of the Association definitely state) that it is unprofessional to receive remuneration from patents for surgical instruments or medicines. The principle here promulgated is one which recognizes the fact that all physicians and surgeons should give to the world their best efforts in the endeavor, on the broadest plane, to benefit humanity; and that they should not hold themselves in a special class as receivers of special benefits for any instruments or appliances the excellence of which may benefit humanity. The wisdom of this time-honored tradition and the position taken in consequence of it by the medical profession is not to be questioned; but it has produced a condition which has been turned to the disadvantage of both the profession and the public. Commercial firms have, from a purely business point of view, taken instruments and appliances of real value, either had them patented, or have used the ideas and overcharged the profession (and, consequently, the public) for their manufacture and have substituted inferior products.

The question now before the Council is, "Shall physicians or surgeons, having patented medical and surgical instruments and appliances, be permitted to assign the patents thereof to the Trustees of the American Medical Association, to be held in trust, under the condition that neither the Association nor the patentee shall receive pecuniary remuneration therefor?" The advantages of this procedure would be as follows:

1. It would enable any advance in surgical or medical technic to be protected and kept in the hands and under the control of the profession.
2. It would prevent cheap and worthless imitations of these appliances or instruments being made and put on the market—often to the detriment of both the profession and the public.
3. It would keep the cost of these instruments and appliances down to within reasonable figures and within range that many men of moderate incomes could easily afford to use them and apply them in their daily work — where, heretofore, and under the exploiting system of commercial firms, this has been impossible for them to do.
4. It would permit (if considered wise) further improvements on these instruments without delay and without acrimonious dispute or lawsuits.
5. It would, it seems to the Judicial Council, establish a precedent that would benefit both the profession and the public.

Therefore, for these reasons, the Judicial Council recommends the following resolution:

Resolved, That the Board of Trustees of the American Medical Association shall be permitted to accept, at their discretion, patents for medical and surgical instruments and appliances and to keep these patents, as trustees, for the benefit of the profession and the public; provided, that neither the American Medical Association nor the patentee shall receive remuneration from these patents.

The Judicial Council desires to report, further, concerning the matter referred to it, with power, by the House of Delegates on Tuesday afternoon.

On investigation, it has been found that the gentleman who appeared before the House represented the Medico-Legal Protective Corporation of New York — this corporation being under the protection of the W. J. Burns International Detective Agencies. The scheme which the gentleman desired to place before the House of Delegates is as follows:

As is well known, W. J. Burns is the detective through whose agency are protected against criminality the Bankers' Association, the Jewelers' Association, the Canners' Association, and various other large business corporations. In recent years the criminal blackmailing malpractice suits brought against physicians has increased to such an extent that several large insurance companies writing defense against physicians malpractice suits have been forced to discontinue this form of insurance — the actuaries of these companies being unable to calculate the percentage and amount of criminality that has appeared in these suits. This does not refer in any way to the ordinary civil suits of malpractice in which there is a difference of opinion as to whether surgical or medical procedure was rightly or wrongly carried out; but it does refer to those cases of criminal hold-up brought against physicians, which, by outrageous accusation, the physician's reputation will suffer and he will do anything and pay anything to protect it and keep the matter from being publicly aired. This matter is not a question to be taken up by the House of Delegates of the American Medical Association. In the near future, this gentleman informed members of the Judicial Council, each physician would be personally solicited and an offer of protection given to him for a certain stated sum. It is a new form of cooperative insurance, on a definite commercial basis, which physicians may obtain to protect themselves against criminal malpractice suits. To each one of you, and to each one of the members of your various associations, this Medico-Legal Protective Corporation will offer this special form of insurance. The Judicial Council, therefore, considers that there is nothing further to be done in the matter and that each physician must decide for himself whether or not he wishes to consider the matter further. In the opinion of the Judicial Council, the matter does not properly come before the House of Delegates.

Dr. Thomas S. Cullen, Maryland, moved that the report be adopted.

Seconded and carried.

Supplementary Report of the Council on Health and Public Instruction

Dr. Henry B. Favill, Illinois, presented a supplementary report from the Council on Health and Public Instruction, saying that the Council had received a request from the National Child Labor Association for the passage of a resolution. The Council on Health and Public Instruction had drawn a resolution of its own on the subject which it wished to present to the House of Delegates for its approval.

WHEREAS, Many thousands of children under 16 years of age are employed in the United States in gainful occupations, under improper conditions, resulting in the impairment of their health and future well-being; and

WHEREAS, Nineteen States and the Congress of the United States, for the District of Columbia, have already enacted laws limiting the hours of labor for children under 16 years of age to eight hours a day, and prohibiting such children from working at night, or at dangerous occupations; now, therefore, be it

Resolved, By the American Medical Association, that we commend those states which have adopted legislation to protect children under 16 years of age from the disastrous consequences of unsuitable work and bad industrial conditions, and urge all other states to establish for the benefit of such children a work day not to exceed eight hours, and the prohibition of labor at night or in any hazardous employments; and to this end we recommend that all state medical societies affiliated with this association and the medical profession generally advocate the passage of such laws by the legislatures of their respective states; and be it further

Resolved, That we endorse the principles of the Palmer-Owen child labor bill now pending in Congress which seeks to place the said restrictions on the employment of children in this country by means of the federal power to control interstate commerce, and that we notify the sponsors of this measure in Congress of our action.

It was moved that the rules be suspended and that the resolutions be now adopted.

Motion seconded and carried.

Report of Reference Committee on Sections and Section Work

Dr. Hugh Cabot, Massachusetts, reported for the Reference Committee on Sections and Section Work, as follows:

Your Reference Committee on Sections and Section Work had before it three questions, namely:

1. The request for the formation of a Section on Hydrotherapy.

2. The request for the formation of a Section on Gastro-Enterology and Proctology without the limitations attached to it by the last House of Delegates.

3. The request from the Conference of the Secretaries of Sections to consider the advisability of dividing the sections into two groups — General Sections and Special Sections — and allowing a Fellow to present a paper in each group.

1. In regard to the formation of a Section on Hydrotherapy, your Committee feels that it need not consume your time in lengthy discussion, since these methods of treatment clearly belong to the department covered by the Section on Pharmacology and Therapeutics, and can be properly given due consideration in that Section.

2. In regard to the formation of a Section on Gastro-Enterology and Proctology, the question is far more complicated and difficult. In favor of the formation of such a Section, it is very properly urged that the interest in these questions has been sufficient to give rise to the formation of two societies of national scope, and that the number of Fellows who desire to present papers on these subjects is greater than can be accommodated by the sections already in existence.

It is further urged that such a section has already been partly organized, only to be held up because certain conditions were not complied with.

Against the formation of such a Section it is urged, with much force, that these are not well-defined specialties, and that it is not improbable that the swing of the pendulum might soon make the need of such a Section less urgent, if, indeed, it existed at all.

The American Gastro-Enterological Association (one of the two special societies existing in this field) has notified your Committee that it is not in sympathy with the formation of the proposed new Section, and that its members prefer to affiliate with the medical and other already existing sections.

And finally, we have the evidence that the Reference Committee of this body, last year, was unwilling to advise the creation of such a section, except the field be cleared by the disbanding of the existing societies and the number of papers be limited to fifteen.

The whole question of the creation of new Sections — no matter how meritorious—is more complicated than appears at first sight. There are already fifteen sections, for which meeting-places must be provided, stenographers engaged, and stationery printed, at a very considerable cost, and at a time when the Association has tremendous and ever-increasing demands on its finances. Of the fifteen sections, two — medical and surgical — collected (in 1913) to themselves 60 per cent. of the registration; and, of the remaining thirteen, none had 10 per cent. of the registration, and only two had over 1 per cent.; a showing from which it at once appears that the majority of the Sections which we already have attract but a small proportion of the Fellows and are carried on at a correspondingly large expense.

3. The third question before your Committee was the suggestion already referred to, that the Sections be divided into two groups, general and special, and that a Fellow be permitted to present a paper before each group. The two groups are as follows: 1. General: Practice of Medicine, Surgery, Pharmacology and Therapeutics, Pathology and Physiology, and Preventive Medicine and Public Health. 2. Special: Obstetrics, Gynecology and Abdominal Surgery, Ophthalmology, Laryngology, Otology and Rhinology, Diseases of Children, Stomatology, Nervous and Mental Diseases, Dermatology, Genito-Urinary Diseases, Hospitals, and Orthopedic Surgery. It will be remembered that it is only a year since the By-Laws were changed so as to prevent a Fellow from reading a paper before more than one Section. Already this regulation has proved too onerous. Clearly there are many and important considerations involved, a considerable proportion of which may not as yet come to the surface.

As further evidence that this question is complicated and difficult, we would remind you that there are also two other questions concerning the sections which have been referred to another committee.

These are some of the questions involved in the propositions which are before your committee, and they seem to us too many and too complicated to be satisfactorily solved, except after mature deliberation and much consultation and discussion. We believe that the time has come when the whole question of the division into sections and the apportionment of the work of the Association among the sections should be taken up in a comprehensive way.

We, therefore, recommend to the House of Delegates the creation of a committee of five, to be appointed by the President. This committee should be charged with the investigation of the whole matter of Sections and Section work, and should be required to report their findings and recommendations to the next House of Delegates.

On motion, which was duly seconded, the report and recommendations of the committee were adopted.

The Secretary presented a communication from the officers of the Section on Surgery, nominating for honorary fellowship Dr. Alexander Primrose of Toronto, which was referred to the Reference Committee on Sections and Section Work.

Dr. W. A. Jayne, Colorado, moved that the suggested amendment to the By-Law on the manner of preparing programs for the sections be not adopted at this meeting, but that the matter be referred to the special Committee on Sections and Section Work.

Seconded and carried.

Dr. William A. Pusey, delegate from the Section on Dermatology, presented the following preambles and resolution, which were referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, Leprosy exists in many foci in this country and has been statistically shown to be on the increase, and

WHEREAS, Those afflicted with leprosy are being subjected to most inhuman treatment, and

Whereas, Many lepers are traveling in interstate traffic because of the inhuman treatment to which they are subjected, thereby constantly exposing the general public to the contagion, and

Whereas, It is the duty of the federal government to control traffic between states, and

Whereas, At the present time the care of lepers in the United States is a great economic burden on the individual states and is moreover of necessity inadequate from a medical and sanitary point of view, therefore be it

Resolved, That this Association recommends the passage by Congress of a law providing for the comprehensive care and control of leprosy by the Federal government.

Dr. Dunbar Roy, delegate from the Section on Laryngology, Otology and Rhinology, presented the following, which was referred to the Reference Committee on Hygiene and Public Health:

Whereas, hundreds of children are sacrificed each year by strictures of the esophagus caused by burns from lye and other household articles containing caustic preparations, the Section on Laryngology, Otology and Rhinology hereby requests that the House of Delegates urge some legislation for the proper labeling of all cleansing preparations of a caustic character, sold by grocers and other merchants.

Dr. William L. Spitzer, delegate from the Section on Genito-Urinary diseases, presented the following resolution from that section, which was referred to the special committee appointed at this meeting to consider the scientific work of the Scientific Assembly:

Whereas, On account of the lateness of their offering, from the surgical section, several papers on genito-urinary subjects failed to receive a place on our program at this meeting; therefore, be it

Resolved, That this section suggests that all papers dealing with especial genito-urinary surgical subjects be hereafter immediately referred to the Secretary of this section in order that they may be read in the section to which they properly belong.

Dr. E. E. Southard, delegate from the Section on Nervous and Mental Diseases, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Resolved, That it is the sense of the Section on Nervous and Mental Diseases that the Council on Health and Public Instruction should be authorized, in accordance with the official rules governing such authorization, to consider and act on the advisability of (*a*) including mental hygiene among the public health problems which said Council is investigating; (*b*) taking steps to educate the public on all appropriate topics of mental hygiene, such as after-care of the insane, prophylaxis, through stimulation of the voluntary resort of psychopathic patients and their temporary care in appropriate institutions, heredity, eugenics, syphilis, alcohol, occupational diseases, environmental causes, and other well-established scientific data, said Council to use its press bureau, speakers' bureau, and bureau of literature to accomplish these ends; (*c*) establishing a subcommittee on mental hygiene, empowered to confer and, if desirable, to co-operate with official and voluntary organizations, such as the National Committee on Mental Hygiene, state committees on mental hygiene, both so far organized and those to be organized in the future, the Eugenics Record Office, the American Genetic Association, and the like.

Dr. Morgan Smith, delegate from the Section on Preventive Medicine and Public Health, presented the following:

Whereas, The improvement and control of the milk-supply of the country is one of the most important measures of the protection of the public health, and in order that this improvement may be properly directed and the control intelligently exercised, it is necessary that milk standards be established and classes of milk be defined, therefore, be it

Resolved, 1. That the Section on Preventive Medicine and Hygiene of the American Medical Association urges the House of Delegates to approve of the establishment of uniform milk standards and the classification of milk such as are embodied in the report of the Commission on Milk Standards appointed by the New York Milk Committee and published in the *Public Health Reports,* Aug. 22, 1913, and

2. That the Section on Preventive Medicine and Hygiene of the American Medical Association recommends that the House of Delegates urge the adoption of these standards and classification by municipalities, so far as local conditions make that possible. (Referred to the Reference Committee on Hygiene and Public Health.)

Dr. Morgan Smith, delegate from the Section on Preventive Medicine and Public Health, presented the following resolution:

Resolved, That the Council on Medical Education be requested to investigate the courses of instruction now leading to the degree of Doctor of Public Health and similar degrees and to outline minimum requirements for such courses.

Referred to the Reference Committee on Medical Education.

Dr. Morgan Smith, delegate from the Section on Preventive Medicine and Public Health, presented the following resolution:

Resolved, That a committee be appointed to represent the American Medical Association in any conferences that may be held or any action that may be taken looking toward the formulation and enactment of laws and regulations providing for the reporting of cases of disease and disability.

Referred to the Reference Committee on Legislation and Political Action:

Dr. Ray L. Wilbur, delegate from the Section on Pharmacology and Therapeutics, presented the following:

Whereas, The Pharmacopeia of the United States of America should be, above all, a book designed to protect the public health and prevent the exploitation of the sick and afflicted for profit; therefore, be it

Resolved, That the members of the Section on Pharmacology and Therapeutics of the American Medical Association request the House of Delegates to urge on the Revision Committee to make official in the Pharmacopeia of the United States "corrosive mercuric chloride pastilles" so that physicians may not be compelled to prescribe this remedy under a proprietary name; be it further

Resolved, That this Section endorse the form and description of corrosive mercuric chlorid pastilles as described in the German Pharmacopeia, namely, of cylindrical shape, twice as long as thick, wrapped individually in paper bearing the name of the medicament "corrosive mercuric chloride pastilles" and the word "poison" in suitable and striking letters; be it further

Resolved, That a copy of this resolution be forwarded by the Secretary of the American Medical Association to the president and to each of the officers of the United States Pharmacopeial Convention and also to the chairman and to each member of the Committee of Revision of the Pharmacopeia of the United States.

On motion, which was duly seconded, the resolutions were referred to the Reference Committee on Legislation and Political Action.

Supplementary Report of the Committee to Consider Mode of Commemoration of the Completion of the Panama Canal

Dr. A. L. Brittin, Illinois, Secretary, presented the following:

Resolved, That the House of Delegates set aside a day during the next Annual Session of the American Medical Association to be designated as "Honor Day" in recognition of the services of the men living or dead whose contributions to sanitary science and preventive medicine have made possible the construction of the Canal, and on that day a general session of the American Medical Association be held to which the public shall be invited.

Albert L. Brittin, *Secretary,*
M. L. Graves,
J. L. Wiggins,
H. B. M. Ellis.

On motion, which was duly seconded, the report was referred to the Board of Trustees.

The President announced the following as a special committee on report next year on Sections and Section Work: Dr. Hugh Cabot, Massachusetts; Dr. W. T. Mulligan, New York; Dr. F. C. Warnshuis, Michigan; Dr. Morgan Smith, Arkansas, and Dr. F. W. McRae, Georgia.

Dr. Arthur T. McCormack, Kentucky, moved that the Reference Committee on Amendments to the Constitution and By-Laws be requested to draft an amendment to the By-Laws providing for an initial meeting of the House of Delegates on the Saturday preceding the annual session.

Seconded and carried.

On motion, which was duly seconded, the House of Delegates then adjourned until 2 p. m., Thursday.

Fifth Meeting—Thursday, June 25

The House of Delegates met at 2 p. m. and was called to order by the President.

The Secretary announced a quorum present.

The minutes of the previous meeting were read and approved.

Dr. D. Chester Brown, Connecticut, Chairman, presented a supplementary report from the Committee on Credentials.

The first order of business was the election of officers. The House proceeded to an election, which resulted in the choice of the following:

President-Elect, William L. Rodman, Philadelphia; First Vice-President, D. S. Fairchild, Des Moines, Iowa; Second Vice-President, Wisner R. Townsend, New York; Third Vice-President, Alice Hamilton, Chicago; Fourth Vice-President, William Edgar Darnall, Atlantic City, N. J.; Secretary, Alexander R. Craig, Chicago; Trustees, Philip Marvel, Atlantic City, N. J.; Philip Mills Jones, San Francisco; W. T. Sarles, Sparta, Wis.; Chairman of the Committee on Transportation and Place of Session, J. R. Pennington, Chicago.

The President then nominated and the House confirmed the following: Member of the Judicial Council, Alexander Lambert, New York; Member of the Council on Health and Public Instruction, H. M. Bracken, Minneapolis; Member of Council on Medical Education, Arthur Dean Bevan, Chicago.

The Secretary presented a list of names of nominees for Associate Fellowship endorsed by the officers of the following Sections: Pharmacology and Therapeutics, Pathology and Physiology, Stomatology, Preventive Medicine and Public Health.

Dr. Thomas D. Davis, Pennsylvania, moved that the Secretary be authorized to cast a ballot for the House in each instance in which the applicant is not eligible to regular membership in this Association.

Seconded and carried.

Honorary Fellow Elected

Dr. Hugh Cabot, Massachusetts, Chairman, presented the report of the Reference Committee on Sections and Section Work, as follows:

Your Committee has received the nomination from the Section on Surgery of Alexander Primrose to be an Honorary Fellow. We recommend to the House that Dr. Primrose be made an Honorary Fellow.

Dr. C. E. Cantrell, Texas, moved that the report be adopted, and Dr. Primrose be elected.

Seconded and carried.

Nominations for Honorary Fellowship were also received from the Section on Dermatology and the Section on Nervous and Mental Diseases, too late to be considered at this annual session, and it was moved that they be laid on the table for the next session of the House.

Seconded and carried.

Dr. H. Bert Ellis, California, Chairman, presented the report of the Reference Committee on Medical Education, recommending that the resolution presented by Dr. Morgan Smith, delegate from the Section on Preventive Medicine and Public Health, and referred to this reference committee, be in turn referred by the House to the Council on Health and Public Instruction.

On motion, which was duly seconded, the recommendation of the committee was concurred in and the resolution so referred.

Report of Reference Committee on Hygiene and Public Health

Dr. J. W. Kerr, United States Public Health Service, Chairman, presented a supplementary report from the Reference Committee on Hygiene and Public Health.

Your Committee, which has had referred to it three resolutions emanating from various sections, has to report, with recommendations, as follows:

1. Concerning the resolution introduced by Dr. William A. Pusey, delegate from the Section on Dermatology, inviting attention to the need of provision for adequate care and control of leprosy, and recommending that action be taken looking to the passage by Congress of a law which will accomplish this end, the Committee approves the resolution and recommends its adoption.

2. The preamble and resolution presented by Dr. Morgan Smith, on behalf of the Section on Preventive Medicine and Public Health, in effect invites attention to the importance of the control of milk-supplies in the interest of the public health, requests the House of Delegates to approve of the establishment of uniform milk standards and the classification of milk as embodied in the report of a "Commission on Milk Standards" published in the *Public Health Reports*, Aug. 22, 1913, and recommends that the House of Delegates urge the adoption of these standards and classification by municipalities, so far as local conditions will permit.

The milk standards and classification of milk referred to represent the consensus of opinion of experts eminently qualified to advise in respect to the sanitation of municipal milk-supplies. The Committee believes these standards and classification are reasonable and their adoption by municipalities would be in the interest of greater uniformity and better control of milk-supplies. The resolution as presented is, therefore, recommended for adoption.

3. The resolution presented by Dr. Dunbar Roy, delegate from the Section on Laryngology, Otology and Rhinology, requests that the House of Delegates urge legislation to compel proper labeling of all cleansing preparations of a caustic character and sold by grocers and other merchants. The Committee approves this resolution, and recommends its adoption, with the suggestion that it be brought to the attention of both federal and state legislative bodies by the Council on Health and Public Instruction and by the respective state associations.

Respectfully submitted,

J. W. KERR, *Chairman*,
MORGAN SMITH,
FRANK J. GILBERT,
A. M. HARVEY,
WILLIAM SMITH LALOR.

It was moved that the report be adopted.

Seconded and carried.

Supplementary Report of the Reference Committee on Amendments to the Constitution and By-Laws

Dr. Floyd M. Crandall, New York, presented a supplementary report of the Reference Committee on Amendments to the Constitution and By-Laws which, on motion, duly seconded, was received, and amendment laid over until the next session.

The report is as follows:

At the session of the House of Delegates, held June 24, 1914, the following resolution was introduced and adopted:

> *Resolved*, That the Reference Committee on Amendments to the Constitution and By-Laws be requested to draft an amendment to the By-Laws, providing for an initial meeting of the House of Delegates on the Saturday preceding the Annual Session.

The Committee, therefore, presents the following draft of an amendment to Section 1, Chapter III, of the By-Laws, namely:

"That the word 'day' be stricken out and the word 'Saturday' be substituted, so that the section shall read: 'The House of Delegates shall meet annually, on the Saturday preceding the opening of, and at the same place as, the Annual Assembly of the Association.'"

W. A. JAYNE, *Chairman*,
FLOYD M. CRANDALL,
CHARLES RICHARD,
PERRY BROMBERG.

Dr. Arthur T. McCormack, Kentucky, Chairman, presented a report from the Reference Committee on Miscellaneous Business, recommending that the resolution from the Section on Nervous and Mental Diseases submitted by Dr. R. E. Southard, delegate from the section, at the last meeting of the House, be referred to the Council on Health and Public Instruction.

Dr. G. Lane Taneyhill, Maryland, moved that the recommendation be concurred in.

Seconded and carried.

Report of Reference Committee on Legislation and Political Action

Dr. E. J. Goodwin, Missouri, Chairman, presented a report of the Reference Committee on Legislation and Political Action.

To your Reference Committee on Legislation and Political Action were referred the report of the Council on Health and Public Instruction, three resolutions bearing on the question of expert testimony and one resolution from the Section on Pharmacology and Therapeutics.

The report of the Council on Health and Public Instruction has been very carefully considered. Your Committee is impressed with the vast scope of the labors of the Council in extending knowledge among the people concerning health protection, and with the tremendous influence on the public mind already gained and rapidly increasing of convincing the people that the altruistic and philanthropic endeavors of this Association for the improvement of health conditions, both individual and public, and for the elevation of the standards of medical practice, are not tainted with selfishness or ulterior motives. It is not necessary that the Reference Committee do more than emphasize certain portions of the numerous activities undertaken by the Council, as there are no recommendations in the report requiring a vote of the House on adoption or rejection.

The report of the Council suggests that its activities for the coming year be directed along three general lines, namely: (1) a thorough investigation of present health conditions; (2) the education of the public; (3) crystallizing public opinion on the necessity and practicability of conserving human life.

Your Committee strongly indorses the Council's efforts to correlate existing national health organizations in this country, as described in the report, and recommends that the Council continue its endeavors in this direction. This work contemplates surveys of the public health activities of the federal government and of other national governments for purposes of comparison; of state public health activities; of municipal health activities, and of voluntary national health organizations. It is apparent that our efforts to direct public opinion in the right channel for the conservation of human health and life would thereby be greatly simplified.

The Council has opened a new branch of investigation during the past year, namely, the Medicolegal Bureau, through which information concerning medicolegal questions in all the states may readily be obtained at a common source. It has already prepared a volume containing all the decisions of the supreme courts of this country on medical practice acts; this will be enormously valuable to the medical profession as well as to the legal profession. This book will be issued during the present year.

Among the subcommittees of the Council your Reference Committee desires to commend in the highest terms the work of the Committee on Public Health Among Women. Its influence with the mothers of the country is of incalculable value in the spread of correct ideas for the conservation of child life.

Your Committee would impress on the delegates the importance of the recommendation in the commendable report of the Committee on Defense of Medical Research, namely, that state journal editors scrutinize manuscripts of articles offered for publication with the view of including a statement that anesthesia was employed when in fact that was the case, in order to prevent the circulation of false impressions or misunderstandings by antivivisectionists.

The work of the Committee on Conservation of Vision, appointed in 1913, demonstrates the need of such a division of the Council's activities. The report gives promise, through the splendid results already achieved, that this committee will be very influential in preventing blindness.

The Committee on Revision of the Owen Bill has not been inactive, but could make no progress on account of the many questions before Congress that overshadowed this and other less acute conditions. Your Committee recommends that the House of Delegates reaffirm its endorsement of the principles governing the movement to create a national Department of Health, and commends the Honorable Robert L. Owen for his assiduous championship of such a department.

The Committee on Uniform Regulation of Membership is performing a service in promoting harmonious and uniform methods of organization work that could not otherwise be accomplished, and therefore your Committee recommends that it be continued.

The Committee on Cancer is another recently appointed subcommittee (November, 1913) which has accomplished such excellent results as to justify its creation. While the committee limited its work this year to the issuance of popular articles on cancer, it succeeded in distributing six pamphlets that have been eagerly sought by an increasing number of persons, lay and medical. Your Reference Committee urges all members and Fellows to accord the Committee on Cancer the support and cooperation it asks; such support is essential in this particular field of medical endeavor.

The spontaneous response to the overtures of the Committee to Confer with the National Educational Association to gain the cooperation of the latter body in the cause of public health is a most gratifying and convincing evidence of the far-reaching influence of the work of the Council on Health and Public Instruction; for without the splendid achievements of the Council in the past three years it is certain that the subcommittee could not have presented such weighty arguments favoring the cooperation of these two bodies. Instancing only one feature of this important report, we remind you of the statement by this Committee that the health of country schoolchildren is far below the standard of city schoolchildren, as shown by surveys, which so shocked and surprised the members of the National Education Association as to arouse a general desire on their part to improve the conditions of rural school life.

The report of the Committee on Expert Testimony is, we believe, conservative and based on a sound understanding of well-known conditions. The solution of this vexed problem cannot be forced; it must come gradually and with the cooperation of the American Bar Association and the various state bar associations. If the recommendations of the Committee on Expert Testimony are adopted in court procedures, legal contests will be stripped of much of the stigma that now attaches to expert testimony, and especially to medical expert testimony, and lead to further improvement. We recommend that the Council's purpose to issue a draft of a bill for the consideration of state legislatures be endorsed.

In concluding this report, your Reference Committee expresses the conviction that the activities of the Council on Health and Public Instruction are vital to the welfare of the American Medical Association. The work of the Council will either promote a friendly spirit of cooperation on the part of the people or arouse their opposition. Thus far, nothing but a commendable and very gratifying attitude of cordiality on the part of the people has been exhibited toward the Council, and this is due, we believe, to the broad, liberal and judicious manner adopted by the Council in approaching the problems that confront it. No radical departure from this course should be permitted.

In order that the work of the Council on Health and Public Instruction and of its various subcommittees may meet the unanimous support of the constitutent state associations, your Reference Committee reaffirms the recommendation of the Reference Committee of 1913, namely:

"That the Council in developing its activities . . . shall work through the constitutent state associations and their committees rather than by the creation of new or special committees; and that all committees and persons representing any department of the American Medical Association or representing any of its activities within the borders of any constituent state association shall be appointed by the executive officers of the state associations; and such committees shall be under the jurisdiction and control of the state association and responsible to the Council on Health and Public Instruction through the state association.

"That no committee shall be appointed by the sections or by any subcommittee with duties extending into the territory of any constituent state association. That all such committees shall be appointed by the constituent state association and be under the jurisdiction and control of the state association."

Three resolutions on the question of medical expert testimony were referred to your Committee, namely, one by Dr. J. J. McGovern, delegate from Wisconsin; one from the Section on Ophthalmology, and one containing a copy of a suggested bill on medical expert testimony in Pennsylvania.

Your Committee has given these resolutions very careful consideration. The Committee thoroughly appreciates the present unsatisfactory conditions surrounding expert testimony. The simultaneous appearance of so many suggestions from Fellows and branches of the Association emphasizes the great necessity for clarifying this question at as early a time as possible and is an evidence that the members and Fellows have an abiding faith in the efficiency of the organization to solve questions that affect the practice of medicine in all its phases. Your Committee believes, however, that the Council on Health and Public Instruction is in position to bring about a solution to this question more speedily and more satisfactorily than can be done by the duplication of committees working along similar lines. Your Committee recommends that the resolutions be referred to the Council on Health and Public Instruction.

The resolution introduced by Dr. Morgan Smith, delegate from the Section on Preventive Medicine and Public Health, is not sufficiently lucid to enable this Committee to arrive at a conclusion of its purpose and intent. It is recommended that the resolution be referred to the Council on Health and Public Instruction for their consideration.

The resolution introduced by Dr. Ray L. Wilbur, delegate from the Section on Pharmocology and Therapeutics, requesting the including in the Pharmacopeia of corrosive mercuric chloride pastilles, is approved.

E. J. Goodwin, *Chairman,*
Edwin Walker,
E. J. McKnight,
Hugh H. Young,
Holman Taylor,

On separate motions, which were duly seconded, the report of the Reference Committee was adopted.

Dr. Dwight H. Murray, New York, reported for the Committee on Scientific Exhibits as follows:

Report of Committee on Awards on Scientific Exhibit

The Committee on Awards of the Scientific Exhibit beg leave to report as follows:

That the first prize, the gold medal for the best Scientific Exhibit, be awarded to Miss Maude Slye of the Otho S. A. Sprague Memorial Institute of Chicago, for her exhibit of charts, diagrams, specimens and tables on the transmission of hereditary cancer and other diseases in mice.

The committee wishes further to express its admiration of Miss Slye's work in this field and its appreciation of the great personal sacrifice she has made and for her courtesy in presenting the work before the Association.

The committee awards the following certificates of merit for the following exhibits:

1. Dr. Robert A. Lambert, New York, on artificial cultivation of tissues.

2. Drs. A. D. Hirschfelder, M. C. Winternitz and B. S. Kline, Maryland, on experimental pneumonia.

6. Dr. H. F. Smyth, Pennsylvania, on action of toxins on artificial cultivation of tissues.

7. G. W. Cosmak and J. R. Losee, New York, on toxemias of pregnancy, fetal anomalies, etc.

10. Dr. J. S. Horsley, Virginia, on blood-vessel surgery.

13. Drs. E. E. Tyzzer and William Duane, Massachusetts, on therapeutic studies of radium, radio-active products, etc.

16. Dr. W. M. Price, Ohio, on research exhibit of the National Dental Association.

19. Dr. E. Goetsch, Massachusetts, on influence of pituitary extract feeding on genital development.

21. Dr. E. C. Streeter, Massachusetts, on historical exhibit dealing with the life and work of Vesalius.

24. Dr. M. T. Cook, New Jersey, on plant pathology.

25. Dr. R. D. Carman, Minnesota, on roentgenograms of the alimentary canal.

Dr. Stiles, New York, an exhibit of anatomic dissections, made by freshmen of the Medical Department of Syracuse University.

Honorary mention:

3. Drs. J. W. Draper and B. F. Farrel, New York, on types of infection in connection with hydronephrosis.

4. Research of the R. M. Thompson Pellagra Commission.

9. Dr. D. N. Eisendrath, Chicago, collargol injections of the kidneys of dogs.

11. Exhibition of photographs and photomicrographs from the Mayo Clinic.

25. Dr. J. T. Case, Michigan, on lantern-slides illustrating Roentgen-ray studies. Dr. Lewis Gregory Cole, New York, on roentgenoscopy of gastro-intestinal lesions.

The Committee wishes to commend the general excellence of the exhibits and thank the exhibitors for their courtesy in presenting their valuable exhibits before the Association.

In studying the exhibits, the committee has been impressed by the opportunity afforded by this display of bringing annually to the attention of the Association the results of research in various laboratories in the country, and would recommend that an effort be made to increase the number of the demonstrations of actual investigation work rather than the collection of specimens. To this end, we recommend that a larger appropriation be placed at the disposal of the Committee on Scientific Exhibit and that an annual honorarium be allowed the director of the Scientific Exhibit.

Finally, the committee wishes to express its appreciation for the magnificent work done by Dr. Frank B. Wynn, chairman of the Committee on Scientific Exhibit.

Richard M. Pearce, *Chairman,*
Dwight H. Murray,
William J. Means.

On motion, the awards recommended by the committee were approved and the report referred to the Board of Trustees.

Report of Committee on Transportation and Place of Session

The report of the Committee on Transportation and Place of Session was then presented, as follows:

Your Committee on Transportation and Place of Session has received invitations to hold the next annual session of the American Medical Association in the following cities, which your Committee reports alphabetically: Atlanta, Baltimore, Chattanooga, Chicago, Columbus, Denver, St. Louis, San Francisco and Seattle.

The Committee has given careful consideration to each of these, and reports that for the best interests of the Association and the profession at large, the next annual session be held in Chicago.

J. Rawson Pennington, *Chairman,*
Thomas D. Coleman,
B. Franklin Stahl,
W. T. Sarles,
Donald Campbell.

Dr. A. M. Harvey, Illinois, moved the adoption of the report. Seconded.

Dr. J. W. Andrews, Minnesota, moved to amend the report by striking out "Chicago" and inserting the word "San Francisco." Seconded.

After discussion by Drs. V. G. Vecki, California; H. V. Wurdemann, Washington; A. A. O'Neill, Illinois; Hugh Cabot, Massachusetts; M. A. Clark, Georgia; D. Chester Brown, Connecticut; J. W. Andrews, Minnesota; Perry Bromberg, Tennessee; A. M. Harvey, Illinois, and George Hare, California, Dr. C. E. Cantrell, Texas, moved the previous question.

Seconded and carried.

On the question being put, there were 33 votes in favor of the amendment, and 28 opposed.

It was moved that the report be adopted as amended.

Seconded and carried.

Dr. Perry Bromberg, Tennessee, moved that the fixing of the date of meeting be delegated to the Board of Trustees with power.

Seconded and carried.

On motion, which was duly seconded, the House of Delegates then adjourned *sine die.*

Members of House of Delegates in Attendance

[The figures indicate the number of delegates to which the state is entitled.]

ALABAMA—3

E. D. Bondurant	Mobile
H. T. Inge	Mobile
W. H. Sanders	Montgomery

ARKANSAS—2

William V. Laws	Hot Springs

CALIFORNIA—3

George Hare	Fresno
V. G. Vecki	San Francisco
H. Bert Ellis	Los Angeles

COLORADO—2

W. A. Jayne	Denver
L. H. McKinnie	Colorado Springs

CONNECTICUT—2

D. Chester Brown	Danbury
E. J. McKnight	Hartford

DELAWARE—1

Henry J. Stubbs	Wilmington

DISTRICT OF COLUMBIA—1

G. Wythe Cook	Washington

FLORIDA—1

John MacDiarmid	DeLand

GEORGIA—3

M. A. Clark	Macon
E. C. Davis	Atlanta
W. C. Lyle	Augusta

ILLINOIS—9

A. M. Harvey	Chicago
A. Augustus O'Neill	Chicago
J. A. Koch	Quincy
G. L. Armstrong	Taylorville
J. W. Hamilton	Mt. Vernon
F. C. Gale	Pekin
W. L. Noble	Chicago
C. P. Caldwell	Chicago
Henry F. Lewis	Chicago

INDIANA—4

F. B. Wynn	Indianapolis
J. M. Dinnen	Ft. Wayne
J. Rilus Eastman	Indianapolis
Edwin Walker	Evansville

IOWA—3

J. C. Rockafellow	Des Moines
L. W. Littig	Davenport
M. N. Voldeng	Cherokee

KANSAS—2

Joseph E. Sawtell	Kansas City
E. S. Pettijohn	Topeka

KENTUCKY—4

J. W. Kinkaid	Catlettsburg
A. T. McCormack	Bowling Green
Milton Board	Louisville
A. H. Barkley	Lexington

LOUISIANA—2

Louis Abramson	Shreveport

MAINE—1

Frank Y. Gilbert	Portland

MARYLAND—2

Hugh H. Young	Baltimore
G. Lane Taneyhill	Baltimore

MASSACHUSETTS—5

Hugh Cabot................Boston
J. B. Blake................Boston
H. G. Stetson..........Greenfield
L. F. Woodward........Worcester

MICHIGAN—4

H. E. Randall...............Flint
L. J. Hirschman...........Detroit
E. T. Abrams..........Dollar Bay
F. C. Warnshuis.....Grand Rapids

MINNESOTA—2

W. A. Coventry............Duluth
J. W. Andrews...........Mankato

MISSOURI—5

Robert M. Funkhouser....St. Louis
E. J. Goodwin...........St. Louis
E. H. Miller..............Liberty
Franklyn E. Murphy...Kansas City
H. L. Reid.............Charleston

MONTANA—1

LeRoy Southmayd......Great Falls

NEBRASKA—2

A. R. Mitchell............Lincoln
A. I. MacKinnon... . .. .Lincoln

NEW HAMPSHIRE—1

D. E. Sullivan............Concord

NEW JERSEY—3

W. S. Lalor...............Trenton
Linn Emerson.............Orange
Edward Guion........Atlantic City

NEW MEXICO—1

S. L. Burton.........Albuquerque

NEW YORK—11

Henry L. Elsner..........Syracuse
Floyd M. Crandall......New York
John C. Polak...........Brooklyn
S. W. S. Toms.............Nyack
D. H. Murray............Syracuse
Wendell C. Phillips......New York
James W. Fleming.......Brooklyn
J. C. MacEvitt..........Brooklyn
Charles H. Richardson..New York
Edgar A. Vander Veer......Albany
Wesley T. Mulligan......Rochester

NORTH CAROLINA—2

H. A. Royster.............Raleigh

NORTH DAKOTA—1

C. S. Crane..........Grand Forks

OHIO—6

B. R. McClellan............Xenia
W. J. Means.............Columbus
C. D. Selby................Toledo
J. C. M. Floyd........Steubenville

OKLAHOMA—2

J. H. White............Muskogce
W. A. Tolleson............Enfanta

OREGON—1

Walter T. Williamson.....Portland

PENNSYLVANIA—9

Thomas D. Davis........Pittsburgh
William T. Hamilton..Philadelphia
John B. McAlister......Harrisburg
W. Rowland Davies......Scranton
Americus R. Allen........Carlisle
J. Montgomery Baldy..Philadelphia
Herbert B. Gibby....Wilkes-Barre
Theo. B. Appel..........Lancaster
Adolph Koenig..........Pittsburgh

RHODE ISLAND—1

John W. Keefe.........Providence

SOUTH CAROLINA—1

Edgar A. Hines............Seneca

SOUTH DAKOTA—1

E. D. Putnam.........Sioux Falls

TENNESSEE—2

Perry Bromberg..........Nashville
E. C. Ellett..............Memphis

TEXAS—5

Holman Taylor..........Ft. Worth
C. A. Smith............Texarkana
Frank Pascal..........San Antonio
C. E. Cantrell...........Greenville
Marvin L. Graves........Galveston

VERMONT—1

C. H. Beecher..........Burlington

VIRGINIA—3

J. Shelton Horsley......Richmond
W. E. Anderson........Farmville
Kirkland Ruffin............Norfolk

WASHINGTON—2

H. V. Wurdemann.........Seattle

WEST VIRGINIA—1

John L. Dickey..........Wheeling

WISCONSIN—3

J. J. McGovern.........Milwaukee
Rock Sleyster.............Waupun
C.. A. Harper.............Madison

WYOMING—1

M. A. Ncwell.............Sheridan

Delegates from the Sections

PRACTICE OF MEDICINE

Joseph H. Pratt............Boston

SURGERY

Fred Lund.................Boston

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

Thomas S. Cullen........Baltimore

OPHTHALMOLOGY

Melville Black.............Denver

LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Dunbar Roy..........Atlanta, Ga.

DISEASES OF CHILDREN

J. P. Sedgwick........Minneapolis

PHARMACOLOGY AND THERAPEUTICS

Ray L. Wilbur..San Francisco, Cal.

PATHOLOGY AND PHYSIOLOGY

Richard M. Pearce....Philadelphia

STOMATOLOGY

G. V. I. Brown........Milwaukee

NERVOUS AND MENTAL DISEASES

E. E. Southard...Cambridge, Mass

DERMATOLOGY

William A. Pusey.........Chicago

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Morgan Smith..........Little Rock

GENITO-URINARY DISEASES

William M. Spitzer........Denver

HOSPITALS

Bryan Hollings.............Boston

ORTHOPEDIC SURGERY

John Ridlon...............Chicago

Delegates from Government Services

Charles Richard...............
............United States Army
Robert M. Kennedy............
............United States Navy
John W. Kerr.................
....U. S. Public Health Service

THE SCIENTIFIC ASSEMBLY

THE OPENING GENERAL MEETING

Tuesday Morning, June 23

The opening meeting of the Association was held at the Apollo Theater, and was called to order at 10:30 a. m. by the President, Dr. John A. Witherspoon, Nashville, Tenn.

On the platform were Ex-Presidents, Vice-Presidents, the Secretary, the Editor and General Manager, members of the Judicial Council, and members of the Board of Trustees.

Rev. Henry Merle Mellen, Atlantic City, delivered the invocation.

Invocation

Gracious God, our Heavenly Father, we bring hearty thanks to these Thy sons and daughters who are to begin this convention which shall mean so much to this city, to this state, and to this great land of ours. We thank Thee for the work in which they are engaged. We thank Thee for the progress that has been made through their instrumentality. We thank Thee for the far-reaching influence of their labors. We thank Thee that here during these days there shall be represented the finest and truest and noblest influences in the land. It is a glorious thing to go about doing good. The healing of the nation is a divine idea, and grant that these Thy sons and daughters as they go about this great and glorious business, may find those true and abiding rewards in the gratitude of the men and women whom they serve. Grant that all these deliberations during these coming days may be filled with great wisdom, with great charity, with great kindness and with great efficiency, and may there go forth from these deliberations a mighty impetus for greater service, for greater influence, and for truer immortality. Bless all the officers, and bless him who presides. Bless those who make records of the proceedings, and bless those who have the business of the Association in hand, and may this meeting of Thy sons and daughters be accompanied by Thy grace and Thy favor. We ask these things for Thy name's sake. Amen.

Addresses of Welcome

President Witherspoon introduced the Hon. William Riddle, Mayor of Atlantic City, who delivered the following address:

ADDRESS OF WELCOME BY MAYOR RIDDLE

Mr. President, Ladies and Gentlemen: It is more of a pleasure than a duty to speak to you for all of the people of Atlantic City, and to say that Atlantic City owes her great success and her wonderful progress to the physicians of this country. Many years ago there was a circular sent out by the old Camden and Atlantic Railroad, which is the railroad the Pennsylvania now operates, describing what a wonderful climate this city had. Physicians generally took the matter up and advised their patients to come here to convalesce, and from that day Atlantic City began to grow and thrive and has become the greatest seaside resort in America. In numbers of people who frequent it, it is perhaps the largest seaside resort, excepting possibly Blackpool in England, which there is in the world. I want to say to you physicians that Atlantic City is deeply grateful to you. There is no class of men, no profession, no men in business to whom the people of Atlantic City are more grateful than they are to you.

Speaking about our climate, about a month ago I had to undergo a surgical operation for the removal of my appendix, and after convalescing I went to the country, Montgomery County, Pa. I went into a hospital, and they told me I was suffering from cardiac asthma induced perhaps by the ether. I did not get rid of it in the country, but two days after I returned to my home here the asthma had entirely disappeared, and I believe that Atlantic City to-day is a splendid place for asthma. (Laughter and applause.)

I received a letter from the proprietor of the Hotel Knickerbocker, New York, from Bad-Nauheim, who writes me that the city has erected a runway a mile long and about 50 feet in height. It is filled with branches of trees and they sprinkle salt water over the branches each day and tell the patient to wander along this runway and inhale the salt water. (Laughter.)

They advise American patients when they go home to come to Atlantic City. I can say to you as one who is convalescing that Atlantic City is rich in its rolling-chairs so that you can all enjoy the sea breezes. If any of you are sick, I would recommend that you stay here for some time.

Furthermore, I will say to you that Atlantic City and its government stand ready to do anything in their power to make your visit a pleasant one, and we hope that you will honor us by returning to this city very soon. We have many advantages which they do not have in other cities. For instance, our hotels are so concentrated that the delegates find it easy to get to the places of meeting. There is not the difficulty in bringing the delegates together which you will find in some cities. There are other attractions. You have come here during the season for bathing. You can have an ocean bath at any time. We have a splendid country club, which I hope you will visit. Only a few miles from here you will find that the fishing is good.

Again, I desire to thank you for your visit to Atlantic City and to say that we are grateful to you for making it such a great resort. (Applause.)

ADDRESS OF WELCOME BY THE PRESIDENT OF THE MEDICAL SOCIETY OF NEW JERSEY

Dr. Enoch Hollingshead was introduced and said:

Mr. President, Members of the American Medical Association, Ladies and Gentlemen: It gives me pleasure to greet you in the name of the Medical Society of New Jersey, the oldest State Medical Society in America. We greet you as Allah greets the rising sun, with reverence. We greet you as friends. We greet you as brothers on their own threshold. We greet you in this city with breezes laden with ozone from the ocean. We greet you as creators of medical thought, believing that you are of the best in the country, if not in the world. We greet you in bringing to us America's best thought for the benefit of all mankind, and especially for our own country, believing that no nation can be successful that does not make its medical object high. We welcome you from valley, hill and plain, and from every section of our vast domain, believing that the experiences which you will relate here will be of vast and incalculable benefit to mankind. Again, I greet you. (Applause.)

ADDRESS BY THE ATTORNEY-GENERAL OF NEW JERSEY

After announcements by the Chairman of the Committee of Arrangements, Dr. William Edgar Darnall, Atlantic City, the Hon. John Westcott, attorney-general of New Jersey, was introduced and said:

Mr. President, Members of the American Medical Association, Ladies and Gentlemen: This whole proceeding at the present time suggests a physician direct to the point, without fuss and without feathers, and the incongruity of the situation is that a lawyer should be among you. A lawyer among doctors is perhaps not in the right place (laughter), yet I can readily see that he is in the right place because, being a necessary evil, and the function of the physician being that to exclude necessary evils, the best way to get rid of the lawyer is to put him among physicians. (Laughter.)

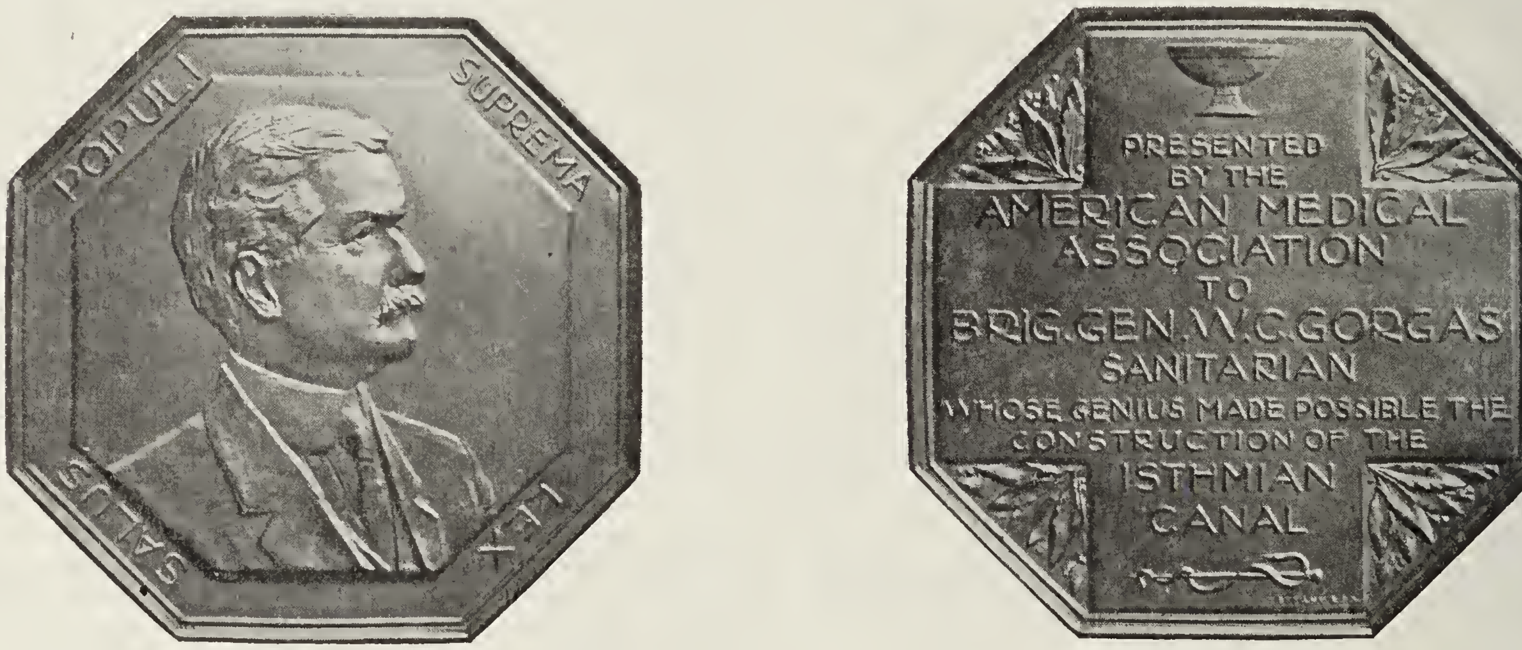
You have been welcomed by the mayor to the queen of all summer resorts. You have been welcomed by the president of the medical society of the great state of New Jersey. Through the governor of New Jersey, a man whose mind is sensitive to modern progress, I am commissioned in behalf of the state to welcome you. The great difficulty is for a lawyer to know the appropriate thing to say. I once heard of a young man who was much concerned about his destiny and his duty as a human being. After looking over the field carefully, he concluded that he could do the most good by saving human souls, so he became a preacher. Very soon he was disabused of his misconception and he found that men were more concerned about their bodies than they were about their souls. He straightway became a physician. He soon perceived the error of his second choice and found that, after all, men were more concerned about their pocketbooks than either their bodies or souls, so he became a lawyer. (Laughter.) I believe that men are destined to care less for their pocketbooks than they care for their souls and bodies. I believe that the human family is coming to realize that the soul and body are so closely identified that you cannot have a great soul without a great body. (Applause.)

The medical profession from the point of view of a stupid lawyer seems up to this time to have been a profession of empiricism, a profession of individual action, and almost necessarily so because the physician deals with a specific case all the time and he never knows its parallel exactly; and I will remark in passing that it is said of the lawyer that he is a machine and the only machine on earth that when once set going never knows when to stop. (Laughter.)

I was about to observe that the medical profession has developed a peculiar type of courage. The martyr goes to his doom; a soldier now and then goes to his death under circumstances of tremendous dramatic significance—excitement. The doctor, on the other hand, not once in a century, not when a war occurs, but hourly, every day of his life, not under circumstances of excitement, but under conditions of mental calm, under the force of poise, confronts not only danger but actually walks into the jaws of death, and he does it silently, unknown, unseen and unsung. Hence the physician by the necessity of his training and calling has developed a peculiar type of courage, and I do not hesitate to say, the highest species of courage known to the human animal. The force of that remark is to be found in what I am now about to say. The medical profession up to now has been a profession of separateness, if I may use the expression. The physician has had to go it alone. The characteristic of the age is cooperation. Cooperation is the expression of economy. The physician finally has come to appreciate the power of coordination and cooperation; hence your presence here to-day. I trust, and I have no doubt it will come to pass, that not only every state will have its medical organization, but also every county in every state; and every county organization should be closely affiliated with the state organization and every state organization with the national organization; then with 250,000 of the bravest men in the land thus coordinated, thus cooperating, much will be done for the redemption of society or its improvement. (Applause.) Such a cooperative scheme will result in the oneness of purpose that is simply resistless; therefore, such an organization can effect legislation in every state in the Union, and in the national legislature looking to the improvement of the people. When I say improvement of the people, what do I mean? I mean morals, religion, as well as physical conditions, because without complete physical conditions you cannot have a complete morality, nor can you have a sound theology, nor can you have an inspiring religion. The physician up to now, as I understand it, while he has labored at the foundation of society, has done so piecemeal. You have worked at each block of stone in the foundation, but not at the foundation by a scheme and a general purpose; consequently you have scattered far; now you are concentrating your energy. Therefore, I say, the physician is a philosopher; he is an economist; he is a politician, and I go so far as to say that the soundness of our institutions and their perpetuity rest more in the hands of the medical profession than in the hands of any other class of men. In the hands of the medical profession rests the future of this country, because in the hands of your profession rest the physical lives of the country, because in the soundness of the physical life of the country rests its morality, its religion and its patriotism. (Applause.)

One more suggestion or concluding observation is this: I have observed that the human animal is a susceptible creature in every direction. I am not going to talk about the philosophy of love. The average man or woman in picking up a newspaper and reading an advertisement in relation to his health will by the constructive processes of his imagination immediately appropriate as a part of his own physical life the delineation of every symptom that he finds stated in that advertisement as belonging to him, and the disease which that advertisement portrays in such awful colors as his disease. Such is the plasticity of the human mind. At the end of that advertisement there is a proposition to cure that disease, and it is immediately believed and straightway the reader of that advertisement hies himself to a drug-store and buys his freedom from disease. What does he buy? He buys a compound. What is that compound? God only knows. It is called euphoniously a proprietary concoction. This concoction is not created with scientific knowledge, but with a correct comprehension of human weakness, impelled by the desire in the creator of the compound to do what a lawyer does—take everybody's money in sight. (Laughter.) Statistics on the subject are obtainable, I am told. I have seen some; but how reliable they are I do not know. I assume from the sources that these statistics are approximately correct. While not wearying you with statistics, you will agree with me in the assertion that the American people are every moment of their lives, every hour in the day, every day in the week, every week in the month, and every month in the year, consuming these unknowable compounds, when they are in the solid form, by the ton; when they are in the liquid form, by the hogshead—millions of gallons of this liquid stuff are consumed by the American people annually. In other words, the very foundations of society have poured into them every day destruction through proprietary medicines. What are you doctors going to do about it? You are organized. Your organization will become more and more perfect every day if you have the courage of which I have spoken, and I know you have, to keep on agitating this question for the benefit of the people. See that the manufacturers of these poisons are hedged about by such legislative reforms as hedge you about and compel you to know what you are doing. (Applause.)

So, I conclude, Mr. President, with the laudation not only that your profession carries in the hollow of its hand the destinies of this country, but also that your most conspicuous duty at the present time is to see that the American people are saved from a continuous process of poisoning through liberated ignorance. (Loud and prolonged applause.)



Medal presented to Surgeon-General Gorgas by the American Medical Association.

President Witherspoon said:

As your retiring president, I want to respond briefly to these addresses of welcome and to say to the people of Atlantic City how much we appreciate them. I want especially to express our gratitude and thanks to the last speaker for his remarks. He has not only spoken of our organization and of the unit from the county to the state society and from the state society to the national society, but also he has absolutely followed the trail that we have fought along the road through the wilderness of ignorance until it would seem that he had been employed as counsel of the American Medical Association. (Laughter.)

I endorse the remarks of the attorney-general and have adopted them long since as the motto in the great work of the American Medical Association. (Applause.)

Presentation of Gold Medal to Surgeon-General Gorgas

Dr. Witherspoon then said that one of the acts of his administration was to appoint a special committee, of which Dr. Charles A. L. Reed was made chairman, and he asked Dr. Reed to make a report for that committee.

Dr. Reed said:

Mr. President: It is my privilege and happiness to present to you an illustrious member of the medical profession to be the recipient of a gold medal of appreciation now to be conferred by the American Medical Association. Citizen of the republic, graduate in arts and medicine, doctor of science from renowned institutions at home and over seas, army surgeon designated and promoted by special act of Congress to eradicate yellow fever from Havana, member of the Isthmian Canal Commission, chief sanitary officer of the Isthmian Canal Zone, international consultant on great sanitary problems, Fellow and former President of the American Medical Association, honorary and associate fellow of numerous foreign scientific associations, now Surgeon-General of the United States Army, illustrious scientist, executive, writer and scholar, William Crawford Gorgas, Sanitarian, whose genius made possible the construction of the Isthmian Canal. (Applause.)

President Witherspoon continued:

General Gorgas, one of the acts of my administration, of which I am very proud, was the appointment of this special committee for the purpose of showing to the world our appreciation of ability, our appreciation of greatness, our appreciation of that wonderful genius which has made it possible, sir, for you not only to demonstrate to the world that it was possible to build the Panama Canal, but also to go further and show, as you have done, that 500,000 lives which have been lost in our country by preventable diseases can be and will be prevented finally with you at the head of the Army of our country. We hope you will always be at the head of the sanitary protection of our people.

As retiring president of the American Medical Association, it gives me great pleasure to turn over and to present to you, General Gorgas, a gold medal in commemoration of your wonderful ability and your wonderful work that has connected nations and has taught the world that the American Medical Association contains a man who dared to do what was right for the salvation of mankind. (Loud and prolonged applause.)

General Gorgas, in accepting the gold medal, said:

I thank you, Mr. President, and Fellows of the American Medical Association. I appreciate, of course, the great honor of this occasion, but I would like to have you think that this honor is to be shared by three or four hundred young Americans who have labored in this sanitary work on the Canal Zone, and I receive this medal in part as their chief and as their representative. Again, I thank you. (Loud applause.)

President Witherspoon then said:

The final act of my administration is to introduce to you the man of your choice to preside over your deliberations next year.

I want to say in retiring that my labors have been pleasant; they have been to me a great inspiration, and one of the greatest pleasures of that administration was to follow in the footsteps of such a man as the great Jacobi, and to be followed by such a man as the great Dr. Vaughan. (Applause.)

Dr. Victor C. Vaughan, Ann Arbor, Mich., then delivered his address as President of the American Medical Association, entitled "The Service of Medicine to Civilization," which was published in The Journal, June 27, 1914, p. 2004.

Minutes of The Sections

SECTION ON PRACTICE OF MEDICINE

Tuesday, June 23—Afternoon

The meeting was called to order by the chairman, Dr. Charles Lyman Greene, St. Paul, Minn.

Dr. H. B. Hiatt, High Point, N. C., and Dr. William Allan, Charlotte, N. C., presented a paper entitled "Will Sprue Become Endemic in the United States? Notes on Cases Invalidated from the Tropics." Discussed by Drs. Roger S. Morris, Clifton Springs, N. Y., and H. B. Hiatt, High Point, N. C.

Dr. Tom A. Williams, Washington, D. C., read a paper on "The Syndrome of Adrenal Insufficiency." Discussed by Drs. Frank R. Starky, Philadelphia; Walter L. Bierring, Des Moines, Iowa, and Tom A. Williams, Washington, D. C.

Dr. George Douglas Head, Minneapolis, read a paper on "Neurasthenia and Tuberculosis (Concealed)." Discussed by Drs. Nathan Rosewater, Cleveland; F. M. Pottenger, Monrovia, Cal.; Charles Stover, Amsterdam, N. Y.; Eliza M. Mosher, Brooklyn, N. Y.; A. J. Caffrey, Milwaukee; John Ritter, Chicago; Tom A. Williams, Washington, D. C.; Walter B. Swift, Boston; Albert Robin, Wilmington, Del.; H. S. Plummer, Rochester, Minn.; J. P. Murray, Charlotte, N. C.; Robert W. Willson, Philadelphia, and George Douglas Head, Minneapolis.

Dr. Arthur F. Chace and Dr. M. S. Fine, New York, presented a paper on "The Use of Atophan and Radium Emanation in the Treatment of Gout and the Arthritides." Discussed by Drs. Charles G. Stockton, Buffalo, N. Y.; S. Solis Cohen, Philadelphia, and Arthur F. Chace, New York.

Dr. Louis G. Heyn, Cincinnati, O., read a paper on "Satisfactory Results from Intrarectal Administration of Sodium Salicylate in Acute Rheumatic Fever." Discussed by Drs. E. W. Mitchell, Cincinnati, O.; Joseph L. Miller, Chicago; J. N. Upshur, Richmond, Va.; J. M. Rector, Columbus, O.; James C. Tyson, Philadelphia; Nathan Rosewater, Cleveland, O.; W. W. Tompkins, Charleston, W. Va. and Louis G. Heyn, Cincinnati, O.

Wednesday, June 24—Morning

The Chairman appointed a nominating committee to report at a subsequent meeting, consisting of Drs. Joseph L. Miller, Chicago; W. S. Thayer, Baltimore, and Alexander Lambert, New York.

A joint meeting was held with the Section on Pathology and Physiology.

The following papers were read as a Symposium on Nutrition:

Prof. L. B. Mendel, New Haven, Conn.: "The Specificity of the Nutrients."

Prof. Otto Folin, Boston: "The Intermediary Metabolism."

Prof. Graham Lusk, New York: "The Specific Dynamic Action of Food."

Dr. Eugene F. Du Bois, New York: "The Total Energy Requirements in Disease as Determined by Calorimetric Observations."

These four papers were discussed by Drs. Victor C. Vaughan, Ann Arbor, Mich.; S. J. Meltzer, New York; F. M. Pottenger, Monrovia, Cal.; E. P. Joslin, Boston; A. D. Eustis, New Orleans; George Douglas Head, Minneapolis; A. J. Carlson, Chicago; L. B. Mendel, New Haven, Conn.; Otto Folin, Boston; Graham Lusk, New York, and Eugene F. Du Bois, New York.

Wednesday, June 24—Afternoon

Dr. Robert N. Willson, Philadelphia, read a paper on "The Heart in the Pneumonias." Discussed by Drs. James M. Anders, Philadelphia; W. S. Thayer, Baltimore, and Robert N. Willson, Philadelphia.

Drs. C. Frothingham and W. G. Smillie, Boston, presented a paper on "Effect of Low and High Nitrogen Diet on Renal Function Tests in Chronic Nephritis." Discussed by Drs. L. G. Rowntree, Baltimore; De Lancey Rochester, Buffalo; L. F. Bishop, New York; Jonas, Philadelphia; Walter L. Bierring, Des Moines, Iowa, and C. Frothingham, Boston.

Drs. Harlow Brooks and John Carrol, New York, presented a paper on "The Treatment of Heart Involvement in Syphilis."

Dr. Richard C. Cabot, Boston, read a paper on "The Four Common Types of Heart Disease."

Dr. Alfred Stengel, Philadelphia, read a paper on "Cardiovascular and Renal Responsibility in the Disturbances of Cardiorenal Disease."

These three papers were discussed by Drs. Emanuel Libman, New York; S. Solis Cohen, Philadelphia; Charles Williamson, Chicago; H. S. Plummer, Rochester, Minn.; L. F. Bishop, New York; Robert N. Willson, Philadelphia; Graham E. Henson, Jacksonville, Fla.; Richard C. Cabot, Boston; Harlow Brooks, New York, and Alfred Stengel, Philadelphia.

Drs. L. G. Rowntree, Allen Chesney and E. K. Marshall, Baltimore, presented a paper on "Studies in Liver Function." Discussed by Dr. William S. Thayer, Baltimore.

Thursday, June 25—Morning

The following officers were elected: Chairman, Dr. Thomas MacCrea, Philadelphia; Vice-Chairman, Dr. John L. Dawson; Charleston, S. C.; Secretary, Dr. Roger S. Morris, Clifton Springs, N. Y.; Delegate, Dr. Richard C. Cabot, Boston, and Alternate, Dr. E. E. Irons, Chicago.

Dr. Elliott P. Joslin, Boston, read a paper on "End Results in Gastric and Duodenal Ulcer."

Dr. Frank Smithies, Chicago, read a paper on "Gastric Cancer in the Young: A Study of Fourteen Cases in Patients Under the Age of Thirty-One."

These two papers were discussed by Drs. J. N. Hall, Denver; F. B. Lund, Boston; Frank Billings, Chicago; J. A. Lichty, Pittsburgh; Alexander Lambert, New York; F. A. Speik, Los Angeles; Allen A. Jones, Buffalo, N. Y.; J. R. Verbrycke, Washington, D. C.; Anthony Bassler, New York; George Douglas Head, Minneapolis; M. H. Fussell, Philadelphia; J. M. Rector, Columbus, O.; Elliott P. Joslin, Boston, and Frank Smithies, Chicago.

Dr. Frank Billings, Chicago, read a paper on "Focal Infection: Its Broader Application in the Etiology of General Disease."

Dr. E. C. Rosenow, Chicago, read a paper on "The Newer Bacteriology of Various Infections Determined by Special Methods."

These two papers were discussed by Drs. William S. Thayer, Baltimore; A. C. Griffith, Kansas City, Mo.; Frank Smithies, Chicago; Emanuel Libman, New York; James M. Anders, Philadelphia; De Lancey Rochester, Buffalo, N. Y.; Alfred Stengel, Philadelphia; Frank Billings, Chicago, and E. C. Rosenow, Chicago.

Dr. C. F. Hoover, Cleveland, O., read a paper on "The Dead Space and Alveolar Air in Emphysema and Bronchial Asthma." Discussed by Drs. Allen A. Jones, Buffalo, N. Y.; George N. Jack, Buffalo, N. Y., and C. F. Hoover, Cleveland, Ohio.

Thursday, June 25—Afternoon

Dr. Henry F. Stoll, Hartford, Conn., read a paper on "Late Manifestations of Inherited Syphilis with Especial Reference to Arterial Disease." Discussed by Drs. Robert N. Willson, Philadelphia; W. Y. Watson, Baltimore; A. C. Griffith, Kansas City, Mo., and Henry F. Stoll, Hartford, Conn.

Dr. W. E. Robertson and Dr. J. V. Klauder, Philadelphia, presented a paper on "Various Types of Lues: A Clinical and Laboratory Study; the Abelin Reaction; Direct Subdural Injections." Discussed by Drs. J. V. Klauder, Philadelphia; W. W. Tompkins, Charleston, W. Va., and W. E. Robertson, Philadelphia.

Dr. Graham E. Hensen, Jacksonville, Fla., read a paper entitled "A Study of the Arneth Formula."

Dr. James S. Brotherhood, Clifton Springs, N. Y., read a paper on "Salvarsan in Pernicious Anemia." Discussed by Drs. W. E. Robertson, Philadelphia; W. W. Tompkins, Charleston, W. Va.; Robert N. Willson, Philadelphia; E.

Lindeman, New York; Tom A. Williams, Washington, D. C., and James S. Brotherhood, Clifton Springs, N. Y.

Dr. E. Lindeman, New York, read a paper on "The Medical Apparatus of Blood Transfusion by the Syringe-Cannula System Without Skin Incision." Discussed by Drs. G. M. Dorrance, Philadelphia; E. Adolphus Knopf, New York; E. A. Jaffin, Jersey City, N. J., and E. Lindeman, New York.

SECTION ON SURGERY

Tuesday, June 23—Afternoon

The Chairman, Dr. Charles H. Frazier, Philadelphia, called the meeting to order at 2:15 p. m. and stated that the Section would go into executive session.

Dr. F. B. Lund, Boston, presented the following motion:

> *Resolved,* That the Section on Surgery respectfully request the House of Delegates to amend Chapter XI, Section 1 of the By-Laws by omitting from the title of the third section the words "and Abdominal Surgery," so that the title shall read, as it formerly did, "Section on Obstetrics and Gynecology."
>
> [See Minutes of House of Delegates.]

This motion was duly seconded and carried. Dr. F. B. Lund was asked to present the motion to the House of Delegates.

Dr. Frazier then read the Chairman's address, entitled "The Cerebrospinal Fluid as a Problem in Intracranial Surgery."

Dr. Felix Landoir read a paper by Dr. Herman Küttner, Breslau, Germany, entitled "A Contribution to the Surgery of Brain Tumors." Discussed by Drs. William G. Spiller, Philadelphia, and Harvey Cushing, Boston.

Dr. Allen B. Kanavel, Chicago, read a paper entitled, "Osteoplastic Closure of the Trifacial Canals. An Experimental and Clinical Study Illustrated by Lantern-Slides." Discussed by Dr. S. J. Mixter, Boston.

Dr. Vilray P. Blair, St. Louis, read a paper entitled, "Treatment of Unlocalized Intracranial Injuries by Drainage through a Subtemporal Approach." Discussed by Drs. Charles A. Elsberg, New York; C. A. Evans, Milwaukee; C. E. Ruth, Des Moines, Iowa, and V. P. Blair, St. Louis.

Dr. Archibald MacLaren, St. Paul, read a paper entitled, "A Study of 300 Cases of Appendicitis with Special Reference to Pelvic Complications."

Dr. J. E. Moore, Minneapolis, read a paper entitled, "Has the Last Word Been Spoken Concerning Appendicitis?"

These two papers were discussed by Drs. A. J. Ochsner, Chicago; J. M. T. Finney, Baltimore, and L. Davis, Boston.

Wednesday, June 24—Morning

Dr. F. B. Lund, Boston, read a paper entitled, "Congenital Cystic Kidney." Discussed by Drs. D. N. Eisendrath, Chicago; A. L. Chute, Boston; A. D. Bevan, Chicago; A. J. Ochsner, Chicago; F. W. McRae, Atlanta, Ga., and F. B. Lund, Boston.

Dr. John B. Murphy, Chicago, read a paper entitled, "Ischemic Myositis of the Arm, Forearm and Leg, with Subsequent Contractions." Discussed by Drs. E. Laplace, Philadelphia; Dean Lewis, Chicago; Mr. Harold Collinson, Leeds, England, and Dr. J. B. Murphy, Chicago.

Dr. William L. Rodman, Philadelphia, read a paper entitled, "A Simple Method of Tapping a Distended Bladder and Making Permanent Drainage." Discussed by Drs. H. M. Christian, Philadelphia, and Alexander Randall, Philadelphia.

Dr. R. Matas, New Orleans, read a paper entitled, "Testing the Efficiency of the Collateral Circulation; Its Importance in Determining Surgical Intervention and Methods of Applying the Tests."

Dr. Alexius McGlannan, Baltimore, read a paper entitled, "Aneurysm of the Posterior Tibial Artery, with Report of Two Cases."

These two papers were discussed by Drs. B. M. Bernheim, Baltimore; A. Primrose, Toronto; John W. Price, Jr., Louisville, Ky.; J. Shelton Horsley, Richmond, Va.; R. Matas, New Orleans, and A. McGlannan, Baltimore.

Dr. Axel Werelius, Chicago, read a paper entitled, "Experimental Surgery of the Heart and Lungs." Discussed by Drs. John B. Murphy, Chicago; E. Wyllys Andrews, Chicago, and Willy Meyer, New York.

The Chairman announced that he had appointed Drs. A. J. Ochsner and C. H. Mayo to take the place of absent members of the Executive Committee.

Wednesday, June 24—Afternoon

Dr. J. C. Bloodgood, Baltimore, delivered the Oration on Surgery, entitled "The Relations of the Surgeon to the Conquest of Cancer." No discussion.

Mr. F. M. Corner, London, England, read a paper entitled, "Exploration of the Knee-Joint and Its Teachings." Discussed by Drs. John B. Murphy, Chicago; H. O. Marcy, Boston; Frederick J. Fassett, Seattle, Wash., and F. M. Corner, London, England.

Dr. Charles H. Mayo, Rochester, Minn., read a paper entitled, "Exophthalmos and Methods of Surgical Treatment." Discussed by Drs. Dean Lewis, Chicago, and C. H. Mayo, Rochester, Minn.

Mr. Harold Collinson, Leeds, England, presented a paper entitled, "Some Present-Day Problems in the Surgical Treatment of Gastric and Duodenal Ulcer." Discussed by Drs. John B. Deaver, Philadelphia; A. J. Ochsner, Chicago; J. M. T. Finney, Baltimore, and Mr. H. Collinson, Leeds, England.

Dr. T. Turner Thomas, Philadelphia, read a paper entitled, "Mechanism for Injuries of the Shoulder Region: Results of Forty Operations." Discussed by Drs. A. C. Wood, Philadelphia, and T. T. Thomas, Philadelphia.

Dr. E. Wyllys Andrews, Chicago, read a paper entitled, "Operation on Thoracic Wall for Relief of Bronchial Asthma." Discussed by Drs. Samuel Robinson, Boston; Charles Goodman, New York; G. N. Jack, Buffalo, N. Y., and E. W. Andrews, Chicago.

Dr. Henry H. M. Lyle, New York, read a paper entitled, "Aperiosteal Amputation (Hirsch-Bunge)." Discussed by Drs. F. J. Cotton, Boston, and H. H. M. Lyle, New York.

Thursday, June 25—Morning

Dr. E. S. Judd, Secretary, announced the following nominations for officers for the ensuing year: Chairman, Charles H. Peck, New York; Vice-Chairman, Dr. Wallace Terry, San Francisco; Secretary, Dr. E. S. Judd, Rochester, Minn.; Orator, Dr. S. J. Mixter, Boston; Delegate, Dr. Dean Lewis, Chicago.

Dr. Frazier asked Drs. Primrose and Haggard to conduct the Chairman-Elect to the platform. Dr. C. H. Peck then said:

> Mr. Chairman and Fellows of the Section: I fully appreciate the great honor you have done me in electing me to this position, an honor that I never expected to achieve, and I can only say that in payment for that I will promise to give the best that there is in me to the work of the Section during my tenure of office in maintaining its high ideals and the great influence it has and should have in the future on the surgeons and in the surgery of this country. Thank you very much.

Dr. George W. Crile, Cleveland, read a paper entitled, "Anoci-Association in Relation to Operations on the Gall-Bladder and the Stomach." Discussed by Drs. W. D. Haggard, Nashville, Tenn.; E. Laplace, Philadelphia; Robert T. Morris, New York; A. J. Ochsner, Chicago; Conrade A. Howell, Columbus, Ohio, and G. W. Crile, Cleveland.

Dr. Fred T. Murphy read a paper by himself and Dr. Barney Brooks, St. Louis, entitled, "The Problem of Intestinal Obstruction: Effort to Explain Variable Clinical and Experimental Results." Discussed by Drs. J. W. Draper, New York; John A. Hartwell, New York, and F. T. Murphy, St. Louis.

Dr. Alexander Primrose, Toronto, Ont., read a paper entitled, "Internal Hernia Due to an Aberrant Middle Colic Artery." Discussed by Drs. Charles A. Powers, Denver; W. B. Coley, New York, and E. Wyllys Andrews, Chicago.

Dr. Donald Guthrie, Sayre, Pa., read a paper entitled, "The Rodman Operation for Cancer of the Breast."

Dr. J. W. Vaughan, Detroit, read a paper entitled, "Cancer Vaccine and Anticancer Globulins as an Aid in the Surgical Treatment of Malignancy."

These two papers were discussed by Drs. Parker Sims, New York; William L. Rodman, Philadelphia; J. C. Bloodgood, Baltimore; William B. Coley, New York; N. N. Lucid, Cortland, N. Y.; Henry S. Wieder, Philadelphia; Julius H. Jacobson, Toledo, Ohio; Donald Guthrie, Sayre, Pa., and J. W. Vaughan, Detroit.

Thursday, June 25—Afternoon

A joint meeting was held with the Section on Hospitals. The following papers were read as a Symposium on Surgical Service in the Hospital:

Dr. J. M. T. Finney, Baltimore: "The Standardization of the Surgeon."

Mr. F. D. Gilbreth, Providence, R. I.: "Motion Study in Surgery."

Dr. H. O. Collins, Minneapolis: "The Surgical Service in Hospitals."

These three papers were discussed by Drs. Robert L. Dickinson, Brooklyn, N. Y.; C. H. Magee, Burlington, Iowa; John A. Hornsby, Chicago; H. T. Sutton, Zanesville, Ohio, and J. M. T. Finney, Baltimore.

Dr. J. L. Yates, Milwaukee, Wis., read a paper by Dr. C. H. Bunting, Madison, Wis., and himself entitled, "Hodgkin's Disease." Discussed by Drs. George W. Crile, Cleveland; A. J. Ochsner, Chicago; E. Wyllys Andrews, Chicago, and J. L. Yates, Milwaukee, Wis.

Dr. Randolph Winslow, Baltimore, read a paper entitled, "Penetrating Wounds of the Abdomen." Discussed by Drs. E. Laplace, Philadelphia; Cunningham Wilson, Birmingham, Ala.; Jacob Frank, Chicago; Clyde S. Ford, Major U. S. A.; F. N. McRae, Atlanta, Ga.; W. L. Rodman, Philadelphia, and R. Winslow, Baltimore.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

Tuesday, June 23—Afternoon

The meeting was called to order by the Chairman, Dr. E. Gustav Zinke, Cincinnati.

Dr. Zinke then read the Chairman's address entitled "A Few Important but Unsolved Problems in Obstetrics, Gynecology and Abdominal Surgery."

Dr. Edward J. Ill, Newark, read a paper on "The Treatment of the Albuminuria of Pregnancy."

Dr. A. J. Rongy, New York, read a paper on "The Treatment of the Toxemias of Pregnancy."

These two papers were discussed by Drs. Asa B. Davis, New York; Philip Marvel, Atlantic City, N. J.; M. Howard Fussell, Philadelphia; Charles S. Bacon, Chicago; Joseph B. DeLee, Chicago; Charles L. Bonifield, Cincinnati; Edward J. Ill, Newark, and A. J. Rongy, New York.

Dr. Edward P. Davis, Philadelphia, read a paper on "The Treatment of Placenta Praevia."

Dr. John B. Deaver, Philadelphia, read a paper on "Hysterotomy."

These two papers were discussed by Drs. Richard C. Norris, Philadelphia; George M. Boyd, Philadelphia; Damon B. Pfeiffer, Philadelphia; John O. Polak, Brooklyn; John M. Fisher, Philadelphia; A. J. Rongy, New York; Joseph B. DeLee, Chicago; Swithin Chandler, Philadelphia; E. P. Davis, Philadelphia, and John B. Deaver, Philadelphia.

Wednesday, June 24—Morning

Dr. Henry O. Marcy, Boston, read a paper on "Vesicovaginal and Rectovaginal Fistulas." Discussed by Drs. J. Wesley Bovée, Washington, and Henry O. Marcy, Boston.

Dr. Thomas S. Cullen, Baltimore, read a paper on "The Embryology of the Umbilical Region" (lantern demonstration). Discussed by Drs. Henry O. Marcy, Boston, and Thomas S. Cullen, Baltimore.

The following papers were read as a Symposium on Surgery of the Large Intestine:

Dr. Arthur E. Hertzler, Kansas City, Mo.: "The Pathogenesis of the Pericolic Membranes." (Lantern demonstration.)

Dr. Joseph Rilus Eastman, Indianapolis: "Experimental and Clinical Studies of Colon Stasis." (Lantern demonstration.)

Dr. Charles L. Bonifield, Cincinnati: "The Condition of a Few Patients Two Years After Ileosigmoidostomy."

Dr. W. J. Mayo, Rochester, Minn.: "Resection of the First Portion of the Large Intestine and the Resulting Effect on Its Function." (The paper was read by Dr. Charles H. Mayo.)

Dr. Charles A. L. Reed, Cincinnati: "Some Surgical Phases of the Sigmoid." (Lantern demonstration.)

These five papers were discussed by Drs. M. L. Harris, Chicago; Joseph Sailer, Philadelphia; John H. Gibbon, Philadelphia; John B. Deaver, Philadelphia; H. Pantzer, Indianapolis; Rosalie S. Morton, New York; J. W. Long, Greensboro, N. C.; Frank C. Yeoman, New York; Robert T. Morris, New York; Thomas S. Cullen, Baltimore; J. M. Lynch, New York; Henry O. Marcy, Boston; Joseph Rilus Eastman, Indianapolis; Charles L. Bonifield, Cincinnati; Charles H. Mayo, Rochester, and Charles A. L. Reed, Cincinnati.

Wednesday, June 24—Afternoon

A joint meeting was held with the Section on Pathology and Physiology.

The following papers were read as a Symposium on Specific and Protective Ferments:

Prof. Emil Abderhalden, Halle, Germany: "The Present Status of the Investigation." (In the absence of the author the paper was read by Prof. A. J. Carlson, Chicago.)

Dr. Victor Vaughan, Ann Arbor: "Parenteral Protein Digestion."

Dr. Chester M. Echols, Milwaukee: "Limitations of the Dialysis Method as a Practical Test for Pregnancy."

Dr. Henry Schwarz, St. Louis: "The Value of Abderhalden's Biologic Reaction to the Obstetrician and Gynecologist."

These four papers were discussed by Drs. Herman J. Boldt, New York; Charles S. Bacon, Chicago; Philip Williams, Philadelphia; F. H. Falls, Chicago; Charles Goodman, New York; Michael G. Wohl, Philadelphia; Clarence F. Ball, Rutland, Vt.; O. Lowry, Newark, N. J.; A. J. Carlson, Chicago, and Henry Schwarz, St. Louis.

Thursday, June 25—Morning

The following officers were nominated and elected: Chairman, Dr. Thomas S. Cullen, Baltimore; Vice-Chairman, Dr. George B. Somers, San Francisco; Secretary, Dr. Brooke M. Anspach, Philadelphia; Delegate, Dr. Channing W. Barrett, Chicago; Alternate Delegate, Dr. Henry Schwarz, St. Louis.

The Committee on Nomenclature of Operations reported that it had received a large number of suggestions which were being modified, and asked the active interest of the Section in its work. Discussed by Drs. Boldt and Dickinson.

Dr. Floyd E. Keene read a paper by himself and Dr. Henry K. Pancoast, Philadelphia, on "The Present Status of Pyelography." (Lantern demonstration.) Discussed by Drs. W. F. Braasch, Rochester, Minn.; Henry Dawson Furniss, New York; D. L. Eisendrath, Chicago; Arthur E. Hertzler, Kansas City; John G. Clark, Philadelphia, and Henry K. Pancoast, Bala, Pa.

Dr. Willard Bartlett, St. Louis, read a paper on "Personal Experience With Exclusion of the Pylorus in the Treatment of Ulcer." Discussed by Drs. William L. Rodman, Philadelphia; W. D. Haggard, Nashville, W. J. Jones, Chicago, and Willard Bartlett, St. Louis.

Dr. C. E. Ruth, Des Moines, Iowa, read a paper on "Common Errors in Gall-Tract Surgery." Discussed by Drs. Frederick Cotton, Boston; Edward Martin, Philadelphia; Philander Harris, Paterson, N. J.; D. N. Eisendrath, Chicago; J. H. Carstens, Detroit; John A. McGlinn, Philadelphia; F. B. Gray, Jersey City; Channing W. Barrett, Chicago; C. E. Ruth, Des Moines, Iowa.

Dr. Angus McLean, Detroit, read a paper on "Thrombosis and Emboli: Their Significance and Consequences in Abdominal Pelvic Surgery." No discussion.

Dr. Robert L. Dickinson, Brooklyn, read a paper on "Standardization of Surgery; the Attack on the Problem." No discussion.

Dr. William Edgar Darnall, Atlantic City, read a paper on "Pelvic Varicosities: A Definite Symptom-Complex." Discussed by Drs. Laura Branson, Iowa City, Iowa; J. H. Carstens, Detroit; S. M. Miller, Peoria, Ill.; Hugo Pantzer, Indianapolis; Swithin Chandler, Philadelphia; E. Gustav Zinke, Cincinnati, and William Edgar Darnall, Atlantic City.

Thursday, June 25—Afternoon

The following papers were read as a Symposium on Uterine Hemorrhage:

Dr. Emil Novak, Baltimore: "The Pathologic Physiology of Uterine Bleeding."

Dr. John G. Clark, Philadelphia: "Physiologic and Pathologic Variations of the Generative Organs Causing Atypical Bleeding; Diagnostic Aspects."

Dr. Howard A. Kelly, Baltimore: "Radium Treatment of Uterine Hemorrhage."

Dr. George E. Pfahler, Philadelphia: "Roentgen Therapy in Uterine Hemorrhage."

These four papers were discussed by Drs. C. C. Norris, Philadelphia; John A. McGlinn, Philadelphia; W. S. Newcomet, Philadelphia; Stephen E. Tracy, Philadelphia; Curtis Burnham, Baltimore; George Erety Shoemaker, Philadelphia; George C. Johnston, Pittsburgh; Emil Novak, Baltimore; John M. Fisher, Philadelphia; Howard A. Kelly, Baltimore, and George E. Pfahler, Philadelphia.

Dr. Albert Goldspohn, Chicago, read a paper on "Fundamental Intrapelvic Perineorrhaphy."

Dr. Frederick C. Holden, New York, read a paper on "Potent Factors in Failure of Operations for Retrodisplacement of the Uterus."

These two papers were discussed by Drs. George R. White, Savannah, Ga.; H. Grad, New York; John M. Fisher, Philadelphia; C. M. Echols, Milwaukee; John A. McGlinn, Philadelphia; Channing W. Barrett; Chicago; Brooke M. Anspach, Philadelphia; Albert Goldspohn, Chicago, and Frederick C. Holden, New York.

SECTION ON OPHTHALMOLOGY

Tuesday, June 23—Afternoon

The meeting was called to order by Dr. F. C. Todd, Chairman.

Dr. Joseph E. Willetts, Pittsburgh, called to the attention of the Section and read the report and resolutions of the committee of the Pennsylvania State Medical Society on medical expert testimony. It was moved and seconded that the Section endorse and approve the report and resolutions and that they be forwarded to the House of Delegates for consideration by that body on Wednesday. The motion carried. The resolutions and report will be found in the proceedings of the House of Delegates.

Dr. Todd read the Chairman's Address.

Dr. W. Gordon M. Byers, Montreal, read a paper on "Tumors of the Optic Nerve." Discussed by Drs. Marcus Feingold, New Orleans; G. E. de Schweinitz, Philadelphia; Edward Jackson, Denver; W. C. Posey, Philadelphia; John E. Weeks, New York; Walter R. Parker, Detroit; John O. McReynolds, Dallas, Tex.; Melancthon Foster, New Rochelle, N. Y., and W. Gordon M. Byers, Montreal.

Dr. Ward A. Holden, New York, read a paper on "Ocular Manifestations of the Toxemia of Pregnancy: Clinical Report of a Case." Discussed by Drs. R. L. Randolph, Baltimore; James Bordley, Jr., Baltimore; Allen Greenwood, Boston, and Dr. Ward A. Holden, New York.

Dr. Lee Masten Francis, Buffalo, read a paper on "Two Cases of Acute Retrobulbar Neuritis Associated with Marked Acetonuria." Discussed by Drs. G. E. de Schweinitz, Philadelphia; W. Reber, Philadelphia, and L. M. Francis, Buffalo.

Dr. F. H. Verhoeff, Boston, read a paper on "Chronic Ocular Tuberculosis: Necropsy Findings in a Case of Tuberculosis of the Hypophysis Cerebri." Discussed by Drs. Ervin Török, New York; M. Schoenberg, New York; E. V. L. Brown, Chicago; R. L. Randolph, Baltimore, and F. H. Verhoeff, Boston.

Wednesday, June 24—Morning

In the absence of Dr. Adolf Alt, St. Louis, a member of the Executive Committee, Dr. W. C. Posey, Philadelphia, was appointed on that committee.

There was an exhibition of New Instruments, Appliances, etc.

Dr. Edward Jackson, Denver, exhibited and distributed test cards for the determination of refraction.

Dr. Charles H. May, New York, exhibited a new electric ophthalmoscope with a battery handle in which, he asserted, he made use of a new principle.

Dr. S. Lewis Ziegler, Philadelphia, also exhibited an improvement on his electric ophthalmoscope previously exhibited to the Section; a light for transillumination, and one with a minute point of powerful light for use in the Wernicke test; a test stand and set of cards to show the special illumination; a small stand for short range work in cases of much-lowered vision in which it is necessary to start with such a short range as 5 feet; a stand for test cards with a light so arranged that each line of letters on the card receives the same amount of illumination. Below was a set of correct cards for testing muscle balance.

Dr. D. W. Wells, Boston, exhibited an instrument in the form of a two-tined fork with very sharp points for fixation of the conjunctiva and sclera in inserting a suture.

Dr. Walter Baer Weidler, New York, exhibited a set of lacrimal probes with sharp and dull dilators.

Dr. Walter B. Lancaster, Boston, exhibited instruments for testing the strength of magnets used in extracting metal bodies from the eye.

Dr. Lucien Howe, Buffalo, described a method of making sections of the connective tissue of the orbit, especially in relation to the insertion of the muscles.

Dr. M. Feingold, New Orleans, read a description of a dry celloidin method of making sections of the whole eye, and exhibited the methods with a microtome.

Dr. Clifton M. Miller, Richmond, Va., related a case of glaucoma in an old woman in which the eye was finally removed and sections showed in the upper part hemorrhage going into the anterior chamber, dislocating the lens and entirely separating the retina, which lay at the lower part of the sections exhibited by Dr. Miller. Later the patient presented beginning glaucoma in the other eye. The blood-pressure was found to be 200, which under rest and the administration of nitrites dropped to 176. He concluded not to operate on the second eye, as the patient had 20/30 vision under the use of physostigmin (eserin). Gradually the blood-pressure dropped to 172.

Dr. Melville Black, Denver, member of the House of Delegates, asked for an expression of the sentiment of the Section on the question of printing the entire transactions of the Section in a special number of The Journal as was done last year, in order that he might present the matter to the House of Delegates.

It was moved that the delegate be instructed to use his best efforts to have the papers of the Section on Ophthalmology published in the regular way instead of in a special number of The Journal. This motion carried.

Dr. Carl Fisher, Rochester, Minn., read a paper on "Epithelioma of the Lids." Discussed by Drs. Edwin E. Jack, Boston; Edward Jackson, Denver; S. D. Risley, Philadelphia; William L. Clark, Philadelphia; E. J. Bernstein, Kalamazoo, and Carl Fisher, Rochester, Minn.

Dr. F. Phinizy Calhoun, Atlanta, Ga., read a paper on "Hereditary Glaucoma (Simplex): the Report, with Operative Notes, of Three Generations of One Family."

Dr. Walter R. Parker, Detroit, read a paper on "Sclerocorneal Trephining for Glaucoma."

Dr. E. V. L. Brown, Chicago, read a paper on "Late Infection Following a Trephining for Glaucoma."

Dr. William Campbell Posey, Philadelphia, read a paper on "Value of Miotics in Chronic Glaucoma."

These four papers were discussed by Drs. Hiram Woods, Baltimore; John E. Weeks, New York; F. E. Cheney, Boston; W. E. Gamble, Chicago; Walter L. Pyle, Philadelphia; John Green, Jr., St. Louis; Lucien Howe, Buffalo; G. E.

de Schweinitz, Philadelphia; Melville Black, Denver; M. H. Lebensohn, Chicago; W. Gordon M. Byers, Montreal; Allen Greenwood, Boston; E. C. Ellett, Memphis; L. W. Fox, Philadelphia; W. E. Lambert, New York; F. Phinizy Calhoun, Atlanta, Ga.; W. R. Parker, Detroit; E. V. L. Brown, Chicago, and W. C. Posey, Philadelphia.

Wednesday, June 24—Afternoon

Dr. C. H. Williams, Boston, demonstrated an "anomaloscope" and a modification of a lantern to which he had added smoked glasses to obtain an intensification of colors.

Dr. Clifford B. Walker, Boston, demonstrated his instrument for the determination of the hemiopic pupillary reaction.

Dr. Nelson M. Black, Milwaukee, gave a demonstration on the standardization of signals in railway and other service, showing the effect of different colors and tints of glass in cutting out the ultraviolet rays of the spectrum or in intensifying or diminishing the light of signal-lamps.

Dr. J. Ellis Jennings, St. Louis, demonstrated a self-recording test for color-blindness.

Dr. Edward Jackson, Denver, read the report of the Committee on Education in Ophthalmology. The report will be found in the bound volume of the *Transactions* of the Section. Discussion and action on the report on motion of Dr. Jackson took place at the executive session Thursday morning.

Dr. Alexander Duane, New York, read a paper on "Convergence Insufficiency." Discussed by Drs. William N. Souter, Portsmouth, N. H.; Francis Valk, New York; D. W. Wells, Boston; Oscar Wilkinson, Washington, D. C.; George H. Price, Nashville, Tenn.; Edward Jackson, Denver, and Alexander Duane, New York.

Dr. Samuel Theobald, Baltimore, read a paper on "The Etiology of Phlyctenular Ophthalmia: Is Tuberculosis Really as Important a Factor in the Causation of this Disease as Now Commonly Taught?" Discussed by Drs. W. E. Gamble, Chicago; A. E. Davis, New York; George H. Derby, Boston; Harry Vaughan, Morristown, N. J.; Richard J. Tivnen, Chicago; Walter Baer Weidler and Thomas H. Curtin, New York; William Tarun, Baltimore; Mark Stevenson, Akron, Ohio, and Samuel Theobald, Baltimore.

Dr. William Zentmayer, Philadelphia, read a paper on "A Study of the Effect of the Correction of Ametropia on Heterophoria, with a Consideration of Some Associated Conditions." Discussed by Drs. A. E. Davis, New York; Hiram Woods, Baltimore; Edward Jackson, Denver; Francis Valk, New York; Samuel Theobald, Baltimore; George H. Price, Nashville; W. H. Bates, New York; Otis Orendorff, Canon City, Colo.; Mark Stevenson, Akron, Ohio, and William Zentmayer, Philadelphia.

Thursday, June 25—Morning

Dr. Albert E. Bulson, Jr., Chairman, made the following report:

> The Executive Committee after due consideration has decided to recommend for your approval the following: for Chairman, E. C. Ellett, Memphis, Tenn.; for Vice-Chairman, John A. Donovan, Butte, Mont. This Section has relieved the Executive Committee of the responsibility of nominating a secretary, inasmuch as the present secretary has been elected for three years; but the Executive Committee feels that it would like to approve the work done by our very efficient secretary, Dr. George H. Derby. For delegate, Dr. Walter R. Parker, Detroit.
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> The Executive Committee in consideration of the recommendations in the Chairman's address has the following to offer:
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> We desire to approve and commend the recommendation of the Chairman for the establishment of teaching fellowships in the universities wherever suitable facilities exist, and we recommend that the plan be referred to the Council on Medical Education of the American Medical Association with the hearty endorsement of this Section.

On motion of Dr. S. D. Risley, Philadelphia, duly seconded, the report and recommendations of the Executive Committee were adopted.

The Chairman announced that three members of the Committee on Award under the provisions of the Knapp Testimonial Fund were to be elected. The following were nominated:

Dr. G. E. de Schweinitz, Philadelphia; Dr. E. V. L. Brown, Chicago; Dr. F. Phinizy Calhoun, Atlanta; Dr. S. D. Risley, Philadelphia; Dr. Hiram Woods, Baltimore.

Dr. Bulson called attention to the ineligibility for this committee of men who have papers before the Section this year. This ruled out Dr. E. V. L. Brown and Dr. F. Phinizy Calhoun.

Dr. W. C. Posey moved that the nominations be closed. Seconded and carried.

Dr. George H. Price moved that the Secretary cast the ballot of the Section for the three nominees, Drs. de Schweinitz, Risley and Wood. This motion carried and the men named were declared members of the Committee of Award of the Knapp Testimonial Fund.

The Chairman announced that the next order of business would be the report of the Knapp Testimonial Fund Committee, and Dr. A. E. Bulson, chairman of the committee in making the report said that there had been a hearty response to the request of the committee for contributions to the fund, and in the last three years the number of contributors had varied from 227 to 255. Most of the contributions were $5 and a few had contributed $10 or more. As is known, any contributor giving $5 or more gets the Year-Book, edited by Dr. Edward Jackson of Denver, and a copy of the bound *Transactions* of the Section. The subscription price of the Year-Book alone is $5 and there has been a considerable deficit connected with the publication of the volume, which Dr. Jackson has generously and uncomplainingly made up in addition to doing the large amount of work of compilation and editing. This it was felt should not continue, and inasmuch as Dr. Jackson had agreed to prepare the book for 1914, a plea was made that contributors should increase their subscriptions to the Knapp Fund to a sufficient amount to pay for the Year-Book and the bound *Transactions* There was nothing compulsory about it, but next year the minimum subscription would be made $10. The work is invaluable to the ophthalmologist, and aside from the financial deficit which Dr. Jackson has made up, the fact that he was willing to undertake the work at all is worthy of great commendation. The money in the fund after the payment of sundry items of expense and the cost of striking off a new Knapp Fund medal, and some incidental expenses in connection with the publication of papers by men doing research who are unable to meet the charges made by the Association, will be paid to Dr. Jackson. So that the Knapp Testimonial Fund is serving a very useful purpose in promoting research work and also in furthering the interests of the Section.

Dr. Edward Jackson, Denver, presented the report of the Committee on Award, as follows:

> The members of the committee, each separately, examined the papers presented at the last annual meeting of this Section and each independently arrived at the conclusion that among those papers was one worthy of the prize. There were other papers that had to be carefully considered in competition with it. But we fully united in the conclusion that this paper dealt with an important matter, judiciously reviewed the preceding literature, met by ingenious experiment the difficulties that beset the subject, recorded original observations of worth and importance, and so brought light where before had been uncertainty and confusion. For these reasons we recommend the award of the medal for the paper on the "Topical Diagnostic of the Hemiopic Pupillary Reaction and the Wilbrand Hemianopic Prism Phenomenon with a New Method of Performing the Latter," by Clifford B. Walker of Boston.
>
> Edward Jackson,
> John E. Weeks,
> Casey A. Wood.

The chairman of the Knapp Testimonial Fund Committee Dr. A. E. Bulson, Jr., then, at the request of the Chairman of the Section, presented the medal to Dr. Walker

Dr. C. H. Williams, Boston, chairman, read the report of the Committee on Color Standards, which will appear in the *Transactions* of the Section.

It was moved that the report of the Committee on Color Vision be accepted and the committee continued for another year, with instructions to report at the next meeting of the section a standard form of instructions for the examination of the color-sense and a standard blank for recording the results of these tests.

The motion was stated and carried in the foregoing form.

Dr. Hiram Woods, Baltimore, read the report of the Committee on Optometry, of which committee Dr. W. H. Wilder was chairman, and wrote the report. The last clause of this report or recommendation was written by Dr. Wilder, but was not concurred in by the other members of the committee. The members of the committee were Edgar Thomson, New York, E. C. Ellett, Memphis, John Green, Jr., St. Louis, Hiram Woods, Baltimore, and William H. Wilder, Chicago, chairman.

Dr. Edward Jackson moved that the report be accepted and adopted by this Section. The motion was seconded.

Dr. John Green, Jr., wished to amend the motion to the effect that the report be accepted with the omission of the last sentence.

Dr. Jackson accepted the amendment and the motion as amended carried.

The chairman called up for discussion and action the report of the Committee on Education in Ophthalmology read in the section Wednesday.

In order to get the question before the house, Dr. G. E. de Schweinitz moved that the report be adopted as read as expressing the sentiment of the Section, and at the suggestion of the chairman the motion was made to include the continuance of the committee. After considerable discussion the motion carried.

Dr. George H. Derby, Secretary, called up the point as to whether the Committee on Optometry was to be continued or discharged.

Dr. Hiram Woods moved that the committee be discharged. Seconded and carried.

The chairman called up the report of the Committee on Conservation of Vision. He explained that the report had gone to the House of Delegates as the committee was a committee of the American Medical Association, and in the absence of Dr. Frank Allport, chairman, Dr. Hiram Woods was asked to discuss the report. He stated the substance of the report and described the work of the Council on Health and Public Instruction in the way of the distribution of about twenty pamphlets whose subjects and authors he named, the conduct of a newspaper campaign, etc.

Dr. Woods moved that the report of Dr. Allport be accepted and that the secretary of the section be requested to obtain a copy from the House of Delegates for publication in the *Transactions* of the Section. Seconded and carried.

Dr. Homer E. Smith, Norwich, N. Y., read a paper on "Safe and Speedy Extraction of the Immature Cataractous Lens Following Preliminary Capsulotomy." Discussed by Drs. S. D. Risley, Philadelphia; Hiram Woods, Baltimore; Allen Greenwood, Boston; W. E. Lambert, New York; M. Feingold, New Orleans; Otis Orendorff, Canon City, Colo.; John Green, Jr., St. Louis; W. M. Sweet, Philadelphia; F. C. Todd, Minneapolis; Melville Black, Denver, and Homer Smith, Norwich, N. Y.

Dr. J. W. Jervey, Greenville, S. C., read a paper on "The Influence of Hookworm Disease on the Eyes; A Study of Fifty-Three Cases." Discussed by Drs. Charles W. Kollock, Charleston, S. C.; F. Phinizy Calhoun, Atlanta, Ga., and J. W. Jervey, Greenville, S. C.

Dr. Edward Jackson, Denver, read a paper on "International Standard for Testing Vision, and Standardizing other Visual Tests." Discussed by Drs. Nelson M. Black, Milwaukee, and Edward Jackson, Denver.

Dr. Edward Jackson, Denver, moved that the Section appoint a committee on standardizing test cards, the committee to be appointed by the chair. Seconded and carried.

Dr. S. Lewis Ziegler, Philadelphia, read a paper on "Trefoil Keratectomy." Discussed by Drs. John Green, Jr., St. Louis; John E. Virden, New York, and S. Lewis Ziegler, Philadelphia.

Thursday, June 25—Afternoon

Dr. Clifford B. Walker, Boston, read a paper on "Further Observations on the Hemiopic Pupillary Reaction Obtained with a New Clinical Instrument." Discussed by Dr. Walter B. Lancaster, Boston.

Drs. H. H. Tyson and M. J. Schoenberg, New York, read a paper on "Experimental Researches in Methyl Alcohol Inhalation." Discussed by Drs. Ward A. Holden, New York; Hiram Woods, Baltimore; Edgar B. Burchell, New York, and M. J. Schoenberg, New York.

Dr. Edward Stieren, Pittsburgh, read a paper on "Enucleation with Transplantation of Fat into the Orbit." Discussed by Drs. John A. Donovan, Butte; John Green, Jr., St. Louis; W. E. Lambert, New York, and Edward B. Heckel and Edward Stieren, Pittsburgh.

Dr. Walter B. Weidler, New York, gave a lantern demonstration and description of sarcomas. No discussion.

Dr. E. C. Ellett, Memphis, Tenn., gave a description and "Demonstration of the Action of Trephining on Rabbits' Eyes." No discussion.

Dr. F. C. Todd, the retiring Chairman, presented a gavel to the section on which he proposes to have engraved the names of past chairmen of the Section, and that of the Chairman-Elect, Dr. E. C. Ellett. He was thanked by the new chairman.

Dr. G. E. de Schweinitz moved a vote of thanks to the retiring chairman for his tactful and judicial conduct of the business of the meeting, to the secretary for efficient work and to the committee of arrangements for their efforts. It was taken by consent.

Dr. Hiram Woods moved a rising vote of thanks to Dr. Todd for the gavel presented to the section.

SECTION ON DISEASES OF CHILDREN

Tuesday, June 23—Afternoon

The meeting was called to order by the Chairman, Dr. F. S. Churchill of Chicago. The Chairman expressed his appreciation of the honor conferred on him by his selection as Chairman, and welcomed the members of the Section.

Dr. A. W. Myers, Milwaukee, Wis., read a paper on "Some Practical Breast-Milk Problems."

Dr. Frank C. Neff, Kansas City, read a paper on "The Feeding of Skimmed Breast-Milk."

These two papers were discussed by Drs. John Zahorsky, St. Louis; Charles Douglas, Detroit; H. Lowenburg, Philadelphia; John Lovett Morse, Boston, and A. W. Myers, Milwaukee, Wis.

In the absence of Dr. Abt, Chicago, the chair appointed Dr. R. M. Smith, Boston, to serve in his place.

Dr. H. M. McClanahan, Omaha, Neb., read a paper on the "Care of Delicate and Premature Children in the Home." Discussed by Drs. Henry D. Chapin, New York; John Zahorsky, St. Louis; L. R. DeBuys, New Orleans; S. M. Hamill, Philadelphia; F. B. Talbot, Boston; F. N. Rogers, Manchester, N. H.; Henry F. Helmholz, Chicago, and H. M. McClanahan, Omaha.

Dr. Henry Dwight Chapin, Boston, read a paper on "The Physician's Function in Infant-Feeding." No discussion.

Wednesday, June 24—Morning

Dr. Henry Heiman, New York, read a paper on "Refractory or So-Called 'Fast' Cases of Meningococcus Meningitis." Discussed by Drs. H. Lowenburg, Philadelphia; Roger H. Dennett, New York; John Zahorsky, St. Louis; John Lovett Morse, Boston; J. L. Hirsh, Baltimore, and Henry Heiman, New York.

Dr. Rowland Godfrey Freeman, New York, read a paper on "Urinary Analysis in the Diagnosis and Treatment of Infancy and Childhood." Discussed by Drs. J. P. Sedgwick, Minneapolis; S. M. Hamill, Philadelphia; Joseph L. Linde, New Haven, Conn.; Henry F. Helmholz, Chicago; Butterworth, Chicago; Henry Heiman, New York; Kate C. Meade, Middletown, Conn., and Rowland G. Freeman, New York.

Dr. L. R. DeBuys, New Orleans, read a paper on "Amebic Dysentery in Children." Discussed by Drs. Thomas S. Southworth, New York; Henry D. Chapin, New York; John W. Amesse, Denver; Butterworth, Chicago, and L. R. DeBuys, New Orleans.

Dr. Alfred S. Hess, New York, read a paper on "The Use of a Series of Vaccines in the Prophylaxis and Treatment of an Epidemic of Pertussis." Discussed by Drs. John Zahorsky, St. Louis; T. C. McCleave, Berkeley, Cal.; S. M. Hamill, Philadelphia; D. L. Richardson, Providence, R. I.; Kate C. Meade, Middletown, Conn.; Reimer, New York;

Henry Heiman, New York; H. Lowenburg, Philadelphia, and Alfred S. Hess, New York.

Dr. R. M. Smith, Boston, read a paper on "The Examination of the Chest in Children." Discussed by Drs. Henry Heiman, New York; Rowland Freeman, New York; S. M. Hamill, Philadelphia; H. M. McClanahan, Omaha, Neb.; Henry Dwight Chapin, New York; John Zahorsky, St. Louis, and R. M. Smith, Boston.

Wednesday, June 24—Afternoon

Dr. Roger H. Dennett, New York, read a paper entitled "The Use of Boiled Milk in Infant-Feeding."

Dr. Jerome S. Leopold, New York, read a paper on "Experiences with Whey-Modified Milk in Infant-Feeding."

These two papers were discussed by Drs. Frank C. Neff, Kansas City, Mo.; L. T. Royster, Norfolk, Va.; H. Lowenburg, Philadelphia; Charles Douglas, Detroit; G. D. Scott, New York; John Zahorsky, St. Louis; G. W. Graves, New York; John Lovett Morse, Boston; Roger H. Dennett, New York, and Jerome S. Leopold, New York.

Dr. John Zahorsky, St. Louis, read a paper on "Experiments with Swine-Fat in Infant-Feeding."

Dr. F. W. Schultz, Minneapolis, read a paper on "The Absorption of Fat from the Intestinal Tract of the Actively Tuberculous Child." Discussed by Drs. F. B. Talbot, Boston; John Zahorsky, St. Louis, and F. W. Schultz, Minneapolis.

Dr. Thomas S. Southworth, New York, read a paper on "The Influence of Starch on Infant Digestion."

Dr. F. B. Talbot, Boston, read a paper on "The Metabolism of Carbohydrates with Special Reference to Its Effect on the Absorption of Fat and Nitrogen and on the Retention of Salts."

These two papers were discussed by Drs. Charles Douglas, Detroit; J. L. Morse, Boston; John Zahorsky, St. Louis; J. F. Sinclair, Philadelphia; H. M. McClanahan, Omaha, Neb.; H. F. Helmholz, Chicago; Thomas S. Southworth, New York, and F. B. Talbot, Boston.

Thursday, June 25—Morning

The following were nominated and elected as officers for the ensuing year: Chairman, Dr. L. T. Royster, Norfolk, Va.; Vice-Chairman, Dr. A. W. Myers, Milwaukee; Secretary, Dr. F. P. Gengenbach, Denver; Delegate, Dr. T. C. McCleave, Berkeley, Cal.; Alternate, Dr. F. C. Neff, Kansas City, Mo.

Dr. C. F. Judson, Philadelphia, read a paper on "Blood-Pressure in Normal Children."

Dr. John Lovett Morse, Boston, read a paper entitled "A Study of the Blood-Pressure in Anemia in Infancy." Discussed by Drs. May Michael, Chicago; R. Hill, Philadelphia; L. F. Bishop, New York; John Ritter, Chicago; S. M. Hamill, Philadelphia; C. F. Judson, Philadelphia, and J. L. Morse, Boston.

Dr. C. H. Dunn, Boston, read a paper on "A contribution to the Diagnosis and Prognosis of Congenital Cardiac Disease." Discussed by Drs. F. W. Schultz, Minneapolis; H. F. Helmholz, Chicago; John Zahorsky, St. Louis; L. T. Bishop, New York; Allen, Holyoke, Mass.; J. P. Sedgwick, Minneapolis; J. L. Morse, Boston, and C. H. Dunn, Boston.

Dr. Henry F. Helmholz, Chicago, read a paper on "Further Observations Concerning the Relation of Heat to Infant Mortality." Discussed by Drs. L. T. Royster, Norfolk, Va.; Julius Levy, Newark, N. J.; R. M. Smith, Boston; Charles Douglas, Detroit; W. W. Butterworth, New Orleans; S. M. Burton, Albuquerque, N. Mex.; Ilway, New York; L. W. Elias, Asheville, N. C.; T. C. McCleave, Berkeley, Cal., and H. F. Helmholz, Chicago.

Dr. H. Lowenburg, Philadelphia, read a paper on "A Further Clinical Study of the Efficiency of Sodium Chlorid in the Therapeutics of Bright's Disease." Discussed by Drs. Julius Levy, Newark, N. J.; Thomas S. Southworth, New York; John Zahorsky, St. Louis; Percival Nicholson, Ardmore, Pa., and H. Lowenburg, Philadelphia.

Dr. Julius H. Comroe, York, Pa., read a paper on "The Use and Abuse of the Tonsils." Discussed by Drs. John Zahorsky, St. Louis; Thomas S. Southworth, New York, and J. H. Comroe, York, Pa.

Thursday, June 25—Afternoon

Dr. T. C. McCleave, Berkeley, Cal., read a paper on "The Relation of Bovine Tuberculosis to Early Tuberculosis in Childhood." Discussed by Drs. P. L. Coit, Trenton, N. J.; John Ritter, Chicago; Julius Levy, Newark, N. J.; R. M. Smith, Boston; H. F. Helmholz, Chicago; Charles Douglas, Detroit, and T. C. McCleave, Berkeley, Cal.

Dr. E. A. Park, Baltimore, read a paper on "Thoracic Complications of Rickets." Discussed by Drs. Maurice Ostheimer, Philadelphia; J. Howland, Baltimore; H. T. Price, Pittsburgh; J. H. McKee, Philadelphia, and E. A. Park, Baltimore.

Dr. Maurice Ostheimer, Philadelphia, read a paper on "Fragilitas Ossium." Discussed by Drs. E. A. Park, Baltimore; F. A. Conlon, Lawrence, Mass., and Maurice Ostheimer, Philadelphia.

F. X. Walls, Chicago, read a paper on "Treatment of Inguinal Hernia in Infants." No discussion.

After the installation of officers, the chairman appointed S. M. Hamill, Philadelphia, and F. S. Churchill, Chicago, a committee to look into the possibilities of increasing and improving the Section on Diseases of Children.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

Tuesday, June 23—Afternoon

The meeting was called to order at 2:15 p. m., by the Chairman, Dr. John F. Anderson, Washington, D. C.

Dr. Anderson then read his Chairman's Address, entitled "Some Unhealthy Tendencies in Therapeutics." No discussion.

Dr. Cary Eggleston, New York, read a paper by Dr. Robert A. Hatcher, New York, and himself, entitled "Studies on the Absorption of Drugs." Discussed by Drs. Samuel James Meltzer, New York; Solomon Solis Cohen, Philadelphia, and Cary Eggleston, New York.

Dr. Ray L. Wilbur, San Francisco, read a paper on "The Therapeusis of Pericarditis." Discussed by Dr. Samuel James Meltzer, New York.

Dr. Lawrence Litchfield, Pittsburgh, read a paper on "The Abuse of Normal Salt Solution." Discussed by Drs. John F. Anderson, Washington, D. C.; Ray L. Wilbur, San Francisco; John A. Lichty, Pittsburgh, and Lawrence Litchfield, Pittsburgh.

Dr. L. H. Newburgh, Boston, read a paper on "Therapy of Cardiovascular Disturbances." Discussed by Drs. D. F. Johnson, Pittsburgh; Lawrence Litchfield, Pittsburgh; Bernard Fantus, Chicago; L. P. Hamburger, Baltimore; J. A. Williams, Chicago, and L. H. Newburgh, Boston.

Dr. J. H. Austin, Philadelphia, read a paper on "The Effects of Vapor Baths on the Total Non-Coagulable Nitrogen of the Blood in Nephritis." No discussion.

Wednesday, June 24—Afternoon

Dr. William S. Newcomet, Philadelphia, read a paper on "Radium and Roentgen Rays in Radiotherapy: Their Use and Limitations." Discussed by Dr. John F. Anderson, Washington, D. C.

Dr. George C. Johnston, Pittsburgh, read a paper on "The Place of the Roentgen Ray in Therapeutics." Discussed by Drs. Henry K. Pancoast, Bala, Pa.; Arthur F. Holding, New York; William Dwayne, Boston; A. L. Gray, Richmond, Va.; James W. Hunter, Norfolk, Va.; George E. Pfahler, Philadelphia; G. P. Massey, Philadelphia; William L. Clark, Philadelphia; George C. Johnston, Pittsburgh, and William S. Newcomet, Philadelphia.

Dr. A. D. Whiting, Philadelphia, read a paper on "Local Preparation of Patients for Operation." Discussed by Dr. Bastedo, New York. Dr. George P. Muller, Philadelphia, read a paper on "Postoperative Treatment of Surgical Cases."

Discussed by Drs. W. A. Bastedo, New York; A. P. Butt, Davis, W. Va.; R. A. Hatcher, New York; A. D. Whiting, Philadelphia; George P. Muller, Philadelphia; T. F. Riley, New York, and George Parker, Peoria, Ill.

Dr. George B. Roth, Washington, D. C., read a paper on "An Examination of Some Commercial Preparations of Pituitary Extract Made from the Posterior Lobe of the Pituitary Body." Discussed by Drs. Solomon Solis Cohen, Philadelphia; R. A. Hatcher, New York, and George B. Roth, Washington, D. C.

Mr. M. I. Wilbert, Washington, D. C., secretary, announced an application received from the secretary of the American Pharmaceutical Association for pharmaceutical membership in the American Medical Association. Mr. Wilbert moved that endorsement of the application for membership be made. Seconded by Dr. Solomon Solis Cohen, Philadelphia. Motion carried.

Thursday, June 25—Morning

The Nominating Committee for election of officers nominated the following officers, who were elected, the Secretary being instructed to cast the ballot for the nominees: Chairman, Dr. R. A. Hatcher, New York; Vice-Chairman, Dr. J. R. Arneil, Denver; Secretary, Mr. M. I. Wilbert, Washington, D. C.; Delegate, Dr. John F. Anderson, Washington, D. C.; Alternate, Dr. Ray L. Wilbur, San Francisco.

The following papers were read as a Symposium on the Prevention and Treatment of Diphtheria:

Dr. William H. Park, New York: "Active Immunization in Diphtheria by Toxin-Antitoxin Mixtures."

Dr. Samuel S. Woody, Philadelphia: "The Use of Diphtheria Antitoxin in the Treatment of Diphtheria."

These two papers were discussed by Drs. Lewellys F. Barker, Baltimore; John F. Anderson, Washington, D. C.; P. S. Roy, Washington, D. C.; Guy L. Kiefer, Detroit; D. L. Richardson, Providence, R. I.; W. W. Tompkins, Charleston, W. Va.; J. J. Kinyoun, Washington, D. C.; William H. Park, New York, and Samuel S. Woody, Philadelphia.

The following papers were read as a Symposium on Diet in Typhoid Fever:

Dr. Lewellys F. Barker, Baltimore: "Diet in Typhoid Fever."

Dr. Warren Coleman, New York: "The Effects of Food on Metabolism in Typhoid Fever."

These two papers were discussed by Drs. Lawrence Litchfield, Pittsburgh; O. T. Osborne, New Haven, Conn.; Allan C. Eustis, New Orleans; Philip S. Roy, Washington, D. C.; Lewellys F. Barker, Baltimore, and Warren Coleman, New York.

Dr. Joseph L. Miller, Chicago, read a paper on "The Value of Salicylates in Acute Articular Rheumatism." Discussed by Drs. Warren Coleman, New York; Lawrence Litchfield, Pittsburgh; Bernard Fantus, Chicago, and Joseph L. Miller, Chicago.

Dr. William Salant, Washington, D. C., read a paper on "The Pharmacology of Sodium Tartrate." No discussion.

Thursday, June 25—Afternoon

A joint meeting was held with the Section on Preventive Medicine and Public Health, at which papers were read in a Symposium on Pellagra. For the report of the proceedings, see the minutes of the Section on Preventive Medicine and Public Health.

SECTION ON PATHOLOGY AND PHYSIOLOGY

Tuesday, June 23—Afternoon

The meeting was called to order at 2:15 p. m. by the chairman, Dr. William Ophüls, San Francisco.

Dr. Ophüls then read his chairman's address, entitled "Anatomic Structure and Function." No discussion.

Dr. J. C. Friedman, New York, read a paper entitled "Experimental Chronic Gastric Ulcer." Discussed by Prof. A. J. Carlson, Chicago and Drs. E. C. Rosenow, Chicago, and J. C. Friedman, New York.

Dr. J. W. Draper, New York, presented "Studies on Duodenal Obstruction." Discussed by Dr. J. C. Bloodgood, Baltimore.

Dr. J. T. Case, Battle Creek, Mich., read a paper entitled "Roentgenographic Studies of the Function of the Ileocolic Valve." Discussed by Drs. Cole, New York; Walter B. Cannon, Boston; Prof A. J. Carlson, Chicago; A. C. Eustis, New Orleans; Seymour Basch, New York; E. C. Rosenow, Chicago; G. E. Pfahler, Philadelphia, and Thomas A. Groover, Washington, D. C.

Dr. F. M. Allen, New York, read a paper on "Studies in Experimental Diabetes." Discussed by Prof. A. J. Carlson, Chicago, and Dr. Eustis, New Orleans.

Prof. A. J. Carlson, Chicago, presented a paper entitled "Blood Transfusion in Pancreatic Diabetes." No discussion.

Dr. L. F. Watson, Oklahoma City, Okla., read a paper on "Urea and Quinin Injection in Goiter." No discussion.

Wednesday, June 24—Morning

A joint meeting was held with the Section on Practice of Medicine. For a report of the proceedings, see the minutes of that Section.

Wednesday, June 24—Afternoon

A joint meeting was held with the Section on Obstetrics, Gynecology and Abdominal Surgery. For a report of the proceedings, see the minutes of that Section.

Thursday, June 25—Morning

Meeting called to order by the Chairman, Dr. William Ophüls, San Francisco, at 9 a. m.

The following officers were nominated by the Nominating Committee and unanimously elected, the Secretary being instructed to cast the ballot: Chairman, Prof. A. J. Carlson, Chicago; Vice-Chairman, Dr. L. B. Wilson, Rochester, Minn.; Secretary, Dr. Frederick P. Gay, Berkeley, Cal.

Dr. L. D. Bulkley, New York, read a paper entitled "Relation of Diet to Cancer." Discussed by Prof. A. J. Carlson, Chicago.

Dr. Maude Slye, Chicago, presented a paper on "The Influence of Heredity on the Incidence of Cancer in Mice." Discussed by Drs. F. M. Baeslack, Detroit; L. D. Bulkley, New York; G. Ludn, Rochester, N. Y.; H. C. Schmeisser, Baltimore, and Prof. A. J. Carlson, Chicago.

Dr. C. F. Ball, Rutland, Vt., read a paper on "Abderhalden's Test in the Diagnosis of Cancer."

Dr. F. H. Falls, Chicago, read a paper on "A Study of the Ferment Activity of the Blood-Serum During Pregnancy and Under Normal Pathologic Conditions by the Abderhalden Method."

These two papers were discussed by Drs. Charles Goodman, New York, who presented a lantern-slide demonstration; M. G. Wohl, Philadelphia; C. P. McCord, Detroit; C. F. Ball, Rutland, Vt.; F. H. Falls, Chicago; and Prof. A. J. Carlson, Chicago.

Dr. D. S. D. Jessep, New York, presented "Adenomyoma of the Rectovaginal Septum." No discussion.

Dr. B. F. McGrath, Rochester, Minn., read a paper on "Carcinoma of the Prostate." No discussion.

Dr. C. P. McCord, Detroit, read a paper on "The Pineal Gland in Relation to Somatic, Sexual and Mental Development." No discussion.

Thursday, June 25—Afternoon

Dr. L. F. Bishop, New York, read a paper on "The Pathologic Physiology of Arteriosclerosis." Discussed by Dr. W. M. L. Coplin, Philadelphia.

Dr. G. B. Webb, Colorado Springs, read a paper on "Immunity in Tuberculosis." Discussed by Drs. William Ophüls, San Francisco, and G. B. Webb, Colorado Springs.

Dr. R. B. H. Gradwohl, St. Louis, read a paper on "The Hect-Weinberg Complement-Fixation Test as a Control Over the Wassermann." No discussion.

Dr. W. McKim Marriott, St. Louis, read a paper on "The Blood in Acidosis from the Quantitative Point of View." Discussed by Prof. A. J. Carlson, Chicago, and Dr. W McKim Marriott, St. Louis.

SECTION ON STOMATOLOGY

Tuesday, June 23—Morning

The meeting was called to order at 2 p. m. by the Chairman, Dr. William C. Fisher, New York.

Dr. Talbot presented next the following list of proposals for membership to the Section: R. R. Johnson, Great Falls, Mont.; L. D. Idleton, Pendleton, Ore.; Leland Barrett, New York City; Weston A. Price, Cleveland, Ohio; Lieut. E. R. R. Ryan, U. S. Army; Lieut. F. L. K. Laflamme, U. S. Army; Lieut. George D. Graham, U. S. Army.

Dr. Moorehead moved that the list of applications for membership be referred to the House of Delegates for action.

Dr. Fisher then read the Chairman's address. Discussed by Drs. F. B. Moorehead, Chicago; J. S. Marshall, Berkeley, Cal.; H. L. Wheeler, New York; E. S. Talbot, Chicago; M. I. Schamberg, New York; G. V. I. Brown, Milwaukee, R. H. Ivy, Philadelphia, and W. C. Fisher, New York.

Dr. R. H. Ivy, Philadelphia, read a paper entitled "Mesothelial Tumors of the Jaw." Discussed by Drs. R. P. Bay, Baltimore; Virgil Loeb, St. Louis; M. I. Schamberg, New York; F. B. Moorehead, Chicago; C. K. Teter, Cleveland; T. L. Gilmer, Chicago; J. S. Marshall, Berkeley, Cal., and R. H. Ivy, Philadelphia.

Dr. T. L. McCurdy, Pittsburgh, read a paper entitled "Differential Diagnosis of Major Mouth Lesions."

Dr. Herbert L. Wheeler, New York, read a paper entitled "Methods of Obtaining Dental Service in Hospitals by the Appointment of Interns." Discussed by Drs. W. C. Fisher, New York; R. H. Ivy, Philadelphia; M. H. Cryer, Philadelphia; T. L. Gilmer, Chicago; M. I. Schamberg, New York; G. V. I. Brown, Milwaukee; A. D. Black, Chicago; T. F. Tholen, Los Angeles; E. A. Bogue, New York, and H. L. Wheeler, New York.

Dr. Fisher, the Chairman, appointed Dr. J. S. Marshall to take the place of Dr. McCurdy on the Executive Committee and also asked the Executive Committee to act as Nominating Committee.

Wednesday, June 24—Morning

Dr. Talbot, the Secretary, presented two additional applications for membership, from Dr. B. C. Brown, Baltimore, and Dr. Cornelia B. Inglis, Swarthmore, Pa.

Dr. F. B. Moorehead, Chicago, moved that these names be added to the list presented on Tuesday to be sent to the House of Delegates for action.

Motion carried.

Dr. G. V. I. Brown, Milwaukee, read a paper entitled "The Section on Stomatology as a Factor in the Evolution of Dental and Medical Science." Discussed by Drs. Joseph Head, Philadelphia; F. B. Moorehead, Chicago; A. D. Black, Chicago; E. S. Talbot, Chicago; W. C. Fisher, New York; H. L. Wheeler, New York, and G. V. I. Brown, Milwaukee.

Dr. Frank Billings, Chicago, read a paper on "Mouth Infections as a Source of Systemic Disease."

Dr. T. L. Gilmer, Chicago, read a paper entitled "A Study of the Bacteriology of Alveolar Abscess."

These two papers were discussed by Drs. A. D. Black, Chicago; M. I. Schamberg, New York; V. P. Blair, St. Louis; Price; F. B. Moorehead, Chicago; W. C. Fisher, New York; J. S. Marshall, Los Angeles; G. V. I. Brown, Milwaukee; Frank Billings, Chicago, and T. L. Gilmer, Chicago.

Wednesday, June 24—Afternoon

Dr. A. H. Levings, Milwaukee, read a paper entitled "What Shall Be the Content for a Course in Oral Surgery in Our Dental Schools?" Discussed by Drs. F. B. Moorehead, Chicago; M. J. Schamberg, New York; J. A. Pettit, Portland, Ore.; V. P. Blair, St. Louis; M. H. Cryer, Philadelphia; J. G. Sharp, San Francisco; G. V. I. Brown, Milwaukee; T. L. Gilmer, Chicago; T. E. Carmody, Denver; A. D. Black, Chicago, and A. H. Levings, Milwaukee.

Dr. Virgil Loeb, St. Louis, read a paper entitled "Acute Parenchymatous Glossitis." Discussed by Drs. Gordon New, Rochester, Minn.; T. L. Gilmer, Chicago; F. B. Moorehead, Chicago; Bloom; M. J. Schamberg, New York; A. H. Levings, Milwaukee, and V. Loeb, St. Louis.

Thursday, June 25—Morning

The first order of business was the report of the Nominating Committee, as follows: Chairman, Dr. F. B. Moorehead, Chicago; Vice-Chairman, Arthur D. Black, Chicago; Secretary, Dr. Eugene S. Talbot, Chicago (two years); delegate to House of Delegates, Dr. G. V. I. Brown, Milwaukee.

Dr. Loeb moved that the Secretary be instructed to cast one ballot for the list of nominations. Motion carried.

The Secretary presented the name of Dr. S. Whitford Moore, Baltimore, for membership.

Dr. Moorehead moved that the name be held over until next year for action. Motion carried.

Dr. Gordon New, Rochester, Minn., read a paper on "Cystic Tumors of the Jaw." Discussed by Drs. F. B. Moorehead, Chicago; T. L. Gilmer, Chicago; M. I. Schamberg, New York; Bloom; C. K. Teter, Cleveland, and Gordon New, Rochester, Minn.

Dr. Joseph Head, Philadelphia, read a paper on "The Scientific Routine of Tooth-Brushing and Mouth-Cleansing." Discussed by Dr. William C. Fisher, New York.

Dr. Wayne W. Babcock, Philadelphia, read a paper entitled "Osteoplastic Surgery of the Face." Discussed by Drs. M. I. Schamberg, New York; H. S. Dunning, New York, and W. W. Babcock, Philadelphia.

Dr. H. S. Dunning, New York, read a paper on "Fractures of the Inferior Maxillary." Discussed by Drs. G. V. I. Brown, Milwaukee, Wis.; M. I. Schamberg, New York; Bloom; W. W. Babcock, Philadelphia, and H. S. Dunning, New York.

Thursday, June 25—Afternoon

Dr. D. H. Squire, Buffalo, read a paper entitled "The Peridental Membrane as a Source of Infection."

Dr. Edward C. Rosenow, Chicago, read a paper on "Mouth Infection as a Source of Systemic Disease."

Dr. Charles T. Mayo, Rochester, Minn., read a paper on "Mouth Infection as a Source of Systemic Disease."

These three papers were discussed by Drs. Charles H. Mayo, Rochester, Minn.; W. O. Bridges, Omaha; Frauenthal, New York; T. W. Corwin, Newark, N. J.; W. K. Mercer, Pittsburgh, and M. I. Schamberg, New York.

Dr. C. B. Craig, New York, read a paper entitled "Mouth Infection in Relation to Nervous Infection." Discussed by Drs. M. I. Schamberg, New York; I. A. Pettit, Portland, Ore., and Bloom.

SECTION ON NERVOUS AND MENTAL DISEASES

Tuesday, June 23—Afternoon

The Section was called to order by the Chairman, Dr. W. W. Graves, St. Louis.

Dr. Graves then read the Chairman's Address, entitled "Some Factors Tending Toward Adequate Instruction in Nervous and Mental Diseases."

Discussed by Drs. Charles H. Hughes, St. Louis; George Dock, St. Louis; E. E. Southard, Boston; C. R. Woodson, St. Joseph, Mo.; Walter B. Swift, Boston; Charles R. Ball, St. Paul; Hugh T. Patrick, Chicago, and W. W. Graves, St. Louis.

Dr. N. S. Yawger, Philadelphia, read a paper on "Tuberous Sclerosis and Other Unusual Features in Epilepsy." Discussed by Drs. Alfred Gordon, Philadelphia; William G. Spiller, Philadelphia, and N. S. Yawger, Philadelphia.

Dr. H. H. Drysdale, Cleveland, read a paper on "Juvenile Psychosis: Report of a Case." Discussed by Drs. Walter B. Swift, Boston; Frank P. Norbury, Springfield, Ill.; C. R. Woodson, St. Joseph, Mo.; C. D. Crothers, Hartford, Conn.; Tom A. Williams, Washington, D. C.; Alfred Gordon, Philadelphia; J. T. Fisher, Los Angeles, and H. H. Drysdale, Cleveland.

Dr. Alfred Gordon, Philadelphia, read a paper on "Nervous and Mental Disturbances Following Castration in Women." Discussed by Drs. Walter B. Swift, Boston; Joseph M. Aikin, Omaha; Frank R. Starkey, Philadelphia; William M. Leszynsky, New York; Hugh T. Patrick, Chicago; Charles R. Ball, St. Paul; Charles H. Hughes, St. Louis and Alfred Gordon, Philadelphia.

Dr. William G. Spiller, Philadelphia, read a paper on "Acute Myelitis, Secondary to Perirectal Abscess, Developing a Few Hours After Severe Fright." Discussed by Drs. Hugh T. Patrick, Chicago; Frank P. Norbury, Springfield, Ill.; C. D. Camp, Ann Arbor, Mich.; Charles K. Mills, Philadelphia; E. E. Southard, Boston; Wilfred Harris, London, England; Walter B. Swift, Boston, and William G. Spiller, Philadelphia.

Wednesday, June 24—Morning

Dr. Edward D. Fisher, New York, read a paper on "Landry's Paralysis: Report of a Case with Necropsy." Discussed by Drs. Walter B. Swift, Boston, and Edward D. Fisher, New York.

Dr. A. C. Gillis, Baltimore, read a paper on "Occlusion of the Posterior-Inferior Cerebellar Artery: Report of Cases." Discussed by Drs. William G. Spiller, Philadelphia; Ernest M. Hammes, St. Paul; Wilfred Harris, London, England, and A. C. Gillis, Baltimore.

The Chairman announced the following to act as a Nominating Committee: Drs. Hugh T. Patrick, Chicago; Edward D. Fisher, New York, and T. H. Weisenburg, Philadelphia. The committee was asked to make its recommendations Thursday morning.

Dr. Ernest M. Hammes, St. Paul, read a paper on "Results Following Seventy-Five Injections of Salvarsanized Serum." Discussed by Drs. C. Eugene Riggs and Ernest M. Hammes, St. Paul.

Dr. L. B. Pilsbury, Lincoln, Neb., read a paper on "A Brief Report on Cases of Paresis Treated by Intraspinal Injections of Salvarsanized Serum."

These two papers were discussed by Drs. Charles R. Ball, St. Paul; G. Wilse Robinson, Kansas City, Mo.; B. D. Lowery, Jackster, N. J.; H. F. Stoll, Hartford, Conn.; R. Harvey Cook, Oxford, Ohio; Frank R. Starkey, Philadelphia; W. W. Graves, St. Louis; C. R. Woodson, St. Joseph, Mo.; George P. Sanborn, Boston, and C. C. Wholey, Pittsburgh. The remainder of the discussion was postponed to the afternoon session.

The Section then adjourned and reconvened in the amphitheater of the Exposition building.

Dr. E. E. Southard, Boston, introduced a resolution, which will be found in the minutes of the House of Delegates, requesting the Council on Health and Public Instruction to consider and act on the advisability of: (*a*) including mental hygiene among the public health problems which said council is investigating; (*b*) taking steps to educate the public on all appropriate topics of mental hygiene, and (*c*) establishing a subcommittee on mental hygiene, empowered to confer and if desirable cooperate with official and voluntary organizations. [The House of Delegates referred this resolution to the Council on Health and Public Instruction.]

On motion, carried, Dr. Southard was instructed to present the resolution to the House of Delegates.

Dr. Charles K. Mills, Philadelphia, then presented a summary of his paper on "Cerebellar Symptoms and Localization," and Dr. T. H. Weisenburg, Philadelphia, gave a commentary on the lantern-slides and moving pictures illustrating the paper.

Dr. Isaac H. Jones, Philadelphia, presented a series of motion-pictures demonstrating the Vestibular Apparatus, Nystagmus and Barassy Pointing Reactions. Discussed by Drs. Harvey Cushing, Baltimore; Otfrid Foerster, Breslau, Germany; William G. Spiller, Philadelphia, and Charles K. Mills and T. H. Weisenburg, Philadelphia.

Wednesday, June 24—Afternoon

The discussion of papers by Drs. C. Eugene Riggs, Ernest M. Hammes, and L. B. Pilsbury, postponed from the morning session, was then resumed, Drs. Hammes and Pilsbury closing.

Dr. D. J. McCarthy, Philadelphia, read a paper on "Ankylosis of the Shoulder-Joint in Association with Brachial Neuritis and Pulmonary Lesion of the Right Lung." Discussed by Drs. Charles K. Mills, Philadelphia; John H. W. Rheim, Philadelphia; Tom A. Williams, Washington, D. C.; Hugh T. Patrick, Chicago, and D. J. McCarthy, Philadelphia.

The Chairman announced that Drs. J. T. Fisher, Los Angeles, and Morris J. Karpas, New York, were appointed members of the Executive Committee, to take the place of Drs. W. A. Jones, Minneapolis, and Edward D. Fisher, New York, who were absent.

Dr. Henry A. Cotton, Trenton, N. J., read a paper on "The Value of Early Diagnosis in Syphilis of the Central Nervous System: Its Relation to Treatment." Discussed by Drs. Tom A. Williams, Washington, D. C.; Ross Moore, Los Angeles; G. Wilse Robinson, Kansas City, Mo.; Charles R. Ball, St. Paul; George A. Moleen, Denver, and Henry A. Cotton, Trenton.

Dr. Otfrid Foerster, Breslau, Germany, read a paper on "The Borders of the Areas of Anesthesia, Analgesia and Thermo-Anesthesia in Lesions at Different Levels of the Sensory Tract." Discussed by Drs. Charles K. Mills, Philadelphia; Hugh T. Patrick, Chicago; W. W. Graves, St. Louis, and Otfrid Foerster, Breslau, Germany.

On motion by Dr. Hugh T. Patrick, Chicago, a vote of thanks was extended to Dr. Foerster for the presentation of his paper.

Dr. John H. W. Rheim, Philadelphia, read a paper on "Tumors of the Crus." No discussion.

Dr. Walter B. Swift, Boston, read a paper on "(I.) A New Method of Reflex Elicitation: Preliminary Note. (II). Further Analysis of the Voice Sign in Chorea." Discussed by Drs. J. T. Fisher, Los Angeles; W. W. Graves, St. Louis, and Walter B. Swift, Boston.

Thursday, June 25—Morning

The Chairman announced that as two members of the Nominating Committee had not arrived, election of officers would be postponed until later in the session.

Dr. Hugh T. Patrick, Chicago, moved that the Section nominate for Honorary Fellowship in the American Medical Association two distinguished foreign guests, Dr. Otfrid Foerster, Breslau, Germany, and Dr. Wilfred Harris, London, England, and that the Secretary be instructed immediately to communicate this action to the Secretary of the Association. Motion seconded and carried. It was so ordered.

The following papers were read as a symposium on the Problem of the Prevention of Nervous and Mental Diseases, in two parts: Part I:

Dr. James J. Putnam, Boston: "A Brief Summary and Analysis of the Work Done by Psychanalysts, with Reference to the Diagnosis and Treatment of the Psychoses; What Contribution can Psychanalysis Make Toward This End?"

Dr. Donald Gregg, Brookline, Mass: "Genetic Factors in One Hundred Cases of Psychoneuroses."

Dr. E. E. Southard, Boston: "The 'Not Insane' and 'Voluntary' Admissions to the Psychopathic Hospital, Boston."

The papers of Part I of the symposium were discussed by Drs. D. J. McCarthy, Philadelphia; Walter B. Swift, Boston; W. T. Councilman, Boston; Hugh T. Patrick, Chicago; Frank P. Norbury, Springfield, Mass.; M. A. Hallowell, Vineland, N. J.; A. C. Gillis, Baltimore; James J. Putnam, Boston; Donald Gregg, Brookline, Mass., and E. E. Southard, Boston.

The following officers were elected for the ensuing year: Chairman, F. X. Dercum, Philadelphia; Vice-Chairman, H. G. Brainard, Los Angeles; Secretary, George A. Moleen, Denver; Delegate, W. W. Graves, St. Louis.

Papers composing the remainder of the symposium were read as follows: Part II:

Dr. Ross Moore, Los Angeles: "Present Teaching of Psychiatry in American Medical Schools."

H. Douglas Singer, Hospital, Ill.: "The Ideal Course in Psychiatry for Medical Schools."

The papers of Part II of the symposium were discussed by C. W. Burr, Philadelphia. The remainder of discussion was postponed to afternoon session.

Dr. Ross Moore, Los Angeles, offered the following resolution:

Resolved, That it is the sense of the Section on Nervous and Mental Diseases of the American Medical Association that the present methods of teaching psychiatry in a large percentage of American medical colleges are inadequate. They are inadequate chiefly because of lack of time given the subject by curriculum committees and because of the absence of psychiatric clinics. The Section recommends that more attention be given this matter in the future, especially by the Council on Medical Education. [Referred to Council on Medical Education.]

The resolution was adopted, and the Secretary was requested to transmit a copy to the House of Delegates through the representative of the Section.

Thursday, June 25—Afternoon

Discussion of Part II of the symposium presented at the morning session was continued by Drs. C. R. Woodson, St. Joseph, Mo.; James J. Putnam, Boston; J. T. Fisher, Los Angeles; Frank P. Norbury, Springfield, Ill.; Ross Moore, Los Angeles, and H. Douglas Singer, Hospital, Ill.

Dr. C. D. Camp, Ann Arbor, offered a resolution confirming Dr. Moore's resolution of the day before.

On motion, carried, the foregoing resolution was adopted.

Dr. Wilfred Harris, London, England, read a paper on "Some Experiences with Alcohol Injection in Trigeminal and Other Neuralgias." Discussed by Drs. Charles R. Ball, St. Paul; Peter Bassoe, Chicago; C. D. Camp, Ann Arbor; George A. Moleen, Denver, and Wilfred Harris, London.

On motion, a rising vote of thanks was extended to Dr. Harris for his attendance at the meeting and for the presentation of his paper.

Dr. G. Wilse Robinson, Kansas City, Mo., read a paper on "The Use of Celluloid Splints in the Treatment of Diseases of the Nervous System." No discussion.

Dr. Robert Foster Kennedy, New York, read a paper on "Acute Disseminated Sclerosis and its Visual Symptoms." Discussed by Drs. George A. Moleen, Denver; Peter Bassoe, Chicago; W. W. Graves, St. Louis, and Robert Foster Kennedy, New York.

Dr. S. Leopold, Philadelphia, read a paper on "Subarachnoid Hemorrhage: A Contribution to the Subject of Spontaneous Hemorrhage." Discussed by Dr. W. W. Graves, St. Louis.

Dr. Morris J. Karpas, New York, read a paper on "Kraepelin's Conception of Paraphrenia." Discussed by Drs. H. Douglas Singer, Hospital, Ill.; L. B. Pilsbury, Lincoln, Neb., and Morris J. Karpas, New York.

Dr. Charles A. McKendree, Cromwell, Conn., read a paper on "A Case of Myasthenia Gravis." Discussed by Dr. George A. Moleen, Denver.

Dr. William W. Graves, the retiring Chairman, thanked the members for their assistance in carrying out what he believed to be the most successful program in the history of the Section, calling attention to the fact that out of thirty papers on the program, twenty-six were presented in person by the authors. And he further stated that without doubt the work relating to education in nervous and mental diseases which has had its inception in this meeting, would go on, and that the time will come when nervous and mental diseases will be properly considered in medical schools.

SECTION ON DERMATOLOGY

Tuesday, June 23—Afternoon

The Chairman, Dr. Richard L. Sutton, Kansas City, called the meeting to order at 2:15 p. m.

In the absence of Dr. Joseph Zeisler, Chicago, the chairman appointed Dr. M. L. Heidingsfeld, Cincinnati, to serve on the Executive Committee.

The Chairman announced the following to act as a Nominating Committee: Drs. S. E. Sweitzer, Minneapolis; Clarence Baer, Milwaukee, and Ernest L. McEwen, Chicago.

Dr. Sutton then read the Chairman's Address, entitled "The Future of Dermatology in America."

Dr. M. B. Hartzell, Philadelphia, read a paper on "Granuloma Annulare, with a Report of Four Cases." Discussed by Drs. Charles J. White, Boston; William A. Pusey, Chicago; A. Ravogli, Cincinnati; Frank E. Simpson, Chicago; Frank W. Cregor, Indianapolis; Richard L. Sutton, Kansas City, and M. B. Hartzell, Philadelphia.

The following papers were read as a Symposium on the Control of Leprosy:

Dr. W. C. Rucker, Washington, D. C.: "The Necessity for the Establishment of a National Leprosarium."

Dr. Isadore Dyer, New Orleans: "The Attitude of the Government in Leprosy Care and Control."

These two papers were discussed by Drs. Martin F. Engman, St. Louis; William S. Gottheil, New York; Ernest L. McEwen, Chicago; M. L. Ravitch, Louisville; Charles J. White, Boston; Jay F. Schamberg, Philadelphia; M. B. Hartzell, Philadelphia; S. E. Sweitzer, Minneapolis; Gardner T. Swarts, Providence, R. I.; W. C. Rucker, Washington, D. C., and Isadore Dyer, New Orleans.

Dr. Martin F. Engman offered the following motion, which was unanimously adopted: "Moved that a committee of three be appointed from this Section to draft a resolution to be presented to the House of Delegates on the question of urging the U. S. Government to prepare a way for the national control of leprosy and the foundation of a national leper home."

The Chairman announced the following to serve on this committee: Drs. Martin F. Engman, St. Louis; Charles J. White, Boston, and James M. Winfield, Brooklyn.

Dr. M. L. Heidingsfeld, Cincinnati, read a paper on "A New Method of Treatment of Lupus Vulgaris." Discussed by Drs. William T. Corlett, Cleveland; M. L. Ravitch, Louisville; H. C. Baum, Syracuse; William S. Gottheil, New York; S. E. Sweitzer, Minneapolis; Henry H. Hazen, Washington, D. C.; J. B. Shelmire, Dallas; Jay F. Schamberg, Philadelphia; M. B. Hartzell, Philadelphia; J. B. Kessler, Iowa City, Iowa, and M. L. Heidingsfeld, Cincinnati.

Dr. William L. Clark, Philadelphia, read a paper on "The Desiccation Treatment of Congenital and New Growths of the Skin and Mucous Membranes. A Lantern Demonstration." Discussed by Drs. Jay F. Schamberg, Philadelphia; Henry H. Hazen, Washington, D. C.; C. A. Simpson, Washington, D. C.; William H. Schmidt, Atlantic City; Arthur F. Holding, New York, and William L. Clark, Philadelphia.

Wednesday, June 24—Morning

Dr. Martin F. Engman, St. Louis, presented the following resolutions on leprosy, a motion to make this a special order of business being unanimously adopted:

To the Honorable House of Delegates of the American Medical Association:

The Section on Dermatology of the American Medical Association respectfully submits the following resolutions, which have been unanimously adopted by the Section on June 24, 1914:

Whereas, Leprosy exists in many foci in this country, and has been statistically shown to be on the increase; and

Whereas, Those affected with leprosy are being subjected to most inhuman treatment; and

Whereas, Many lepers are traveling in interstate traffic because of the inhuman treatment to which they are subjected, thereby constantly exposing the general public to the contagion; and

Whereas, It is the duty of the federal government to control traffic between the states; and

Whereas, At the present time the care of the lepers in the United States is a great economic burden on the individual states and is, moreover, of necessity inadequate from a medical and sanitary standpoint; therefore, be it

Resolved, That the Association recommends the passage by Congress of a law for the comprehensive care and control of leprosy by the federal government.

[This was referred by the House of Delegates to the Reference Committee on Hygiene and Public Health.]

Dr. A. Ravogli, Cincinnati, read a paper entitled "A Few Practical Points on the Treatment of Leg Ulcers." Discussed by Drs. Frank E. Simpson, Chicago; J. B. Kessler, Iowa City, Iowa; M. L. Heidingsfeld, Cincinnati; Martin F. Engman, St. Louis, and A. Ravogli, Cincinnati.

Drs. Frank Crozer Knowles and Leonard D. Frescoln, Philadelphia, presented a paper on "Unusual Types of Diphtheria of the Skin. Report of Two Cases." Discussed by Drs. Henry C. Baum, Syracuse; Martin F. Engman, St. Louis; M. Haase, Memphis; A. Ravogli, Cincinnati; H. N. Cole, Cleveland; Leonard D. Frescoln, Philadelphia, and Frank C. Knowles, Philadelphia.

Prof. G. Arndt, Berlin, presented a paper on "The Diseases and New Growths of the Skin of Lymphatic Origin." Discussed by Drs. H. H. Hazen, Washington, D. C.; J. A.

Fordyce, New York; A. Ravogli, Cincinnati; Martin F. Engman, St. Louis; S. Pollitzer, New York, and Prof. G. Arndt, Berlin.

Drs. Jay F. Schamberg, R. W. Raiziss and John A. Kolmer, Philadelphia, presented a paper entitled "Summary of Research Studies in Psoriasis." Discussed by Drs. William A. Pusey, Chicago; R. W. Raiziss, Philadelphia; John A. Kolmer, Philadelphia; W. S. Gottheil, New York; S. Pollitzer, New York, and Jay F. Schamberg, Philadelphia.

Drs. William S. Gottheil and David I. Satenstein, New York, presented a paper on "Further Experiences with Intravenous Autoserum Injections as an Adjuvant to the Treatment of Inveterate Skin Diseases." Discussed by Drs. Howard Fox, New York; James M. Winfield, Brooklyn; J. A. Fordyce, New York; William T. Corlett, Cleveland; Charles J. White, Boston; M. L. Heidingsfeld, Cincinnati; W. S. Gottheil, New York, and H. N. Cole, Cleveland.

Dr. William H. Best, Brooklyn, presented a paper on "The Use of Salvarsan in Non-Syphilitic Diseases." Discussed by Drs. J. A. Fordyce, New York; James M. Winfield, Brooklyn; Frank W. Cregor, Indianapolis; Howard Fox, New York; William T. Corlett, Cleveland, and William H. Best, Brooklyn.

Wednesday, June 24—Afternoon

The following papers were read as a Symposium on Syphilis:

Dr. Charles J. White, Boston: "A Statistical Study of Syphilis. The Relation of Its Symptoms to Subsequent Tabes Dorsalis or General Paralysis."

Dr. H. H. Hazen, Washington, D. C.: "Syphilis in the American Negro."

Dr. Henry J. Nichols, Washington, D. C.; "Observations on the Pathology of Syphilis."

Dr. F. W. Baeslack, Detroit: "A Sero-Enzyme Test for Syphilis."

Dr. John A. Fordyce, New York: "The Treatment of Syphilis of the Nervous System."

Dr. B. C. Corbus, Chicago: "Cerebrospinal Examinations in 'Cured' Syphilis in which the Biologic Method has been Used as a Control."

Drs. Jerome Kingsbury and Paul E. Bechet, New York: 'The Intravenous Administration of Mercury in Syphilis."

These seven papers were discussed by Drs. William T. Corlett, Cleveland; S. Pollitzer, New York; C. A. Simpson, Washington, D. C.; A. Ravogli, Cincinnati; Thomas W. Murrell, Richmond, Va.; Claude O. Abernethy, Raleigh, N. C.; H. H. Hazen, Washington, D. C.; Henry J. Nichols, Washington, D. C.; J. A. Fordyce, New York; B. C. Corbus, Chicago, and Paul E. Bechet, New York.

Thursday, June 25—Morning

The following officers were elected for the ensuing year: Chairman, Dr. Howard Fox, New York; Vice-Chairman, Dr. A. Ravogli, Cincinnati; Secretary, Dr. H. H. Hazen, Washington, D. C.; Delegate, Dr. O. H. Foerster, Milwaukee; Alternate, Dr. Ernest D. Chipman, San Francisco.

Prof. G. Arndt, Berlin, was unanimously elected as an honorary member of the Section.

Drs. H. N. Cole and H. O. Ruh, Cleveland, presented a paper on "Pemphigoid in the New-Born (Pemphigus Neonatorum) with Report of an Epidemic." Discussed by Drs. William A. Pusey, Chicago; A. Ravogli, Cincinnati, and H. N. Cole, Cleveland.

Dr. Frank E. Simpson, Chicago, presented a paper on "Radium: Its Use and Limitations in Skin Diseases."

Dr. Arthur F. Holding, New York, presented a paper on "The Relative Value of Radium in Dermatology."

These two papers were discussed by Drs. Isadore Dyer, New Orleans; Henry C. Baum, Syracuse; Fred Wise, New York; Jay F. Schamberg, Philadelphia; William A. Pusey, Chicago; George M. MacKee, New York; Richard L. Sutton, Kansas City, Mo.; Frank E. Simpson, Chicago, and Prof. William Duane, Boston.

Dr. Ludwig Weiss, New York, reported "An Unusual Case of Bromoderma of the Legs." This was discussed by Drs. Ernest L. McEwen, Chicago; A. Ravogli, Cincinnati; M. L. Ravitch, Louisville; George M. MacKee, New York, and Ludwig Weiss, New York.

Drs. George M. MacKee and Fred Wise, New York, presented a paper on "A Case of White-Spot Disease Occurring on the Penis and Scrotum." Discussed by Drs. H. H. Hazen, Washington, D. C.; Frank W. Cregor, Indianapolis, and George M. MacKee, New York.

Dr. S. E. Sweitzer, Minneapolis, presented a paper on "Sarcoid of Boeck." Discussed by Drs. Howard Fox, New York; Frank W. Cregor, Indianapolis, and S. E. Sweitzer, Minneapolis.

Dr. O. H. Foerster, Milwaukee, presented a paper on "Association of Erythema Nodosum and Tuberculosis." Discussed by Drs. Fred Wise, New York; Ernest L. McEwen, Chicago; George M. MacKee, New York; W. C. Brownson, Asheville, N. C.; J. B. Kessler, Iowa City, Ia.; A. Ravogli, Cincinnati; Richard L. Sutton, Kansas City, Mo., and O. H. Foerster, Milwaukee.

The Chairman read a communication from Dr. Craig, the Secretary of the Association, stating that under the new law, the term of service of the Secretary of the Section would be three years, instead of one year, as heretofore.

Adjourned.

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

Tuesday, June 23—Afternoon

The Chairman, Dr. M. P. Ravenel, called the meeting to order at 2:34 p. m.

Dr. Ravenel then read his Chairman's address and oration, "The Education of Health Officers." No discussion.

The report of the Committee on Poverty consisted of a symposium of papers by members of the committee, as follows:

Dr. S. C. Knopf, New York: "Tuberculosis as a Cause and Result of Poverty."

Dr. J. N. Hurty, Indianapolis: "Diseases and Poverty."

Dr. Woods Hutchinson, New York, an address on the general theme.

The communications of Drs. Knopf and Hutchinson were discussed by Drs. Edward O. Otis, Boston, and W. A. Evans, Chicago.

Dr. Ernest C. Levy, Richmond, Va., on request of Dr. John F. Anderson, read a resolution, as follows:

Whereas, The improvement and control of the milk-supply of the country is one of the most important measures for the protection of the public health, and in order that this improvement may be properly directed and the control intelligently exercised, it is necessary that milk standards be established and classes of milk be defined. Therefore, be it resolved:

1. That the Section on Preventive Medicine and Public Health of the American Medical Association urges the House of Delegates to approve of the establishment of uniform milk standards and the classification of milk such as are embodied in the report of the Commission on Milk Standards appointed by the New York Milk Committee and published in the *Public Health Reports,* Aug. 22, 1913; and

2. That the Section on Preventive Medicine and Public Health of the American Medical Association recommends that the House of Delegates urge the adoption of these standards and classification by municipalities so far as local conditions make that possible.

The resolution, on motion (understood) of its reader, duly seconded, was adopted, and ordered referred to the House of Delegates. [Approved by House of Delegates.]

Dr. R. Q. Lilliard, Chairman, Nashville, Tenn., read the "Report of the Committee on Cerebrospinal Meningitis," which, on motion of Dr. S. C. Knopf, New York, duly seconded, was accepted.

Dr. C. Hampson Jones, Secretary, Baltimore, presented a suggestion for the appointment by the Chairman of a committee of three to draft by-laws for the Section; Dr. J. W. Trask, Washington, D. C., made a motion to that effect, which, being duly seconded, prevailed; in accordance wherewith the Chairman as such committee appointed Drs. J. W. Trask, Washington, D. C.; C. Hampson Jones, Baltimore, and W. A. Evans, Chicago.

Wednesday, June 24—Morning

Dr. W. C. Woodward, Washington, D. C., as giving effect to a recommendation in the Chairman's address and oration, offered the following:

Resolved, That the Council on Medical Education be requested to investigate the courses of instruction now leading to the degree of Doctor of Public Health and similar degrees and to outline minimum requirements for such courses.

The resolution was duly seconded and, without discussion, carried. [Referred by the House of Delegates to the Council on Medical Education.]

Dr. J. W. Trask, Washington, D. C., requested Dr. W. C. Woodward, Washington, D. C., to formulate a resolution on morbidity reports. Dr. Woodward accordingly presented the following:

Resolved, That a committee be appointed to represent the American Medical Association in any conferences that may be held or any action that may be taken looking toward the formulation and enactment of laws and regulations providing for the reporting of cases of disease and disability.

Dr. Woodward moved the adoption of the foregoing, which was numerously seconded by Dr. Trask and others, and, there being no discussion, the motion prevailed. [Referred by the House of Delegates to the Council on Health and Public Instruction.]

Dr. M. Clayton Thrush, Philadelphia, read a paper on "The Importance of Proper Sanitary Measures in the Preparation of Foodstuffs." Discussed by Drs. J. W. Trask, Washington, D. C.; G. E. Robbins, Chillicothe, Ohio; N. E. Campbell, Chicago; John L. Burkart, Lansing, Mich.; Harold B. Wood, Providence, R. I.; Charles J. Hastings, Toronto; M. P. Ravenel, Madison, Wis.; John W. S. McCullough, Toronto, and M. Clayton Thrush, Philadelphia.

The Chairman announced as his appointees for the Committee on Nominations, Drs. W. A. Evans, Chicago; W. S. Rankin, Raleigh, N. C., and J. W. Kerr, Washington, D. C.

Dr. John S. Fulton, Baltimore, read a paper on "Criticism of an Attempt to Prove that a Public-Health Laboratory May Distribute Infection." Discussed by Drs. Seneca Egbert, Philadelphia; W. S. Rankin, Raleigh, N. C.; Charles J. Hastings, Toronto; E. R. Kelley, Seattle, Wash.; Martin Friedrich, Cleveland; G. B. Young, Chicago; Ernest C. Levy, Richmond, Va.; I. D. Rawlings, Chicago; J. W. Trask, Washington, D. C., and John S. Fulton, Baltimore.

Dr. N. E. Campbell, Chicago, read a paper on "Some Important Phases of Railway Sanitation." Discussed by Drs. A. M. Harvey, Chicago; J. W. Kerr, Washington, D. C.; John W. S. McCullough, Toronto; G. H. Sumner, Des Moines, Iowa; W. H. Sanders, Montgomery, Ala.; Charles C. Browning, Los Angeles; W. C. Rucker, Washington, D. C.; Charles J. Hastings, Toronto; M. P. Ravenel, Madison, Wis.; Eugene R. Kelley, Seattle, Wash., and N. E. Campbell, Chicago.

Dr. J. W. Trask, Washington, D. C., presented the following:

Resolved, That the Chairman of the Section on Preventive Medicine and Public Health appoint a committee to study and report on the health organization of counties and related geographical units with especial reference to the appointment of full-time and properly qualified health officials.

The proposed resolution was seconded by Dr. J. N. Hurty, Indianapolis; modified by the mover, at the suggestion of a verbal change by Dr. W. S. Rankin, Raleigh, N. C., to read "establishment" instead of "appointment"; discussed by Drs. W. S. Rankin, Raleigh, N. C.; J. W. Kerr, Washington, D. C.; J. E. Ferrell, Washington, D. C.; M. P. Ravenel, Madison, Wis.; J. W. Trask, Washington, D. C., and W. H. Sanders, Montgomery, Ala., and adopted. [The general subject is already under consideration by the Council on Health and Public Instruction. Resolution was not referred to the House of Delegates.]

Dr. J. N. Hurty, Indianapolis, made a motion, duly seconded, that the Section on Preventive Medicine and Public Health appoint a committee to investigate the question of the representation of the Section in the Scientific Exhibit at the annual meeting of the American Medical Association, which motion was adopted, and the membership of the committee fixed at three.

Wednesday, June 24—Afternoon

The following papers were read as a Symposium on Tuberculosis:

Dr. Albert P. Francine, Philadelphia: "Principles of State Control of Tuberculosis, with Special Reference to Pennsylvania's System."

Dr. C. Am Ende, New York: "Enemies of the Consumptive."

Dr. Mary E. Lapham, Highlands, N. C.: "The Prevention of Tuberculosis by Periodic Examinations of Schoolchildren."

These three papers were discussed by Drs. Edward O. Otis, Boston; S. C. Knopf, New York; Charles C. Browning, Los Angeles; Theodore B. Sachs, Chicago; W. H. Sanders, Montgomery, Ala.; Adolph Koenig, Pittsburgh; Charles J. Hastings, Toronto; Mr. E. R. Smith, Clark School, Baltimore; Drs. Guy L. Kiefer, Detroit; John Ritter, Chicago; Davis Furman, Greenville, S. C.; Albert P. Francine, Philadelphia; C. Am Ende, New York; Mary E. Lapham, Highlands, N. C., and M. P. Ravenel, Madison, Wis.

Dr. S. C. Knopf, New York, offered a resolution on the question of health insurance, seconded by Dr. Edward O. Otis, Boston, and discussed by Drs. C. Am Ende, New York; J. W. Trask, Washington, D. C., and Louis I. Dublin, New York; whereupon Dr. W. A. Evans, Chicago, offered, as a substitute, the following, left in his hands by Dr. Woods Hutchinson, New York:

That in view of the problems likely to be forced on us by legislative action on state medical insurance, this Section appoint a committee of five to collect data on the results of such legislation in England, Germany and elsewhere, study the applicability of this System of Health Insurance to private practice, and work out a scheme of circumstances under which and fees for which medical service by annual contract can be carried with advantage and profit to both the community and the profession, such committee to report to next annual session of this Section for full discussion.

Dr. Knopf and the seconder of his motion accepting the foregoing substitute motion, presented by Dr. Evans, and the latter being duly seconded, it was discussed by Dr. John Ritter, Chicago, and adopted, with the understanding that the Chair appoint such committee.

Dr. Francis E. Fronczak, Buffalo, N. Y., read a paper on "Present-Day Public-Health Activities."

Dr. Ernest C. Levy, Richmond, Va., read a paper on "Infantile Dejecta an Unrecognized Source of Infection."

These two papers were discussed by Drs. Woods Hutchinson, New York; W. W. Tompkins, Charleston, W. Va.; W. A. Evans, Chicago; J. W. Trask, Washington, D. C.; W. S. Rankin, Raleigh, N. C.; M. P. Ravenel, Madison, Wis.; C. Am Ende, New York; C. Hampson Jones, Baltimore; Charles J. Hastings, Toronto; Davis Furman, Greenville, S. C.; John S. Fulton, Baltimore; Francis E. Fronczak, Buffalo, and Ernest C. Levy, Richmond, Va.

Thursday, June 25—Morning

The Committee on Nominations reported the following Nominations: Chairman, Dr. C. Hampson Jones, Baltimore; Vice-Chairman, Dr. E. R. Kelley, Seattle, Wash.; Secretary, Dr. O. P. Geier, Cincinnati; Delegate, Dr. Morgan Smith, Little Rock.

Dr. Francis E. Fronczak, Buffalo, moved the adoption of the report of the Committee on Nominations as read; the motion prevailed, and the Chairman declared the nominees elected.

The Chairman then announced his appointments for the following: 1. Committee on Railroad Sanitation: Drs. A. Clark, Hunt, Metuchen, N. J.; N. E. Campbell, Chicago; W. C. Rucker, Washington, D. C.; E. R. Kelley, Seattle, Wash., and S. J. Crumbine, Topeka, Kan. 2. Committee on Poverty: Drs. Woods Hutchinson, S. C. Knopf, Mr. Frederick L. Hoffman and Drs. Guy L. Kiefer and J. W. Trask. 3. Committee on Scientific Exhibit: Drs. Ernest C. Levy, William C. Woodward, W. S. Rankin, R. Q. Lillard and Charles C. Browning.

The retiring Chairman, Dr. M. P. Ravenel, then turned the meeting over to Chairman-Elect Dr. C. Hampson Jones, who, responding to calls for a speech, in felicitous terms acknowledged his sense of the honor conferred and besought the active cooperation of the membership in the serious work of this important Section.

Dr. Myer Solis-Cohen, Philadelphia, read a paper on "School Spread of Contagious Diseases and How to Control It." Discussed by Drs. Ernest C. Levy, Richmond, Va.; Harold B. Wood, Providence, R. I.; C. B. Wood, Monongahela, Pa.; S. L. Jepson, Wheeling, W. Va.; Francis E. Fronczak, Buffalo; I. D. Rawlings, Chicago, and Myer Solis-Cohen, Philadelphia.

Dr. John W. Trask, Washington, D. C., read a paper on "The Provisions of the Model State Law for the Notification of Controllable Diseases." Discussed by Drs. A. T. McCormack, Bowling Green, Ky.; Tom A. Williams, Washington, D. C.; S. L. Jepson, Wheeling, W. Va.; Martin Freidrich, Cleveland; I. D. Rawlings, Chicago; Charles J. Hastings, Toronto, and John W. Trask, Washington, D. C.

Dr. W. H. Price, Detroit, read a paper on "A Year's Experience with Public-Health Contagious-Disease Nurses." No discussion.

Louis I. Dublin, Ph.D., New York, read a paper on "County Health-Organization in the United States." Discussed by Drs. William M. Perkins, New Orleans; W. H. Sanders, Montgomery, Ala.; W. S. Rankin, Raleigh, N. C.; John W. Trask, Washington, D. C.; S. C. Knopf, New York; A. T. McCormack, Bowling Green, Ky., and Louis I. Dublin, Ph.D., New York.

Thursday, June 25—Afternoon

A joint meeting was held with the Section on Pharmacology and Therapeutics.

The following papers were read as a Symposium on Pellagra:

Drs. J. F. Siler and P. E. Garrison, Washington, D. C., and W. J. MacNeal, New York: "The Work of the Thompson-McFadden Pellagra Commission."

Drs. Edward Francis, C. H. Lavinder, R. M. Grimm and W. F. Lorenz, Washington, D. C.: "Attempts to Transmit Pellagra to Monkeys."

Dr. Carl Voegtlin, Washington, D. C.: "Treatment of Pellagra."

These three papers were discussed by Drs. Marcus Haase, Memphis, Tenn.; R. Q. Lillard, Nashville, Tenn.; W. C. Brownson, Asheville, N. C.; W. T. Shell, Corsicana, Tex.; John L. Jelks, Memphis, Tenn.; Robert Wilson, Charleston, S. C.; Ward J. MacNeal, New York; Claude Smith, Atlanta, Ga.; J. F. Siler, Washington, D. C.; John Ritter, Chicago; Edward Francis, Washington, D. C., and Carl Voegtlin, Washington, D. C.

Dr. C. J. Hunt, Harrisburg, Pa., read (in abstract) a paper entitled "Certain Problems in Infant Mortality." No discussion.

SECTION ON GENITO-URINARY DISEASES

Tuesday, June 23—Afternoon

The meeting was called to order at 2:20 p. m., the chairman, Dr. Arthur L. Chute, Boston, presiding.

The chairman stated that neither the delegate to the House of Delegates nor the alternate was present, and that it would be necessary to elect a delegate. Thereupon Dr. W. M. Spitzer, Denver, was elected delegate to the House of Delegates.

Dr. J. Dellinger Barney, Boston, read a paper on "The Ultimate Results of Genital Tuberculosis in the Male." Discussed by Drs. B. C. Corbus, Chicago; R. H. Herbst, Chicago; J. H. Cunningham, Jr., Boston; Edward L. Keyes, Jr., New York, and J. Dellinger Barney, Boston.

Dr. W. F. Martin, Battle Creek, Mich., read a paper on "The Value of Hydrotherapy in Urologic Cases." Discussed by Drs. D. Miller Barr, Atlantic City, and W. F. Martin, Battle Creek.

Dr. Alexander Randall, Philadelphia, read a paper on the "Endoscopic Treatment of Nocturnal Emissions."

Dr. A. G. Rytina, Baltimore, read a paper on "The Radical Removal of Certain Types of Diseased Verumontanum with Notes on Their Pathology."

These two papers were discussed by Drs. H. L. Leiter, Syracuse, N. Y.; J. D. Barney, Boston; F. W. Robbins, Detroit; H. L. Kretschmer, Chicago; Louis E. Schmidt, Chicago; E. L. Keyes, Jr., New York; John A. Hawkins, Pittsburgh; Frederick Charlton, Indianapolis; R. H. Herbst, Chicago; Alexander Randall, Philadelphia, and A. G. Rytina, Baltimore.

Dr. E. L. Keyes, Jr., New York, read a paper on "A Method of Controlling Hemorrhage after Suprapubic Removal of the Hypertrophied Prostate." Discussed by Drs. F. R. Hagner, Washington, D. C.; C. E. Barnett, Fort Wayne, and E. L. Keyes, Jr., New York.

The chairman called attention to the fact that it was necessary for members desiring the *Transactions* of the Section to subscribe for them. He asked that each member subscribe for two copies, so that as heretofore one hundred copies could be sent to journals, libraries and prominent men abroad.

Wednesday, June 24—Morning

Dr. R. H. Herbst, Chicago, read a paper on "The Treatment of Hydrocele with Special Reference to Phenol Injections." Discussed by Drs. A. A. Martin, New Zealand; V. D. Lespinasse, Chicago; B. A. Thomas, Philadelphia; Frank Hinman, Baltimore, and R. H. Herbst, Chicago.

Dr. V. D. Lespinasse, Chicago, read a paper on "Permanent Epididymotomy." Discussed by Drs. Henry L. Sanford, Cleveland; W. M. Spitzer, Denver; H. L. Kretschmer, Chicago; Edward Martin, Philadelphia, and V. D. Lespinasse, Chicago.

Dr. Frank Hinman, Baltimore, read a paper on "Malignant Disease of the Testes and Its Operative Treatment." Discussed by Drs. Hugh H. Young, Baltimore; F. W. Robbins, Detroit; E. L. Keyes, Jr., New York; Martin Krotoszyner, San Francisco, and Frank Hinman, Baltimore.

The chairman announced the appointment of Drs. Hugh H. Young, Baltimore; E. L. Keyes, Jr., New York, and A. C. Stokes, Omaha, as members of the Nominating Committee.

Dr. B. A. Thomas, Philadelphia, read a paper on "The Rôle of Functional Kidney Tests and the Preoperative and Postoperative Treatment in the Reduction of Prostatectomy Mortality." Discussed by Drs. Hugh H. Young, Baltimore; Edward Martin, Philadelphia; M. Krotoszyner, San Francisco; Hugh Cabot, Boston; W. F. Braasch, Rochester, Minn., and B. A. Thomas, Philadelphia.

Dr. Charles E. Barnett, Fort Wayne, read a paper on "Suprapubic Prostatectomy." No discussion.

Dr. William M. Spitzer, Denver, read a paper on "Continuous Painless Renal Hemorrhage and Its Treatment." Discussed by Drs. H. L. Kretschmer, Chicago; W. F. Braasch, Rochester, Minn.; Hugh Cabot, Boston; J. W. Squires, Charlotte, N. C., and W. M. Spitzer, Denver.

Dr. I. S. Koll, Chicago, read a paper on "A Study of the Action of the Colon Bacillus on the Kidney." Discussed by Drs. J. Bentley Squier, New York; Louis E. Schmidt, Chicago; H. W. Plaggemeyer, Detroit; A. J. Krowell, Charlotte, N. C., and I. S. Koll, Chicago.

Wednesday, June 24—Afternoon

Dr. J. Bentley Squier, New York, read a paper on "Surgery of the Bladder."

Dr. Arthur L. Chute, Boston, delivered the Chairman's Address, "A Plea for a More Extensive Operation in Cancer of the Bladder."

These two papers were discussed by Drs. Eugene Fuller, New York; John L. Atlee, Lancaster, Pa.; F. R. Hagner, Washington, D. C.; R. L. Rigdon, San Francisco; B. A. Thomas, Philadelphia; L. E. Schmidt, Chicago; Granville MacGowan, Los Angeles; William E. Lower, Cleveland; Martin Krotoszyner, San Francisco; J. B. Squier, New York, and A. L. Chute, Boston.

Dr. Eugene Fuller, New York, read a paper on "Extraperitoneal Rupture of the Bladder: Its Surgical Management." Discussed by Drs. A. G. Rytina, Baltimore; D. N. Eisendrath, Chicago, and Eugene Fuller, New York.

Dr. William E. Lower, Cleveland, read a paper on "Diverticula of the Urinary Bladder with Report of Cases." Discussed by Drs. Martin Krotoszyner, San Francisco; George G. Smith, Boston, and William E. Lower, Cleveland.

Dr. D. N. Eisendrath, Chicago, read a paper on the "Influence of Collargol Injections on the Kidney." Discussed by

Drs. W. F. Braasch, Rochester, Minn.; A. J. Crowell, Charlotte, N. C.; F. R. Hagner, Washington, D. C.; H. D. Furniss, New York; Martin Krotoszyner, San Francisco, and Frederick Charlton, Indianapolis.

Dr. William H. Barber, New York, read a paper on "Renal Infection; a Further Experimental Study of Its Relations to Impaired Ureteric Function." Discussed by Drs. J. W. Draper, New York; W. F. Braasch, Rochester, Minn.; J. H. Cunningham, Jr., Boston; D. N. Eisendrath, Chicago, and W. H. Barber, New York.

Dr. George G. Smith, Boston, read a paper on "Observations on Renal Function Determined by Ureteral Catheterization and Phenolsulphonephthalein Test." Discussed by Drs. B. A. Thomas, Philadelphia; M. H. Wyman, Baltimore; William E. Stevens, San Francisco, and G. G. Smith, Boston.

Thursday, June 25—Morning

The following officers were elected for the ensuing year: Chairman, Dr. Granville MacGowan, Los Angeles; Vice-Chairman, Edward L. Martin, Philadelphia; Secretary, Louis E. Schmidt, Chicago; Delegate, F. M. McCallum, Kansas City; Alternate, John T. Geraghty, Baltimore.

Dr. Martin Krotoszyner, San Francisco, read a paper on "The Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography." Discussed by Drs. W. M. Spitzer, Denver, and M. Krotoszyner, San Francisco.

Dr. John Geraghty, Baltimore, read a paper on "The Treatment of Pyelitis." Discussed by Drs. I. S. Koll, Chicago; M. Krotoszyner, San Francisco; Louis E. Schmidt, Chicago; William E. Stevens, San Francisco, and John Geraghty, Baltimore.

Drs. W. F. Braasch and G. J. Thomas, Rochester, Minn., read a paper on "The Value of Renal Functional Tests in Surgical Conditions of the Urinary Tract." Discussed by Drs. John Geraghty, Baltimore; B. A. Thomas, Philadelphia; G. G. Smith, Boston; William E. Stevens, San Francisco, and W. F. Braasch, Rochester, Minn.

Dr. Louis E. Schmidt, Chicago, read a paper on "Surgical Interference in Nephritis."

Dr. John H. Cunningham, Jr., Boston, read a paper on "Acute Unilateral Infection of the Kidney."

Dr. Granville MacGowan, Los Angeles, read a paper on "Hemic Infection of the Kidney."

These three papers were discussed by Drs. Hugh Cabot, Boston; B. C. Corbus, Chicago; Martin Krotoszyner, San Francisco; Louis E. Schmidt, Chicago; J. H. Cunningham, Jr., Boston, and Granville MacGowan, Los Angeles.

SECTION ON HOSPITALS

Tuesday, June 23—Afternoon

The meeting was called to order shortly after 2 p. m. by the Chairman, Dr. L. B. Baldwin, Minneapolis.

Dr. Baldwin then read the Chairman's address.

The following papers were read as a Symposium on Hospital Care of Communicable Diseases:

Dr. Robert J. Wilson, New York City: "The Care of Communicable Diseases in General Hospitals."

Dr. D. L. Richardson, Providence, R. I.: "The Prevention of Communicable Diseases in General Hospitals."

These two papers were discussed by Drs. Bracken, Cook, Walsh, Collins, Keefer, Hubbard, Sedgwick, Hornsby, R. J. Wilson, New York, and D. L. Richardson, Providence, R. I.

Wednesday, June 24—Morning

The Section on Hospitals was called to order shortly after 9 a. m. by the Chairman, Dr. Baldwin.

Dr. Walter L. Bierring, Des Moines, Iowa, read a paper on "Physical Therapy in Its Relation to the Hospital Patient from the Point of View of the Internist."

Dr. C. Hermann Bucholz, Boston, read a paper, entitled "Six Years' Experience in the Medicomechanical Department of the Massachusetts General Hospital."

The two papers were discussed by Drs. A. B. Hirsh, Philadelphia, and C. H. Bucholz, Boston.

Dr. Joseph D. Farrar presented the report of the Committee on Hospital Abuses of Charity.

Discussed by Drs. Hornsby, Walsh, Bauer, Hirsh, Wilson and Farrar.

On motion the report was accepted and placed on file.

Thursday, June 25—Morning

The following officers were elected for the ensuing year: Chairman, Dr. Winford H. Smith, Baltimore; Secretary, Dr. John A. Hornsby, Chicago; Delegrate, Dr. F. A. Washburn, Boston; Alternate, Dr. J. B. Howland, Boston.

The following papers were read as a Symposium on Air Problems in Hospitals:

Mr. F. H. Bass, Minneapolis: "Tests of Ventilating Plants."

Mr. C. E. A. Winslow, New York: "The Importance of Studying the Actual Condition of Hospital Air."

Dr. James Alexander Miller, New York: "Ventilation from the Point of View of the Clinician."

Mr. F. H. Lee, New York: "Laboratory Experiments with Air."

Mr. Arthur K. Ohmes, New York: "Possibilities of Mechanical Ventilation."

Mr. T. J. Van der Bent, New York: "Comparisons of Old and New Hospitals."

These six papers were discussed by Drs. Hollings, Cook, Bracken, Shallon, Hornsby and Miller, and Messrs. Edward F. Stevens, C. E. A. Winslow, Arthur V. Ohmes and T. J. Van der Bent.

Thursday, June 25—Afternoon

A joint meeting was held with the Section on Surgery. For a report of the proceedings, see minutes of that section.

SECTION ON ORTHOPEDIC SURGERY

Tuesday, June 23—Afternoon

The meeting was called to order at 2:45 p. m. by the Chairman, Dr. Leonard W. Ely, San Francisco.

Dr. Ely then delivered the Chairman's address entitled, "Orthopedic Surgery: Its Scope and Its Future." No discussion.

Mr. John Fraser, Edinburgh, read a paper entitled, "Some Remarks on the Etiology and Pathology of Bone and Joint Tuberculosis." Discussed by Drs. J. P. Lord, Omaha; Nathaniel Allison, St. Louis; A. H. Freiberg, Cincinnati; F. H. Albee, New York; Arthur Steindler, Des Moines, Iowa; J. D. Griffith, Kansas City, Mo., and John Fraser, Edinburgh.

A vote of thanks was given to Mr. Fraser, together with an amendment that he be recommended for election to honorary fellowship.

Dr. Edward W. Ryerson, Chicago, read a paper on "Recurrent Spondylolisthesis with Paralysis. Bone Splint Transplantation; Recovery." Discussed by Drs. F. H. Albee, New York; Charles A. Parker, Chicago; J. T. Rugh, Philadelphia; J. A. Nutter, Montreal, Canada, and E. W. Ryerson, Chicago.

Dr. Nathaniel Allison, St. Louis, read a paper on "Ankylosis; An Experimental Study." Discussed by Drs. Barney Brooks, St. Louis; J. T. Rugh, Philadelphia, and W. S. Baer, Baltimore.

Dr. W. S. Baer, Baltimore, read a paper on "Arthroplasty with the Aid of Animal Membrane." Discussed by Drs. E. W. Ryerson, Chicago; N. Allison, St. Louis; A. H. Freiberg, Cincinnati; G. G. Davis, Philadelphia; Frederick Hodgson, Atlanta, Ga., and W. S. Baer, Baltimore.

Dr. W. Russell MacAusland, Boston, read a paper on "Arthroplasty of the Elbow-Joint." Discussed by Drs. G. G. Davis, Philadelphia; C. A. Parker, Chicago, and W. R. MacAusland, Boston.

Wednesday, June 24—Morning

Dr. F. J. Cotton, Boston, presented a paper on "A Neglected Form of Ankle Fracture." Discussed by Drs. J. D. Griffith, Kansas City, Mo.; G. G. Davis, Philadelphia; H. W. Orr, Lincoln, Neb.; J. P. Lord, Omaha; W. R. MacAusland, Boston; F. E. Peckham, Providence, R. I.; D. B. Phemister, Chicago, and F. J. Cotton, Boston.

Dr. W. G. Stern, Cleveland, read a paper on "The Three Cardinal Signs in the Diagnosis of Fractures into or near Joints." Discussed by Drs. F. J. Cotton, Boston; F. E. Peckham, Providence, R. I., and W. G. Stern, Cleveland.

Dr. Frank E. Peckham, Providence, R. I., presented a paper entitled, "The Treatment of Fractures of Both Bones of the Legs." Discussed by Drs. H. W. Orr, Lincoln, Neb.; F. H. Albee, New York; S. C. Baldwin, Salt Lake City; John Ridlon, Chicago; J. D. Griffith, Kansas City, Mo.; F. J. Cotton, Boston, and Frank E. Peckham, Providence, R. I.

Dr. D. B. Phemister, Chicago, presented a paper on "Necrotic Bone and the Subsequent Changes which it Undergoes." Discussed by Drs. F. H. Albee, New York; C. A. Parker, Chicago; Henry W. Frauenthal, New York, and D. B. Phemister, Chicago.

Dr. M. S. Henderson, Rochester, Minn., read a paper on "Resection of the Knee for Tuberculosis." Discussed by Drs. E. D. Oppenheimer, New York; W. C. Campbell, Memphis, Tenn.; John Ridlon, Chicago; R. A. Hibbs, New York; Fred J. Gaenslen, Milwaukee; F. H. Albee, New York; John Dunlop, Washington, D. C.; H. W. Orr, Lincoln, Neb.; Emil S. Geist, Minneapolis; Samuel F. Jones, Denver; L. W. Ely, San Francisco; J. D. Griffith, Kansas City, Mo.; A. H. Freiburg, Cincinnati, and M. S. Henderson, Rochester, Minn.

Dr. John Ridlon, Chicago, read a paper on "Coxa Vara."

Wednesday, June 24—Afternoon

Dr. Arthur Steindler, Des Moines, Iowa, read a paper on "Coxa Vara Adolescentium."

The papers of Drs. Ridlon and Steindler were discussed by Drs. Wallace Blanchard, Chicago; W. C. Campbell, Memphis, Tenn.; J. D. Griffith, Kansas City, Mo.; Reginald H. Sayre, New York; G. G. Davis, Philadelphia; E. S. Geist, Minneapolis; John Ridlon, Chicago, and Arthur Steindler, Des Moines, Iowa.

Dr. Z. B. Adams, Boston, presented a paper entitled, "The Relation of Bony Ankylosis of the Lumbar and Sacral Spine to the Cause and Treatment of Scoliosis." Discussed by Drs. Harry Hudson, Philadelphia; John Dunlop, Washington, D. C., and Z. B. Adams, Boston.

Dr. E. G. Abbott, Portland, Me., read a paper on "Scoliosis." Discussed by Drs. Paul A. McIlhenny, New Orleans; R. O. Meisenbach, Buffalo; H. W. Frauenthal, New York; H. W. Orr, Lincoln, Neb.; C. A. Parker, Chicago, and James K. Young, Philadelphia.

Dr. H. B. Thomas, Chicago, read a paper on "Congenital Scoliosis with Specimen Including the Thorax." Discussed by Drs. R. O. Meisenbach, Buffalo, and R. H. Sayre, New York.

Drs. Michael Hoke and Frederick Hodgson, Atlanta, Ga., presented a paper entitled, "Bone and Joint Cases, with Lantern-Slide and Moving-Picture Illustrations." Discussed by Drs. C. A. Parker, Chicago; H. W. Frauenthal, New York, and Frederick Hodgson, Atlanta, Ga.

Dr. Archer O'Reilly, St. Louis, read a paper on "Spondylitic Arthritis; the Question of Diagnosis."

Dr. Henry W. Frauenthal, New York, read a paper on "Syphilitic Bone and Joint Conditions."

These two papers were discussed by Drs. J. D. Griffith, Kansas City, Mo.; James Patterson, Chicago; J. A. Nutter, Montreal; E. D. Oppenheimer, New York; R. O. Meisenbach, Buffalo; A. O'Reilly, St. Louis, and H. W. Frauenthal, New York.

Thursday, June 25—Morning

The following officers were elected: Chairman, Dr. Nathaniel Allison, St. Louis; Vice-Chairman, Dr. R. A. Hibbs, New York; Secretary, Dr. Emil S. Geist, Minneapolis; Delegate, Dr. John Ridlon, Chicago, and Alternate, Dr. Leonard W. Ely, San Francisco.

The following resolution, offered by Dr. Orr of Lincoln, Neb., was adopted:

Resolved, That a committee of three be appointed by the Chair to investigate and report to this Section on the efficiency of the various therapeutic methods, surgical and mechanical, now employed in the treatment of tuberculosis of the joints.

A motion was passed that at least one hundred copies of the Transactions of the Section be ordered.

The following papers were read as a symposium:

Dr. B. P. Farrell, New York: "Hibbs' Osteoplastic Operation for Pott's Disease of the Spine: Results of Clinical Observation and Animal Experimentation."

Dr. Fred H. Albee, New York: "Original Use of the Bone-Graft in Pott's Disease, Fractures and Other Conditions."

Dr. John F. Golden, Chicago: "Use of Transplant from the Tibia as a Unit of a Joint."

Dr. Charles M. Jacobs, Chicago: "Observations of Bone Transplantation (Albee's Method) for the Cure of Pott's Disease."

These four papers were discussed by Drs. W. G. Stern, Cleveland; John B. Murphy, Chicago; Dean Lewis, Chicago; Joel E. Goldthwait, Boston; M. S. Henderson, Rochester, Minn.; F. H. Albee, New York, and J. F. Golden, Chicago.

Dr. Robert B. Osgood, Boston, read a paper on "The Relation of Posture and Intestinal Derangements to Coxitis." Discussed by Drs. J. E. Goldtwait, Boston; A. O'Reilly, St. Louis (or Compton Reilly, Baltimore?); C. A. Parker, Chicago; Frederick Hodgson, Atlanta, Ga.; W. G. Stern, Cleveland; R. O. Meisenbach, Buffalo, and R. B. Osgood, Boston.

Dr. F. W. Nathan, New York City, presented a paper on "Mechanics and Pathology of the Hip in Their Relation to the Diagnosis and Treatment of Diseases of the Hip-Joint." Discussed by Drs. R. A. Hibbs, New York; F. H. Albee, New York; Reilly; Wallace Blanchard, Chicago; W. G. Stern, Cleveland; J. E. Goldthwait, Boston; L. W. Ely, San Francisco, and F. W. Nathan, New York.

THE REGISTRATION AT ATLANTIC CITY

The total registration at the Atlantic City Session was 3,958, an increase of 360 over the number of registrations there in 1912 (1912 registrations, 3,598).

REGISTRATION BY SECTIONS

Practice of Medicine	1,031
Surgery	977
Obstetrics, Gynecology and Abdominal Surgery	309
Ophthalmology	352
Laryngology, Otology, Rhinology	211
Diseases of Children	142
Pharmacology and Therapeutics	24
Pathology and Physiology	113
Stomatology	68
Nervous and Mental Diseases	150
Dermatology	87
Preventive Medicine and Public Health	153
Genito-Urinary Diseases	117
Hospitals	24
Orthopedic Surgery	86
Registrations without specifying any one section	84
Foreign guests and others who registered	30

Notice on Section Transactions

Those who desire copies of the 1914 Transactions of any of the sections, but whose names are not on the permanent subscription list, should order at once, as printing will soon commence. The editions of each of these section transactions is limited. Only enough copies are printed to supply the probable demand, and each year some persons order too late to be supplied. Each volume is a cloth-bound book containing the articles and discussions in that particular section. The price, when ordered in advance, is $1 a volume, payable at time of delivery.

It is to be remembered that one may give a permanent order for Transactions; and those specified are sent, from year to year, until the order is canceled. Address orders to the American Medical Association, 535 North Dearborn Street, Chicago

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Twenty-Sixth Annual Meeting held in Stockbridge, Mass., May 26-28, 1914

(Concluded from page 55)

Recurrent Vomiting in Private Practice

Dr. Charles Gilmore Kerley, New York: Of 141 cases, 70 were boys and 71 girls. The average time the cases were followed was 104 weeks. The diagnosis was based on definite periodic attacks of vomiting. The family history showed that in one or both parents there was rheumatism in 40, and sick headaches and bilious attacks in 40. The condition occurred in the vast majority of cases in the offspring of those who for two or more generations had not been doing manual labor, having usually business or professional occupations. In 31 per cent. of the cases the appetite was good, in 69 per cent. poor. In 59.5 per cent. there was constipation. In 83 the average hemoglobin was 63.5 per cent. and the red blood-cells were 4,280,000. Sixty-nine of the cases had been difficult feeders. Recurrent colds had been present in 41 per cent. In 12 there was a definite history of eczema, 6 had a habit tic, 14 either had or gave a history of having had enuresis, and 13 had had rheumatism. The presence of acetone in the urine was noted in the later attacks with very few exceptions. The onset of the vomiting occurred in 37 cases in the first year, in 24 in the second, and in 21 during the third year of life; in the remainder of the series it occurred from the third to the ninth year. The duration of the interval between the attacks varied greatly, as did the severity of the attacks. There was a rise of temperature during the attacks in 90 per cent. A few cases ran very high temperatures, but the majority of the cases showed a temperature of from 100 to 102 F. In the majority the recurrent vomiting was controlled; in 9 there was an improvement and in 16 no apparent improvement. In some which were not cured the treatment was carried out indifferently.

The association of recurrent vomiting with recurrent bronchitis and other forms of illness is interesting. Sometimes the conditions occurred simultaneously and at other times they were interchangeable. Two brothers were of particular interest in that they had attacks simultaneously, beginning with tonsillitis, followed by bronchitis and asthma, and ending with recurrent vomiting, lasting for a day or two.

The dietetic management is the same, in the main, in all cases. Cow's milk, butter and sugar are omitted from the diet. One egg is allowed perhaps every third day. Saccharin is permitted as a sweetening agent. Three meals a day are allowed but nothing between meals. Red meat is given scantily three times a week, poultry and fish at other times. In some instances skimmed milk is permitted but never more than one pint daily. The further treatment consists of the internal use of salicylate of soda, bicarbonate of soda, independent or in combinations as devised by Rachford. This drug treatment is carried on for periods of months or years as the case may require. Daily physical exercise is a very important factor. A warm bath and a rub at night is also given and in recalcitrant cases physical therapeutics have proved very effective. The nervous element in these cases is not to be forgotten. The precipitation of an attack by fatigue or fright is not unusual. During the acute vomiting attack a weak solution of bicarbonate of soda is best retained in the strength of 5 grains of bicarbonate of soda to 8 ounces of hot water. As a laxative the magnesium preparations are best. When the vomiting has continued for from twenty-four to thirty-six hours colonic flushings with bicarbonate of soda, 2 drams to 8 ounces, at six- or eight-hour intervals are given. Nothing is gained by attempts at forced feeding.

DISCUSSION

Dr. Irving M. Snow, Buffalo, N. Y.: In a case that came under my observation in a child with recurrent vomiting and profuse gastric hemorrhages, it was found that there was a hyperacidity, believed to be due to duodenal ulcer with delayed motility. The child was given cream, butter and bacon and also strong alkalies, and made a complete recovery.

Dr. Charles Hunter Dunn, Boston: In a similar series of cases seen in private practice and in association with Dr. Rotch the relation to acid intoxication interested me. There seem to be two types of cases. Some seem to be cases of true acid intoxication as Dr. Kerley has described them and another class of cases in which large doses of bicarbonate of soda does not give the slightest benefit. Two cases in which there was fatal hemorrhage made such an impression on me that I have given up the use of bicarbonate of soda. The presence of acetone in the urine is a symptom only.

Dr. Alfred Friedlander, Cincinnati: Fischer and others who used the alkaline treatment in severe cases are now using a solution of dextrose (20 grams) and sodium chlorid (14 grams) to the liter by rectum. The results thus far are surprisingly good; the profound exhaustion has not appeared and the patients have rallied more promptly. It is too soon to make definite statements about this treatment, but I think it ought to go on record because of the excellent results claimed for it.

Dr. Isaac A. Abt, Chicago: The diet during the interval has no effect on the recurrence of the attacks, they occur about so often no matter what food is taken, neither does the mode of life make any apparent difference, except that a nervous attack or a mild infection may bring on an attack. Eight per cent. glucose in normal salt solution per rectum has been recommended. I have found that bicarbonate and ice-cold chloroform water repeated frequently give relief.

Dr. J. P. Crozer Griffith, Philadelphia: Years ago I came to the conclusion that there were cases of recurrent vomiting that could be benefited by bicarbonate and others that could not. Even the giving of bicarbonate between the attacks has no effect. "Recurrent" in connection with these cases does not mean recurring at specific times. In my experience some patients have been benefited by an alteration in the diet while others have not. During the attack I have found nothing as good as a hypodermic injection of morphin. The objection to this is that it stops elimination; that may be, but it sometimes saves life.

Dr. Henry Heiman, New York: Cyclic vomiting is a metabolic disturbance of fats as well as of proteids producing acetone bodies. The acidosis is not fatal, but I have seen a case result in eclampsia with a temperature of 108 F. in which no treatment could save the child. The moderate cases respond to bicarbonate of soda in peppermint, the latter acting as a mild local analgesic. One may also use bicarbonate in small amounts by the rectum, by hypodermoclysis or by intravenous injection. Intermittent treatment acts as a prophylactic.

Dr. John Ruhräh, Baltimore: The proper management of the diet during the interval does do some good. If the condition is due to an excess of fats, proteids or carbohydrates, we certainly do some good by eliminating the offending substance. There are attacks due to reflex nervous conditions which are recurrent and it is difficult to say what the basis of these are.

Dr. J. H. Mason Knox, Baltimore: In certain cases in older children atropin pushed to the physiologic limits in connection with other measures will be found to be effective.

Dr. William P. Northrup, New York: I have had cases which were led on to complete recovery by massage, after other measures had failed.

Dr. Charles Gilmore Kerley, New York: I realize that there may be a starvation of carbohydrates and sugars, but an excess of sugar brings about just as bad results as too little. I have found physical therapeutics a most valuable adjunct in the treatment of recalcitrant cases. The class of cases of which I have spoken are not cases of anaphylaxis, but answer better to the description of acidosis as accepted at the present time. I do not know why the diet in the interval would not be of benefit.

The Artificial Cooling of Sick Rooms in Summer

Dr. Henry Heiman, New York: Thirteen selected patients were placed in a cooled room and the treatment given them was similar to that given any ordinary case of enteritis. The average temperature of the room was 69 F. for forty-two days and ranged from 63 to 74 F., and at all times from 5 to 11 degrees below the outside air. The relative humidity was very much the same as that of the outside air, but the absolute humidity was diminished by the cooling. The air was filtered, washed and cooled by cooling coils. We have gained the impression that in this ward the children were more comfortable, cried less, and looked less sick and parched. This method is not applicable to moribund and premature babies, but is suitable for all others.

DISCUSSION

Dr. Henry I. Bowditch, Boston: We had a similar plant installed at a great expense, but the fan was a long way off from the coil room and as a consequence the ducts became clogged with dust and we have given up its use.

Dr. Fritz B. Talbot, Boston: Dr. Bowditch forgot to say that we tried to start the apparatus one day and the dust was very annoying and resulted in 75 per cent. of the children and all the nurses in the ward getting infectious colds.

Dr. B. S. Veeder, St. Louis: We have a room cooled by refrigerating pipes arranged along one side of the room; in this way the atmosphere is cooled without cold air coming into the room.

Dr. Samuel S. Adams, Washington, D. C.: As confirmatory of the benefit of cooling a room I may cite the case of a boy under my care. The temperature was about 90 F. and by means of an electric fan driving the air over a cake of ice the temperature of the room was kept down to 75 F. When the temperature was allowed to rise the boy went into coma. It was finally decided to take him to a cool place and when we got him to an elevation in New York state the change in his condition was strikingly beneficial.

Dr. Henry L. K. Shaw, Albany, N. Y.: At St. Margaret's Hospital we have a five-dollar cooling plant consisting of a pipe rigged up to drip water on a sheet.

Primary Splenomegaly in an Infant

Dr. J. H. Mason Knox, Jr., and Dr. H. J. Wahl, Baltimore: The patient is an infant 11 months of age who has never thrived and weighs 11 pounds. He is one of a family of eleven children, three of whom died in infancy. Six are well and range in age from 20 to 4 years. The patient showed a general malnutrition associated with idiopathic enlargement of the spleen, liver and lymph-nodes and peculiar yellowish pigmentation of the skin of the exposed parts. The blood picture was normal until a few days before death when it assumed the appearance characteristic of lymphatic leukemia. At autopsy the liver, spleen and the lymphoid tissues were very much enlarged and firm. Histologically there was more or less disappearance of the lymphoid elements, which were largely replaced by large swollen, rounded or polygonal cells with small nuclei and abundant foamy appearing cytoplasm. The affected organs showed a variable amount of iron-containing pigment. In this case the large cells apparently arise from both the endothelium and the reticulum. The picture in the spleen resembles that first described by Gaucher in 1882. The condition suggests a systemic disease of the lymphohematopoietic tissues, but apparently any reticulated tissue may be involved. The condition is very probably related to other blood diseases.

Case of Gaucher's Disease

Dr. Charles Herrman, New York: The patient was a boy, 14 years of age, in whom the disease had been running a chronic course since he was 4 years of age. There was marked enlargement of the spleen, moderate enlargement of the liver, no distinct enlargement of the lymph-nodes, persistent leukopenia with a tendency to epistaxis, discoloration of the face, especially around the nose and a wedge-shaped thickening of the conjunctiva on either side of the cornea. The size of the liver and spleen did not change materially during the seven years that the patient was under observation. As the disease progressed the blood showed a marked decrease in the percentage of hemoglobin, from 75 to 45 per cent.; a slight decrease in the number of red blood-cells, from 4,390,000 to 3,400,000; a constant leukopenia with a decrease in the percentage of polymorphonuclear leukocytes from 20 to 48 per cent. As a result of the operation, besides a marked improvement in the general condition, there was an increase in the hemoglobin from 40 to 55 per cent., in the red blood-cells from 3,400,000 to 4,000,000, and a much more marked increase in the polymorphonuclear leukocytes, from 48 to 75 per cent.

Some Results of Thymus Extirpation

Dr. John Howland, Dr. E. A. Park and Dr. R. D. McClure, Baltimore: The results of our experiments thus far fail to show that the thymus is essential to life. Some of our thymectomized animals have shown retardation in the development of such extent that at the end of six months they were not much more than one-half the size of the controls, but are nevertheless active, healthy looking, normally formed animals. No changes of a rachitic nature have been found. We feel certain in the belief that the thymus gland in dogs is not essential to life and that the changes which result from its removal are not of so gross a nature as has been reported in recent work, which has come particularly from Germany.

DISCUSSION

Dr. Alfred Friedlander, Cincinnati: It is difficult to extirpate the thymus completely, for in certain instances there are accessory thymi and these easily regenerate and take the place of the original thymus and they affect the results of the experiment. Thymectomy in a human being is exceedingly dangerous, and there is no absolute indication for doing it. The operative method has given a mortality of 33 per cent. while the method of shrinking the thymus with the Roentgen ray in twenty-seven cases has proved simple and safe, there being but one death among the twenty-seven cases. We are justified in claiming that in the Roentgen ray we have a means of treating enlarged thymi just as effective and much safer than thymectomy.

Dr. E. A. Park, Baltimore: In regard to the difficulty of completely extirpating the thymus, we have looked for these rests and believe their presence has been greatly exaggerated as we have not found them. As to the operative removal of the thymus, this ought not to be so difficult; of course one cannot remove it entirely without entering the thorax. As performed by Dr. Halstead the operation is simple and ought not to be attended with great danger.

Treatment of the Late Type of Hereditary Syphilis

Dr. Borden S. Veeder and Dr. R. C. Jeans, St. Louis: The treatment we have evolved consists of a combination of neosalvarsan and mercury. The neosalvarsan is dissolved in 1 c.c. of freshly distilled water for each decigram and injected intravenously into any available vein. We have given up the muscular injections because of the pain and discomfort. Neosalvarsan fulfils certain essential requirements for use with children which salvarsan does not. For the treatment of acute lesions neosalvarsan is more effective than inunctions of mercury. We have given some 200 intravenous injections of neosalvarsan and have never noticed any bad or unpleasant effects, except nausea and vomiting in a few instances. In chronic cases of the late type, in which there are such lesions as cerebrospinal syphilis or interstitial keratitis we have been able to secure but little permanent effect from neosalvarsan. The Wassermann reaction is stronger in hereditary lues than in any other form of syphilis and hence it is correspondingly more difficult to make negative. In order to obtain lasting results it is necessary to combine the salvarsan with long and intensive mercurial treatment. No case can be looked on as cured until a negative Wassermann has been obtained and has remained negative without treatment for some time.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 2 Chicago, Illinois July 11, 1914

THE FUTURE OF DERMATOLOGY IN AMERICA *

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KANSAS CITY, MO.

The progress of dermatology during the past one hundred years has been admirably portrayed by Unna[1] in his oration on the history of eczema during the last century in England. When one realizes that Seguin Henry Jackson, in his unique treatise on "Dermatopathology," published in London in 1794, recognized only two chief forms of inflammation of the skin, erythema and erysipelas, the enormous amount of careful, conscientious labor that has been required to carry our chosen specialty upward, past the barriers of ignorance, prejudice and confusion, to its present position in the scientific world is almost inconceivable.

To the hardy pioneers we owe much. Bateman, Plumb, Jonathan Green, Anthony Todd Thompson, Neligan and Erasmus Wilson in England; Alibert, Beitt, Rayer, Devergie and Bazin in France; Hebra in Germany, and Duhring in America, each did his humble best to unfold the mysteries of dermatology and aid in blazing the pathway to a broader and more comprehensive knowledge of cutaneous medicine. With the passing of the years a healthy spirit of dissatisfaction and unrest gradually developed. Men grew weary of hypotheses and hungry for facts. To quote Flexner:[2]

> The fundamental difference between medieval and modern medicine emerges just here. Medieval medicine theorizes with or without experience. It starts out with a presupposition, a notion, a metaphysical principle, and purports thence to deduce its procedure. Intellectual processes of so dignified a description appear to the vitalist to dispense with the necessity of close observation; percussion, auscultation and the physical measurement of temperature are, in his opinion, crude methods, incapable of penetrating as deeply into the mysteries of disease as his own purely reflective processes. As opposed to this predominately deductive procedure, modern medicine strives to be honestly and modestly inductive—consulting the situation for relative facts, and cautiously drawing provisional conclusions, subject to revision whenever the issue of experience suggests modification. Science is indifferent as to where or how information is obtained. It is concerned only with the vigor, precision and consistency of observation.

Fortunately for us, the present period is one in which science is exceedingly popular, mainly because its benefits are felt and appreciated by the public at large, and the trend of events indicates the coming of great things; so if ever we had a right to become enthusiastic it is now. If the best and most lasting results are to be secured, however, the sphere of our activities must be materially widened, and for this reason the most important problem for us to solve is that of education. Education of the general medical man first, and a more conscientious, willing pupil never lived, and then, through him and through the representative lay press, the public. The importance of early extirpation in cancer, the value of prophylaxis in small-pox, the eradication of venereal disease — if ever these questions are solved it must be with the aid and hearty cooperation of an intelligent citizenship.

The majority of us will, I think, agree with Osler that there are few occupations of a more satisfying character than the practice of medicine, if a man can but once get oriented and bring to it the philosophy of honest work, the philosophy which insists that we are here, not to get all we can out of life, but to see how much we can add to it. From a humanitarian point of view we owe our fellow men much more than we have ever given them. In a host of matters they look to us for advice, guidance and protection.

In our own particular field the most crying need at this time is for a national asylum for lepers, a combined hospital and home where these poor unfortunates can be properly segregated, comfortably housed and intelligently cared for. As Charles J. White[3] has pointed out, the establishment of state institutions for the treatment of these patients is seldom practicable. Few communities will tolerate the presence of such a hospital in their immediate vicinity, and if they would, experience has shown that such establishments are relatively expensive and burdensome to the state supporting them, while, because of the comparative scarcity of the leper population, the inmates are usually so few in number and so mixed in nationality that their retention often amounts practically to solitary confinement. To render matters worse, the funds are seldom sufficient to permit of the employment of skilled and experienced medical men, and in consequence the unhappy patients frequently are denied even the benefit of modern methods of treatment.

Those who have given this matter much consideration and thought believe that the only way out of the difficulty is national control of the disease and its unfortunate victims, and with this opinion I am heartily in accord. In this way only can we hope to care properly for these wretched individuals, and save them from a worse fate than that which bitter circumstance has thrust on them.

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* Chairman's address, read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, at Atlantic City, June, 1914.

[1] Unna: Brit. Jour. Dermat., 1902, xiv, 239.

[2] Flexner: Medical Education in Europe, Carnegie Foundation for the Advancement of Science, Bull. 6, p. 5.

[3] White, Charles J.: Jour. Cutan. Dis., 1913, xxxi, 799.

Not distantly related to the question of leprosy is that of syphilis. We may mistreat the leper, but all too often the poor syphilitic escapes treatment altogether, at least treatment that is worthy of the name. Formerly we had to contend with the protiodid-pill enthusiast, and to this day fully one-half of the tabetics and paretics that consult me have had months or even years of protiodid medication, a form of treatment that was usually as worthless as it was convenient and fascinating. Now we must battle with the salvarsanist, the misguided therapeutist who assures his intended victims that one or two small doses of neosalvarsan, administered intravenously and painlessly, will forever safeguard them from all the luetic complications that human flesh and blood are heir to. Mercury and salvarsan are invaluable drugs when properly employed, but casual treatment of a disorder like syphilis is to be deplored, for it can lead only to a false sense of security from which the patient generally awakens too late to be benefited by any plan of treatment, no matter how vigorous. One of the members of this Section, Dr. Corlett[4] of Cleveland, has done much to bring the profession to a realization of its responsibility in this matter and to the prevalence and danger of syphilis generally, and I feel that the subject cannot be agitated too frequently or too vigorously. It is absolutely essential that this affection receive more attention in our medical schools if it is to be successfully combated in actual practice.

While I am discussing scholastic needs, a word regarding the study and teaching of dermatology may not be out of place. What we most need here in America is more hospitals and wards in which young men may have an opportunity to work, wards having their own laboratories attached, with a sufficient number of interns to attend to the routine duties and relieve the instructors of a few of the numerous duties which are inseparably connected with research work. As an antidote for intellectual laziness, a vice which is as prevalent among young medical men as it is fatal to their professional interests, a year's internship in a properly managed institution of this kind should prove of great value, for it would serve to inculcate a habit of industry as well as a love of high ideals, and a practical working knowledge of dermatology along with a lasting desire to investigate thoroughly every pathologic condition with which the student may afterward come in contact.

The experiment that is now under way in two of our leading schools of employing full-time, salaried teachers in clinical medicine is an exceedingly interesting and important one, and if it proves successful, as I believe that it will, it is bound to have a stimulating and wholesome influence on medical education throughout the world.

The advertising "dermatologist" and the "cancer specialist" have long been thorns in the side of the legitimate practitioner of cutaneous medicine. While an ignorant and gullible public is in part responsible for the existence of these parasites, I am not sure that we ourselves are wholly without blame. As Donaldson[5] has intimated:

> Results are what the people want, and what they are going to have, if not through ethical channels they will try the so-called irregular class of practitioners. The quack is ever an optimist, you and I are prone to be pessimists, or as we grow older inoculists. A careless diagnosis, or more frequently no diagnosis at all, is mainly responsible for the quack doctor. We have found that it is impossible to legislate these fakers out of existence, but with a learned and capable profession that is willing to take the time and trouble to do the work that will give relief, the quack will soon become a thing of the past.

I do not believe that all of us realize and appreciate the enormous debt our profession owes to certain of the journals and newspapers here in America for the splendid fight they have made in behalf of pure food, honest drugs and a clean medical profession. As I have already suggested, these reforms have come largely through the education and enlightenment of the general public — few intelligent persons care to be doped or poisoned or swindled, and once their eyes are opened and the source of danger ascertained they can usually be depended on to protect themselves. Quackery and patent medicines have received some of their hardest jolts through the columns of representative lay journals. New York has her *Collier's* and her *Harper's*, Philadelphia her *North-American,* Chicago her *Tribune*, and out in the short-grass country we have the St. Louis *Star* and the Kansas City *Star,* two periodicals that can always be found on the right side when it comes to a fight for decency and the square deal.

Proprietary medicines, which are but patents in pseudoscientific garb, deserve a paragraph all to themselves. It is only during the past few years that the regular medical profession has awakened to the fact that various pharmaceutical houses have long been using it as a stalking-horse for marketing preparations of questionable composition and often of more than questionable therapeutic value. The Council on Pharmacy and Chemistry of the American Medical Association began its propaganda for reform in 1905, and, despite criticism, misrepresentation and bitter opposition, often from the most unexpected sources, this body has supplied us with authentic information concerning the worth, or worthlessness, of a majority of the vast number of "proprietary" preparations now on the market. Some of you may question the advisability of discussing a subject of this kind in an address on dermatology. Gentlemen, whenever a specialist loses sight of the fact that he is a physician, first, last and all of the time, he is no longer fitted to practice dermatology or any other branch of medicine. As Pusey[6] has already told us:

> It is very essential that we know what we give our patients. And the revelations in regard to proprietary remedies have shown above all things that there is no reasonable way of being certain of their composition except by independent examination of them, which the prescriber is himself unable to give. If there is to be any certainty, proprietary medicines, domestic or foreign (and the foreign ones are as bad as our own) must have some independent supervision and be authenticated by an unbiased authoritative examination. Oftentimes even the manufacturer himself does not know exactly what the remedy contains. In short, we have no protection against either ignorance or dishonesty, unless we provide it.

In the Council on Pharmacy and Chemistry we have a board of able, unselfish scientists who are looking after not only our interests, but the interests of every honest drug manufacturer as well, and it is our duty to assist these men in every possible manner. And now, may I ask, how many of us are doing this? Did you ever stop to consider that when you allow your name to appear as an "associate" or "department" editor on the staff of a medical journal, or subscribe or contribute to it in any way, that you are standing sponsor not only for its editorial policy, but also for its advertising standards? How many of the privately owned medical journals in America possess a respectable or even a decent advertising standard? Fortunately, a few of them do, and the number is gradually increasing; but it is not increasing so rapidly as it will when the profession finally realizes the real character of the wares advertised. Then even the most venal of medical journals will find it inadvisable to accept patronage of this character, and not until then "will the erstwhile 'ethical proprietary' become openly what it has always been secretly, a plain patent medicine, and go frankly to such of the newspapers as will accept it. Ultimately, of course, as the medical profession awakens to the evils of the proprietary-medicine business, the fraudulent proprietary will go out of existence, and with it will go the low-grade medical journal."[7] And how can we dermatologists aid in this general clean-up? First, by refusing to prescribe remedies concerning the composition of which we know nothing, and second, by supporting our state journals, the majority of which are clean and dependable. For those of us who care to write, these periodicals, together with The Journal of the American Medical Association and the *Journal of Cutaneous Diseases Including Syphilis,* which at this time is unquestionably the best dermatologic journal published in any language, furnish avenues of ethical publicity amply sufficient for all present needs.

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[4] Corlett: Jour. Cutan. Dis., 1914, xxxii, 117.

[5] Donaldson: Pennsylvania Med. Jour., October, 1911.

[6] Pusey: Jour. Cutan. Dis., 1913, xxxi, 221.

The questions of dermatologic classification and nomenclature, like the poor, we have ever with us. While neither very young nor entirely unsophisticated, I do not care to break a lance with those of my colleagues who are wedded to the alphabetical system of arrangement, irrational though it may seem, or with others who hold that it would simplify matters if every freshly discovered dermatosis were tagged with the cognomen of the individual who first described it; but I do think that the time has arrived when some of our distinguished confrères might safely extract urticaria pigmentosa, erythema solare, epidermidolysis bullosa and dermatitis repens from among the neuroses and distribute them around in the various pigeonholes in which the consensus of opinion would indicate they really belong. Likewise, the advisability of grouping lichen nitidus with the diseases of the appendages of the skin, and pediculosis corporis with the anomalies of the circulation appears somewhat questionable.

The honor of unearthing causative factors in disease is generally shared alike by pathologist and clinician. It is unfortunate that so much of the splendid clinical material in our large cities is practically wasted, so far as research is concerned. In dispensaries and hospitals having an annual registration running into the hundreds, not a single good piece of investigative work has been done in years. The new cases are hastily glanced over, a snap-shot diagnosis made, a prescription for a stock preparation handed out, and the patient goes his way, often carrying with him evidence which, if properly elucidated, would go far toward clearing up some of the problems which now puzzle us so much. The path of least resistance is the one invariably trodden by the multitude, but he who habitually treads it does not as a rule get very far in dermatology or in anything else.

The scientific world is indebted to several members of this Section, and particularly to Johnston and Schwartz,[8] Johnston[9] and, more recently, Schamberg, Kolmer, Ringer and Raiziss,[10] for careful and exhaustive studies on metabolism in various cutaneous diseases. Work of this character is not only difficult and laborious, but requires much skill and great care, for the complicated nature of the investigations renders the liability to error very great. I do not believe that we are at this time in a position fully to appreciate the value of these results, but, as Vaughan has said, no real addition to knowledge is ever wasted, and while all of the facts may not be of practical use at the moment of their discovery, the time is bound to come when each will be found to have served its purpose. In no other branch of medicine is the field for research so great as in dermatology.

Of the clearly defined disorders, it seems strange that verruca vulgaris and lichen planus have not been more thoroughly investigated from the bacteriologic side. Judging from a histopathologic point of view, the former is very probably the result of a localized microbic infection, and the latter a generalized spirochetal one. Neither should prove difficult to a skilled laboratory man employing modern methods. In matters of this kind it is seldom wise to stake too much on precedent.

The recent success of Bunting and Yates,[11] in their work on Hodgkin's disease, should prove a stimulus to all of us.

Of the border-line maladies, it would be well if Hazen's[12] careful and well-balanced studies on the leukemias were duplicated on the purpura group.

The period has been filled and you are growing weary. Ehrlich has said that he could wish for no better appellation than that of *Student und Arbeiter.* Let each of us strive to earn the right to an even nobler designation, that of *Student, Arbeiter und Erzieher.*

New Lathrop Building.

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[7] Keeping Alive the Low-Grade Medical Journal, Current Comment, The Journal A. M. A., March 14, 1914, p. 856.

[8] Johnston and Schwartz: New York Med. Jour., 1909, xxxix, 535.

[9] Johnston: Jour. Cutan. Dis., 1913, xxxi, 136.

[10] Schamberg, Kolmer, Ringer and Raiziss: Jour. Cutan. Dis., 1913, xxxi, 698.

[11] Bunting, C. H., and Yates, J. L.: Cultural Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236.

[12] Hazen: Jour. Cutan. Dis., 1911, xxix, 52.

Malta Fever in Peru.—Barton in 1911 was the first to report discovery of the *Micrococcus melitensis* in Peru, and von Lopez now reports in the *Cronica Medica,* 1914, xxxi, 58, a number of cases of Malta fever in his district. The first patient was a woman who cared for goats on a ranch; another was a young man who had apparently contracted the Malta fever from goat's milk; another, a woman, had a walking case of undulant fever, in which slight neuralgia and a rheumatoid pain in the shoulder and loss of weight were the only symptoms, except the period of slight fever each day. The triad of sweats, arthralgia and constipation is not always presented, nor the dissociation of the pulse and temperature, and the spleen is not always enlarged. The only constant symptom is the pain in one or more joints; it will not yield to any drugs or measures, and nothing seems to modify it. Hydrotherapy seems the only means to keep the temperature under control. Diphtheria antitoxin by the mouth or subcutaneously seemed to display beneficial action in some of the cases. Arsenic and iron are indicated to combat the hemolytic tendency of the disease.

INFLUENCE OF DIET ON THE TOXICITY OF SUBSTANCES WHICH PRODUCE LESIONS OF THE LIVER OR THE KIDNEY [*]

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In a former communication[1] we have described the effect of diet on the toxicity of chloroform and showed that a diet consisting of fat increases the susceptibility of the liver to the necrosis caused by chloroform, whereas a diet consisting in large part of carbohydrates has a protective action. The influence of diet on the toxicity of phosphorus was next tested because it produces profound changes in the liver. Phosphorus causes fatty degeneration of the liver, but its action is not limited to the hepatic cells, for the kidney, heart muscle and other parenchymatous tissues show fatty degeneration. A 1 per cent. solution of phosphorus in oil (oleum phosphoratum) was employed; the amount of oil administered by subcutaneous injection to white rats was very small, since the lethal dose was found to be from 0.07 to 0.08 c.c. per hundred grams of body-weight. The animals, which are omnivorous, were fed during six days preceding injection of phosphorus on a diet consisting of (*a*) oats and sugar, (*b*) pig's heart, or (*c*) beef-fat (Table 1).

TABLE 1.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Oil of Phosphorus per 100 gm. of Body-Weight, c.c.	Oats and Sugar	Meat	Fat
0.05	*	11	*
0.06	*	4	*
0.07	2	4	*
0.08	4	4	4
0.09	4	2	2
Average duration of life	3⅓+	5	3+

* Lived.

In the foregoing experiment pig's heart was given to the animals which received a diet of meat; in another series (Table 2) beefsteak was substituted. In both series the animals received the diet during six days, but in the present series after phosphorus had been administered, the animals receiving meat and fat were given oats in addition.

TABLE 2.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Oil of Phosphorus per 100 gm. of Body-Weight, c.c.	Oats and Sugar	Meat	Fat
0.05	*	4	*
0.06	2	3	*
0.07	*	3	3
0.08	2	3	1
0.09	3	1	2
Average duration of life	2⅓+	2⅘	2+

* Lived.

The effects of diet on the toxicity of oil of phosphorus exhibit no resemblance to those observed with chloroform. A diet composed in great part of carbohydrates has no protective action, whereas fat does not increase susceptibility to the poison. Indeed, there is no noteworthy difference in the toxicity with carbohydrate and with fatty diet. Both series of experiments show that the toxicity of oil of phosphorus is increased by a diet of meat; the fatal dose with a meat diet is probably less than 0.05 c.c., whereas with diet of carbohydrate or of fat the fatal dose is 0.07 or 0.08 c.c. The experiments furnish no explanation of the difference in the effect of diet on the toxicity of chloroform and of oil of phosphorus. Nevertheless, well-known differences between the action of the two substances may be cited. Chloroform produces necrosis of the center of each hepatic lobule, whereas phosphorus causes wide-spread fatty degeneration. Both substances are soluble in fats, but phosphorus is absorbed much less slowly than the volatile chloroform and is less destructive in its action on the hepatic cells. Chloroform affects the centers of the hepatic lobules, and study of control animals which have received a fatty diet shows that fat accumulates in greatest abundance about the central vein. Phosphorus, on the contrary, seems to produce more profound changes in the periphery of the lobule, for in the foregoing experiments, even after four days, proliferation of connective tissue has been observed in this situation.

Since our experiments have shown that the toxicity of a substance, namely, chloroform, which causes necrosis of the liver is diminished by a diet consisting in great part of carbohydrates and notably increased by a fatty diet, experiments have been performed to determine if similar relations to diet are exhibited by substances which produce necrosis of the parenchymatous cells of the kidney. Potassium chromate and uranium nitrate have been chosen because they have a selective action on the kidney, causing necrosis of the cells of the convoluted tubules, and because they have been much used to produce acute nephritis in animals; albuminuria occurs and casts are numerous within the kidney.

The animals were given, during nineteen days, diets consisting of (*a*) oats and sugar, (*b*) pig's heart or beef, or (*c*) beef-fat. At the end of this time an aqueous solution (2.5 per cent.) of potassium chromate was injected subcutaneously (Table 3).

TABLE 3.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Sol. of Potassium Chromate per 100 gm.	Oats and Sugar	Meat	Fat
0.1	*	3	6
0.15	5	3	3
0.2	8	1	3
0.25	1	2	2
0.3	3	1	1
Average duration of life	4¼+	2	3

* Lived.

Similar results were obtained in another series of experiments in which oats were added to the diets of meat and fat.

TABLE 4.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Solution of Potassium Chromate per 100 gm., c.c.	Oats and Sugar	Meat	Egg-Yolk
0.05	*	2	*
0.1	*	2	*
0.15	*	4	*
0.2	*	5	6
0.25	5	3	3
Average duration of life	5+	3⅕	4½+

* Lived.

The experiments indicate that meat increases susceptibility to nephritis caused by potassium chromate, whereas a carbohydrate diet protects the kidney from injury. These conclusions are confirmed by an experiment (Table 4) in which animals were given during six days diets consisting of (*a*) oats and sugar, (*b*) meat (beef) and (*c*) boiled egg-yolk, which contains 35 per cent. of fat, including cholesterin and lecithin. After injection, animals on diets of meat and of egg-yolk received oats in addition.

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[*] From the Pathological Laboratory of the Washington University Medical School.

[1] Opie, Eugene L., and Alford, Leland B.: The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform, THE JOURNAL A. M. A., March 21, 1914, p. 895.

In the experiment recorded in Table 5, an aqueous solution (0.5 per cent.) of uranium nitrate was administered to animals which had been given during four days a diet consisting of (*a*) oats and sugar, (*b*) beefsteak or (*c*) beef-fat; the diets were continued six days after injection.

TABLE 5.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Solution of Uranium Nitrate per 100 gm., c.c.	Oats and Sugar	Meat (Beef)	Beef-Fat
0.05	*	*	10
0.1	6	*	8
0.15	7	7	6
0.2	9	4	7
0.25	*	4	6
0.3	10	8	9
	—	—	—
Average duration of life	8+	5¾+	7⅔

* Lived.

In another series of experiments animals were on various diets only three days, and oats were given to those receiving meat and fat immediately after injection. Differences referable to diet were much diminished, but carbohydrate, meat and fatty diets exhibited the relations noted in the foregoing experiment.

In a third series of experiments uranium nitrate in small doses was given to animals which had received the diets already enumerated during five days; after injection, oats were added to the diet of all animals (Table 6). The use of small doses of uranium nitrate in this experiment has made the protective action of carbohydrates very conspicuous.

TABLE 6.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Solution of Uranium Nitrate per 100 gm., c.c.	Oats and Sugar	Meat (Beef)	Fat
0.02	*	9	7
0.04	*	*	*
0.06	7	7	9
0.08	*	10	11
0.10	*	11	7
	—	—	—
Average duration of life	7+	9¼+	8½+

* Lived.

A carbohydrate diet diminishes the toxicity both of potassium chromate and of uranium nitrate. The toxicity of potassium chromate has been greater after a diet of meat, but the toxicity of uranium nitrate has been somewhat greater after a diet of fat. The pathologic changes produced in the rat by potassium chromate and by uranium nitrate differ. Both substances produce necrosis of tubules in the cortex of the kidney, leaving the glomeruli apparently uninjured. Both substances produce albuminuria, and casts are numerous within the convoluted and straight tubules of the kidney. With potassium chromate the convoluted tubules undergo necrosis and with moderately large doses they may be almost uniformly destroyed. Uranium nitrate causes necrosis which is often limited to the cortical striae and to a narrow zone in the medulla just below the cortex; this distribution appears to be dependent on a selective affinity of the poison for the loops of Henle, which in the early stages of poisoning may exhibit almost uniform necrosis. After administration of relatively large doses of uranium nitrate there is abundant deposition of calcium salts within the dead tubular epithelium. The second series of experiments mentioned above shows that the occurrence of calcification bears a relation to the severity of intoxication. In four kidneys, after a diet of oats and sugar, calcification occurred only with the largest dose; in four kidneys, after a diet of meat, calcification occurred with the two largest doses. In five kidneys, after a diet of fat, calcification occurred in four.

CONCLUSIONS

The toxicity of phosphorus, which causes fatty degeneration of the liver, is greater in animals which have received a diet of meat than in those which have received diets consisting in large part of carbohydrates or of fat.

Animals on a diet rich in carbohydrates are much less susceptible to nephritis produced by potassium chromate and uranium nitrate than animals on a diet consisting of meat or of fat.

A diet of meat increases the toxicity of potassium chromate, which produces necrosis of the convoluted tubules of the kidney.

A diet consisting of fat increases the toxicity of uranium nitrate, which alters the loops of Henle and produces nephritis.

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THE TECHNIC OF THE INTRADURAL INJECTIONS OF NEOSALVARSAN IN SYPHILIS OF THE NERVOUS SYSTEM

REPORT OF CASES

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In a preliminary report,[1] I described the technic employed in the treatment of syphilis of the nervous system by intradural injections, as first advocated by Ravaut. At the risk of repetition, I shall briefly outline the method of procedure before presenting the report of cases.

The solution used for injection consists of a 6 per cent. solution of neosalvarsan in distilled water. This solution is hypertonic and made of such a concentration that each minim must contain 3 mg. of the drug. The dosage injected is from 3 to 12 mg. — that is, from 1 to 4 drops of the solution, which is made up as follows:

An ampule containing 0.3 gm. of neosalvarsan is dissolved in 5 c.c. of freshly distilled water. If the ampule contains 0.6 gm., 10 c.c. of water are used. In both solutions, each drop will contain 3 mg. of the drug. The syringe employed for the injection is accurately graduated in drops. The patient is placed in a position for lumbar puncture, either sitting or lying, according to the choice of the operator. The puncture is then made with a needle, the end of which fits the graduated syringe. After a few drops of the spinal fluid have flowed out of the cannula, or a greater quantity if a diagnostic puncture is desired at this time, the syringe is fitted into the needle, and the fluid is allowed to run back into the syringe barrel, thus mixing with the amount of the drug in the barrel. The mixed spinal fluid and drug are then gently forced into the canal, and slight suction is made on the syringe to withdraw a second amount of fluid, which washes out the needle. This is then reintroduced, the needle is quickly withdrawn and the patient placed in the Trendelenburg position, in which position he is allowed to remain for at least one hour.

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[1] Wile, U. J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, The Journal A. M. A., April 11, 1914, p. 1165.

During the past nine months, selected cases of syphilis of the nervous system have been treated in my clinic by this method. In all, twenty-five injections have been given to fifteen different patients. The classification of the cases treated is as follows: tabes dorsalis, 7; general paresis, 3; cerebrospinal syphilis, 3; taboparesis, 2.

Following are the case histories with their treatment and results:

REPORT OF CASES

Case 1.—F. W., a man aged 44, with tabes dorsalis, had contracted syphilis twenty-three years ago. Very little treatment had been given. Tabetic symptoms began twelve years ago with shooting pains in the limbs. For the past three years there had been unsteadiness of gait and bladder trouble. The most marked symptoms on examination were absence of deep reflexes; hyperesthesia of the skin of the abdomen; marked incoordination; marked Romberg; slight tremor; Argyll Robertson pupils. Sept. 24, 1913, spinal puncture showed slight but evident increase in pressure; the cells were not counted; albumin and globulin were increased, and the Wassermann was positive. On the same date, the first intradural injection of neosalvarsan, 1 mg., was given. For five days after injection, there was marked exacerbation of lightning pains and girdle sensation. This was relieved by an intravenous injection about two days later of 0.3 gm. of neosalvarsan. Oct. 7, 1913, the second intradural injection, 2 mg., of neosalvarsan was followed by exacerbation of girdle pains and lightning pains which were not so marked as those following the first injection. A note made, October 13, showed a marked improvement in station and decided improvement in general condition. October 17, the third intradural injection of neosalvarsan, 2 mg., was given. Half an hour after the injection there was extreme pain in legs and retention of urine. From this time on until December 5, the patient failed steadily. He developed paraplegia, loss of sphincter control and decubitus. December 5, patient died, and post mortem showed the following changes: old syphilis; taboparesis; fibroid heart; syphilitic aortitis; decubitus; perinephritis; purulent peritonitis; chronic cystitis; syphilitic orchitis. A careful study of the brain and cord by Prof. C. D. Camp showed the changes of tabes and recent degeneration in the posterior columns in the lumbar and thoracic regions. It was thought from the study of these tissues that this degeneration might have been due to the imbibition of toxic substances from the cerebrospinal fluid.

The striking features in this case are the accentuation of the lightning pains; the appearance of more pronounced bladder symptoms in a patient whose bladder was already affected, and the apparent improvement after the second injection, with the progression, however, of the disease after the third injection. Notwithstanding this progression, the spinal fluid became almost normal. A puncture, taken November 11, while the patient's condition was very bad, showed about 13 cells to the cubic millimeter and a negative Wassermann.

Case 2.—C. S., a man aged 32, with cerebrospinal syphilis, transferred from the department of medicine for severe headache and projectile vomiting, had contracted chancre three years ago; he had received treatment with pills and iodid for one year. Headaches began two months previous to admission together with vomiting, projectile in character. Wassermann in the blood, + + + +. Examination of the spinal fluid showed 700 cells to the cubic millimeter; fluid turbid; marked increase in albumin and globulin. Wassermann + + +. October 7, first intradural injection of neosalvarsan, 3 mg., was given. Following the injection, patient had a slight febrile reaction and very slight pains in the legs and head. The headache subsided, however, within a very few days and all vomiting ceased. October 11, patient was so far recovered as to be discharged. October 20, he returned much improved in general appearance and received a second intradural injection, 6 mg. This was followed by slight retention of urine which, however, lasted only a few days. From this time until his second diagnostic puncture, patient improved markedly in general health, had absolutely no headaches, and ceased vomiting entirely. November 6, spinal puncture showed 253 cells to the cubic millimeter, albumin and globulin still positive, reaction much less marked, Wassermann reaction negative in the fluid. November 15, patient was discharged with instructions to continue his treatment in the form of inunctions. A letter from him, March 20, 1914, showed a gain in weight of 15 pounds, no headache, and no vomiting. Occasional numb sensations remained, however, in the legs.

In this case the striking features are the prompt disappearance of symptoms following the first injection, and the marked drop in cells from 700 to 253, and the absence of the positive Wassermann reaction in the fluid following the first injection.

Case 3.—C. H., a man aged 48, transferred from the department of neurology for treatment for taboparesis, was said to have contracted chancre on the finger ten years ago. Treatment had been inefficient. Patient has been a morphin fiend for some years. Examination revealed Argyll Robertson pupils; absence of deep reflexes; marked Romberg; slight hypertonia; ataxic gait; slight speech defect; slight difficulty in voiding urine; girdle sensation and lightning pains; cerebrospinal fluid, 20 cells to the cubic millimeter, increase in albumin and globulin, Wassermann positive. Wassermann in the blood was positive. November 17, the first intradural injection, 3 mg. of neosalvarsan, was followed by subjective improvement. Patient voided more freely and slept well. November 27, the second injection, 6 mg. of neosalvarsan, was followed by marked neuritic pains in the legs, uncontrollable. Puncture taken, November 11, showed 13 cells to the cubic millimeter, Wassermann + + + +, globulin and albumin positive. From this time until December 10, when the patient died, he developed a marked euphoria, retention of urine demanding catheterization, and complained of continuous pains in the abdomen. Postmortem report by Professor Warthin showed old syphilis; paresis; bronchopneumonia; purulent pyelonephritis; pyelitis; cystitis, and general arteriosclerosis. An examination of the brain and cord by Prof. C. D. Camp showed a recent degeneration, and involvement of the posterior columns, suggesting imbibition of toxic substances from the cerebrospinal fluid. The striking features in this case were accentuation of the bladder symptoms and accentuation of the lightning and girdle pains following the second injection.

Case 4.—G. S., man aged 56, with tabes dorsalis, transferred from the department of ophthalmology for positive Wassermann, had contracted syphilis twenty-five years ago. No treatment had been received. Eyesight began to fail three months previous to entrance to hospital, and the patient became almost blind in a short time. The clinical symptoms were optic atrophy; chorioretinitis; Charcot joint; marked incoordination; absent deep reflexes, and Argyll Robertson pupils. Wassermann in the blood, + + + +. Spinal puncture showed 30 cells to the cubic millimeter, and marked increase in albumin and globulin. October 20, patient received his first intradural injection of 3 mg. of neosalvarsan. Injection was followed by no untoward symptoms. Patient said he felt better. Station was decidedly improved. Five days later, he showed markedly less incoordination. Patient was discharged, Oct. 25, 1913, markedly improved. He returned to the hospital Nov. 1, 1913, decidedly better; he felt brighter. Spinal fluid showed 13 cells to the cubic millimeter, albumin and globulin still increased but less, Wassermann negative. Second injection, same date, 6 mg. of neosalvarsan, was followed by slight retention; otherwise patient felt well. Following this injection, however, patient developed a marked ataxia, station became worse and patient developed incontinence. He was discharged from the hospital, and a letter written Oct. 25, 1914, states that he has some difficulty in walking but otherwise feels well.

The striking features in this case were the marked improvement subjectively following the first injection and the marked objective improvement in the spinal, as evidenced by the drop from 30 to 13 cells, from a positive to a negative Wassermann, and from the decrease in the albumin and globulin content. Injection, however, of a larger dose evidently caused a setback in this case, from which the patient recovered somewhat.

Case 5.—For this patient, Miss B., referred by Professor Barrett from the Psychopathic Hospital where she was under treatment for juvenile general paresis, there was no definite history obtainable. The clinical symptoms were Argyll Robertson pupils, marked speech defect, and general psychic disturbance. Wassermann in the blood was positive. Spinal fluid findings were all positive. This patient received only a single injection and then passed out of our hands. There was a marked increase in her psychic disturbance and no subjective or objective improvement following her treatment.

Case 6.—V., a man with general paresis, referred by Professor Barrett from the Psychopathic Hospital, had symptoms, disorientation, memory defect, absent deep reflexes, inequality of pupils, marked Romberg and marked speech defect. This patient was injected, Oct. 26, 1913, with one injection of 3 mg. of neosalvarsan which was followed by a marked incontinence of urine and by a temporary intestinal atony. This patient also passed out of our hands and there is no further report of him.

Case 7.—B., a man with advanced general paresis, transferred by Professor Barrett, had had over 300 paralytic attacks during the past three years. The clinical symptoms were absent deep reflexes, marked Romberg, marked speech defect and Argyll Robertson pupils. Wassermann in the blood, + + +. Cerebrospinal fluid showed 28 cells to the cubic millimeter, marked increase in albumin and globulin and + + + Wassermann. It was noted in this case that all of the symptoms had been increased by a previous intravenous injection of salvarsan and by the injection of salvarsanized serum which he had received in the psychiatric clinic. October 26, patient was injected with 3 mg. of neosalvarsan, and his subsequent history showed absolutely no change for the better or worse.

Case 8.—E. D., a man aged 45, with tabes dorsalis and cerebrospinal syphilis, was transferred from the department of medicine where he had been treated for stomach trouble—vomiting of three years' duration—for which he had been operated on following a diagnosis of gastric ulcer. Infection had occurred probably eight years before, coincident with soft chancre. Three months of pill treatment had been received. Prominent symptoms were gastric crises; inequality of pupils; positive Wassermann in the blood; cerebrospinal fluid, 12 cells to the cubic millimeter, Wassermann + + + +, albumin and globulin positive. Patient received four intravenous injections of neosalvarsan with no improvement in his condition. Vomiting persisted and he was rapidly emaciating. Nov. 14, 1913, he received his first intradural injection. This was followed by improvement in general condition and gain in weight. Jan. 16, 1914, patient was discharged. He had vomited slightly once or twice since his first injection, but was decidedly better than before. Two weeks after his injection, patient began vomiting again, and a second injection was decided on Dec. 3, 1913, when he received 6 mg. of neosalvarsan. This was followed again by immediate cessation of vomiting. There was, however, still some gastric disturbance. Patient was discharged in much better condition. A letter received from him, March 19, stated that he had gained 20 pounds in weight, was able to eat three meals a day and did not vomit. Spinal puncture, taken Dec. 26, 1913, before his discharge, showed 11 cells, albumin and globulin positive but much less, Wassermann still + + + +.

The striking features in this case are the prompt disappearance of vomiting and pain following the first injection, their reappearance within a short time, and their prompt disappearance again under the second injection, with the marked gain in weight and the restoration of the patient to apparent normal condition. In this case, however, it is noteworthy that the character of the spinal fluid remained unchanged.

Case 9.—T. L., a man aged 46, with cerebrospinal syphilis, referred from the department of neurology for treatment, had contracted syphilis eight years ago. No efficient treatment had been given. Headache and dizziness began about a year ago, with no improvement under treatment. Patient had been operated on for gall-stones two years ago. No stones were found. Two injections of neosalvarsan a year and a half ago had been followed by slight improvement. Headache, however, was increasing and constant, with extreme dizziness. Symptoms were headache; pain in back, legs and arms; marked Romberg; absent deep reflexes; dizziness; inequality of pupils, and right pupil sluggish to light. Wassermann in the blood was positive. Cerebrospinal fluid, 7 cells to the cubic millimeter, albumin, globulin and Wassermann positive. Patient received four intravenous injections of neosalvarsan without any improvement in symptoms. Intradural injection, Dec. 22, 1913, was followed by no untoward symptoms. There was marked subjective improvement. Jan. 12, 1914, second intravenous injection of neosalvarsan, 6 mg., was given. Spinal fluid taken at this time showed 14 cells, and only a trace of albumin and globulin. Wassermann was negative. Following the second injection, patient showed marked improvement subjectively. His headache practically disappeared and he was discharged from the hospital, Jan. 22, 1914, definitely improved in health. Since that time, however, nothing has been heard from him. The striking features in this case are the marked objective improvement in the spinal fluid findings except for the lymphocyte-count, which was not materially different, and the relief of subjective symptoms following the intradural injections, whereas these had been uninfluenced by intravenous injections of neosalvarsan.

Case 10.—O. M., a man aged 30, with cerebrospinal syphilis or tabes dorsalis, denied syphilis but admitted exposure. Prominent symptoms were headache, pain in the epigastrium, inequality of pupils, sluggishness of right pupil, analgesia, sensory disturbances and absent Achilles reflex on one side, and low-grade chorioretinitis. Wassermann in the blood, + + + +. Spinal fluid showed 7 cells to the cubic millimeter, albumin and globulin positive, Wassermann + —. Pain in the stomach began three years before admission, associated with severe headache and some fever. Patient received four injections of neosalvarsan intravenously without any subjective improvement. Dizziness, headache, and pain in the stomach continued. Jan. 13, 1914, first intradural injection, 3 mg. of neosalvarsan, was followed by marked improvement in subjective symptoms. Girdle sensation and pain in stomach were markedly less. Patient was discharged, Jan. 24, 1914, much improved in general health, having gained 7 pounds in weight. He was referred back to his physician for mercurial treatment, and has not been heard from since.

The striking features in this case are the lack of improvement following intravenous injections and the prompt disappearance of subjective symptoms after a single intradural injection.

Case 11.—T. W., a man, aged 37, with tabes dorsalis, had contracted syphilis ten years ago. Treatment with pills had been received. Onset of tabetic symptoms had been noted with the beginning of the Charcot knee about one year before admission. Prominent symptoms were Charcot joint of the left knee; Argyll Robertson pupils; absent deep reflexes; marked Romberg; and low-grade chorioretinitis. Wassermann in the blood was positive. Patient was given three injections of neosalvarsan intravenously and said that he felt decidedly better from them. Jan. 24, 1914, spinal puncture showed 40 cells to the cubic millimeter, a marked increase in pressure, albumin and globulin positive, and Wassermann positive. Intradural injection of neosalvarsan, 4 mg., was followed by no untoward symptoms save an accentuation of lightning pains which, however, very soon subsided. Feb 5, 1914, spinal puncture showed 7 cells to the cubic millimeter, albumin and globulin only slightly increased and Wassermann negative in the spinal fluid. Second intradural injection, 6 mg. of neosalvarsan, was followed by absolutely no untoward symptoms but very marked improvement in all features. Station is steadier. March 25, 1914, spinal puncture showed 2 cells to the cubic millimeter, a slight increase in albumin and globulin and Wassermann reaction doubtful.

The striking features in this case are the prompt disappearance of the findings in the spinal fluid following the first injection, the slight increase of lightning pains followed by their diminution and the prompt improvement following the second injection. The patient was discharged from the hospital, March 31, 1914, and referred back to his own physician with instructions for continuation of treatment. He gained 4 pounds during his stay.

Case 12.—P. K., a man, aged 31, with cerebrospinal syphilis, entered the hospital for complete third-nerve palsy and extensive gummatous syphilids of the body. He had no treatment previous to outbreak of gummous lesions three years before. Third-nerve palsy on the left side came on suddenly three days before admission. Wassermann ++++. Prominent symptoms were third-nerve palsy; nodulo-ulcerative syphilid of the thigh; left-sided ptosis; iridoplegia; left-sided ataxic paraplegia and low-grade chorioretinitis. Cerebrospinal fluid, 48 cells to the cubic centimeter, Wassermann, albumin and globulin positive. Feb. 16, 1914, patient received his first intradural injection, 4 mg. of neosalvarsan, followed by slight radiating pains in the legs and slight difficulty in urination, lasting for only one day. There was marked improvement, cutaneous syphilids rapidly clearing up. Feb. 25, 1914, spinal fluid showed exactly the same changes as before. Second intradural injection, 6 mg. of neosalvarsan, was followed by no untoward symptoms. Patient felt perfectly well. March 9, 1914, cerebrospinal fluid showed 16 cells to the cubic millimeter, albumin and globulin much less, though still increased. Wassermann negative. March 16, 1914, the patient had entirely recovered from third-nerve palsy. At this time, however, he developed a more marked ataxic paraplegia and was forced to take to his bed. He improved slowly and was discharged from the hospital. Puncture taken shortly before his discharge showed 12 cells to the cubic millimeter and a negative Wassermann. He was referred back to his home physician, having gained about 5 pounds in weight. A letter from him of recent date reports gradual improvement from paraplegia.

The striking features in this case were the marked improvement in objective findings in the spinal fluid following the first intradural injection and the rapid clearing up of the oculomotor palsy and the advancing paraplegia. Objectively, the striking feature was the drop from 49 to 12 cells and from a positive to a negative Wassermann in the spinal fluid.

Case 13.—Mrs. A., aged 38, with tabes dorsalis, had contracted syphilis seventeen years previously; no treatment had been received. Onset of tabetic symptoms occurred four years ago. Clinical symptoms were Argyll Robertson pupils, slight ataxia, positive Romberg, absent deep reflexes, internal strabismus and lightning pains. Wassermann in the blood was positive. Spinal fluid showed 38 cells to the cubic millimeter, Wassermann, albumin and globulin positive. Injection, March 16, 1914, 3 mg. of neosalvarsan, was followed by absolutely no untoward symptoms and immediate cessation of lightning pains. Patient felt decidedly stronger; station was improved. Spinal puncture, April 1, showed 6 cells to the cubic millimeter, albumin and globulin still positive, but less, Wassermann + + +, gain in weight of about 10 pounds. Spinal puncture taken April 15, 1914, showed 11 cells to the cubic millimeter, albumin and globulin still increased, Wassermann still + + +. The patient was discharged, April 20, to continue antisyphilitic treatment in the form of inunctions and potassium iodid.

The features of note in this case are the prompt disappearance of lightning pains and the improvement in general condition following a single intradural injection of neosalvarsan. Objectively, there was a striking drop in the number of lymphocytes in the spinal fluid.

Case 14.—Mrs. L. Mc., aged 32, with tabes dorsalis, denied knowledge of a syphilitic infection. Onset of symptoms began three years ago with attacks of vomiting. Prominent symptoms were gastric crises and inequality of pupils—left did not react to light. Wassermann in the blood was negative. Spinal puncture showed cells; these were not counted, owing to contamination; albumin and globulin were markedly increased. Wassermann ++++. First intradural injection, March 23, 1914, 4 mg. of neosalvarsan, was followed by immediate cessation of vomiting. Patient became hungry and ate well. A few days later, however, she began to vomit again and left the hospital, March 27, 1914, and has not been heard from since.

In this case the striking feature was the immediate cessation of vomiting following the first intradural injection and a recurrence of the symptoms after a few days. A second injection could not be given in this case.

Case 15.—J. S., a man, aged 37, with tabes dorsalis, was transferred from the department of neurology for treatment. He contracted syphilis fifteen years ago. Liquid medicine had been taken for one month. Onset of tabetic symptoms took place one year ago with vomiting. Prominent symptoms were gastric crises and sluggish pupillary reaction. Wassermann in the blood, ++++. Cells of the spinal fluid were not counted because of contamination. Albumin and globulin were positive. April 2, 1914, cells were not counted, Wassermann, albumin and globulin positive. Patient had a slight nausea. First intradural injection, March 1, 1914, was followed by vomiting, pain in the hips and legs, and suppression of urine. Catheterization was found necessary. This patient has not done well since his injection. He developed retention, cystitis with fever and decubitus. Catheterization was found necessary twice daily. Patient is still in the hospital and his condition remains stationary. Puncture taken one week following the injection showed 4 cells to the cubic millimeter, albumin and globulin much less, Wassermann + + +. The features of note in this case are the objective improvement in the cord findings without any corresponding subjective improvement.

Of the fifteen patients thus treated, two are dead; seven cases are markedly improved, both subjectively and in the objective findings in the cerebrospinal fluid; three patients having general paresis were given only a single injection and showed no improvement, nor were they made any worse by the treatment; one patient showed an improvement after a single injection with a relapse of symptoms, and no subsequent treatment was given; and one patient was markedly improved with respect to the oculomotor palsy, but showed progression of the spinal feature of the disease in a progressive paraplegia.

The cases that have thus far been treated are too few to permit the drawing of any but tentative conclusions. It is apparent to me from my experience that in general, cases with cerebrospinal syphilis other than tabes or paresis have done decidedly better than those in which either one or both of those two conditions have been present. It is noteworthy that those cases of tabes have done especially well in which no bladder or rectal symptoms were present. It would seem, therefore, that cases in which such symptoms were present constitute contra-indications for the treatment as it is given at present.

The marked improvement in the objective findings in the spinal fluid following treatment, in practically all forms of syphilis thus treated, even in the absence of subjective improvement, lead one to hope that this form of treatment is along the right line for checking or, indeed, in some cases even curing central nervous involvement. I am led to believe that my earlier cases would have done better with injections of even smaller doses than those which were given. Subsequent injections will be given in small doses and diluted with a greater amount of the cerebrospinal fluid.

Cases to be thus treated should be carefully selected. For the present at least, this form of treatment should be restricted to those cases in which other forms of treatment have proved inefficient.

In all cases the danger of the treatment in its present unperfected state should be pointed out to the patient and his family, and the responsibility for its administration should be shared by them. It is to be hoped and expected that more careful study and selection of cases will prove the intradural injection of neosalvarsan a potent remedy in combating cases of cerebrospinal syphilis.

602 East Liberty Street.

HAY-FEVER

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GALENA, KAN.

PROPHYLAXIS AND CURE WITH POLLEN TOXIN

During the season of 1913 I treated nineteen cases of hay-fever with successful results in sixteen. Of three patients who were treated before the onset of symptoms, not one had an attack throughout the season; and of sixteen in whom treatment was begun after the onset, thirteen were cured. Relief of symptoms was very prompt, usually within an hour or two and seldom later than twenty-four hours.

The method used is essentially a modification of the active immunization suggested by Allen and others, with the addition of a bacterial vaccine in cases complicated with infection.

THE TOXIN

The toxin was prepared as follows: One gram of mixed pollen (250 mg. *Ambrosia artemisiaefolia*, 250 mg. *Ambrosia trifida*, and 500 mg. different varieties of *Solidago* found in this locality) was mixed with about 10 gm. of sterilized fine sea-sand in a sterile mortar; 100 c.c. of physiologic salt solution with 0.5 per cent. phenol (carbolic acid) was measured out and the pollen moistened with a portion of it. The mass was then ground for several hours, with the addition of portions of the salt solution, until the sand was reduced to an impalpable powder. The remainder of the salt solution was then added, the whole transferred to a sterile flask and allowed to stand at room temperature for twenty-four hours with frequent shaking. The fluid was then pipetted off, centrifuged and sealed in glass ampules, each containing 1 c.c. This constituted the stock solution and was stored in a cool, dark place.

DOSAGE AND ADMINISTRATION

For convenience, the unit suggested by previous workers was used. This unit is the quantity of toxin extracted from 1 microgram (0.000,001 gm.) of pollen. As prepared, each cubic centimeter of stock solution contained ten thousand units. From the stock solution two serial decimal dilutions were made containing one thousand and one hundred units to the cubic centimeter, respectively. By using a tuberculin syringe graduated in hundredths of a cubic centimeter it was possible to administer doses containing any desired number of units while the total volume of the dose never exceeded 1 c.c.

The site of injection was painted with tincture of iodin and the injection made subcutaneously in the usual manner. In no case was there any serious trouble at the site of injection.

The dosage in each case was determined entirely by the nature and extent of the reactions produced. Efforts to determine the proper dosage in advance by means of ophthalmic and cutaneous reactions were found to be unreliable. The interval between doses was from five to eight days at first, but this was reduced after a little experience to one or two days, depending on the time required for the reaction from the previous dose to subside.

TREATMENT AND REACTIONS

Three patients were given treatment beginning about a month before the time for the annual onset. All were adult men and had suffered annual attacks for eight, twenty and thirty-five years, respectively. The first received eight injections of from 25 to 1,000 units each; the second, six injections of from 25 to 700 units; the third, six injections of from 25 to 500 units. Doses were given at intervals of from five to eight days. Complete immunity resulted in each case.

In all true cases of hay-fever the administration of a proper dose of toxin is followed by a well-marked reaction. This begins in from half an hour to two hours and is characterized by an exaggeration of the usual symptoms of an attack; sneezing, lacrimation, itching of the eyes, cough, dyspnea in asthmatic subjects, and sometimes edema and urticaria. In the third case reported above, the third dose was increased from 100 to 300 units after an interval of seven days and was followed by a reaction which continued for about eighteen hours and caused the gravest alarm; there was a violent general urticaria, severe edema of the neck and throat, dyspnea and vertigo. The reaction terminated abruptly, the patient felt no ill effects from it, and consented to go on with the treatment. He had never been able to go near ragweed when flowering, but last season he handled it with impunity.

August 11 a patient came with a well-developed and rather severe case of three days' duration. For seven years he had suffered annual attacks of such severity as to compel a change of climate. The present attack had begun in the usual manner. I gave him 5 units; the reaction came on in half an hour and continued for two hours, followed by a sudden remission of all symptoms. I gave him eight injections of toxin at intervals of one and two days, the last being 1,000 units. He had no further trouble and continued at his work.

Fifteen others were treated after the onset of the annual attack; the number included both sexes and their ages ranged from 20 to 60 years. The initial dose varied from 5 to 50 units and the final dose from 100 to 1,000 units. The interval between doses was usually one day, sometimes two and seldom greater than two.

Of the sixteen patients treated after the onset of the annual attack thirteen were cured. The three not benefited all began treatment more than a month after the onset of symptoms.

Vaccine as an Adjunct.—In all cases complicated by the presence of a bacterial infection injections of autogenous vaccine were given. Sometimes the vaccine was alternated with the toxin and in others it was given afterward. I consider this a very important element of the treatment which should never be neglected.

CONCLUSION

In spite of the conflicting theories concerning this form of treatment, the fact remains that the patients were cured—and "facts are stubborn things." Unfortunately the method here described is not suitable for use by the general practitioner. To use it successfully requires an intimate acquaintance with the various phenomena of immunity. I offer it in the hope that it may be taken up by others and so perfected that all physicians may use it to the end that humanity may be relieved of this most distressing of all non-fatal diseases.

THE ISOLATION OF SPIROCHAETA PALLIDA FROM THE BLOOD IN SYPHILIS

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The rabbit's testicle provides a favorable environment for the growth of *Spirochaeta pallida*. It has been extensively used for the study of experimental syphilis and for the demonstration of spirochetes in syphilitic material. Uhlenhuth and Mulzer[1] were the first to show the infectiousness of the blood in syphilis by the injection of rabbits; Nichols and Hough[2] and others have had positive results from the injection of cerebrospinal fluid; Graves[3] has reported spirochete-containing lesions with blood from tabetics and general paralytics.

In this study the blood from twenty-four untreated patients with early syphilis has been injected. It was withdrawn from a superficial vein of the forearm with aseptic precautions as in taking a blood-culture, and was defibrinated in a sterile test-tube. Two c.c. of the defibrinated blood were then slowly injected into the testicle. One animal was used for each case; in some cases one, in others both testicles were injected.

The latent interval after injection before lesions appeared varied from a little over one month in the earliest case to a little more than three months in the longest. In some the whole testicle was enlarged and quite hard; in others circumscribed nodules of cartilaginous hardness could be felt. The process sometimes showed marked thickening of both layers of the tunic. The nodules were usually situated in the upper pole of the gland, in or near the epididymis. In examining the testicle small lesions may be missed; the nodular feel of the normal epididymis and its apparent variation in size and consistency make the detection of these small areas of induration more difficult. In one of our animals the epididymis was noted as hard two months after the injection of a suspected blood, and the testicle was aspirated on two successive days with negative results. It was excised eight months after injection, and motile spirochetes were found in the dark field, although no gross lesions were evident.

As soon as lesions were palpable, the animal was etherized and the testicle excised. The cut surface of a nodule yielded a clear sticky fluid, which contained large numbers of spirochetes. In microscopic sections this mucinous exudate was found in a loose fibrous reticulum, and in tissue stained by Levaditi's method the organisms were present in these areas in the largest numbers. Uhlenhuth and Mulzer[4] and Noguchi[5] consider this exudate peculiar to syphilitic orchitis of rabbits.

THE PROTOCOLS OF THE POSITIVE CASES ARE AS FOLLOWS:

Case 1.—Man, aged 35. Primary lesion of penis, two weeks' duration. Glands in groins. No secondaries. Wassermann weakly positive. Feb. 15, 1913, blood injected into both testes, Rabbit 14. Spirochetes were found in the dark field and in Levaditi sections.

Case 2.—Man, aged 29. Primary lesion of penis, eighteen days' duration. Multiple glands in groins. Primary side of tongue twenty-three days. No eruption. Wassermann strongly positive. Feb. 29, 1913, blood injected into left testis, Rabbit 15. April 20, 1913, diffuse orchitis and periorchitis with spirochetes in dark field and in Levaditi sections.

Case 3.—Man, aged 28. Primary lesions of penis, four weeks' duration. Multiple glands in groins. No skin eruption. Wassermann strongly positive. March 29, 1913, blood injected into both testes, Rabbit 29. June 15, 1913, left circumscribed nodule in epididymis with spirochetes in dark field and India ink smear; none found in Levaditi sections.

Case 4.—Man, aged 22. Primary lesion of penis, two months' duration. General papular eruption. Wassermann strongly positive. Oct. 21, 1912, blood injected into both testes, Rabbit 4. Jan. 1, 1913, left diffuse orchitis, spirochetes in dark field and Levaditi sections.

Case 5.—Woman, aged 18. Papules about mouth, forehead and scalp. Fading macular eruption over body. General glandular enlargement. Condylomata about anus. Wassermann strongly positive. Jan. 7, 1913, blood injected into left testis, Rabbit 7. Feb. 23, 1913, diffuse orchitis with periorchitis. No spirochetes found in dark field. In the Levaditi sections they were numerous.

Case 6.—Man, aged 30. Primary lesion of penis with general roseola. Wassermann strongly positive. Feb. 20, 1913, blood injected into both testes, Rabbit 16. April 18, 1913, left diffuse orchitis with spirochetes in dark field and Levaditi sections. In the right testicle nodules could be felt. It was excised Sept. 23, 1913, and spirochetes were found in the dark field.

Case 7.—Woman, aged 26, pregnant five months. General roseola. Wassermann strongly positive. Feb. 21, 1913, blood injected into left testis, Rabbit 19. April 22, 1913, circumscribed nodule in epididymis with spirochetes in dark fields and Levaditi sections.

Case 8.—Woman, pregnant six months. Husband treated in clinic for syphilis the previous summer. Brilliant maculopapular eruption over body. Wassermann strongly positive. March 22, 1913, blood injected into both testes, Rabbit 26. May 18, 1913, left diffuse orchitis, spirochetes in dark field and Levaditi sections. The right contained palpable nodules and was excised July 8, with spirochetes in dark field.

Case 9.—Man, aged 29. Primary lesion of penis, two months' duration. General glandular enlargement. Wassermann weakly positive. April 7, 1913, blood injected into both testes, Rabbit 35. July 21, 1913, right circumscribed nodule in epididymis with spirochetes in dark field and in India ink smear. None found in Levaditi sections.

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[1] Uhlenhuth and Mulzer: Berl. klin. Wchnschr., 1912, No. 4, p. 152; Centralbl. f. Bakteriol., Orig. Abt. 1, 1912, lxiv, 165.

[2] Nichols, Henry J., and Hough, William H.: Demonstration of Spirochaeta pallida in the Cerebrospinal Fluid, The Journal A. M. A., Jan. 11, 1913, p. 108.

[3] Graves, William W.: Can Rabbits Be Infected with Syphilis Directly from the Bloods of General Paretics? Observations on the Recognition of the Virus in the Later Periods of the Disease, The Journal A. M. A., Oct. 25, 1913, p. 1504.

[4] Uhlenhuth and Mulzer: Arb. a. d. k. Gsndhtsamte, 1913, xliv, 307.

[5] Noguchi: Jour. Exper. Med., 1912, xv, 202.

Case 10.—Woman, aged 19. Ulceration on labia. General glandular enlargement. Roseola on body. Wassermann strongly positive. April 8, 1913, blood injected into right testis, Rabbit 36. Nov. 29, 1913, testis excised, showed no gross lesions. Spirochetes in dark field and India ink smear; none found in Levaditi sections.

The remaining 14 cases gave negative results. Four were in the primary stage and 10 showed secondary lesions. In the whole series there were 7 primary cases, the blood from 3 of which, or 41.5 per cent., gave positive results. The other 17 were in the secondary stage and gave 7 positive inoculations or 41.2 per cent.

This method of investigation offers a ready means for the demonstration of *Spirochaeta pallida* in the peripheral blood and furnishes convincing proof that syphilis is a chronic septicemia. It further shows that the blood-stream is invaded at an early period, before the skin manifestations are evident. By this means, without encountering the difficulties attending the isolation of the spirochete from contaminated surface lesions, we can obtain a strain of *Spirochaeta pallida* whose identity cannot be called in question.

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THE LEUKEMIAS UNDER BENZOL

A REPORT OF THREE CASES WITH A METABOLISM STUDY OF AN ACUTE LEUKEMIA *

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Selling,[1] in 1910, reported on the toxic effects of benzol as witnessed in two fatal and a number of mild cases. The fatal cases were clinically toxic purpuras with aplastic anemia. In these patients the red cells were reduced to 640,000 and 1,150,000, respectively, but the leukopenia was still more marked, reaching 480 cells per cubic millimeter in one case and 140 in the other. The reduction in granular cells was greater than that of the lymphocytes. At necropsy, the bone-marrow in each case was found to be aplastic.

In experiments on rabbits, Selling noted that benzol caused a marked reduction in the white cells, in one case to 20 cells per cubic millimeter. The red cells were usually not below 4,000,000, though the prolonged action of benzol affected them also. The bone-marrow of these rabbits was aplastic as regards leukocytes, but little altered as regards the erythrocytes. Selling found the action of commercial benzol and pure benzol (benzene, C_6H_6) identical and agrees with Santesson[2] that the essential toxic agent is benzene. He concludes that it is an intense poison for the white cells of the blood.

Barker[3] remarks that this action of benzol was clearly before the profession in 1910. No one, however, made practical application of it until von Koranyi[4] conceived the idea of using it in the treatment of leukemia. The reports in 1912 of von Koranyi and his assistant Kiralyfi[5] on their successful use of the drug attracted the attention of Billings[6] in this country, who later reported a short series of cases. It is likely that the majority of those who read of the very remarkable effects of benzol on the leukocytes resolved to employ it in their own cases of leukemia and we were able to find twenty-nine publications[7] of its use in this respect since the original article of von Koranyi. Nearly half of these appeared in the Vienna journals and but five in American journals. Most of the leukemias were of the chronic myeloid form, a few were of the chronic lymphatic variety and one, reported by Klein,[8] was a subacute myeloblastic leukemia. Klein used it in three acute myeloblastic leukemias, but states that his observations in these cases were not of sufficient duration or extent to warrant him reporting them. Observations, with few exceptions, agree that there is a marked and rapid reduction in leukocytes. The permanency of effects and the question of actual cure are doubtful matters which the future will settle.

The cases here reported are representative of the three principal varieties of leukemia and of the varying conditions under which they are met. The benzol used was Merck's medicinal; it was given in gelatin capsules in two cases and in olive-oil in the third. The dose was 3 or 4 gm. a day in the chronic cases and about 2 gm. in the acute form. None of the patients suffered subjectively from the drug.

Case 1.—*Chronic myeloid leukemia* in a young man of 27. He was first seen in February, 1912, and at that time had a spleen extending just below and to the right of the umbilicus. There was little or no hepatic or glandular enlargement; no history of hemorrhages; and the patient had no complaint except of weakness. The blood-picture is seen in Table 1. It will be noted that in the first year, the Roentgen ray was employed with excellent effect on the blood-count. It will then be seen that benzol was given in two periods of about six and eight weeks, respectively, with almost negative results. The action of benzol on the leukocytes is supposed to continue after its withdrawal, but here failed to cause a decided reduction. Since October, 1913, the patient's business required so much attention that he neglected his Roentgen-ray treatments and the white cell-count began to rise. Without increasing the Roentgen-ray applications, we began a third period of benzol. Two weeks later, the leukocyte-count was 29,000 cells lower and again two weeks later 34,000 cells lower, or almost half of that of the four weeks previous. The percentage of myelocytes was likewise reduced. It is of interest to note that while the previous or concurrent use of the Roentgen ray is supposed to further the favorable action of benzol, it did not so act in this case. On the contrary, the leukocidal effect of the drug was more in evidence in the third period when Roentgen-ray exposures were lessened.

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* Read, in part, before the Pathological Society of Philadelphia, Feb. 26, 1914.

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TABLE 1.—BLOOD-FINDINGS IN CASE 1, CHRONIC MYELOID LEUKEMIA

Date	White Cells	Percentage Myelocytes	Hb.	Red Cells	Remarks
2/16/12	314,000	33.4	27	2,980,000	Spleen below navel, began x-ray treatment.
3/15/12	242,000	....	37	....	....
3/30/12	157,000	....	50	....	....
10/ 5/12	110,000	....	70	....	....
4/ 2/13	99,000	....	75	....	....
4/24/13	32,600	18.0	75	....	Began benzol, continued x-ray.
5/ 2/13	48,600	12.5	70	....	....
5/10/13	37,800	17.0	80	4,700,000	....
5/17/13	27,600	15.0	90	4,840,000	....
5/27/13	31,400	18.0	90	4,550,000	....
6/ 6/13	26,000	14.5	95	4,780,000	Stopped benzol, continued x-ray.
6/14/13	23,800	12.0	80	4,650,000	....
7/ 9/13	43,200	12.0	100	4,830,000	Began benzol.
7/23/13	53,200	15.5	97	....	....
8/ 7/13	52,800	....	..	....	....
9/ 1/13	......	....	..	....	Stopped benzol, continued x-ray.
9/27/13	37,800	....	65	....	....
10/24/13	95,600	14.5	..	....	....
12/ 8/13	111,200	....	65	....	....
1/ 6/14	100,000	14.6	58	3,930,000	....
1/27/14	135,200	21.5	57	3,830,000	Began benzol, large mononuclears 17 per cent.
2/ 9/14	106,000	18.5	48	3,580,000	....
2/23/14	72,400	10.5	55	3,730,000	Spleen same size.
3/ 9/14	43,600	12.0	53	3,830,000	Large mononuclears 25.5 per cent.
3/24/14	30,000	7.5	57	3,320,000	Large mononuclears 37 per cent.
3/28/14	......	....	..	....	Stopped benzol.
4/ 6/14	37,000	9.5	60	3,790,000	Two megacaryocytes.
4/21/14	33,000	9.5	55	4,060,000	One megacaryocyte 32.9 per cent.; large mononuclear.

A recent feature is the increase in the percentage of large mononuclear or hyaline cells. These formerly ran from 4 to 6 per cent., but in January, 1914, rose to 17 per cent. and since then have increased until they average over 30 per cent. Their large size, deep-staining nucleus and hyaline protoplasm make them a striking part of the blood-spread. Furthermore, many of the recorded basophils, which have also increased (in the last examination to 17.3 per cent.), we believe to be degeneration forms of these cells. This tendency to reversion from myelocytic to a myeloblastic type has been noted by Ehrlich,[9] Wilkinson[10] and others toward the end of the disease. It may here possibly indicate an effect of benzol on the bone-marrow. Finally, it is noteworthy that the spleen of this patient is just about the same size as on the first examination two years ago, and on no occasion has been found above or to the left of the navel. The patient is still under treatment.

Case 2.—*Chronic lymphatic leukemia* in a man of 57. He was first seen, April 23, 1913, and had complained of symptoms referable to a leukemia for about nine months. He exhibited distinct glandular enlargements on both sides of the neck and axillae and less marked ones in both groins. There was a glandular swelling in the right axillae the size of a golf-ball. The spleen could just be felt at the rib edge on inspiration. The blood-findings are seen in Table 2. The patient had had no Roentgen-ray treatment and was put at once on benzol. It will be seen that after a preliminary rise, there was a decided fall of leukocytes reaching normal in six weeks, when the benzol was stopped. With this, there was a decided decrease in the size of the glands, notably of the one in the right axilla. The spleen, however, remained the same size and was still enlarged when examined Sept. 17, 1913. On that date, Roentgen-ray treatment was instituted, and three weeks later a second period of benzol was begun. In a month, the white count was down again and the benzol was stopped but the Roentgen ray continued. The effect on the red cells was at first a mild improvement and later a drop. Barker mentions that the blood-formula in lymphatic leukemia remains practically unchanged under benzol though the leukocytes are reduced to normal; but in this case there was a temporary improvement in the formula as well, the percentage of lymphocytes falling and the polynuclears rising from 1.8 to 53.5 per cent.

The patient now passed out of our hands and entered the University Hospital, where the count in January, 1914, was 12,200 leukocytes with 39 per cent. polynuclears and 55 per cent. lymphocytes. Later, he suffered cerebral thrombosis and returned home. We examined him again May 1, 1914, an interval of six months having elapsed without benzol or Roentgen-ray treatment. His leukocytes were only 16,000, but the percentage of lymphocytes had risen to 82.2 per cent. The glands were slightly larger and the spleen also had increased somewhat in size. The patient generally was in fair shape and able to come to the hospital for examination. He is still under observation.

Case 3.—*Acute leukemia* in a woman of 42. After a succession of boils, the patient suffered a characteristic onset with an attack of tonsillitis, but this had subsided when she was admitted to the Hahnemann Hospital complaining of great weakness and smothering in the chest. Physical examination gave no evidence of pathologic enlargement of the external or internal lymph-glands. The spleen could be felt several centimeters below the rib edge. Later, there was slight enlargement of the cervical glands, but not beyond the normal extreme. The patient was obviously anemic. There was ecchymosis on the left foot, a few petechiae on the abdomen and a small bleeding ulcer on the mucous membrane of the lower lip. The eye-grounds were free. The bleeding-time was decidedly increased. A blood-culture was negative. The case ran a febrile course quite similar to typhoid, and the patient died eighteen days after admission to the hospital. The necropsy findings were characteristic of an acute myeloblastic leukemia, and the

TABLE 2.—BLOOD-FINDINGS IN CASE 2, CHRONIC LYMPHATIC LEUKEMIA

Date	White Cells	Percentage Small Lymphocytes	Hb.	Red Cells	Remarks
4/23/13	114,000	97.8	85	....	Began benzol.
5/ 2/13	155,800	96.6	85	....	....
5/ 9/13	78,600	97.8	68	3,930,000	....
5/16/13	42,800	93.6	85	4,900,000	Axillary glands reduced.
5/23/13	24,800	92.5	88	4,520,000	....
6/ 3/13	8,200	64.0	85	3,750,000	Stopped benzol.
6/11/13	7,000	60.8	92	4,340,000	....
6/24/13	8,200	52.0	90	4,010,000	Spleen same size.
7/ 8/13	10,400	64.0	95	4,380,000	One normoblast.
7/22/13	8,400	73.5	100	....	....
8/12/13	17,400	....	...	....	....
9/17/13	15,800	94.0	70	4,480,000	Started x-ray.
10/ 6/13	40,400	....	..	....	Started benzol. Continued x-ray.
11/ 4/13	5,600	77.0	65	4,650,000	Stopped benzol. Continued x-ray.
11/13/13	7,400	46.5	68	3,500,000	....
5/ 1/14	16,000	82.2	62	4,310,000	....

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[9] Ehrlich, quoted by Emerson: Bull. Johns Hopkins Hosp., 1907, xviii, 71.

[10] Wilkinson, R.: Lancet, London, 1903, i, 1739.

marrow-spreads and section showed cells in all respects comparable with those found in the blood films. There was a supernumerary spleen about the size and weight of the normal organ, while the spleen proper weighed 750 gm. The liver was examined histologically for necroses, as described by Muhlmann[11] in a case of leukemia after the use of benzol, but the findings were negative in this respect.

The blood-findings are in Table 3. The white count was comparatively low on the first examination, but this is not uncommon. In two of Kelly's[12] four cases, the leukocytes were 9,000 and 17,000, respectively; in one of Emerson's[13] cases, the first count was 12,000; in McCulloch's[14] case, the first count was 15,000. In most of these cases, there was a subsequent rapid rise to high figures. Our patient showed but slight change until the day before her death, when the white cells numbered 96,000. Benzol was started on the third day and continued for eight days and may possibly have prevented the not unusual leukocytic rise; but it did not effect a reduction. The effect, if any, on the red cells was a steady drop. Streptococcus vaccine did not improve matters. As far as we know, this is the only recorded case of acute leukemia in which benzol was used.

TABLE 3.—BLOOD-FINDINGS IN CASE 3, ACUTE LEUKEMIA

Date	White Cells	Percentage Large Mononuclear	Hb.	Red Cells	Remarks
11/ 3/13	20,400	68	39	2,060,000	....
11/ 4/13	22,000	..	39	....	....
11/ 5/13	25,600	..	..	....	Began benzol.
11/ 6/13	19,600	80	28	2,062,000	....
11/ 7/13	26,000	76	39	2,330,000	....
11/ 8/13	20,600	71	29	1,880,000	....
11/ 9/13	......	..	..	....	Gave streptococcus vaccine.
11/10/13	20,800	84	28	1,900,000	Gave streptococcus vaccine
11/11/13	26,800	83	28	2,000,000	Gave streptococcus vaccine. One normoblast.
11/12/13	20,000	76	25	1,200,000	....
11/13/13	32,000	77	26	1,250,000	Stopped benzol.
11/14/13	26,000	86	18	1,180,000	One normoblast.
11/15/13	30,000	92	18	1,200,000	One normoblast.
11/16/13	96,000	89	20	....	Three nucleated reds.

Study of the blood-spreads from these leukemias suggests the office of benzol in effecting some of the changes seen. The poor staining qualities of some of the polynuclears and myelocytes are very common. We do not think the basophilic degeneration seen in the neutrophilic myelocyte is seen so frequently. And of special note in the myeloid leukemia are varying degrees of basophilic degeneration involving the recently appearing large non-granular mononuclears and confusing them with ordinary basophils. Further, eosinophils showing basic degeneration were occasionally observed. The low vitality of these abnormal cells may account for the degenerative changes, but the possibility of the accessory action of benzol is to be considered. The fragility of the leukocytes in leukemia, especially in the acute form, is well known. It is shown in the distorted and somewhat swollen forms seen in large numbers in the chronic lymphatic leukemia here reported. It was noted that these types increased decidedly after the administration of benzol. In cells of the acute leukemia, all degrees of granulation were seen in addition to the pure hyaline forms, indicating the difficulty of establishing a characteristic type of cell for this variety and suggesting that these are degenerative rather than physiologic granules. Experimental work to test the ability of benzol to cause basophilic and other leukocytic granulations might produce interesting results. Pseudopods in the large mononuclears of the acute leukemia were relatively numerous in a spread made the day after the eight days' treatment with benzol.

METABOLISM STUDIES

In the case of acute leukemia, metabolism studies were carried out by one of us (Pearson), over a period of five days. These were facilitated by the fact that the patient craved and took nothing but buttermilk for a week before her death. She was on this diet two days before the experiments were begun. The work was done only on the urine. The fecal losses may be estimated and allowed for, as the defect is probably not great with but one rather small movement a day. There were no losses by hemorrhage during or just preceding the period.

In Table 4 is shown the intake and output of nitrogen and phosphorus and the output of uric acid for five days.

The nitrogen in the buttermilk and the urine was estimated by the Kjeldahl-Gunning method. The phosphates of the milk were determined by the gravimetric method; those of the urine by titration with a standard uranium nitrate solution. Only one analysis was made of the buttermilk, as it was considered fairly uniform in composition. The uric acid was estimated by the Hopkins-Folin method.

It will be observed that there is a negative nitrogen balance of 6.64 gm. for the five days, and if we allow an additional gram a day for the feces, we enlarge the negative balance to 11.64 gm. This loss, however, is comparatively slight contrasted with the remarkable deficiencies in many reported cases of acute leukemia, in which a negative nitrogen balance of 20 gm. or more daily does not seem to be uncommon. It will be recalled that the white blood-count in this case was quite low most of the time, averaging from 20,000 to 30,000, and it would be interesting to know if the nitrogen and other losses roughly parallel the height of the leukocyte count. In Edsall's[15] case, in which he estimated the negative nitrogen balance for twenty-four hours as 27 gm., the leukocyte-count was 466,640.

TABLE 4.—METABOLISM OBSERVATIONS IN CASE 3, ACUTE LEUKEMIA

Date	Buttermilk Taken, c.c.	Nitrogen in Buttermilk gm.	Nitrogen in Urine, gm.	P_2O_5 in Buttermilk gm.	P_2O_5 in Urine, gm.	Uric Acid in Urine, gm.
11/10/13	887	4.548	.....	2.042	.....	.....
11/11/13	1,567	8.034	.....	3.608	.....	.....
11/12/13	2,661	13.653	7.89	6.127	0.814	0.265
11/13/13	2,306	11.824	16.13	5.310	1.269	0.938
11/14/13	2,129	10.915	12.20	4.902	1.725	0.669
11/15/13	1,952	10.005	15.74	4.493	2.173	0.947
11/16/13	1,538	7.883	8.96	3.540	1.461	3.276
Total five days (12 to 16 inc.)........	.....	54.280	60.92	24.372	7.442	6.095

On the other hand, the phosphorus pentoxid loss in the urine was 7.442 gm. for the five days, and if we allow 5 gm. as the fecal loss we have an output of 12.442 gm. of phosphorus pentoxid, which, against the intake of 24.372 gm., gives a positive balance of 11.93

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[11] Muhlmann, E.: Deutsch. med. Wchnschr., 1913, xxix, 2083.
[12] Kelly, A. O. J.: Tr. Assn. Am. Phys., 1903, xviii, 481.
[13] Emerson, C. P.: Bull. Johns Hopkins Hosp., 1907, xviii, 71.
[14] McCulloch: Montreal Med. Jour., 1904, xxxiii, 580.
[15] Edsall, D. D.: Am. Jour. Med. Sc., 1905, xxx, 589.

gm. Considering the urinary output of phosphorus pentoxid alone, it is not far from the estimated normal. All this is contrary to the usual findings in this disease, though, as Chittenden[16] has pointed out, the organism is capable of storing up comparatively large quantities of phosphorus without close relation to simultaneous changes in nitrogen metabolism.

The uric acid figures, while not excessively high, are a little more consistent with the usual ones of acute leukemia, and seem to bear a fair relation to the leukocyte-count. It will be noted that on the last day when the leukocytes reached a maximum, the uric acid excretion jumped proportionately, amounting to 3.276 gm.

The nitrogen partition as regards urea, uric acid and ammonia is seen in Table 5.

TABLE 5.—NITROGEN PARTITION IN CASE 3, ACUTE LEUKEMIA

Date	Quantity Urine, c.c.	Specific Gravity	Nitrogen as Urea, gm.	Nitrogen as Uric Acid, gm.	Nitrogen as Ammonia, gm.	Per Cent. Nitrogen as Urea	Per Cent. Nitrogen as Ammonia
11/12	1,153	1.009	6.09	0.088	0.19	77.3	2.6
11/13	2,218	1.011	12.98	0.313	0.04	80.0	0.3
11/14	1,868	1.010	8.84	0.223	0.10	72.5	0.8
11/15	2,070	1.011	9.82	0.316	0.04	62.4	0.3
11/16	1,124	1.011	6.58	1.093	0.007	73.4	0.1

The urea determinations were done according to the method of Benedict and Gephart. The amount of nitrogen as ammonia was subtracted from the nitrogen determined by this method. The amount of nitrogen as ammonia was determined as directed by Schlössing. The nitrogen as uric acid was computed from the uric acid totals by the molecular relationships. The most marked feature seems to be the reduction in the ammonia.

It is difficult to say whether or not the benzol administered was a factor in the results obtained. It was given for a week preceding the metabolism studies and stopped on the second day after they were begun. No striking changes followed its removal. Sohn[17] studied the effects of benzol on metabolism in three non-leukemic cases and one of myeloid leukemia. These cases were put on a purin-free diet for two or three days; then given benzol for three to five days; and this was followed by a short third stage with the patient off benzol. Metabolism studies were carried out through the three stages. Sohn found an increase in the neutral sulphur and a change in the relation of the neutral sulphur to the sulphates; a reduction in the urea nitrogen in relation to the total nitrogen, and an increase in the ammonia. It will be noted that in our case the output of ammonia was decreased.

SUMMARY

1. In a case of chronic myeloid leukemia under benzol, treated previously and concurrently with Roentgen rays, the leukocyte-count remains relatively low though the formula is changed in favor of large mononuclears. The spleen remains the same size, but the patient generally is improved. The patient was under observation two years.

2. In a case of chronic lymphatic leukemia, benzol, without Roentgen assistance, restored the white count to normal. Later, Roentgen rays were used for a short period. The patient has now been without benzol or Roentgen ray for six months, yet the leukocyte-count remains low and almost within normal limits. The formula, however, has returned to a high percentage of lymphocytes. The spleen did not diminish in size and is now further enlarged. The patient was under observation one year.

3. In a case of acute leukemia, benzol seemed to have had no effect one way or the other on the blood or the size of the spleen. The necropsy findings were typical of acute leukemia; there were no liver necroses or damaging effects of benzol apparent. Metabolism studies did not reveal any marked losses.

124 South Sixteenth Street—209 North Fiftieth Street.

THE VALUE OF THE DETERMINATION OF THE CHOLESTERIN CONTENT OF THE BLOOD IN THE DIAGNOSIS OF CHOLELITHIASIS

PRELIMINARY REPORT *

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The recent investigations of Aschoff and Bacmeister[1] have shown that gall-stones are to be classified, according to their composition, as follows:

1. Pure cholesterin stones.
2. Stratified cholesterin-calcium stones.
3. Cholesterin-pigment-calcium stones, which are most frequently found.
4. Composite stones, made up of cholesterin and a mantle of cholesterin and calcium.
5. Bilirubin-calcium stones, which are seldom found in the gall-bladder, but usually in the bile-passages of the liver itself.
6. Calcium carbonate stones, which are very seldom found.

That cholesterin plays a rôle, if not the most important rôle in the formation of gall-stones, is therefore evident. On the assumption that an excessive accumulation of cholesterin in the blood — a hypercholesterinemia — is the fundamental and primary etiologic factor in cholelithiasis, I have made a number of examinations which seem to verify that assumption. If my assumption is correct, we come far from curing a patient with gall-stones by the mere operative removal of the offending stones; for the primary cause—the hypercholesterinemia—persists (how long, I do not as yet know) after the operation. It is not my purpose at this time to go into the treatment of gall-stones either before or after operation. A great deal has been written on the subject, but only recently have we come to appreciate that in order to treat gall-stones intelligently and correctly, we must keep our eyes on cholesterin. I merely wish to report the results of several examinations I have been making.

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[16] Chittenden, R. H., and Mendel, L. B.: Osler's Modern Medicine, Ed. 1, i, 650.

[17] Sohn, I.: Wien. klin. Wchnschr., 1913, xxvi, 573.

* Read in part, before the Clinical Society of the German Hospital, New York, May 8, 1914.

[1] Aschoff and Bacmeister: Die Cholelithiasis, Jena, 1909.

In making my quantitative cholesterin determinations, I proceeded as outlined in a previous paper.[2] This method of Weston and Kent,[3] with the colorimetric estimation of Grigaut,[4] I have employed a great many times, and continue to find it most satisfactory.

The proper interpretation of the cholesterinemia in any individual case is dependent on the presence or absence of such clinical factors as influence the cholesterinemia. Fever reduces the amount of cholesterin in the blood; nephritis, progressive arteriosclerosis and jaundice increase the amount of cholesterin in the blood.

The average normal amount of cholesterin in human blood-serum is 1.48 gm. per thousand c.c. serum. The recorded figures will be in terms of grams of cholesterin per thousand c.c. serum.

CASE 1.—Man, adult. Urine negative. No fever. No jaundice. Wassermann negative. Signs and symptoms referable to the gall-bladder. Cholesterin = 1.30. Operation showed intestinal adhesions.

CASE 2.—Man. No jaundice. No fever. Urine negative. Clinically either duodenal ulcer or cholelithiasis. Cholesterin = 1.70. Operation showed an ulcer.

CASE 3.—Man. No fever. Slight arteriosclerosis. Urine showed mild nephritis with albumin and hyaline casts. No jaundice. Clinically duodenal ulcer. Cholesterin = 2.30. Operation showed an ulcer. In this case the sclerosis and nephritis explain the moderate hypercholesterinemia.

CASE 4.—Man, aged 53. Temperature 100 F. Urine negative. Slight jaundice. Clinically, cholecystitis or gumma of liver. Wassermann negative. Cholesterin = 1.64. Operation showed inoperable carcinoma of stomach with liver metastases.

CASE 5.—Girl, aged 17. Temperature 99.4 F. No jaundice. White blood-cells, 17,800. Polymorphonuclears, 74 per cent. Urine negative. Clinically, high appendicitis or cholecystitis. The Roentgen-ray report was positive for gall-stones. Cholesterin = 1.28. Operation showed appendicitis. Gall-bladder free.

CASE 6.—Woman, aged 24. No fever. Urine negative. No jaundice. Wassermann negative. Clinically, duodenal ulcer. Cholesterin = 5.20. Operation showed gall-stones.

CASE 7.—Woman, aged 42. No fever. Urine negative. Often jaundiced in past, but not at present. Stomach analysis negative for ulcer. History of gall-stone colic. Cholesterin = 2.83. Operation showed gall-stones.

CASE 8.—Woman, aged 46. No fever. Urine negative. Moderate jaundice. No sclerosis. Clinically, undoubted gall-stones. Cholesterin = 3.26. Refused operation.

CASE 9.—Woman, aged 37. White blood-cells, 17,200. Polymorphonuclears, 88 per cent. No jaundice. No fever. Urine negative. Symptoms referable to gall-bladder. Cholesterin = 3.14. Under treatment, condition cleared up and diagnosis of catarrhal cholecystitis was made.

CASE 10.—Man, aged 45. Wassermann negative. No fever. Urine negative. No jaundice. Clinically, cholecystitis or tumor of liver. Cholesterin = 3.32. Operation showed cholecystitis and gall-stones.

CASE 11.—Man, aged 47. No fever. Urine negative. Wassermann negative. Slight conjunctival icterus. Symptoms referable to gall-bladder, but no definite diagnosis made before operation. Cholesterin = 5.55. Operation showed chronic catarrhal cholecystitis with gall-stones.

CASE 12.—Woman, aged 64. No jaundice. No fever. Urine negative. Tumor mass in right hypochondrium. Symptoms referable to stomach. Cholesterin = 5.57. Operation showed cholecystitis and gall-stones.

CASE 13.—Young woman. No fever. Urine negative. No jaundice. Clinically, cholelithiasis. Cholesterin = 9.49. Operation showed gall-stones.

CASE 14.—Woman. Temperature, 101.6 F. White blood-cells, 23,200. Polymorphonuclears, 88 per cent. Urine negative. No jaundice. Tumor in right hypochondrium. Clinically, either a cholecystitis or high appendicitis abscess. Cholesterin = 0.675. Operation showed chronic ulcerative cholecystitis with stone in cystic duct.

In this case, the comparatively high fever explained the hypocholesterinemia to me, but the surgeons refused to be convinced so easily. Twenty-two days after operation (at which time a cholecystectomy had been performed), I again examined the blood of this patient. She was free from fever. At that time, I obtained the figure of 4.55 for the cholesterin. This result led me to believe that the hypercholesterinemia of cholelithiasis persists after operation, and the following cases bear out that belief.

CASE 15.—Woman, aged 30. Temperature, 101.6 F. Urine negative. No jaundice. Three days after cholecystectomy for subacute ulcerative cholecystitis and gall-stones, cholesterin = 4.77.

CASE 16.—Woman. No jaundice. No fever. Urine negative. Four days after cholecystectomy for gall-stones, cholesterin = 2.13.

CASE 17.—Woman, aged 65. No jaundice. Urine negative. Temperature, 101.6 F. Diagnosis of possible carcinoma of gall-bladder had been made. Five days after cholecystectomy for chronic suppurative cholecystitis, cholesterin = 2.10.

CASE 18.—Woman, aged 19. Temperature, 99.6 F. Urine negative. No jaundice. Five days after cholecystectomy for chronic cholecystitis with stones, cholesterin = 3.77.

CASE 19.—Woman, aged 47. Temperature, 101 F. Urine negative. No jaundice. Six days after cholecystectomy (bile draining from wound), for chronic ulcerative cholecystitis with stones, cholesterin = 3.36.

CASE 20.—Woman, aged 57. No fever. Urine negative. No jaundice. Nineteen days after cholecystectomy for gall-stones, cholesterin = 3.96.

CASE 21.—Young woman. No fever. Urine negative. Slight jaundice. Three weeks after cholecystectomy (gall-bladder draining bile) for gall-stones, cholesterin = 1.98.

In reporting these cases, I have presented only the relevant features of each, purposely omitting details.

SUMMARY

1. Almost all gall-stones are formed largely, if not entirely, of cholesterin.
2. A hypercholesterinemia seems to be the fundamental and primary etiologic factor in the formation of gall-stones, and this hypercholesterinemia is easily determined.
3. In cases of cholelithiasis without fever, a hypercholesterinemia is invariably found.
4. Conditions simulating cholelithiasis can be differentiated therefrom by a cholesterin-serum determination. Particularly does this apply in differentiating ulcus duodeni from cholelithiasis.
5. The hypercholesterinemia of cholelithiasis persists for a considerable length of time after the operative removal of the stones.
6. (With reservation), operation without removal of the bladder does not free the patient from the probability of subsequent stone formation.

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[2] Henes: Untersuchungen über den Cholesteringehalt des menschlichen Blutes bei inneren Krankheiten, Deutsch. Arch. f. klin. Med., 1913, iii, 122.

[3] Weston and Kent: Jour. Med. Research, July, 1912.

[4] Grigaut: Compt. rend. Soc. de biol., May 14, 1910.

The Burden of Ill Health.—It is a truism that the efficiency of the social unit is conditioned more by his physical status than by any other one factor. That the inefficiency due to ill health, however, constitutes a burden to be borne by the whole of society rather than the individual is a concept which has been fully recognized only of recent years.—J. W. Schereschewsky, *Public Health Rep.*

DYSTROPHIA ADIPOSOGENITALIS (OF FROEHLICH)

WITH CLINICAL REPORTS OF TWO CASES

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Dystrophia adiposogenitalis was first described in 1901 by Fröhlich, who asserted that the abnormality was due to diminished function of the pituitary gland. Very few cases had been met in literature until the publication of Harvey Cushing's exhaustive studies, which have thrown considerable light on our knowledge of the function of this gland, especially in its diseased stages. Since then the number of reported cases has increased immensely, and many observers have added a great deal to the studies of this phenomenon.

Cushing[1] expressed the hope that many cases of changed hypophyseal secretion would be reported in literature to enable us to get a fair understanding of the different types and subdivide them accordingly. This of course may give a better understanding of the therapy. As stated before, his hopes were fulfilled. Many cases have been reported by competent observers and many facts of value have been added to the former findings. In the *Proceedings of the Royal Society of Medicine of 1912-1913*, in the Neurological and Ophthalmological Section, we find six cases presented and discussed freely by most of the members. I am taking the opportunity to add two cases of interest that came under my observation.

The general symptoms of this disease are so characteristic that most of the cases reported were by internists and neurologic men, who are usually consulted for general complaints. The bony changes found in these patients have not attracted the attention of these physicians, and thus very little is mentioned in their studies concerning the bony findings. It is really the task of the orthopedist to observe and to report osseous changes, but unfortunately very few cases come under his observation, as the patients usually remain under the supervision of the internist. We find, therefore, scanty mention of the subject in the orthopedic literature. If more cases were seen by the orthopedists, more studies would have been undertaken and another field would have been conquered by them. I studied my cases from an orthopedic point of view, and thus have not taken up many careful laboratory and experimental observations.

I shall first make a brief review of the general symptoms of this disease.

DEFINITION AND SYMPTOMS

The disease is characterized by a peculiar adiposity with a feminine type of distribution when occurring in males, that is, the fat over the hips, pubis and pectorals is markedly increased. The adiposity is general—not localized as in lipomas. There is aplasia of the genitals. The male genital organs are markedly diminished. Hypotrichosis (scanty growth of hair) is marked, so that there is no beard and pubic or axillary hair. The hair on the scalp is abundant. The voice remains juvenile. In women there is amenorrhea, while in men there is anaphrodisia. The skin is very smooth, transparent and notably free from moisture, almost like that of a child. The body temperature is subnormal. There is a marked tolerance for carbohydrate with polyuria (diabetes insipidus?). There are some psychical disturbances as irritability and mental dulness. Many cases of epilepsy have been reported. Skeletal changes are marked only in cases in which this process started before full stature was attained. (To this Lorain applied the term "infantilism.") The patients have a feminine type of skeleton with broad pelves with a certain degree of genu valgum. Tapering fingers and toes are present. The roentgenograms of the terminal phalanges show the tapering. The long bones show the persistent epiphyseal lines. "There is an epiphyseal thickening and a tendency to delayed ossification" (Goetch). Luger reports mandibular prognathism, some enlargement of the extremities and an increase in size of the skull. Many patients are considerably below normal stature.

If the condition starts after adolescence, the most characteristic symptoms are adiposity, amenorrhea or impotence, excessive thirst and polyuria. The secondary sexual characteristics which have developed before the deficient secretion began may retrogress. The cause of these phenomena is a diminished secretion of the pituitary gland, that is, hypopituitarism. The diminished secretion is caused by tumors pressing on the gland, mainly on the posterior lobe. The gland itself may be diseased, having angiosarcoma or carcinoma or cyst formation. It may be of note to mention the conclusions of Cushing in regard to the function of the different lobes of the gland. The anterior lobe influences the general growth of the body, particularly the skeleton, while the posterior lobe, including the pars intermedia, promotes the contractibility and increases the tone of plain muscular tissue generally as well as of the heart, and excites the activity of certain glands, namely, the kidney and mammary glands, and influences carbohydrate metabolism. On removal of the compressing tumor, many of the symptoms disappeared. The fat was diminished and the sexual functions were reawakened. Cushing was able to produce hypopituitarism experimentally. By removing a part of the gland, the animal became fat, lost the sexual activity and suffered from polyuria.

As there is a distinct interrelation between this ductless gland and the other members of the group, we find, in the group of diseases under discussion, symptoms of deficient secretion of the thyroid, adrenals (as shown by the pigmentation of the skin, asthenia and lower blood-pressure), parathyroids (as shown by the disturbance in calcium metabolism), and as mentioned before, sexual glands. Peritz offers the following hypothesis as explaining the peculiarities of the interrelation between the function of the hypophysis and the sexual glands. There is a chemical antagonism between the anterior and posterior lobes (gas metabolism and sugar). The posterior lobe and the sexual glands contain a secretion which is mutually stimulative. By atrophy of either one, the other one is injured and lack of balance arises between the parts of the hypophysis, so that in many of these patients we find symptoms indicating diminished secretion of one lobe and increased secretion of the other.

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[1] Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia: J. B. Lippincott Company, 1912.

Peritz' theory can easily be supported by the observations of Newrath that "eunuchs owing to castration are very tall and present gigantic symptoms." The absence of the testicles probably causes an atrophy of the posterior lobe with the loss of control over the secretion of the anterior lobe, so that the oversecretion of the latter lobe causes an increase in skeletal growth.

The bony changes in dystrophia adiposogenitalis are due mainly to the lack of secretion of the anterior lobe, as that lobe influences the growth of the osseous system. In many cases absence or diminution in size only of single bones is found. Ascali and Legnani, in their records of experimental hypophysectomies, mention the occurrence not only of undergrowth of bone, but also of spontaneous fractures. This also explains the occurrence of coxa vara in these cases. Turney has reported a spontaneous fracture of the sternum between the manubrium and gladiolus.

To illustrate more vividly the influence of the pituitary on growth, we may just consider the cases of hyperpituitarism, or those due to an oversecretion of the gland. Under such condition, gigantism is produced if the oversecretion dates from childhood without interruption. If the oversecretion dates from adolescence, or if gigantism, for some reason or other, has been arrested, acromegaly is the result.

Another disease of interest, which may be mentioned in connection with the discussion on pituitary, is achondroplasia. Achondroplasia, or stunted growth, in which all the long bones are seriously hindered in their growth, is held to be due to a marked deficiency of the pituitary, probably following an early ossification of the base of the skull. Jansen, in his monograph on achondroplasia, advanced the theory that achondroplasia is caused by amniotic bands pressing on the centers of the epiphyses, and thus attributes achondroplasia entirely to intrauterine pressure. He admits, however, that the deficiency of the pituitary may act as a contributory factor.

The skull changes in hypopituitarism are an enlargement of the sella, a thinning of the floor and a thinning and absorption of the dorsum and of the posterior clinoid processes. In intrasellar tumor, there is at first an enlargement of the sella, with increasing thinning of its floor and of the dorsum sellae; this is followed by absorption of the posterior clinoid processes and dorsum sellae. In the other types of tumor, there is at first absorption of the clinoid processes and of the dorsum sellae.[2]

The roentgenograms of the long bones show the delayed union of the epiphysis. The terminal phalanges are tapering.

Arthritis may follow the disturbance of any of the ductless glands as the pituitary, thyroid, thymus, ovary, testicle, parathyroid or pineal gland.

The treatment of these conditions consists mainly of operative methods if the pressing agent can be ascertained. The administration by mouth of extract of the pituitary, especially of the anterior lobe, is used as a routine treatment with some fair results. The other ductless glands should also be administered in conjunction with this gland.

REPORT OF CASES

Case 1. *History.*—H. C., Hebrew, born in United States of Russian descent, clerk, aged 18, when first observed by me (in April, 1912), was referred by Dr. Isidore Abrahamson, to whom I am greatly indebted for the neurologic findings. Patient consulted us on account of inability to use his left hip, severe pain on walking and limping. Parents are alive and well. Patient has three normal brothers. There is no history of consanguinity.

Patient is the second child. Birth was normal. He walked at the age of 1 year, began to talk early, and was fairly bright as a child, according to the mother's statement. Patient was always surprised that his genitals were smaller than those of other boys of his age. He had diphtheria and scarlet fever when a child. There was no history of trauma. Adolescence was imperfect; childlike tendencies have persisted. Voice remained distinctly juvenile. At present it is more feminine than masculine. He has never shown any sexual instincts. For the last four years patient became very fat.

Present Illness.—This dates back nine months, when patient began to feel pain in the left hip, especially when rising from a chair. (He gives a vague report of having fallen about a month or two previous to the commencement of the pain and thinks he hurt himself on the left side.) The pain was radiating to the thigh and was boring in character. Patient had no pain in the knee at any time and no nocturnal pain. In a few weeks he noticed that he could not walk long distances without getting tired and could not bear weight on that foot for any reasonable length of time, even one hour; gradually he began to walk with a marked limp to the left. There were no headaches or disturbance of vision, but marked polyuria.

Fig. 1 (Case 1, taken April 16, 1912. Both hips).—*A*, the right one, which is normal, but shows the persistent epiphyseal line of the great trochanter (*l*). *B*, the left hip (diseased), showing coxa vara. It is bent at the middle of the neck, which gives one the impression of a fracture (*f*).

General Characteristics.—Patient is an overnourished, boyish-looking young man of full stature, height 5 feet 9 inches. There is no hair on face, pubis or axilla, while hair on the scalp is abundant. There is an excess of adipose tissue which is general but shows mainly a feminine distribution, being marked over the hips, pubis and pectorals. The weight was 165 pounds. The body has the configuration of a woman. Eyes and cranium are normal, and thyroid is apparently normal. Some bow kyphosis is beginning to be formed. Lordosis is increased. Abdomen is prominent. Fingers are normal except that slight hyperextension of all fingers is possible. Skin of upper extremities is very soft and smooth as that of a woman. The patient walks with a marked limp to the left side, and cannot flex the thigh on the abdomen. The motion of the adductors and outward rotators is also markedly impaired. When the thigh is flexed on the abdomen, the patient complains of severe pain in the hip. There is marked muscular spasm in left hip. The greater trochanter is palpable above Roser-Nélaton's line. The patient has a marked left genu valgum (inward bending of the knee or knock-knee). When the internal condyles of the femurs approach, the internal malleoli are separated about 2½ inches.

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[2] In some cases there is a history of trauma at birth or later, when the base is probably injured.

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Measurements.[3]—R. A., 36¼ inches; L. A., 35 inches; R. U., 37¼ inches; L. U., 36 inches; R. T., 16½ inches; L. T., 16¼ inches; R. K., 21 inches; L. K., 20 inches; R. C., 13 inches; L. C., 12½ inches. Thus there is a shortening of an inch and a quarter and muscular atrophy. The measurements around the waist are 35½ inches on expiration and 36½ inches on inspiration. The circumference around the umbilicus is 37½ inches. There is a double talipes valgus (flat-foot). The toes are tapering. The penis is very small, almost as that of a child 6 months old. The scrotum is as small as that of a child 1 or 2 weeks old. Testicles are very small and extremely sensitive. Roentgenogram (Fig. 1) shows a marked coxa vara. The epiphyseal lines are ununited. The sella turcica is apparently normal. The urine is normal except that patient has marked polyuria. Though not exactly dull or stupid, the patient does not possess enough intelligence for his age, showing some infantile characteristics, as, for instance, crying in the waiting-room of the physician just because he had to wait for an hour to be treated.

Course and Treatment.—The patient was placed on pituitary extract, 0.12 gm. three times a day, and the dose slowly increased till the patient was getting daily 1.44 gm. and calcium glycerophosphate, 0.3 gm. three times a day. The weight was taken off the lower extremity by putting the patient on a brace, and massage to the defective muscles was ordered. The pain and the discomfort of the limb diminished so that the patient could walk long distances without getting fatigued. Pain disappeared entirely after three months. He retained a slight limp, however, but has learned to rotate the pelvis so that the limp became unnoticeable. His infantile characteristics began to show some improvement. The fat was diminished. The patient was so contented, however, with the relief of the pain and the discomfort of the limb, that he discontinued the pituitary extract after six months. He reported quite frequently to me that the hip caused him no trouble whatever and that he was able to pursue his occupation. His adiposity has increased after the stopping of the pituitary extract.

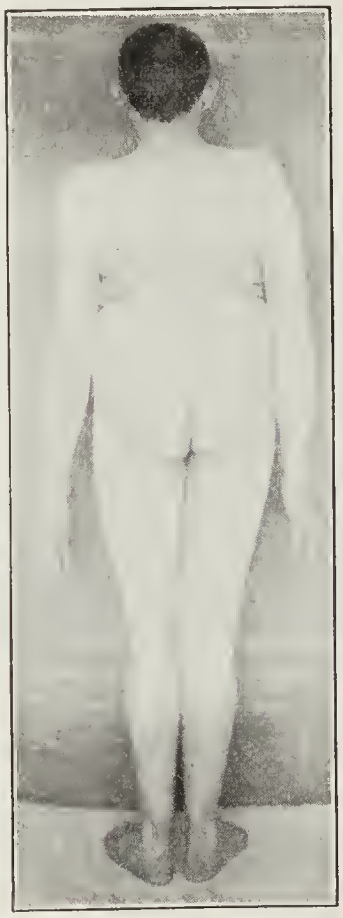

Fig. 2.—Case 2, showing the wide shoulders and the large crease in the middle of the spine with two smaller above that at each side. Note the absence of fat over the buttocks. The short thumbs are clearly shown.

This patient shows all the signs and symptoms of hypopituitarism dating from birth (infantilism of the Lorain type). There is probably a deficient secretion of the posterior lobe and the sexual glands, while the anterior lobe may produce hypersecretion or, according to Peritz, only normal secretion, but without the control of the posterior lobe. The coxa vara is probably due to a spontaneous fracture or bending of the neck of the femur because of diminished calcium metabolism. The trauma was the result rather than the cause of the fracture; hence the comparative mildness of pain.

Case 2. *History.*—D. H., Hebrew, born in the United States of Russian parents, single, aged 25 when first observed by me, in 1911, fur operator by trade, was admitted to the Montefiore Hospital complaining of pain and weakness in the back and marked deformity.

Parents are alive and well; there is no history of consanguinity. The patient is the first child, of normal birth; he began to walk at the age of 3½ and began to talk at a very late age. He was never bright and could not keep pace with the other boys at school. Hygienic surroundings were very poor. The patient had some children's diseases but does not remember the exact nature of these. There was no history of trauma. He was always taller and fatter than the average child of his age. At 13 he began to develop marked lordosis and broad shoulders so that the small children always used to laugh at him, saying: "Look how funny he walks." They were really the first ones to observe his abnormality.

Present Illness.—This dates back two years when patient began to feel frequent pains and weakness in the back. Pain was extending from the middorsal region to the hips. Patient was relieved in the sitting posture. Pain and weakness increased so that he had to give up his occupation. Finally he could not walk without supporting his spine. There were no cardiac, pulmonary or genito-urinary symptoms. Patient never had any sexual desire. There was excessive sweat over the back. He complained of lack of memory.

Medical Examination.—Patient is a very stout, even obese man, with marked broad shoulders, height 5 feet 8 inches. Hair on face, pubis and axilla is very scanty. Facial expression is rather idiotic with protrusion of upper lip. He has excess of adipose tissue which is general, showing mainly a feminine distribution, being marked over the hips, pubis and pectorals, but diminished over buttocks and thigh. Spinal motion is free. The torso is shortened. Measurements: Circumference around nipple line, on expiration, 36¾ inches, on inspiration, 37½ inches. Waist, at line of crease, 36 inches; at umbilicus, 41 inches. There is marked bowing of torso anteriorly. There are a deep furrow across the back 1 inch in depth and two smaller ones above. These creases disappear entirely when patient bends forward and keeps body at right angle with the extremities, showing that the entire trouble is in the adipose tissue and not in the spine (Figs. 2 and 3). The lordosis entirely disappears when patient sits down. The spinous processes of the sixth and seventh cervical vertebrae are prominent. Eyes are normal. Ear-lobes protrude too much outward. The thumbs are markedly shortened; they extend only half an inch beyond distal end of the metacarpal bones of the index-fingers. The terminal phalanges of thumbs are broad. Middle finger of both hands is deviated outward. Patient has a waddling gait. The big toes are shortened considerably. Thighs are particularly thin, as also are the buttocks. The scrotum is small. Testicles are undescended but can be pushed down and are found to be very small. Voice is more feminine than masculine. Thyroid gland is apparently normal. The patient is markedly idiotic, the memory very deficient. Clinical Findings: Urine is normal. Blood: Hemoglobin, 80 per cent., red blood-cells, 5,306,000; white blood-cells, 12,600; differential count: neutrophils, 61 per cent.; large lymphocytes, 14 per cent.; small lymphocytes, 13 per cent.; large mononuclears, 4 per cent.; transitionals, 5 per cent. Wassermann reaction is negative.

Roentgenographic Findings: Spine is normal. The long bones show no delayed union.

Course.—It is really unfortunate that more observations could not be made on the patient. He was too feeble-minded and could not interpret symptoms or obey orders. He left of his own accord, refusing all kinds of treatment.

This case is rather of an unusual type and bristles with difficulties in the way of diagnosis. The excess of fat in the torso, the undescended and small testicles, the hypotrichosis, the dull mentality and the absence of sexual desire would appear to be almost pathognomonic of Fröhlich's syndrome — dystrophia adiposogenitalis—dependent on changes in the pituitary and more particularly in the posterior lobe. But there are some difficulties that have to be answered before the diagnosis of Fröhlich's syndrome can be accepted. The adiposity is of a very remarkable type. While the condition of the upper limbs is about normal, that of the face and trunk is of excessive obesity, whereas that of the lower limbs is below normal and the buttocks are markedly emaciated. The sexual organs do not come up to the standard, and while the testicles are atrophied and undescended, the penis is about normal. The voice cannot be called distinctly feminine, but it is not masculine, either. Though the patient has some hair on the face and pubis, it is rather scanty and below par. His mental condition accords with Fröhlich's syndrome. A very close parallel distribution of fat in this patient will be found in Case 45 of Harvey Cushing, and in the case shown by Turney.[4] The fat over the spine shows the same creases as the case shown by F. F. Batten.[5] As the adiposity in this case fails to correspond with a case of dystrophia adiposogenitalis of pituitary origin, we have to think of other ductless glands, namely, the adrenals or sexual glands. With adrenal hyperplasia, the adiposity is general and is practically always associated with sexual precocity, of which there has been no indication in this case. Neither did this patient have adrenal tumor or pigmentation, which therefore speaks against adrenal hyperplasia. The scanty hair is not a symptom of adrenal hyperplasia, for in such cases we have increase of hair.

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[3] The following letters are used by orthopedists to designate certain definite points from which measurements are taken: R. A., distance from right anterior-superior spinous process of ilium to internal malleolus; L. A., left anterior-superior spinous process; R. U., umbilicus to right internal malleolus; R. T., circumference of the right thigh, in this case taken at 5 inches above lower border of patella; R. K., circumference of right knee; R. C., circumference of right calf.

Turning our attention to the sexual glands, we must recall that atrophy of these glands is always an accompaniment of pituitary diseases. As the testicles never descended, they were probably primarily involved, and the posterior lobe of the pituitary followed secondarily.

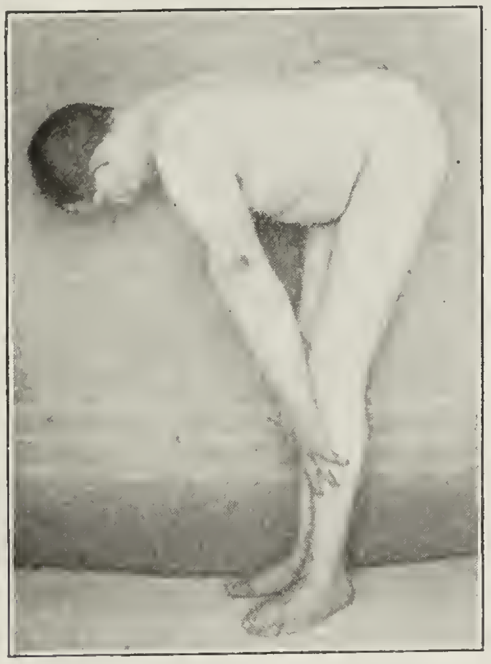

Fig. 3.—Case 2. The patient is bending body at right angle with the hips. Creases in the back entirely absent. The short big toes are easily distinguished.

The occurrence of short thumbs and shortened big toes of both feet point directly to a disturbance in the secretion of the anterior lobe of the pituitary, which controls growth of bones.

This case is probably one of pituitary sexual gland syndrome, "polyglandular syndrome," the deficiency being mainly in the anterior lobe of the pituitary.[6]

I am greatly indebted to Dr. George R. Elliott for his kind and valued assistance, and to Dr. S. Wachsmann, the medical director of Montefiore Home and Hospital, for permitting me to report the second case.

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[4] Turney: Proc. Roy. Soc. Med., Sec. Neurol. and Ophth., 1912-1913, vi, p. lxxi.

[5] Batten, F. F.: Case of Hypopituitarism, Dystrophia Adiposogenitalis, Proc. Roy. Soc. Med., Sec. Neurol. and Ophth., 1912-1913, vi, p. xxxi.

[6] This patient was shown in 1912 by Dr. G. R. Elliott at a meeting of the orthopedic section of the Academy of Medicine, New York, and various opinions regarding the diagnosis were expressed by the members present. The diagnosis was cleared up only after careful study by Dr. Elliott and myself.

THE INFLUENCE OF HOOKWORM DISEASE ON THE EYES

A STUDY OF FIFTY-THREE CASES *

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Whenever a new disease is discovered or an old one brought into prominence, the students of the various specialties make determined and laudable efforts to establish a serious connection between the disease in question and their particular specialties. The newly found (in America) hookworm disease and the students of ophthalmology may well be expected, therefore, to become involved in some sort of investigation. In this particular case, then, let us assume that the incidence of eye lesions in connection with uncinariasis might be of interest and importance in two ways:

1. Is the hookworm infection a causative factor in the existing eye lesion?

2. If it is a causative factor, is the presenting eye lesion sufficiently distinctive or characteristic to be of diagnostic aid in the clinical recognition of uncinariasis?

Before attempting to answer let us briefly consider some salient facts and some of the observations of others appertaining to the questions before us.

GENERAL CONSIDERATIONS

Uncinariasis, or hookworm disease, belts the earth in a zone about 66 degrees wide, extending from parallel 36 north to parallel 30 south. Practically all countries between these parallels are infected, and these countries contain nearly 60 per cent. of the earth's population.[1] The incidence of the hookworm ranges from 50 to 90 per cent. of the population of many of these countries. Evidently it is a world problem. In the rural districts of our Southern states approximately 40 per cent. of the people are infected with this parasite.[2]

Zoologists state that there are two different species of hookworm, the European and the American. As all are agreed that their effects are the same when infecting the human family we may, in this study, disregard the helminthologic distinction. The general pathology and symptomatology of the disease has been well covered in a somewhat extensive literature, which I have carefully considered,[3] but comparatively little has been done in the direction of any special study of ocular conditions in connection therewith.

EYE LESIONS NOTED IN THE UNITED STATES

Hansell[4] has reported the case of a boy aged 15 infected with hookworm and exhibiting serous and hemorrhagic retinitis with characteristic appearances of retinal anemia.

A. W. Calhoun[5] has reported two cases of uncinariasis exhibiting cataracts in patients aged, respectively, 42 and 14 years.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Hookworm Infection as a World Problem, editorial, The Journal A. M. A., June 22, 1912, p. 1946.

[2] Fourth Annual Report, Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, 1913.

[3] The bibliography is well known and easily accessible—especially the Porto Rican studies by Ashford, King and Igaravidez, and the American studies by Stiles.

[4] Hansell: Am. Med., 1901, ii, 412.

[5] Calhoun, A. W.: Ophth. Rec., 1904, xii, No. 7.

F. P. Calhoun[6] reports four cases of uncinariasis, three of the patients, aged, respectively, 20, 26 and 22 years, exhibiting cataracts, and the fourth showing recurring spontaneous hemorrhage from the upper conjunctival fornix of the right eye.

Mauldin[7] reports a case of hookworm disease showing "iridocyclitis approximating an interstitial keratitis."

Stiles[8] says that in uncinariasis the pupils of the eyes have a decided tendency to dilatation, the patient may show a blank stare, and that night-blindness is reported in a number of cases. In another place Stiles[9] says:

> If the patient is directed to stare intently into the observer's eyes, there will be noticed a symptom which it is difficult to describe, but which I have found more constant than almost any other noticed, namely: After a moment, the length of time apparently varying slightly, according to the degree of the disease, the pupils dilate and the patient's eyes assume a dull, blank, almost fish-like or cadaveric stare very similar to that noticed in cases of extreme alcoholic intoxication.

Dock and Bass,[10] after a brief consideration of eye-lesions reported by foreign authors, say:

> We have often noticed that the pupil dilates readily and usually remains wide, even in the presence of considerable light, but this is a common symptom of all severe anemias.

The authors of this book report no original investigations.

So far as I am aware, these are the only published reports of observations in the United States of eye-lesions in hookworm disease. In the spring of 1910 I reported to the Greenville (S. C.) County Medical Society the cases of two girls, aged 10 and 14 years. Both had interstitial keratitis, and both were typical hookworm cases, easily admitting of snapshot diagnosis. This was verified microscopically and the patients were turned over to a colleague for thymol treatment. It is true that the family history, while not positively indicating it, was not such as to be above a suspicion of hereditary lues; but the improvement in the ocular conditions after two or three thymol treatments was little short of astounding. I thought I had made a very interesting and valuable observation, and so I had; but the most interesting part of it came a year later when both patients died of tuberculosis — one of the commonly accepted causes of keratitis parenchymatosa.

EYE-LESIONS NOTED IN FOREIGN COUNTRIES

The European observations on the incidence of eye-lesions in uncinariasis are somewhat fuller, yet even so the literature on the subject is apparently not extensive.

M. Rampoldi,[11] reporting in 1880, noted that in hookworm patients who complained only of a slight asthenopia, or of the lack of ability to fix objects, he found ophthalmoscopically a whitish retinal reflex, characteristic of edema of this membrane. In some cases visual acuity was diminished. In the case of a woman who died of hydremia he found a true exudative retinitis, which reminded him of Liebreich's cases of splenic leukemia. There were also hemorrhages into the retina, and he found lymphoid elements deposited in great quantity between the retina and the choroid.

Von Nieden[12] notes in these cases a pale conjunctiva and shining sclera. With the ophthalmoscope he observes marked paleness of the blood-current in the contracted arteries, and tortuous veins; sometimes arterial pulsation, porcelain-colored papillae and, above all, characteristic hemorrhages, like those of pernicious anemia, which lie as isolated spots or broad patches on the periphery of the retina and show a tendency to fatty degeneration. There is, he says, sclerosis and fatty degeneration of the vascular endothelium as in the pernicious anemia of *Bothriocephalus latus*. The subjective symptoms he describes as central disturbance of vision with narrowing of the field, anesthesia of the retina, accommodative and muscular asthenopia, with diplopia and a tendency to nystagmus. In spite of this picture, as outlined, von Nieden expresses the belief that the conditions are not due to anemia, but to a toxin. Out of 3,686 cases examined by him he found three cases of bilateral blindness.

Nuel and Leplat[13] say that miners suffering with hookworm frequently show disturbances of vision consisting of fatigue of the eyes without appreciable lesion; a certain amount of hemeralopia, and frequently nystagmus. These authors examined eighty-one cases and found in five the following changes: One showed retinal hemorrhages; another showed numerous retinal hemorrhages in the right eye, especially in the nerve-fiber layer, and a pale papilla in the left eye, with veins somewhat engorged; two other patients showed infiltration of papilla and retina; while the fifth, an albuminuric, had a neuroretinitis.

A. Nieden[14] announces that the hemorrhages of the ocular fundus are characteristic. He says that they occur more in the periphery of the retina, and are frequently in groups, point-shaped and close together, but without merging into each other. They frequently follow the course of the vessels, seeming to lie in the vessel walls, and appear rather like stripe-shaped exudates accompanying the vessels to the papillary area. In addition there are extensive blood-exudates in the retinal tissue, represented as large plaques with ray-formed margins. The microscope discovers sclerotic and fatty degeneration of the endothelium of the blood-vessels. In most cases the patient does not know that his eyes are affected, and he is troubled with scotomas only when the macula is the chief location of the blood-spots. More marked are the weakness of accommodation, asthenopia, fatigue of the eyes and periodic slight pareses of intrinsic and extrinsic muscles with diplopia and vertigo. Among miners there are frequently photophobia and hemeralopia. Also there is often a moderate narrowing of the field The visual disturbances, he thinks, are caused not so much by the retinal changes as by the general symptoms of the disease. (Compare this description with von Nieden's observations abstracted above.)

Fischer[15] notes that the hookworm itself has never been found in the eye. Birmer asserted that retinal hemorrhage was pathognomonic of the anemia named after him, but this is incorrect, since it is well known, as Fischer observes, that retinal hemorrhages occur in all forms of anemia, but especially, he thinks, in ankylostomiasis.

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[6] Calhoun, F. Phinizy: Eye Complications Caused by Hookworm Disease, The Journal A. M. A., Sept. 21, 1912, p. 1075.

[7] Mauldin: Jour. South Carolina Med. Assn., 1910, vi, 521.

[8] Stiles: Osler's Modern Medicine, i, 589.

[9] Stiles: Quoted by Ashford and Igaravidez.

[10] Dock and Bass: Hookworm Disease, St. Louis, 1910.

[11] Rampoldi, M.: Cong. périod. internat. d'ophth., 1880, Milan, 1881, vi, 283.

[12] Von Nieden: Ophth. Klin., Stuttgart, 1903, vii, 181; Centralbl. f. prakt. Augenh., 1903, xxvii, 207.

[13] Nuel and Leplat: Ann. d'Ocul., 1889, lii, 150.

[14] Nieden, A.: Wiener med. Presse, 1897, xxxviii, 1094.

[15] Fischer: Ber. d. ophthal. Gesellsch., Stuttgart, 1892, xxii, 26; Deutsch. med. Wchnschr., xix, 311.

Lutz[16] remarks that in ankylostoma infection the vessels of the fundus, especially the arteries, are contracted and the papilla is paler than normal. Lutz has also noted, as a rare sign, chemosis of the bulbopalpebral fold.

R. Rampoldi[17] relates a case of bilateral convergent strabismus, coming on suddenly, and accompanied by homonymous diplopia. Treatment for hookworm was administered and the strabismus disappeared.

Ashford and Igaravidez[18] state that in a series of cases of this disease, 69.5 per cent. had more or less serious disturbances of the eyes. (There seems to be an error in the figures, however, and the percentage should have been put at 34.9.) They go on to say:

> We cannot doubt that much of this was due simply to the degree of anemia, but there remains a considerable percentage . . . with more or less marked visual affections with very little anemia.

They quote Loebker and Bruns as remarking on the pallor of the eye-grounds, pulsation of veins, lowered intra-ocular pressure, venous tortuosity and, commonly, retinal hemorrhages. They note that many authors speak of edema of the papilla. They quote Siccardi as observing nystagmus, diplopia, amblyopia, muscular and accommodative asthenopia and restriction of the field. This author admits the possibility of anemia being the cause of most of the eye symptoms, and that functional visual disturbances may be due to reflex irritation from the intestinal tract, but avers that when we have a retinitis coincident with optic atrophy, the question of the presence of a circulating toxin must be considered. Ashford and Igaravidez emphasize the occurrence of "blurred vision" and night-blindness, and mention the fact that corneal ulcers have been reported, they having seen one case of the latter. They report that Lippitt, with a large experience, states that fully three-fourths of his cataract patients in Porto Rico were anemic.[19]

COMPARATIVE CONSIDERATIONS

Here, then, we have an array of symptoms and pathologic conditions, any of which — with the exception of cataract, noted and discussed below — might be fully expected to appear in the ordinary run of cases of anemia. The lesion most frequently noted and dilated on appears to be retinal hemorrhage, and one or two of the authors referred to above seem to think that the appearance of these hemorrhages in the peripheral area of the retina is more or less characteristic. This is assuredly a mistake, for such lesions commonly occur in other forms of anemia. Some idea of the frequency of retinal hemorrhages in anemia may be had from the figures quoted by Weeks,[20] which recite that of 238 American cases of pernicious anemia, 31 per cent. had retinal hemorrhages, and of 326 foreign cases 72 per cent. exhibited this eye-lesion.

In uncinariasis there is a decrease of the hemoglobin content and of the red blood-corpuscles, and a comparative increase in the leukocyte-count. When Weeks wrote his book, which was published in 1910, he had probably never given a thought to hookworm disease as having any influence on the eyes, nor, I believe, was there any reason why he should have, but the following brief extracts from his discussion of leukocythemic retinitis and the retinitis of pernicious anemia (which he remarks are very similar) make an interesting comparison with Nieden's report abstracted above: In the first-mentioned form of retinitis he says, "The fundus of the eye usually appears lighter in color than normal . . . the arteries are pale, often somewhat reduced in caliber . . . the veins are dilated, broad and tortuous . . . the retina often becomes hazy . . . numerous hemorrhages occur near the periphery of the retina . . . many striped or flame-shaped hemorrhages may occur in the vicinity of the disk," and in the retinitis of pernicious anemia he says, "The nerve-fiber layer of the retina is often edematous . . . in places the fibers are pushed apart by hemorrhages . . . the elements of the deeper layers of the retina are also separated by the constituents of the blood that have escaped from the blood-vessels . . . the escaped blood-corpuscles undergo degenerative changes . . . white corpuscles are found in the clots, and, in addition, small hyaline masses are present." Indeed, in this brief description one can almost see before his mind's eye one of Nieden's "characteristic" hookworm cases.

In reference to the blurring of vision and blindness mentioned as accompanying uncinariasis, it is to be noted that Kurtsinger[21] collected 198 cases of more or less complete blindness due to hemorrhage from remote parts of the body, the bleeding having been either sudden and profuse — a single hemorrhage — or slow and continuous (this is the method of extraction by the hookworm). It is interesting to observe that out of 189 of these cases, seventy-two were from hemorrhage from the stomach and intestine, and that three followed the application of leeches.

Some of the authors quoted above maintain that the presence of the eye-lesions which they have noted must be explained on the theory that there is a specific toxin in hookworm disease. But why should a mere theory be mooted to explain something that is already easily comprehensible and that has been demonstrated time and time again to be based on a well-recognized pathologic principle? Furthermore, if the eye-lesions were caused by a toxin, then those having the heaviest infections should produce the most eye symptoms; but this is not at all the case. It is well to remember that the retinal lesions of anemia are due either to a reduction in the amount of circulating blood, or to a change in the quality of the blood. The hookworm accomplishes both ends, whether or not it is the manufacturer and disseminator of a specific toxin, for it extracts blood in volume, and decreases the hemoglobin and red corpuscle contents. The hookworm, then, causes an anemia, by no means necessarily a toxemia, and any form of anemia may cause the eye symptoms we are discussing — a fact which has been recognized certainly ever since Helmholtz gave us the first ophthalmoscope more than sixty years ago.

In addition to the symptoms mentioned, pallor of the disk, exudative retinitis, retinal edema and vascular tortuosities are more or less common fundus changes in anemia, and cannot be considered as indicating any specific causation.

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[16] Lutz: Samml. klin. Vortr., Leipsic, 1880-1886, Inn. Med., No. 88.

[17] Rampoldi, R.: Ann. di Ottal, Pavia, 1888-1889, xvii, 170.

[18] Ashford and Igaravidez: Uncinariasis in Porto Rico, U. S. Senate Document 808, 1911, p. 96.

[19] Two Japanese authors have had something to say on this subject, but I was unable to find a translator. The references are: Inoshita, Chingai Iji Shinpo, Tokio, p. 1160. Onishi, idem., xiv, No. 4, p. 2. Hisaki, Chiba Igakuhwai-Zassh, Tokio, 1900, No. 47, p. 1. For these and some other references I am indebted to Dr. Charles Wardell Stiles.

[20] Weeks: Diseases of the Eye, 1910, p. 766.

[21] Kurtsinger: Quoted by Weeks: Diseases of the Eye, 1910, p. 434.

Dilatation of the pupil is of such common occurrence (a weakening of the iris constrictor) in the various anemias that it is familiar even to the general practitioner; yet many of such cases may be more fancied than real, since there is no fixed physiologic size for the pupil. In the fifty-three cases which I have tabulated I did not once see a really noticeably dilated pupil; but there were very few severe cases in this series. I failed entirely to elicit Stiles' "fish-like-stare" sign, though I made a number of efforts to do so. Ashford and Igaravidez, with their unlimited field of observation, were unable to recognize it.

Imbalance of the ocular muscles and accommodative weakness are not infrequently seen in anemia. It would be curious, indeed, if, in the general myasthenia, the delicate musculature of the eye should escape involvement.

It is hardly fair to accuse the hookworm in cases of hemeralopia and nystagmus. The authors noting these are foreigners, many of whose cases are in miners, who are, of course, as a class, peculiarly subject to these ocular symptoms.

As to nyctalopia, this is a phenomenon known to exist most frequently in tropical and subtropical countries, and it is therefore easy to understand why the principal references to this symptom come from Ashford and Igaravidez in Porto Rico.

F. P. Calhoun[6] believes and Hansell[22] concurs, that the cataracts which he has observed in hookworm patients were caused by a toxin originating from the parasite, and directs attention to the theory that some forms of cataract may be caused by circulating toxins of various sorts — chemical or biologic. It may well be that the hookworm evolves a toxin; Ashford and Igaravidez and others believe so, as I have already remarked, but it has never been demonstrated; and it is certainly strange, if there is such a toxin and it is a cause of cataract, that only five such cases have been reported in our Southern states, where it has been demonstrated that 40 per cent. of the population of the rural districts are the victims of uncinariasis.

Lippitt,[23] with a large experience, states that fully three-fourths of his cataract patients in Porto Rico were anemic. It is well known that cataract occurs more often among the lower classes and the poorly nourished than among persons in better environments. When, therefore, we consider that 80 per cent. of Porto Rico's population is infected with hook-worm,[24] and are consequently in poor hygienic condition, it is certainly not remarkable that three-fourths of all cataract patients in that island are observed to be anemic. Indeed, it is rather more to be wondered at, in the light of these facts, that the percentage of anemic cases in such a series does not go to a much higher figure.

A TABULATED SERIES OF FIFTY-THREE CASES

Other eye-lesions associated with anemia are some forms of choroiditis, vitreous opacities and palpebral folliculosis. Curiously enough, none of these have been mentioned heretofore in connection with hookworm anemia, yet they must have been present in some of the thousands of cases that have been examined. Doubtless, choroiditis has been overlooked in the frequent retinal involvement, though I saw traces of it in two cases (4 per cent.) of my series tabulated herewith (Cases 1 and 9). Vitreous opacities might, of course, be easily overlooked unless especially sought for. In my series I noted four cases (7.5 per cent.) of folliculosis (Cases 5, 40, 42 and 50).

In the fifty-three cases of my series there were thirty-five males and eighteen females. The ages ranged from 9 to 22 years. The diagnosis of hookworm was made microscopically in every case. Only one patient (Case 27) had been treated previously. Homatropin mydriasis was used in every case for retinoscopy and ophthalmoscopy. It was my impression (without actual timing) that the patients on the whole responded to the mydriatic more quickly than normal persons would have. The refractive errors were found to follow closely the well-known average of persons of like age. The two cases of interstitial keratitis noted have been referred to in the foregoing text. There were no marked eye-symptoms voluntarily referred to by a single patient. In twenty-six of these cases (approximately 50 per cent.) I thought I observed a shallowness of the anterior chamber, one of them (Case 37, a severe case) being especially marked. I cannot insist on this observation, however, since I had no means of accurate measurement, so that the report on this point is but a matter of opinion without substantiation, and I do not, myself, attach any great significance to it. The most common fundus changes were pallor and tortuous vessels, the latter occurring in twelve cases (22.6 per cent.). Retinal hemorrhage had occurred in only two cases (Cases 1 and 9), and then in but slight degree.

CONCLUSIONS

1. The answer to the first question in the opening sentences of this paper is that hookworm disease, by virtue of the qualitative and quantitative anemia and the general systemic ill condition for which it is responsible, is, in this indirect way, and in this way only, a causative factor in the various eye-lesions which have been described as accompanying it.

2. To the second question the answer is that none of the eye-lesions occurring in this disease are in any sense sufficiently distinctive or characteristic to be of diagnostic value.

The evidence, collected from various sources, seems complete enough, and in addition if, in a systematic examination of the eyes of fifty-three consecutive and unselected cases, we find nothing to point us to a specific causative factor for the eye-lesions, and nothing in the clinical ocular pathology that could be regarded as a distinctive diagnostic aid in the recognition of the systemic disease, we may safely conclude that, in the light of our present knowledge, the association of eye-symptoms and uncinariasis must be regarded as purely incidental, or at least that the eye-symptoms occur only as the sequelae of general pathologic conditions, the principles of whose existence have long been recognized.

It need hardly be pointed out that the importance of these conclusions lies, of course, in the fact that many cases of anemia, with or without eye manifestations, occur without an accompanying hookworm infection, and also that many cases of uncinariasis, with or without eye complications, are encountered which are lacking the symptom of anemia. The latter condition is seen in many apparently robust and even athletic young persons from the rural districts and is especially marked in the negro, who seems more or less immune to the hookworm syndrome, though Burdell[25] has shown that in certain localities in our South 65 per cent. of all negroes are infected with the parasite, and, while acting as intermediary hosts and active carriers of the disease, present no clinical symptoms whatever.

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[22] Hansell: Discussion on article by Calhoun, Footnote 6.

[23] Lippitt: Quoted by Ashford and Igaravidez.

[24] Ashford and Igaravidez: Uncinariasis in Porto Rico, 1911, p. 179.

Obviously, it is well to know, when we see the signs of anemia in the eye-grounds, or in the facies for that matter, that we might properly suspect the hookworm of being a possible cause of the anemia; but beyond this our studies of the coincidental eye-lesions in uncinariasis have not yet carried us.

ABSTRACT OF DISCUSSION

Dr. Charles W. Kollock, Charleston, S. C.: Dr. Jervey asks: 1. Is the hookworm infection a causative factor in the existing eye-lesion? 2. If it is a causative factor, is the presenting eye-lesion sufficiently distinctive or characteristic to be of diagnostic aid in clinical recognition of uncinariasis?

EYE-SYMPTOMS IN FIFTY-THREE HOOKWORM PATIENTS*

Case No.	Severity of Infection	General Condition	Vision Without Correction		Conjunctiva	Cornea	Anterior Chamber	Retinoscope Refractive Error	Ophthalmoscopic Findings	Remarks
			P.	L.						
1	Light	Fair	15/15	15/15	Normal	Normal	Normal	Comp.hy.astig.	Tortuous vessels. Tiny old hemorrhage and pigment left.	
2	Light	Fair	15/20	15/20	Normal	Normal	Normal	Hy. astig.	Normal	
3	Light	Fair	15/20	15/20	Normal	Normal	Normal	Comp.hy.astig.	Normal	
4	Light	Fair	15/15	15/15	Normal	Normal	Normal	Hy.	Normal	
5	Light	Fair	15/20	15/20	Folliculosis	Normal	Normal	Comp.hy.astig.	Normal	
6	Light	Fair	15/15	15/15	Blepharitis	Normal	Shallow	Hy.	Slight retinal congestion	
7	Light	Fair	15/20	15/20	Normal	Normal	Normal	Comp.hy.astig.	Pale retinas, large veins	
8	Medium	Poor	15/15	15/15	Pale	Normal	Normal	Emmet.	Pale disks, tortuous vessels	
9	Medium	Poor	15/30	15/30	Normal	Normal	Normal	Mixed Astig.	Red disks, tiny hem. and pigment left	Epicanthus
10	Light	Fair	15/15	15/15	Normal	Normal	Normal	Emmet.	Retinas congested, disks indistinct	
11	Light	Fair	Illiterate		Normal	Normal	Shallow	Hy.	Normal	
12	Light	Fair	15/15	15/40	Normal	Normal	Shallow	Hy.	Venous congestion, tortuosities	
13	Light	Fair	15/30	15/30	Normal	Normal	Shallow	Hy.	Pale fundi	
14	Light	Fair	15/20	15/20	Normal	Normal	Shallow	Hy.	Normal	
15	Light	Fair	15/15	15/15	Normal	Normal	Shallow	Hy.	Normal	
16	Light	Fair	15/30	15/30	Normal	Normal	Shallow	Hy.	Normal	
17	Light	Fair	15/15	15/15	Normal	Normal	Normal	Emmet.	Central veins full	
18	Light	Fair	15/15	15/15	Normal	Normal	Normal	Hy.	Veins full and tortuous, disks obscure	
19	Light	Fair	15/30	15/40	Normal	Normal	Shallow	Hy.	Normal	
20	Light	Fair	15/20	15/20	Normal	Normal	Shallow	Hy.	Normal	Epicanthus
21	Light	Fair	15/15	15/15	Normal	Normal	Shallow	Comp.hy.astig.	Tortuous vessels	
22	Light	Fair	15/20	15/20	Normal	Normal	Normal	Comp. My. astig.	Deeply pigmented fundi, tortuous vessels	
23	Light	Fair	Illiterate		Normal	Normal	Normal	Hy.	Normal	
24	Medium	Fair	15/15	15/15	Normal	Normal	Shallow	Hy.	Normal	
25	Medium	Fair	15/15	15/15	Normal	Normal	Shallow	Emmet.	Normal	
26	Medium	Fair	7/70	6/70	Normal	Normal	Normal	Hy.	Deeply pigmented fundus, tortuous vessels	Alternating internal strabismus
27	Severe	Fair	15/15	15/15	Normal	Normal	Shallow	Emmet.	Retinal congestion, disks indistinct, tortuous vessels	Thymol treatment 4 weeks ago. Numerous ova now in feces.
28	Severe	Fair	15/15	15/15	Normal	Normal	Shallow	Emmet.	Right fundus normal, left congested	
29	Light	Fair	Illiterate		Normal	Normal	Normal	Emmet.	Pale fundi	
30	Light	Good	15/15	15/15	Normal	Normal	Shallow	Comp.hy.astig.	Pale disks	
31	Light	Good	15/20	15/20	Normal	Normal	Shallow	Hy.	Normal	
32	Light	Fair	15/20	15/15	Normal	Normal	Shallow	My.	Vessels full and tortuous	
33	Light	Fair	15/15	15/15	Normal	Normal	Normal	Hy.	Normal	
34	Light	Fair	15/20	15/20	Normal	Normal	Normal	Hy.	Pale fundi	
35	Light	Fair	15/20	15/20	Normal	Normal	Normal	Hy. Astig.	Vessels full and tortuous	
36	Light	Fair	15/15	15/15	Normal	Normal	Shallow	....	....	
37	Severe	Poor	15/15	15/15	Normal	Normal	Very shallow	Hy.	Pale fundi	
38	Medium	Poor	15/20	15/20	Normal	Normal	Shallow	Emmet.	Pale disks	
39	Medium	Poor	15/20	15/30	Normal	Normal	Shallow	Hy.	Fundi pale, disks hazy	
40	Medium	Poor	15/15	15/15	Folliculosis	Normal	Normal	Hy.	Pale fundi	
41	Light	Good	15/15	15/15	Normal	Normal	Normal	Hy.	Disks pale, vessels tortuous	
42	Light	Good	15/15	15/15	Folliculosis	Normal	Normal	Hy.	Normal	
43	Light	Fair	15/15	15/15	Normal	Normal	Normal	My.	Normal	
44	Light	Fair	15/70	15/70	Chr. congest'n	Normal	Normal	Comp.hy.astig.	Normal	
45	Light	Fair	15/70	15/70	Chr. congest'n	Normal	Normal	Mixed astig.	Normal	
46	Severe	Poor	15/15	15/15	Normal	Normal	Shallow	Emmet.	Fundi pale, vessels tortuous	
47	Light	Good	15/15	15/15	Normal	Normal	Normal	Hy.	Normal	
48	Light	Poor	15/15	15/15	Normal	Normal	Shallow	Hy. astig.	Normal	
49	Light	Fair	15/15	15/15	Normal	Normal	Shallow	Hy.	Normal	
50	Light	Good	15/30	15/20	Folliculosis	Normal	Shallow	Hy.	Normal	
51	Light	Fair	15/15	15/15	Normal	Smoky	Shallow	Hy. astig.	Normal	
52	Severe	Very poor	....	.....	Congested	Normal	Normal	....	....	Interstitial keratitis. Died tuberculosis one year later.
53	Severe	Very poor	....	.....	Congested	Smoky	Normal	....	....	Interstitial keratitis. Died tuberculosis one year later.

* In all the patients the pupils were normal in size and reaction, and the lenses were normal.

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[25] Burdell: Jour. South Carolina Med. Assn., 1910, vi, 326.

A careful study of the report of his cases leads me to conclude that in no instance is there a lesion or condition which could be ascribed to any particular cause. The only condition which he mentions as being more conspicuous than others occurred in twenty-six of the fifty-three cases reported and was an apparent shallowness of the anterior chamber. This was marked in one, a very severe case, while the general condition of the others in which it was noted was fair. He does not mention an increase of tension; in fact the opposite condition would be more likely observed in this class of cases, as a condition of the vessels and blood which permits the latter to pass through the walls of the former might also exist in and about the cornea and cause increased exosmosis and a temporary shallowness of the anterior chamber. This is, perhaps, theorizing too much, but there is no reason to deem it characteristic of anything more than a weakened general condition.

Calhoun, Hansell, Ashford and Igaravidez suggest that a toxin may originate from the hookworm and be a cause of cataract as other toxins have been supposed to be. Dr. Jervey well says that in the South, where 40 per cent. of the population have the disease, it is strange that only five cases of cataract have been reported. In the number of cases reported he is mistaken, though it will not alter his deductions. I have reported two cases of cataract in children having hookworm and have seen two others who were undoubtedly infected, though at the time nothing was known of the worm. These two had every appearance of the disease and came from a neighborhood where such cases were and still are very numerous. These children were from 8 to 12 years of age and on two I operated successfully for the removal of the cataracts. All were white. The negro is said to be immune to the effects of the worm and it is undoubtedly true that cataract is less frequently seen in the negro than the white child, even the zonular variety which is probably due to congenital causes. I have sometimes thought that the corneal affections, so common in the negro, might be indirectly due to the hookworm, but of this there is no proof and a more likely cause is syphilis. Night-blindness is much more frequent among negroes than whites, especially among children, sometimes in those who appear in fair condition and often among those who suffer from xerosis. Xerosis and night-blindness, which often go hand in hand, are very rare in white children in my part of the country, while uncinariasis is of every-day occurrence. It would be strange, if night-blindness is caused by the worm, that it should occur so frequently in the negro, who is immune, and so seldom in the white child, who offers a fertile soil. The numerous conditions which have been mentioned by writers, such as retinal hemorrhages, pallor and edema of the retina, haziness of the optic disk and weakened accommodation, are all such common associates and followers of the various anemias that it would take a wide stretch of the imagination to class them as pathognomonic of the disease until much more is known about it than now.

My own experience and a digest of the views of others cause me, therefore, to accept the conclusions of Dr. Jervey as correct until, at least, further investigations shall prove to the contrary.

Dr. F. Phinizy Calhoun, Atlanta, Ga.: My remarks are not a criticism of Dr. Jervey's paper, but a defense of my views presented before this Section in 1911. That ocular changes do occur, no one can deny, and Dr. Jervey's report of fifty-three cases shows a fairly large percentage of eye complications, namely, two cases of retinal hemorrhage and twelve cases in which the retinal veins were congested or tortuous—evidences of circulatory changes. I believe that Dr. Jervey and I agree that eye complications do occur in hookworm disease, and the only real point of difference is whether an anemia or a toxemia is the exciting cause.

Dr. Jervey's views, expressed in the answer to his first question, brings up an old subject in the discussion of hookworm disease, namely, the existence of a toxemia and the cause of the anemia. It was early assumed that the worms attaching themselves to the alimentary wall would lead to hemorrhages and the resulting loss of blood would cause the characteristic anemia. Necropsies have shown only a severe, profuse catarrh of the small intestines and often spots of hemorrhagic infiltration with the worms hanging to it. It does not follow that the worms suck the blood; in fact, Loos insists that their natural food is intestinal epithelium, and although blood is found in the intestines of the worms, the red corpuscles are not digested. These findings led to the belief that hookworm anemia was one of toxemia and not secondary to the loss of blood, and two main theories have been propounded: that the worm directly secretes a toxin, or that this toxin is produced by some extraneous organism, as intestinal bacteria. Numerous attempts have been made to isolate a hemolytic substance, with varying success. As to which theory is correct I do not venture an opinion, but I rely solely on my clinical observations and the words of students of this disease, that a toxin does exist. I, however, have seen cases of great anemia in hookworm disease in which a few worms were found; this is substantiated in one case of hookworm cataract with anemia and few worms. The fact that no specific toxin has yet been positively demonstrated should not lessen our belief that it does exist. Within a few days after the administration of the treatment for the elimination of the worms, the patient's symptoms of malaise and general lassitude disappear, yet it is weeks or months before the corpuscular and hemoglobin elements in the blood approach a normal. Again, chlorosis more nearly than any other chronic ailment approaches hookworm disease in its anemia. In the former, there is the usual development of the genitalia, pubic hair and even a beard, whereas in the latter, all are markedly undeveloped.

We find certain extra-ocular and asthenopic changes associated with disease, many of them present in other serious chronic ailments due to a "systemic ill condition," as Dr. Jervey aptly puts it, but for the more serious intra-ocular findings, such as changes in the retina, choroid and even the lens, I do believe that hookworm disease *per se* is the cause, and not in an indirect way through the anemia, just as circulatory changes of the retina occur in chronic nephritis, diabetes, the cancerous cachexia and even pellagra, analogous diseases in which eye changes, even cataract, have been recorded. Whether we believe in the toxin theory of hookworm disease, or the existence solely of an anemia, lenticular changes in young people can be explained, on account of the anatomic relation of the lens to the ciliary body, iris and humors of the eye which supply its nourishment. Given a hookworm subject who states positively that at one time he saw distinctly and many months after the initial lesion (ground-itch) his sight began to fail, and when extracting a milky-white, soft cataract, there were seen retinal disturbances, such as tortuous vessels and small hemorrhages, which disappeared after the elimination of the worms and health restored, is it not reasonable to suppose that the hookworm was responsible for these changes? Such has been my experience with a case not profoundly anemic.

By no means does it follow that if the eye lesions were caused from a toxin then those patients having the heaviest infection of hookworm should produce the most eye symptoms. I am not sure that the severest cases of anemia, diabetes or nephritis show the most eye changes. I have seen, in a few hookworm patients, eye lesions such as tortuous veins, choroidal changes and spontaneous hemorrhages from the conjunctiva without a profound anemia and the number of worms expelled were in fair quantity.

The existence of any characteristic eye lesion associated with or caused by hookworm disease I myself seriously doubt, but the fact that reports have been made should serve to stimulate certain ophthalmologists and field workers in the disease to the further investigation of the subject and to report their findings. Only from hundreds of such reports can we accurately draw conclusions.

Dr. J. W. Jervey, Greenville, S. C.: I think Dr. Calhoun feels that I have in some way argued against the existence of a toxin in hookworm disease. By no means do I take that stand. There may readily be a toxin. Perhaps there is. I don't know. I know it has never been demonstrated, and that statement was my only reference to toxin. With regard to the other matters, I think the argument is presented in full in the paper.

THE TREATMENT OF ALBUMINURIA IN PREGNANCY *

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A perusal of the literature on albuminuria of pregnancy, during the past forty years, shows that our profession was constantly on the alert to grasp anything new that would offer a chance for improvement. The interest in the treatment never flagged and at the present time we are divided into two great forces, one for active interference and the other for an expectant plan coupled with sedative and eliminative medications.

It is interesting to notice how many are constantly leaving one camp to enter the other.

During 1875 and 1876 I was a student at the obstetric department in the Vienna General Hospital, and carried away wth me the experience and teaching of Carl Braun, Bandle, Spaeth and others. The treatment was eminently conservative. Many deaths of mother and child, as I look at it to-day, have been the result. A less conservative treatment usually killed the child and many mothers were made invalids for the rest of their days by forcible delivery, unless they died of such efforts. I learned to dread this difficulty as I did no other. Every case soon became a study by itself. Every method of treatment had its pitfalls. No method of treatment sufficed for all cases. It became necessary to classify the cases as they came to me. I propose therefore to give the result of such treatment as has been my custom at the bedside.

Fads and fancies have never been indulged in. Such fanciful treatment as extirpation of both breasts found no favor with me. As long as our knowledge of the causation is so meager our treatment must remain empirical and the personal equation of the attendant will be a factor in the result.

While laboratory methods of diagnosis are all-important and must not be lost sight of, the clinical picture and bedside symptoms must ever be our guide for action.

The albuminuric patients who come to us early in their pregnancy and are discovered early are those whose cases rarely give us much trouble. On the other hand, the explosive cases are much to be feared. The former readily respond to diet, hot packs and purgations, especially when the subjective symptoms are mild, the percentage of urea normal, or nearly so, the quantity of albumin little, the skin active and blood-pressure not excessive.

The latter needs heroic measures. During many years of active clinical obstetric practice, I have gradually formulated for myself a classification of the cases as to their severity and treatment. In doing so, one can well separate the cases occurring in the primipara from those of the multipara for reasons to spoken of later.

In discussing albuminuria of the primipara, there are three cardinal conditions which we must consider: (1) the character of albuminuria, (2) the presence or absence of uremic symptoms, and (3) the time to which pregnancy has advanced. From these conditions it has been my custom to consider each case as coming under the following subdivision in regard to treatment. It has been my special effort at all times to do the best I can for the child. It has certain rights which should be respected.

1. A primipara who presents albuminuria of slight or moderate degree with few or no kidney elements and no uremic symptoms at a time before the viability of the child should have close observation, and a salt-free and restricted diet, with an occasional calomel purge. This is all that is necessary and will usually carry the case along nicely.

2. In a primipara before the viability of the child with much albuminuria and many kidney elements, reduced quantity of urea and urine but still no uremic symptoms, we are confronted with a more severe problem, for uremic symptoms with high blood-pressure may supervene at any time. I consider albuminuria of this type before the seventh month in the primipara a very serious condition. At six months and before, I have seen it but once.

Again, calomel purges, with a more restricted diet of milk and green vegetables, rest in bed, and close and constant observation is my refuge for fear the patient may lapse into the next condition.

3. We now come to the condition in which, the child being now viable, there is an increasing and severe albuminuria and many uremic symptoms, as shown by partial blindness, headache, convulsions or even coma. Fortunately the condition at this time is rare, but then also very dangerous.

If convulsions have not set in, and absolute rest, calomel, lavage of stomach and rectum, morphin-chloral, an absolute milk diet and veratrum viride have had no effect in staying the severe symptoms, we should induce labor. In these cases venesection should not be lost sight of. Time is an important element, and if we have missed our chance at an early induction of labor, convulsions and coma may supervene and we shall be driven to a vaginal or cesarean section.

The time has now come when we must empty the uterus and do it with as little injury to the mother as possible.

4. When during the viability of the child there has been a gradual, though increasing, severity of the symptoms, we should still make efforts to stave off the evil hour by such appropriate treatment as has already been spoken of. If, however, the reverse is the case, that is, the albuminuria and uremic symptoms have come on suddenly and with great severity, early delivery by induced labor should be our choice, provided there is sufficient time.

When convulsions have supervened or there is great edema of the retina and headache, the classical cesarean section has been my choice. I have not seen much of the vaginal cesarean section in these cases and it has seemed to me that this is rapidly losing ground with the profession.

5. Until now I have spoken of those cases that have been under careful and constant observation and I now wish to consider the patient as brought to us in convulsions, any time during the last two or three months of gestation and without any symptoms of labor.

If there are lucid intermissions and the patient talks and acts sensibly, I again make efforts to carry her along by the use of calomel and enemas; but if there is much edema by the starvation treatment, veratrum viride or morphin, etc.

When, however, there are no lucid intervals and coma is deep and lasting in spite of blood-letting, it

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

has been my rule to proceed to a cesarean section, because I think that it offers the mother and child the best chances for life and is the least mutilating of all procedures for the former.

A forcible delivery by the vagina subjects her to no end of severe and incurable injuries and usually kills the child. Neither do I think well, therefore, of rapid dilatation, accouchement forcé, or even a turning with the cervix long, narrow and unyielding. Forcible dilatation, no matter how accomplished, with us means injury to the cervix, broad ligament, vagina and to the pelvic floor, and is commonly irreparable.

6. Lastly we arrive at that more fortunate condition when the patient in labor is brought to us in convulsions or even coma with a free dilatation or even a retraction of the cervix. Chloral hydrate, morphin, venesection or veratrum viride followed by the forceps give both mother and child a good chance.

I have had no experience with pituitary extract in these cases. When, however, such a primipara comes to me in convulsions without any dilatation, and not in labor, I have (with much hesitancy at first), since 1900, done cesarean section. My hesitation has lost us many children, about 60 per cent. In the latter half of my experience I have lost but 30 per cent.

Gradually I have had increased confidence, and all expectant treatment in these cases has been abandoned for that method of delivery.

In our treatment of all these cases we must not forget the dangers of chloral, morphin or veratrum viride. The latter is an especially dangerous drug and needs careful supervision.

The greater danger is with the primipara. The multipara rarely presents such violent and dangerous symptoms, but 8 per cent. of my severe fulminating cases were multiparas, and all mothers and children were saved. Albuminuria usually occurs late in the pregnancy, and convulsions and labor often seem concomitant. Those cases which show albuminuria coming on gradually are more easily managed, and I have never seen any untoward results.

During the last fourteen years we[1] have gradually abandoned all temporizing treatment in the cases of severe convulsions and have done the classical cesarean section, and record the death of 10 per cent. of mothers in forty cases, while we lost 45 per cent. of all the children.

Some of these children lived for from six hours to twelve days, but were recorded as lost because they were still in the hospital. During the time that we temporized, say the first twenty cases, we lost 60 per cent. of the children while the mothers' death-rate was 10 per cent.

If we had refused operations in the cases that have been subjected to vaginal interference, the death-rate of the mothers would have been but 5 per cent. None of these patients were in labor; they were all antepartum cases. When we look back to the days of forcible dilatations and delivery, and remember all the invalid mothers, we are glad to record the freedom from the pelvic injuries. Many patients report repeated pregnancies following our work, one as many as seven, with perfect freedom from accidents.

By the kindness of Dr. Bunting of Elizabeth, N. J., I have his report of twenty-nine cases of convulsions carefully tabulated and skilfully treated after the manner of the Rotunda Hospital. He records 17.2 per cent. of deaths of the mothers, and 37.9 per cent. of deaths of the child. Of the latter, 14 per cent. were thought not to have been viable. All the mothers were brought in with convulsions and about 10 per cent. were multiparas with no loss of the mothers and one dead child, one child alive and one child not yet born, the mother having recovered from the illness; 79.3 per cent. of the cases were delivered naturally and about 7 per cent. were forceps cases and a similar number of cases had induced labor.

I am glad to have these figures, as they represent an excellent result of the expectative plan of treatment as practiced by the Rotunda Hospital, of which morphin, repeated as convulsions return, lavage of the stomach and colon, castor oil and croton oil, absolute quietness and starvation are the main features.

This treatment is worthy of our consideration and offers the non-operating obstetricians a good field for observation and satisfactory results. To compare results in various hands I have looked over a few statistics published in 1912. I find that Helsingfors has a mortality of 30.8 per cent. for mothers in the cases of forcible delivery. Nothing is said of the miserable condition of the mothers who have recovered in after-life. Voight of Berlin reports 43.7 per cent. deaths of the mothers delivered by the Stroganoff method and 37.5 per cent. of the children.

The Geneva clinic represents a death-rate from conservative therapy of 52.2 per cent. for the mothers and 61 per cent. for the children. In rapid delivery the mothers' death-rate is 10 per cent. and the child's 12.5 per cent.

Bellingham-Smith reports a death-rate of the mother after conservative treatment of 16 per cent.

Dührssen has 15 per cent. of deaths following active treatment. Our results for the mother and child compare well with these and we shall continue until convinced of something better.

1002 Broad Street.

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[1] The cases reported are those of Dr. Charles L. Ill and myself and our assistants.

TREATMENT OF THE TOXEMIAS OF PREGNANCY *

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In recent years our conception of the toxemias associated with pregnancy has assumed an entirely new aspect. We are now beginning to realize that all the symptoms incident to gestation are secondary to some substances circulating in the maternal blood-stream, which have their origin in the products of conception; that is, from the fetus or placenta, or perhaps from the rapidly growing uterus. The severity of the symptoms depends on the quantity of these substances thrown into circulation, and also on the ability of the mother to react to these substances.

Heretofore all our investigations were directed to the changes found in the kidney, liver and even the brain, and the symptom-complex was attributed to the alteration of function in these organs. The pathologic changes found in the various organs, in patients who succumbed to one of the toxemias of pregnancy, are at present considered secondary to the effects produced by the foreign substances circulating in the maternal blood-stream.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The nature and exact origin of these substances is as yet not definitely known. The preponderance of clinical investigation, however, points to the fact that these symptoms of intoxication are due to a protein substance found in the blood-stream of the pregnant woman and never present in the non-pregnant state.

CAUSATION OF TOXEMIAS OF PREGNANCY

The studies and observations of Abderhalden prove conclusively that there is a definite reaction in the serum taken from the pregnant woman and that the blood undergoes great changes. The recent studies of Rubsamen and Schwartz and others prove that the serum taken from cases of the various forms of toxemias has a markedly deficient, or an entire absence of, cleaving power. Investigations as to the cause of the onset of labor, recently published by von der Heide, Weltz and myself, I believe, furnish additional proof that the various conditions associated with the toxemias of pregnancy have their origin in the maternal circulation. Heide considers his results in reference to the onset of labor as an anaphylactic reaction. He thinks that normally the birth act is brought about by the slow transmission of fetal substances into the blood of the mother which gives rise to the formation of antibodies — "labor substances," as he terms them. Toward the end of gestation these substances are transmitted to the blood of the mother in excessive amounts. That there is a deluge of these substances is proved by the contractions which arise in the last weeks of pregnancy and also by the uniform results obtained by the injection of fetal serum in inertia.

The whole range of the toxemias of pregnancy, and especially eclampsia, should be viewed from the point of view of the maternal circulation overcharged with foreign protein substances. In eclampsia, we have many clinical manifestations pointing to this. The sudden onset of symptoms and their sudden disappearance, the sudden changes found in the urine and their sudden disappearance, the more frequent occurrence of toxemias in primiparas and the fact that eclampsia is more frequent in twin pregnancies tend to prove that these manifestations have their origin in the fetus and placenta.

Wolff-Eisner has proved positively that during pregnancy foreign protein substances are continually thrown into the circulation of the mother and that these substances under certain conditions bring about a state of eclampsia. He contends that eclampsia must be considered as the rarest and most severe form of those symptoms dependent on the absorption of foreign albuminoids. The single manifestation of the absorption of foreign substances during pregnancy stands in the same relation clinically as the varied reactions due to the absorption of the pollen protein, harmless conjunctivitis on the one hand, and severe asthmatic attacks on the other, both caused by the absorption of the same pollen protein.

I believe that the references cited above and the observations of many others will ultimately establish the fact that the toxemias of pregnancy are invariably due to a disturbed metabolism, or to be more exact, a loss of metabolic equilibrium in the mother, produced by some foreign substance originating in the fetus or placenta. Normally, these foreign substances are neutralized by the formation of antibodies and therefore no harmful effects result in the greatest number of cases. If, however, the mother is unable to produce a sufficient amount of antibodies or, on the other hand, if the production of foreign substances is disproportionately great, the equilibrium of the maternal metabolism is disturbed, resulting in one of the forms of toxemia.

TREATMENT

Having formulated a probable underlying etiologic factor for the toxemias of pregnancy, we shall now turn our attention to their treatment. Clinically, we recognize two definite varieties of intoxications: (*a*) those occurring in the early months of pregnancy characterized by nausea, morning-sickness, which in a good number of cases if not properly attended to terminates in the severe intoxication commonly known as the pernicious vomiting of pregnancy, and (*b*) those occurring in the last three months of pregnancy, characterized by headache, dimness of vision, slight epigastric pain, an appreciable rise in the blood-pressure and appearance of albumin in the urine. Practically all these cases, unless promptly attended to, terminate in eclampsia, with all its accompanying pathologic complications.

Our success in the treatment of these conditions must depend primarily on the ability to recognize the premonitory signs and symptoms which are always present as a danger-signal. We have succeeded in educating the profession at large to the fact that there is a definite preeclamptic stage, and therefore in carefully observed cases, eclampsia is usually prevented. Unfortunately the same cannot be said to be true of toxemias occurring in the early months. This is so, for in the majority of cases we do not give serious thought or consideration to the patient until symptoms of pernicious vomiting have set in, and it is then often too late for treatment. We must now come to realize that as there is a definite preeclamptic state, so is there also a premonitory stage to pernicious vomiting, which should be easily recognized. Given a case of persistent vomiting and retching, bearing no relation to the intake of food, with an appreciable increase in the pulse-rate, and beginning signs of emaciation, the case, if not attended to and allowed to continue, will terminate fatally.

In the light of experience, I dare say that prophylaxis is the key-note to the successful treatment of all forms of the toxemias of pregnancy, and that no case which is carefully observed should be permitted to reach a stage of pernicious vomiting or eclampsia. Our attitude in these cases must be, and unalterably so, that if the patient does not promptly respond to treatment, pregnancy must be quickly terminated. No one, no matter what his experience may be, can undertake to foretell how rapidly the patient's condition may reach a point which will defy any and all of our known therapeutic measures. Our duty, therefore, is to conserve the life of the mother primarily, and no treatment is justifiable which tends to save the child at the expense of the mother.

Experience has taught us that toxemias of pregnancy usually do not recur. On the contrary, we have come to believe that once a patient has passed through one of the forms of intoxication associated with pregnancy, she has probably become immunized against future recurrences. Formerly pregnancy was forbidden to a patient who had had eclampsia, while now we do not consider it an obstacle to future pregnancies

In the course of my investigations with fetal serum to cause the onset of labor my attention was first directed to the possibility that the toxemias are caused by some foreign protein substances circulating in the maternal stream which have their origin in the product of conception. Case 19 of that series was that of a woman who was admitted to the hospital with severe symptoms of threatening eclampsia. She had severe headache, disturbance of vision, slight edema of the lower extremities with a history of having passed very little urine during the past twenty-four hours. Examination of urine showed it to be full of albumin and casts. In view of the clinical findings, induction of labor was decided on. The patient was a relative of one of the nurses on the hospital staff. The various methods of induction of labor, including the use of fetal serum, were suggested. She was asked if she had any objection to the use of the serum. Her answer was "to use my own discretion in the case."

I decided to bring on labor by the use of the serum, and not only did it cause the onset of labor, but also the urinary symptoms cleared up after the first injection, all toxic symptoms improving before labor actually set in. Realizing the possible therapeutic value of placental serum in late toxemia of pregnancy, I decided to make use of it in early toxemia, that of pernicious vomiting.

How does the serum act? If it is true that foreign substances which are of toxic nature are constantly thrown into the circulation of the pregnant woman, we are naturally justified in assuming that all women who pass through pregnancy and labor normally must of necessity produce certain neutralizing elements which counteract these toxic substances. Therefore the injection of serum from a normal healthy pregnant woman into one who for some reason is unable to produce these antibodies will not only actually add these neutralizing substances, but also stimulate the circulation toward an increased formation of them.

In order thoroughly to study and arrive at a definite conclusion of the effects produced by the injection of serum in the various toxemias of pregnancy, it is necessary to begin treatment early, before the maternal system is saturated with these toxic substances. In early cases the therapeutic effect of serum should be almost spontaneous. Unfortunately we have not the opportunity of seeing the patient until the condition is far advanced, all remedial measures having already been tried without avail. The patient is then brought to the hospital usually emaciated, with high pulse-rate and all the signs and symptoms of exhaustion. In the latter period of pregnancy, the patient has either had convulsions or is threatened with one. At this stage no amount of serum can possibly be of any value, for not only will the quantity required to counteract this advanced intoxicated condition be too great, but the time lost by this treatment added to the uncertainty of the outcome compels us to resort to a safer method, namely, the prompt interruption of pregnancy.

The advantage of the serum treatment is that if improvement is to take place, it is usually noticed very early, and if after a trial of from thirty-six to forty-eight hours the patient fails to show signs of improvement, it should be discontinued. My experience with the use of placental serum consists of four cases of pernicious vomiting and three cases of threatened eclampsia.

Case 1.—History No. 3808. Mrs. J. G., aged 28; primipara, Russian, wife of dentist, patient of Dr. P. Hurowitz, menstruated last, Sept. 10, 1912. She gives history of persistent vomiting for the past five weeks; was confined to bed the last four weeks. She lost a good deal of weight, and seemed exhausted. Interruption of pregnancy was advised by attending physician. I saw her at her home with Dr. Hurowitz, November 21. We decided to remove her to the hospital and try the injection of fetal serum, and if no signs of improvement were noticed within from thirty-six to forty-eight hours, to induce an abortion.

She was admitted to the Jewish Maternity Hospital the same day. Urine showed slight traces of albumin; urea normal; specific gravity, 1.012; some granular casts. Blood-pressure was 95. Ten c.c. of placental serum was injected intramuscularly at 5:50 p. m. Patient continued to vomit. At 8 p. m., 10 c.c. of placental serum was again injected. Patient felt somewhat nauseated but did not vomit. She slept from 12:30 to 5:50 a. m. and did not vomit during the night.

November 22, 10 a. m., 10 c.c. of placental serum were injected into the right thigh. Patient did not vomit during the day but felt highly nauseated; passed 35 ounces of urine during the twenty-four hours.

November 23, patient did not vomit but complained of pain in the back and abdomen and of a slight headache.

November 24 and 25, patient felt very much improved.

November 26, general diet was given. She continued to improve and was discharged from the hospital November 28.

Patient remained well until December 7, when she again commenced to vomit. I was not notified until December 10, when I saw her again. She appeared quite exhausted. She was readmitted to the hospital on the same day. At 4 p. m. 10 c.c. of placental serum was injected and a second injection of 10 c.c. was given at 8 p. m. Patient did not vomit until 11 p. m.

December 11, 2 p. m., 15 c.c. were injected. Blood-pressure 110. Patient felt very much nauseated but did not vomit. At 8 p. m. she began to vomit quite severely. Ten c.c. were again injected.

December 12, 1 a. m., patient vomited fluid tinged with blood, but did not vomit any more during the night.

December 13, patient vomited once, but felt nauseated the entire day. December 14, patient complained of pain in the abdomen; vomited once at 9 p. m. and felt nauseated.

December 15, 10 c.c. of serum again injected. Patient did not vomit. General condition better. December 16, patient vomited twice, felt weak. December 17, she vomited a few times but did not seem to be affected by it; felt much better.

December 18, patient vomited a few times and felt nauseated. At this stage of her illness her general condition was very much better. While she still vomited a few times she retained a good deal of food. I commenced to give her 2 drams of the placental serum by mouth, every two hours. Patient still vomited occasionally until December 22, when her vomiting ceased.

She remained in the hospital until December 31, and was discharged in good condition.

Case 2.—History No. 3946. S. B., aged 20, primipara, pregnant eight weeks, was confined at Mount Vernon Hospital in charge of Dr. Goodwin. General condition was very poor. It was doubtful if she could withstand interruption of pregnancy. Her pulse remained between 140 and 150. I suggested to Dr. Goodwin to try placental serum as there was not much to lose. Patient was transferred to the Jewish Maternity Hospital the same morning, Dec. 30, 1912. At 3 p. m. 12 c.c. of placental serum were injected intramuscularly. Patient still continued to vomit. Two drams of serum every two hours were given by mouth.

December 31, patient continued to vomit, but general condition was better, conjunctivae less jaundiced.

January 1, pulse dropped to 108 and patient was vomiting less; she retained a certain amount of a koumiss preparation.

January 2, general condition was much better; pulse between 108 and 116; patient complained of some headache.

January 3, patient was put on general diet and during the following ten days of her stay in the hospital she gradually improved, vomiting only occasionally. She was discharged, January 13, in good condition.

Case 3.—History No. 4023. A. G., patient of Dr. Ralph Waldo, admitted to Lebanon Hospital, Feb. 24, 1913. Tertipara. Three weeks prior to her admission she began to vomit and at the same time to lose weight. Urinary examination showed traces of albumin, 7½ grains of urea to the ounce and a few hyaline and granular casts. Notwithstanding all treatment, patient continued to vomit. March 7, at the suggestion of the pathologist, Dr. E. Bernstein, 15 c.c. of placental serum were injected intramuscularly. Patient vomited half an ounce of greenish fluid. An hour later she began to retain some broth and soup. March 9, 10 c.c. of serum were again injected. Patient was taking more nourishment. March 11, patient developed erysipelas of the right ear and face. March 13, patient died while expelling the fetus.

Case 4.—Patient of Dr. Dorsey M. Lewis of Middletown, Del., aged 38, sextipara, menstruated last Oct. 6, 1911; admitted to the Jewish Maternity Hospital, May 12, 1912, with the following history: Three weeks prior to her admission, patient commenced to have severe headaches and general weakness; felt nauseated and vomited two or three times a day. At the same time she noticed that her sight was failing. On admission patient gave all the classical symptoms of an impending eclampsia. Induction of labor was decided on and at the same time 10 c.c. of placental serum was given intramuscularly.

May 13, patient had a comfortable night, headache slightly better. Blood-pressure fell from 238 to 180.

May 14, catheter was removed as it failed to produce uterine contractions. Patient was again injected with 26 c.c. of placental serum. Her general condition was much better; passed a greater quantity of urine and eyesight improved. Blood-pressure 165.

May 15, general condition good; patient felt comfortable. Blood-pressure 190. Five c.c. of serum again injected.

May 16, patient much brighter, was able to write address on an envelope. Five c.c. of serum given.

May 17, patient began to complain of slight abdominal pain. At 9 p. m. active labor pains set in and patient was delivered at 11 p. m., child weighing 4 pounds 11 ounces, and alive. Patient gradually improved and was discharged May 29. In this patient I am not certain what caused labor to set in as the catheter was removed three days prior to the onset of labor. It is questionable whether the continued use of placental serum did not incite uterine contractions. The general improvement noticed after the first injection of the serum, however, no longer made me feel concerned as to the termination of labor.

Case 5.—D. M., aged 30, secundipara, menstruated last June 15, 1911. Admitted to the hospital March 4, 1913, complaining of severe headaches, dimness of vision and slight edema of the legs. Urine was full of albumin, and hyaline and granular casts. March 5, at 2 p. m., patient was injected with 11 c.c. of placental serum, intravenously. After the first injection she appeared improved, the albumin and casts diminished in quantity, she developed a polyuria, and in three days all the symptoms pointing to eclampsia disappeared. March 6, patient was again injected with 22 c.c. of placental serum. March 7, another injection of 20 c.c. was given. She was delivered March 7, at 3 p. m., of a female child weighing 8 pounds. In this patient the serum was used to cause the onset of labor, as mentioned above.

Case 6.—A. S., aged 28, primipara, had two miscarriages, first in the fifth week, second at two months. Menstruated last Dec. 1, 1912. About two weeks later, patient began to complain of some distress over the lower portion of the sternum. Same continued until about January 15, when she began to vomit, increasing in severity and not limited to any period of the day.

She was admitted to the Jewish Maternity Hospital March 17. Fifteen c.c. of placental serum were given intramuscularly with no appreciable effect. Two drams of the serum was given every two hours by mouth. March 18, 10 c.c. of serum were injected; patient still vomited, but general appearance was better. Blood-pressure 120. March 19, 20, 21 and 22, patient's condition was better; she retained some food. March 23 and 24, patient felt much worse, did not retain any food, very restless and had severe headache. Blood-pressure 111. Patient felt slightly better on the 25th, 26th and 27th. March 28, patient grew worse and I decided to inject the serum intravenously. Ten c.c. were given. Patient had slight reaction and some precardial pain lasting about five minutes. The following day the patient did not vomit. March 30, patient once vomited during the night. March 31, patient began to vomit again, but not so severely. Partly retained food. Urine analysis showed no albumin or casts.

The diet for these patients was not limited. The nurse was instructed to give them all the food they asked for. As a general principle they were given lesser quantities at more frequent intervals. Vomiting was not a contra-indication for food. The patients' preference for a particular variety of food was always attended to. They were all given large quantities of water to drink. As a rule, they were kept in bed, and as soon as the general condition improved they sat up on a chair and even walked about the room. These patients as a rule do not sleep and are restless, and this was controlled by trional in sufficient doses. Sleep is essential in these cases of exhaustion.

ECLAMPSIA AND ITS TREATMENT

The great advance of surgery in recent years, and the safety with which the entrance into the peritoneal cavity has been made, very naturally have opened a new field for the relief of this condition, and the treatment of eclampsia soon became a battle-field for those who held opposing views.

The maternal and fetal mortality has always been so great that the obstetrician was very eager to avail himself of procedures, radical in nature, but surgically apparently correct, and based on sound reasoning. This brought forth two distinct groups of men: (*a*) those who advocated the immediate emptying of the uterus, either by vaginal or abdominal cesarean section, and (*b*) those who adopted a watchful waiting policy, and treated the convulsions, instead of striking at the root by interrupting pregnancy.

At this juncture, I wish to state that while statistics are mathematically correct, still the point of view of the author is usually injected into them, and of necessity they may be in a measure so influenced that their intrinsic value is partly lost. We cannot and should not treat our patients dogmatically. No two cases in medicine act alike. To adopt a general rule and apply it universally eliminates one's personal experience and judgment. Particularly is this true in eclampsia. In our experience we seldom found two cases which acted exactly alike and in which precisely the same form of treatment could be instituted. Therefore to maintain that every case of eclampsia must be treated by a radical surgical operation is just as wrong as to assume that eclampsia must be let alone and treated medically.

How then are we to proceed in the treatment of this condition? Are we to adopt one or the other of the two methods, or are we to individualize our patients and institute treatment accordingly?

I believe that eclampsia is produced by some toxic substance circulating in the maternal blood, the origin of which is most probably in the products of conception. In order to cure the patient we must remove the cause, and, therefore, pregnancy should be terminated. By the interruption of pregnancy, we in a great majority of cases tend to help accomplish what Nature has already begun to do. It is well known that in a great number of cases of eclampsia, Nature tries to relieve herself of the intoxication by causing labor to set in. In the management of all obstetric conditions there is one underlying principle, namely, that our treatment should as far as possible imitate the natural processes which take place during labor, and any radical departure from the normal will tend to endanger the life of the patient.

Close observation by the experienced obstetrician will disclose the important fact that the fatality of eclampsia depends on the degree of toxicity and not on the presence or number of convulsions. We have seen patients die after a single convulsion, and on the other hand, we have seen recovery take place after twenty and more convulsions.

The cardinal signs and symptoms by which we may judge the degree of toxicity clinically are the quantity of urine excreted, ascertained by catheterization (absence of, small quantity of, or highly bloody urine always points to a grave prognosis) ; absence of lucid intervals between convulsions, and high pulse-rate. The presence of one or more of these signs bespeaks a grave prognosis. On the other hand, if the quantity of urine excreted is not greatly diminished, with a pulse-rate under 120 and with a more or less clear mental state between convulsions, the prognosis is correspondingly more favorable.

From the foregoing it may be seen that clinically eclampsia may be of varying degrees, and the mode of treatment instituted always depends on the degree of intoxication which we are called on to combat.

During the past six years, in the services of the Jewish Maternity and Lebanon hospitals, I have had the opportunity of observing ninety cases; sixteen patients died, and of this number three died intra partum, shortly after they were brought to the hospital, before treatment could be instituted, thus leaving thirteen cases as a post-delivery mortality, or 15.5 per cent.

When it is realized that the greatest proportion of these were emergency ambulance cases, in charge of midwives or the family physicians, all patients having had a number of convulsions previous to admission to the hospital, I think that the percentage mortality is not unduly high.

In this series of cases all recognized forms of treatment were carried out. The method usually adopted depended on the period of gestation and the rapidity with which delivery had to be terminated, as evidenced by the clinical signs and symptoms. In cases in which labor had already set in, delivery was usually completed by manual dilatation, or by dilating-bags, followed by forceps or breech extraction. Patients in whom the toxemia was apparently mild, having absolutely lucid intervals between convulsions and in whom the pulse-rate was not affected to any degree, were treated by catheter or dilating-bags, in order to have labor set in. Patients in whom eclampsia occurred before the seventh month, with severe toxemia, were delivered by Dührssen incisions. I believe that in this class of cases, high incision of the cervix is the ideal method for delivery.

Delivery by vaginal cesarean section was adopted in all eclamptic patients not in labor, with long and rigid os during the seventh and early part of the eighth months of gestation.

Abdominal cesarean section was performed during the last four or five weeks of pregnancy in primiparas having the severe toxemia, not in labor, with long and rigid cervix. In this class of cases abdominal section has a definitely useful field. While it may add a slight additional risk to the mother, the margin of safety for the child is so great that, to my mind, it justifies this procedure. Vaginal cesarean section in these cases should never be the operation of choice, for the operator may encounter many obstacles which will complicate the operation and which at the same time endanger the life of the child. These patients, in order to have the best show for recovery, must be delivered in a minimum time and with the least possible trauma. This is not readily accomplished by adopting the vaginal route.

The routine medicinal treatment used for controlling the convulsions consisted in large doses of fluidextract of veratrum viride, associated with small doses of nitroglycerin. Morphin in large doses was used in patients who were restless between attacks. If the convulsive seizure was severe and seemed to exhaust the patient, ether was administered. In my experience, no one of these drugs seemed to exert any specific action. Venesection and drawing off from 10 to 16 ounces of blood was resorted to in plethoric patients with high blood-pressure. This procedure tends to relieve the congestion of the viscera and at the same time withdraws a certain amount of toxins from the system.

CONCLUSIONS

The purpose of this paper is primarily to point out the very important fact that the toxemias of pregnancy cannot always be treated by either the radical or the conservative methods, and that the clinical varieties of eclampsia are such that no one method is applicable to all.

While I believe that the uterus should be emptied in all cases of eclampsia, still each case must be individualized in order that the proper procedure may be adopted. Finally, I believe that if an active campaign of education would be instituted among the physicians as well as the public, and attention called to the fact that there is present a definite preeclamptic stage and that there are premonitory symptoms in pernicious vomiting of pregnancy, the mortality and morbidity of the various toxemias of pregnancy could be greatly reduced or even entirely eliminated.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ILL AND RONGY

Dr. Asa B. Davis, New York: That which we should strive for is, first, to prevent eclampsia, to avoid the necessity of radical medical or surgical procedures. I believe that our progress in saving these mothers and children will be by close, watchful care of the pregnant women from early pregnancy until after the puerperium is safely over. And to that end I think we all need to recognize, as we are more rapidly recognizing, that the pregnant state is not a simple one, and that at any moment it may become most serious and threatening. For that reason the pregnant woman should receive more careful consideration than is the general custom to-day. We can do much to prevent these severe toxemias by the careful regulation of the patient's life; also, when the complications do arise, by treating them while they are yet simple. Often, in primiparas, we see transitory albuminuria which, left in that state, amounts to very little; but when casts appear, hyaline and granular, we usually have with that condition an excess of indican, an increase of acidosis, poor elimination. If the patients were treated at this time as we treat them when in a more dangerous condition, we would soon tide them over this threatening period and they would be restored to comparative safety. We can do much by elimination, rest, diet, protection from exposure to cold and from undue nervous strain at such times. Relative to the difference between the toxemias of early pregnancy and those of later pregnancy, we find that in the so-called pernicious vomiting, some patients can be controlled and carried along until these symptoms subside. In other cases, treatment, except emptying the uterus, seems to have no effect on the condition. We have noticed that emptying the uterus in these early cases is not resorted to as readily as in cases in the later stage of pregnancy when convulsions have or have not occurred. It is, therefore, not safe to allow these cases to go to the extreme time, as we do in the later months of pregnancy. The tendency is to be more conservative in the treatment of these toxemias of pregnancy and labor. There are encouraging reports of resort to this conservative method; but I believe that, in the face of active symptoms—an active clinical picture—we must, as has been said, consider each case individually and treat it accordingly, whether that is elimination by every channel of waste. In many cases we are forced to such a process if we are to save our patient.

Dr. Philip Marvel, Atlantic City: Two points which have not been brought out are: the importance of observing the hypertension in these cases, and the use of pilocarpin. I think those of you who have followed these cases from their incipiency will agree with me that hypertension is one of the most important persistent symptoms which gives some definite knowledge of the fact that there is in a particular case some pathologic condition growing, so to speak. I believe, as the last speaker stated, that in these cases the pathologic condition is secondary. I also think that eclampsia is undoubtedly one of primary toxemia, whether it be due to the foreign protein matter that is circulating in the maternal blood—as Dr. Rongy has mentioned—or whether it be due to other foreign substances, we are not yet, so far as I know, in a position to give its definite cause; but, be that as it may, I think most of us who have seen a number of these cases, have observed a continuous rising hypertension. Various ways have been suggested for reducing hypertension in other conditions, not all of which are advantageous in eclampsia. I am prepared to say that in two cases I have used a remedy which is worthy of consideration. It is pilocarpin. In the two cases in which I have used pilocarpin, I did so in the dose of 1/50 of a grain three times a day with fair quantities of water, and in both cases it was noticeable that the hypertension began to fall in twenty-four hours. Elimination was very much increased, and the patients both did well. I know not whether this was a mere coincidence, or whether the drug may have had some strong therapeutic influence. In the medical treatment of this condition I think it is well worth our further trial, and I recommend that its possible advantage be kept in mind.

Dr. M. H. Fussell, Philadelphia: The key-note of the family doctor's procedure in labor cases, as well as in his general work, must be the education of his patients and eternal vigilance in his diagnosis and treatment of them. He must tell his obstetric patient that she must be under his care continually from the time of conception until she is properly dismissed in the puerperium. The care the woman needs, and in which she must be instructed, is to prevent, to recognize, and to cure her toxemia at the onset. The diet of a pregnant woman should be ample in food value, but easily assimilated, and not irritating to the kidneys and the liver, consisting of carbohydrates, fresh vegetables, meat once a day in such proportions as will freely nourish the patient but will not irritate the kidneys and the liver, which need to be fully active in order to take care of the metabolic products dependent on pregnancy, and on which toxemia depends. Exercise should be regulated to be neither so excessive that the woman will be exhausted, nor so slight that there will be a retention of by-products of digestion which will irritate and perhaps make inefficient both the kidneys and liver—for on the efficiency of these two great eliminators depends the freedom from toxic symptoms. Therefore, continuous, routine examination of the urine is absolutely necessary in every pregnant woman. The examination must be made every two weeks at the beginning, and every week later on, in normal cases. If any sign of insufficient action of the kidneys, such as albumin or casts occurs, then a daily examination must invariably be made. Albumin not of renal origin is a common occurrence in the urine of pregnant women; hence when albumin appears a microscopic examination must always be made. The use of the phenolsulphonephthalein test is of great importance. High blood-pressure in pregnant women is of the most serious import, whether or not there is albumin in the urine. The pressure should be taken regularly every two weeks, and later every week. A gradual rise must lead to treatment. The symptoms indicative of toxemia are: headache, indigestion, pain in the epigastrium, edema of the legs, disturbances of vision, drowsiness, unconsciousness and convulsive seizures. When suggestive symptoms occur and when blood-pressure begins to rise, when albumin appears in the urine, the patient must at once be put to bed, diet reduced to milk, and the patient sweated and purged and in severe cases bled from the arm. With care in the use of these potent remedies, many cases will become non-toxic, then the patient can be allowed out of bed, the diet can be gradually increased, and the patient allowed to go about her duties, but such cases need constant watching.

Dr. Charles S. Bacon, Chicago: Every care must be taken of the patient as soon as she shows any sign of toxemia. Many believe in interrupting pregnancy early in cases of pernicious vomiting. That is often an excuse for the interruption of pregnancy and has led to some harm. I have, until quite recently, been opposed to this position. I was influenced first by the great experience of Shauta, who found that it was possible to carry the cases through without interruption of the pregnancy. I have persisted very often in the very serious cases, but recently the results in a number of cases have made me very doubtful about the wisdom of that course. I have found that the toxemia of early pregnancy is often followed by the toxemia of later pregnancy with albuminuria, and finally eclampsia has not infrequently followed the pernicious vomiting. This has led me to believe that in the very serious cases it is probably better not to try too long to carry through the pregnancy without interruption.

Dr. Joseph B. DeLee, Chicago: Statistics have only a relative value. Whether the statistics regarding the treatment of puerperal eclampsia speak for this, that or the other treatment, makes little difference to the man who is treating the case. The man who has experience in a certain number of cases will be able to draw conclusions as to the best method of treatment regardless of statistics. I therefore feel that the individual experiences of men if they are capable of judging is worth very much more in discussion than statistics. I consider the eclampsia as yet an unknown quantity. We do not know the cause of these toxins which we believe are circulating in the blood and which upset metabolism, neither do we know the chemical nature of these toxins. When we meet a woman suffering from the effects of these toxins we know nothing, therefore, about the nature of her suffering. We do know this, however, that the ultimate cause of her toxemia is the pregnancy. If she were not pregnant she would not be toxic, and, therefore, the quickest and safest way—from that point of view, mind you—of curing this so-called toxemia is to remove the pregnancy. Is rapid delivery more dangerous than the toxemia itself? That is a matter of individual experience and practice. I, therefore, place myself on record in favor of the active treatment of eclampsia. Since we cannot remove the toxemia I believe that I am treating my patient best by removing the pregnancy which is the cause of the toxemia. One other point regarding the treatment of early toxemia of pregnancy: We are still more in the dark regarding the treatment of pernicious vomiting of pregnancy than we are the treatment of eclampsia. I do not always know when I have curetted the uterus in pernicious vomiting whether I saved the patient's life, or whether it was necessary at all. I have had several cases in which the women have had fever, actual jaundice, when I thought even that I detected a diminution of the area in the liver dulness, when there has been albumin in large amounts, blood, granular and hyaline casts in the urine, when sugar has been present and pentose discovered, when under the influence of purely nervous method of treatment—psychic, you might call it—the woman suddenly spontaneously recovered. Therefore, I feel that there is an element in these cases of early toxemia at least, which is absolutely terra incognita, and that our treatment is more and more empirical.

Dr. Charles L. Bonifield, Cincinnati: Dr. Ill said he thought he had seen a patient die from the influence of veratrum viride. He made another remark afterward with which I could not agree—that veratrum viride was a very dangerous drug. If this were true, I and a number of friends would surely have killed a large number of patients, because we use it frequently. We use it in what the text-books would call very large doses. If I believed a patient to be suffering from eclampsia and she had a high blood-tension and a pulse anything over a hundred, I should not at all hesitate to give her 30 minims of Norwood's tincture, or its equivalent hypodermatically at once, repeating the dose with 10 drops every hour until the pulse came down to 60. I have seen this done so many times with nothing but beneficent results that I cannot believe that veratrum is a very dangerous drug. One other thing I would emphasize. We hear mentioned the use of morphin and veratrum at the same time. They are physiologic antagonists. If you have a patient suffering from veratrum poisoning and become alarmed, give a hypodermatic injection of morphin and she will usually recover in a short time. In and around Cincinnati, where veratrum is largely used, I have never known of a death. Our only guide in the use of the drug is to bring the pulse down to 60. Usually if you get it below 60 the patient will not have a convulsion. The last case I saw of this kind was two weeks ago. When I arrived the family physician had given the patient 60 minims in divided doses. Under my instruction he gave her 20 more. I had the pleasure of seeing her regain consciousness while I remained in the room. I believe in operations. The indication always is to empty the uterus, because the pregnancy is causing the convulsions. We must get rid of it in the way that causes the least shock to the nervous system, because we know from experience that these patients can be thrown into convulsion by a noise or slight trauma. Therefore, some procedure that can be rapidly done under an anesthetic seems to me to be indicated, such as, in the early months, vaginal cesarean section; in the later months, abdominal cesarean section.

Dr. Edward J. Ill, Newark, N. J.: Concerning Dr. Marvel's suggestion of pilocarpin, we used that years ago and have discarded it. It is apt to produce dangerous symptoms, among them an excessive bronchorrhea. The cases that come to us early are not the dangerous cases. The dangerous cases are those in which you find albuminuria in large quantity to-day while yesterday there was neither albuminuria nor a high blood-pressure, or those in which convulsions occur to-day while three days ago urine and blood-pressure were perfectly normal. Those are the cases which so commonly need a cesarean section. Such cases usually follow a big dinner. My impression is that one of the causes of albuminuria might be found as a result of damaged kidneys from scarlet fever contracted during early life. It certainly has been true in a large number of cases. We are told by one of the speakers that statistics are of use only to the man who is giving them. Commonly, I should say that the man that gives us no statistics either has none or else they are so bad that he does not care to publish them. My experience has been that the pernicious vomiting in pregnancy occurs most commonly with a pernicious doctor, or with one who is too comfortable to exert himself. During thirty-nine years of active practice I have been obliged to induce abortion but twice for pernicious vomiting.

Dr. A. J. Rongy, New York: With reference to pernicious vomiting, I have seen four women die because the uterus was not emptied before they reached the fourth month, and possibly many more would have died if pregnancy had not been interrupted. I do not advocate the emptying of the uterus in the early months of pregnancy unless there are definite signs and symptoms of severe toxemia. The same treatment is suggested in late pregnancy. In patients in whom there is a persistent pulse-rate over 120, with emaciation and vomiting regardless of the intake of food, the uterus should be emptied. Even should you carry such patients through four or six months of pregnancy, they may still develop toxemia in the later stages. Simple albuminuria is of no importance, unless it is accompanied by headache and general malaise. The constitutional symptoms accompanying the albuminuria warn us of danger. One of the most important symptoms so far as the toxemia is concerned, is an appreciable increase in blood-pressure. The keynote of the matter lies in the prevention of pernicious vomiting of pregnancy and of eclampsia. We have definite premonitory signs in pernicious vomiting of pregnancy. We have definite signs in the preeclamptic state. Our duty is to educate the general practitioners to give careful attention to these patients.

MOLD FUNGI, STREPTOTHRIX FOERSTERI, RECOVERED FROM THE GASTRIC CONTENTS

Camp Stanley, M.D., Washington, D. C.

The subject of gastric mold is one of great interest because of the absence of authentic information, and the great difference of opinion as to the pathogenicity and the systemic effects of organisms closely associated with the mold fungi. The part which mold fungi and the streptothrix play in producing pathologic conditions of the stomach has been interpreted by clinicians in many ways. It appears to me to be of the utmost importance to determine their relationship to disease. It is not my purpose, however, in this paper to delve into the intricacies of the bacteriologic side of this interesting condition, but simply to outline the work which was done in this case. The following is the case history:

Nov. 3, 1913, Mr. B. was referred to me for treatment. His condition was one of subacid gastric catarrh and spastic constipation. Early history was negative. Physical examination revealed a thin, pale man, aged 36, of deficient muscular development. The lungs were apparently normal. The heart was normal in size and position, with a slight lesion at the aortic valve, the maximum intensity being in the second interspace to the right and not transmitted. Blood examination revealed: red blood-cells, 4,280,000; hemoglobin, 80 per cent.; leukocytes, 8,000. The differential count was normal. The urine showed a faint trace of albumin and no casts; indican was strongly positive; specific gravity was 1.016. Examination of feces revealed a catarrhal stool of offensive odor, mucus strongly positive, and a positive reaction for occult blood on a meat-free diet, undigested food.

The night preceding the morning test breakfast I instructed the patient to eat a light meal consisting of soft eggs, toast and milk and at 7:30 the next morning to take one slice of toast and two cups of hot water. At 8:30 I withdrew this and noticed in the return a flocculent reddish-pink mass about the size of a walnut. At this time it looked as though it might be a piece of gastric mucous membrane, but later under the microscope it showed the typical mold formation of mycelia and spores. Its cultural characteristics are as follows: It grows well aerobically but very poorly anaerobically. On liquefied gelatin it grows slowly, the growth appearing on the surface as honeycombed depressions lined by a fractured chalky-white crusty membrane. A slight brown coloration was imparted to the gelatin just beneath this membrane. On plain and glycerin agar the growth appears as a crumpled or convoluted white membrane which later becomes tinged pink and is somewhat moist. On bouillon the growth appears only on the surface and resembles that first seen on the agar-tubes; no coloration is imparted to the fluid. On potato a grayish-white crumpled dry covering with no tendency to spread is seen. In milk, growth takes place only on the surface, and is of a white to pink color; the milk is not coagulated. Microscopically, true branching threads are seen and in old cultures spore-like bodies are distinctly visible within the threads. Motility was not observed. The filaments stain well with methylene blue and by Gram's method. There is no musty odor as is frequently present in other varieties of this group.

To test its pathogenicity to animals, two pigs were injected intraperitoneally and subcutaneously. One pig died on the seventh and the other on the ninth day. Sections from the internal organs were made and nothing was found, showing quite clearly that they died from the toxemia.

I sent a culture to the New York Post-Graduate Laboratories for identification of the species and they suggested that I consult Dr. Charles Thom of the Agricultural Department. This I did and the following is the report of the chief of division of pathology:

You are advised that this organism is one with which we have never previously worked. It appears to belong to the lower order of actinomycetes (Lachner-Sandoval), and as near as we can get to placing it at this time, can only say that it corresponds closely to the *Streptothrix foersteri* (Cohn). Should we be able to place it more definitely from future study we will advise you.

I neglected to say that a blood-culture in this case was negative; the thread test showed only a very faint stain near the cardia; repeated tests were negative.

In closing I wish to thank Medical Inspector E. R. Stitt, U. S. N., Dr. Charles Thom and Dr. J. R. Mohler, chief of the Division of Pathology, Department of Agriculture, for their assistance.

826 Connecticut Avenue, N.-W.

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

ARLCO-UREASE.—Arlco-urease is a standardized preparation of the urealytic enzyme obtained from the soy bean, *Soja hispida*.

Actions and Uses.—Arlco-urease decomposes urea into ammonia and carbon dioxide. It is employed in the determination of the amount of urea in the urine, blood and other body fluids.

Dosage.—The procedure consists in treating the urine with urease, drawing the ammonia into fiftieth-normal acid by means of an air current and titrating the residual acid.

Manufactured by the Arlington Chemical Co., Yonkers, N. Y. No U. S. patent. U. S. trademark applied for.

In the preparation of arlco-urease, soy bean meal is treated with water and the aqueous extract filtered. The solution so obtained is precipitated by pouring into acetone, the precipitate washed and dried by desiccation over dehydrants. The dried precipitate is finely ground and standardized by methods reported by Van Slyke and Cullen. (*Proc. Soc. Exper. Biol. and Med.*, Dec. 17, 1913.)

Arlco-urease is a fine, white powder, freely soluble in water, forming an opalescent solution.

If 0.1 Gm. of arlco-urease be dissolved in 1 Cc. of water and the solution added to 5 Cc. of a 1 per cent. solution of pure urea, the mixture should hydrolyze 0.0168 Gm. of urea in fifteen minutes at 25 C. or in correspondingly less time as the temperature approaches 50 C. as a maximum.

UREASE-DUNNING.—Urease-Dunning is a highly potent and standardized preparation of the urealytic enzyme obtained from the soy bean, *Soja hispida*.

Actions and Uses.—In the presence of water urease-Dunning decomposes urea into ammonia and carbon dioxide, resulting in the formation of ammonium carbonate. It is employed in the determination of the amount of urea in the urine, blood and other body-fluids.

Dosage.—For the estimation of urea in urine, it is recommended to determine, with volumetric hydrochloric acid and methyl orange, the alkalinity of a portion of the specimen that has not been treated, and compare this, as to alkalinity, with an equal quantity of the same specimen which has been treated with the enzyme, the difference representing the ammonium carbonate formed by the breaking up of the urea present.

Manufactured by Hynson, Wescott & Co., Baltimore, Md. No U. S. patent or trademark.

Urease-Dunning Tablets.—Each tablet contains 0.025 Gm. of urease, Dunning.

Urease-Dunning, is a fine, almost white powder with little taste or odor; it is soluble in slightly alkaline water and represents the urea-converting enzyme of soy bean in a condition of high potency. It is practically free of the water-soluble proteins, which are precipitated by hydrochloric acid, and of proteins that are insoluble in water. Aqueous solutions deteriorate after standing a few days.

Urease-Dunning, may be assayed as follows: To 5 Cc. of a 2 per cent. solution of urea, in water previously heated to from 38 to 40 C. and 25 mg. of urease-Dunning (one tablet), and keep the mixture at the temperature stated for one hour; then add 0.05 Cc. of methyl orange test solution, and titrate with tenth-normal hydrochloric acid. From 20 to 25 Cc. should be required to neutralize it, equivalent to from 60 to 75 mg. urea.

ELECTRARGOL FOR INJECTION.—This dosage form of an accepted proprietary article has been accepted for inclusion with New and Nonofficial Remedies.

Supplied in the form of ampules, each containing electrargol 10 Cc. in the non-isotonized condition.

STYPSTICK APPLICATORS, ALUM 75 PER CENT.—This preparation has been accepted for inclusion with the appendix to New and Nonofficial Remedies. Wooden sticks 6½ inches long, tipped with a mixture of alum, 75 per cent., and potassium nitrate, 25 per cent., packed in glass tubes. Each stick is to be used but once.

Prepared by the Antiseptic Supply Co., New York.

Philippine Health Report for Last Quarter 1913.—The report of Victor G. Heiser, Director of Health, for the last quarter of 1913, states that there are now over 60,000 less deaths per annum than in 1905. This reduction occurred almost entirely in the preventable diseases and therefore is a reasonably correct index of the effect of the work of the health authorities. It is said that if the knowledge now available could be effectively applied another 100,000 deaths could be prevented by reducing the rate for tuberculosis, malaria, beriberi and its indirect effects and the intestinal diseases. That the director is not receiving the fullest support during the present governmental administration, as has been hinted before, is intimated when the director says: "The organization which has already brought about a reduction of 60,000 deaths per annum is believed to offer the best hope, if permitted to work along unhampered, of bringing about this further improvement; but in order to achieve any considerable result the cooperation of the entire public is essential." One case of human plague was found during the quarter, but no infected rats. Six cases of cerebrospinal meningitis were found, making twenty in all since the outbreak of the disease. Cholera continued in sporadic form, 104 deaths in 147 cases having occurred in Manila, making a total of 161 cases and 110 deaths since the beginning of the trouble, August 24. The disease also occurred in a number of the provinces, but in each instance there were but few cases, and prompt measures stopped its spread.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JULY 11, 1914

SOME FEATURES OF MEDICINE IN BABYLONIA AND ASSYRIA

The successful study of the history of medicine during what Renouard has called the Age of Foundation, including the primitive and sacred, or mystic periods, requires a combination of many talents in those who would examine the original sources of that history. In those early ages the beginnings of medicine were intertwined with a group of sciences, the interpretation of which calls for cyclopedic information and long experience in the domain of ancient learning. In a most interesting address before the Royal Society of Medicine in London, Morris Jastrow, Jr.,[1] of the University of Pennsylvania reviewed some of the features of the medicine of the Babylonians and Assyrians, our knowledge of which is derived almost exclusively from the great library of clay tablets gathered in his palace by King Ashurbanapal of Assyria, who ruled from 668 to 626 B. C. About 30,000 fragments of these tablets, among which are at least 800 that may be placed in the category of medical texts, were discovered in 1849 near the site of Nineveh and are now housed in the British Museum.

No means are available at present by which the age of the medical tablets from which the scribes of the Assyrian king made their copy may be determined. As it is characteristic in general of the literary productions of the ancient Orient that the old is preserved intermingled with the new, it is highly probable that in these medical texts we have the accumulated experience of the past combined with the science of the age in which the compilation was made. Jastrow estimates roughly that the period of the Assyrian records which contain the treatment of disease may be placed at least 2000 B. C., thus far antedating the centuries in which the name of Hippocrates (460 B. C.) attained its earliest fame. This fact emphasizes the contention made by medical historians that the origin of medicine must have been nearly contemporaneous with the beginnings of civilization.

Medicine began in an age of wonder. So long as disease was regarded as the manifestation of supernatural powers, it is only natural that crude and bizarre notions should have arisen with respect to the attitude to be taken by man toward the "celestial creatures of his handiwork." Penetrating the veil of the mystic, real human characteristics frequently make their appearance and appeal to us with a decidedly modern force. Jastrow states that a famous code dating from about 1950 B. C. includes, in the portion devoted to injuries, the laws with regard to fees for surgical operations, as well as the fines for fatal errors on the part of the surgeon. The fee in the case of a successful operation is regulated according to the station occupied by the patient. The ordinary freeman pays 10 shekels for a successful operation on the eye or elsewhere, while a member of the ruling class gets a reduction of 50 per cent.; and in case the operation is performed on a slave the owner pays 2 shekels. For the setting of a bone or the cure of some internal injury the fee is 5 and 3 shekels, respectively. The punishment for the failure of an operation, on the principle that the physician had no right to take the risk, similarly varies according to the position of the patient. If a slave dies as a result of the operation, the surgeon is to replace the slave by another; if the slave loses an eye the physician must pay one-half the value of the slave. If, however, it is a freeman who dies or loses an eye through the operation, the procedure is quite simple — the physician's hand is cut off. The beginnings of specialization in surgery are also indicated at this early period; for the code distinguishes between the ordinary surgeon and the veterinary, the latter being spoken of as the "cow- and sheep-healer" to whom penalties of failure likewise pertain. The physician, as surgeon, was sharply differentiated from the healer of diseases, reminding one of the custom of distinction prevailing in Great Britain, which may, in some of its aspects, be a survival from a very early period.

As in primitive medicine elsewhere, the Babylonian-Assyrian treatment was never dissociated from incantations. If evil spirits were the causes of disease, obviously they must be propitiated. A cure, therefore, involved driving the demon out of the body, either by force or by coaxing. Dr. Jastrow naively remarks that incantations as a means to this end are therefore to be viewed as the antitoxins of primitive medicine, acting primarily on the demons, and merely as a secondary result curing the patient. The introduction of a number of accessories in medical treatment has an incidental origin. Through experience it was found that in certain common diseases such as indigestion, diarrhea, constipation, colds, headaches and fevers, certain articles of food and certain herbs, plants, seeds and juices were beneficial. Primitive logic, says Jastrow, concluded that what was good for man must be bad for the demon, and accordingly the remedies were used as helpful accessories to the powerful incantation formulas, and were symbolically introduced in the ritual which accompanied the direct medical treatment of disease. This aspect of magic rites helps us to understand another phase of early medicine, some features of which have been preserved almost to the present day — the custom of administering concoctions and mixtures that are primarily nasty and ill-smelling. Such materials as the feces and urine of man and animals as well as all sorts of decaying matter were employed.[2] Doubtless it was hoped originally to disgust the evil spirits by foul odors and drive them away. The priests, being quick to incorporate in religious practices the popular medical experience of the day, have rendered the bond between incantation rites and medical treatment indissoluble for all time.

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[1] Jastrow, Jr., Morris: The Medicine of the Babylonians and Assyrians, Proc. Roy. Soc. Med., 1914, vii, Section of the History of Med., p. 109.

Precisely as incantations and the allied practices were resorted to when the evil had come, divination was employed to forestall the future. It was the forerunner of preventive medicine. Thus came about the inspection of the liver in a sacrificial animal, the observation of the young at birth, etc. Indirectly such procedures acted as a real stimulus to the study of anatomy and physiology, both normal and abnormal; and in the early Assyrian periods this was not confined to animals

Aside from the magic ritual the medical literature of Babylonia-Assyria contains more specifically therapeutic advice, some of which may be mentioned briefly. The use of licorice root and of salts in stomach disorders is by no means irrational. Some of the measures to alter or promote the circulation are rather drastic from the point of view of the patient. "If a man has stomach pain let that man sit on his feet and have boiling juice of sikruti cassia poured over him and he will recover." Another prescription reads: "Let him kneel on his feet and let cold water flow over his head." Again, "Place his head downwards and his feet up, strike his cheek forcibly, rub him violently, say to his stomach 'Be good'; with the left thumb manipulate his buttocks fourteen times, manipulate his head fourteen times, and roll him on the ground." The words of admonition to the stomach sound like the psychic healing of to-day, and the manipulations of the body presage massage and other methods of modern physical therapy. Nor was the ancient art of dispensing the drugs devoid of a recognition of the importance of palatability; for we are told in some cases of the alternatives of taking the medicine in wine or water. Over one hundred drugs are included in the medical texts thus far published relative to this early period, and the list will become larger when the means of identifying many of the ancient names are afforded. Familiar names appear everywhere: mint, licorice, caraway, cassia, mustard, colocynth, anise — to mention only a few of them. Elaborate recommendations for their use are furnished in the cuneiform texts. Polypharmacy was common even among the ancients. One prescription includes eight distinct drugs for heart-disease; another, six for jaundice. Even dietotherapy finds a place in this early system of medicine.

Human nature appears to have been much the same in all ages. Dr. Jastrow says that the Babylonian physician of old included the old magical rite in his library copy as a remedy to be resorted to in the last instance; and this reminds us that even at present it is not uncommon for the quack, the herb-doctor and the patent-medicine man, who may be regarded as the modern representatives of the old Babylonian exorcisers, to be appealed to by patients in the moment of despair, when rational remedies seemed incapable of affording relief.

THE DIAGNOSIS AND TRANSMISSION OF PLAGUE

The outbreak of plague in Manila in 1912 aroused renewed attention to the methods of diagnosis applicable to this infection. Dr. Schöbl of the Biological Laboratory at the Bureau of Science of the Philippine Islands tested some of these methods.[1] The diagnosis of plague could be safely made in the majority of cases from a microscopic examination of the liquid aspirated from the bubo. Out of fifteen patients examined, fourteen gave positive blood-cultures. The importance of this mode of examination in diagnosis is evident from the fact that a positive blood-culture was obtained in practically every patient examined in the febrile stage of the disease, even when buboes or signs of pulmonary involvement had not been detected clinically. It was also found that *Bacillus pestis* may be detected in the circulating blood of patients, even those who subsequently recover. The period of time during which the micro-organism circulates in the blood-stream is evidently short and irregular. In agreement with the Indian commission, the occasional early occurrence of plague bacilli in the circulation was observed. The possibility of detecting the bacillus in this way increases in proportion with the quantity of blood used for culture. The best chance to recover the organisms from this fluid seems to be in the stage of high fever and general prostration.

Dr. Schöbl remarks that in consideration of the ephemeral character of the septicemic stage of plague, as evidenced by repeated blood-cultures from patients who recovered, one can hardly avoid the impression that a certain degree of septicemia exists in every case of plague. The septicemia may be of an irregular and fluctuating type; and mixed infection (with streptococcus or pneumococcus) may be encountered.

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[2] Compare Paullini, K. F.: Drek-Apotheke, wie nämlich mit Koth und Urin die meisten Krankheiten und Schäden glücklich geheilt worden, 1714.

[1] Schöbl, O.: Bacteriological Observations Made During the Outbreak of Plague in Manila in 1912, Philippine Jour. Sc., Trop. Med., 1913, viii, 409.

The agglutination test is regarded by Schöbl as of no value for the diagnosis of plague, as it was found positive in convalescents only. Although the technical difficulties of carrying out the reaction have been reduced,[2] positive agglutination of bacilli by the patient's serum cannot be obtained in the first week of the disease. Therefore, the isolation of plague bacilli from the body of the patient is still the only quick and safe method of plague diagnosis.

With respect to the possibilities of transmitting the plague directly, the presence of numerous plague bacilli in comparatively insignificant skin lesions during the life of the patient is noteworthy. Furthermore, the fact that a patient without any apparent bubo, who is not so sick as to be detained from his daily occupation, may expectorate large numbers of plague bacilli, is of great importance with regard to the communication of the disease. Quoting the Manila investigator, it is obvious that the last-mentioned condition might, and very likely does, give rise to an epidemic of pneumonic plague if the atmospheric and sanitary conditions are favorable.[3]

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[2] Strong, R. P.: Philippine Jour. Sc., Trop. Med. (*B*), 1907, ii, 155. Strong, R. P., and Teague, O.: ibid., 1912, vii, 194.

[3] Atmospheric Temperature and Pneumonic Plague, editorial, The Journal A. M. A., March 7, 1914, p. 779.

CHRONIC CONSTIPATION

To recur to a subject so trite as that of chronic constipation may appear to be an unpardonable editorial sin. Yet every day brings to the routine of the practitioner real or imagined cases which deserve to be managed with intelligence and success. It is, after all, not always the rare and the unique which offer to the physician the greatest opportunity for useful service. There are baffling problems constantly with us; and many a common disease like measles or tuberculosis, doing damage to thousands, deserves far more to be kept in the foreground of professional interest than does the occasional medical anomaly that is always likely to divert attention from the more persistent dangers.

We do not mean by this that new "cures" need to be devised from month to month for familiar difficulties, though in truth a satisfactory cure is the goal which practical medicine must strive to reach. What is, perhaps, needed to-day far more than hasty suggestions and novel therapeutic hints is a critical attitude and a thoughtful analysis of present-day treatment. The "busy practitioner"—to use a phrase made to excuse much that is inexcusable—denies himself the privilege, or fails to enforce on himself the duty, of seriously reviewing the situations which he is called on to confront. He too often neglects to derive the inestimable advantage which an extensive experience of repeated successes and failures in the same field ought to afford. To the real physician every case becomes a new problem rather than a recurrence of an old experience.

These reflections have been awakened by a recent lecture by Einhorn[1] on chronic constipation and its treatment. He protests, for example, against making a fetish of the theory of auto-intoxication. Many an individual has been subject to unnecessary nervous strain by the ever-present fear of some indefinable poisoning conceived as certain to follow an impending constipation. Einhorn quotes the contentions of the clinician Dunin in Warsaw that the familiar untoward symptoms and nervous phenomena are not necessarily the result of constipation, but may actually be the cause of it. Sedatives like bromids are known to relieve in some of these cases. A good indication of the fallacy of charging intestinal intoxication to constipation is seen in the fact that the use of opiates may result in the constipation without consequent headaches, etc.— the expected evidence of alimentary toxicity.

Einhorn cannot agree with the contentions of Schmidt that chronic constipation is the outcome of unusually perfect utilization of the diet. Indeed, it is quite as reasonable to adopt a reversed hypothesis and insist that, because of the longer delay of the alimentary residues in the gastro-intestinal canal, the absorption has an opportunity to become more complete. Here again it is easy to confound cause and effect.

Operative interference has of late been suggested by Arbuthnot Lane and others as a palliative in chronic constipation. Lane's operation and the auto-intoxication hypothesis go hand in hand. Neither of them finds unqualified or hearty favor from those who emphasize the possibilities of rational physical and dietetic therapy. Surgical procedures are eminently justified when anatomic defects are present. The necessity for them in what is called auto-intoxication has, however, been seriously questioned.[2]

Too little attention has been paid to habit and the influence of social conditions on the inherent tendency to frequent and prompt defecation. Even so essential and physiologic a process as this is not infrequently consciously neglected by so-called culture-man and especially by the society woman; or it is not infrequently performed incompletely because carried out in time snatched from some absorbing occupation. The careful study of each patient, the investigation of his habits and temperament, the preaching of the doctrines of rational living, the supplementing of this with appropriate measures of diet and physical conduct — in other words, helpful hygienic criticism and frank education — these are in a large majority of cases of chronic constipation the guides to successful practice and human happiness, both of which the physician tries to cultivate.

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[1] Einhorn, M.: Ueber chronische Stuhlverstopfung und ihre Behandlung, Ztschr. f. diätet. u. physik. Therap., 1914, xviii, 257.

[2] Auto-Intoxication Again Assailed, editorial, The Journal A. M. A., Feb. 28, 1914, p. 701.

NEW FACTS ABOUT HUNGER

The fact that the sensation of hunger is attended with pronounced characteristic contractions of the empty stomach is now beyond dispute. We have already[1] referred to the various ways in which these motor phenomena associated with the "cravings of hunger" may be modified or inhibited. The primary stimulus to the hunger contractions is not to be sought in extrinsic nerves, for the empty stomach completely isolated from the central nervous system has shown typical contractions. These are therefore, in their origin, independent of the central nervous system, and appear to depend on some automatic mechanism in the stomach wall, though the fact of the intrinsic initiation of the gastric movements by no means excludes the occurrence of regulatory impulses from outside of the organ. Indeed, it has now been clearly demonstrated that inhibitory reflexes readily and frequently play on the gastric contractions, checking them and simultaneously modifying the pangs of hunger with which they are accompanied. Hunger is inhibited by tasting or chewing palatable foods; in some individuals the sight and smell of food may produce the same result.

The question at once arises as to the relative participation of various departments of the nervous system in the influences that modify the gastric movements and the sensation of hunger. Some data on this point are already available.[2] It has been shown that the nervous mechanism involves both local centers (Auerbach's plexus in the stomach-wall) and the central nervous system. Stimulation of the sensory nerves in the mouth, esophagus and stomach mucosa inhibits the hunger mechanism by way of the splanchnic nerves as well as through the Auerbach plexus. It has also been shown that practically all stimuli that act on the gastric hunger mechanism via the central nervous system cause inhibition mainly through the splanchnic nerves. This is true, for example, in the case of the sight or smell of food on the part of dogs in hunger.

When the vagus influences are excluded the tone of the stomach is greatly lowered.[3] Evidently, then, these nerves are concerned with the maintenance of this tone, and it becomes of importance to learn what influences inhibit the gastric hunger mechanism by way of the splanchnic nerves, already referred to, and what perchance by depression of the vagus tone. A. J. Carlson[2] of the University of Chicago has continued his work in this field of the physiology of the stomach by investigating the influence of the factors or conditions commonly associated with the lowering of the tonus of the central nervous system and the skeletal muscles; such as sleep, stimulation of the cutaneous nerve-endings for heat, excessive muscular activity, as well as the factors that increase the skeletal neuromuscular tonus, such as stimulation of the nerve-endings for cold in the skin, moderate muscular activity, seeing and smelling palatable food, etc. Moderate muscular activity (walking) has no direct influence on the gastric hunger mechanism. Intense muscular activity (running) inhibits the hunger mechanism in direct proportion to the intensity and duration of the exercise. Feeble hunger contractions may continue during moderate running. There appears to be some increase in the gastric tonus and hunger contractions as an after-effect of moderate exercise. Stimulation of the nerve-endings for cold in the skin does not affect the vagogastric tone apparatus. If the stimulation is of sufficient intensity it induces (especially in man) a temporary inhibition of the gastric hunger contractions via the splanchnic nerves. A similar inhibition is induced by strong stimulation of the cutaneous nerve-endings for warmth. There is a distinct increase in the gastric tonus and hunger contractions as an after-effect of prolonged and intense stimulation of the nerve-endings for cold in the skin. It is therefore clear that in general the nervous impulses that give rise to the sensation of cold and induce increased neuromuscular tone have no direct action on the vagogastric tonus centers.

During sleep there is decreased activity of the central nervous system in general, decreased tension of the skeletal muscles, of the musculature of the blood-vessels, at least in certain parts of the vascular system, of the urinary bladder, etc.; in short, a lowered activity of all the neuromuscular mechanisms so far investigated. One might have expected that so far as the tone of the empty stomach depends on a central influence by way of the vagi, the gastric tone and hunger contractions should be diminished during sleep. Instead of being depressed in sleep, however, the hunger contractions continue with the same vigor as during the waking state, and in many instances with increased vigor. In man, intellectual processes (attention, reading, figuring, arguing) have no distinct influence on the course of the hunger periods. Actual anxiety causes temporary inhibition (probably through the splanchnics).

It is a common belief that smoking shortly before a meal leads to depression of hunger and appetite. The correctness of this has been demonstrated by Carlson.[4] The explanation is probably to be found in the stimulation of the sensory nerve-endings in the mouth—a process known to inhibit the gastric hunger contractions in proportion to the intensity of the stimulus. Smoking stimulates the nerve-endings in the mouth in varying degrees according to the kind of tobacco used. Smoking frequently involves stimulation of nerve-endings in the gastric mucosa owing to the swallowing of saliva containing nicotin, oils, tannic acid, and probably other irritating substances.

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[1] The Call of the Empty Stomach, editorial, The Journal A. M. A., Oct. 4, 1913, p. 1300; The Voracity of Certain Diabetics, ibid., Feb. 21, 1914, p. 621.

[2] Carlson, A. J.: Contributions to the Physiology of the Stomach, XV. The Nervous Control of the Gastric Hunger Mechanism (Man, Dog), Am. Jour. Physiol., 1914, xxxiv, 155.

[3] Carlson, A. J.: Contributions to the Physiology of the Stomach, VI. A Study of the Mechanism of the Hunger Contractions of the Empty Stomach by Experiments on Dogs, Am. Jour. Physiol., 1913, xxxii, 369.

Carlson remarks that the observations made by him seem incapable of any other interpretation than that the vagogastric tone apparatus, so far as it concerns the empty stomach, occupies a unique and physiologically isolated position, in the way of nervous control, while the inhibitory apparatus via the splanchnic nerves is readily influenced by central and reflex processes. The biologic significance of this exceptional and unique isolation of the tonus apparatus of the hunger mechanism probably lies in the importance of the hunger mechanism being "regulated on its positive side primarily by the state of nutrition, that is, through the blood, rather than by the fleeting changes in the nervous system."

Current Comment

SOME PHENOMENA DUE TO MAGNESIUM SALTS

The enthusiasm which frequently attends the introduction of new methods in therapy, or new devices and procedures in surgical and other fields of technic, sometimes causes the shortcomings and possible limitations of the novelties to be overlooked. A new product or process may be heralded with laudations of its accomplishments. Hopes of unexpected advantages to be reaped from the application of a promising discovery are awakened, only to be shattered or modified by some subsequent finding of unsuspected difficulties or unannounced defects Such expectations and disappointments are familiar to all practitioners of medicine. A promising sign which bears the stamp of an age of scientific criticism is that innovations in medical and surgical practice are being controlled more rigidly, criticized more freely and subjected to severer tests than ever before. The promoter of new methods can no longer afford to risk his reputation on the chance of accidental success. Every requirement set by the best contemporary standards of scientific merit must be met and the outcome announced boldly and frankly. To illustrate this we may refer to a recent experience of Dr. Charles H. Peck[1] of the Roosevelt Hospital in New York, in a series of five cases observed by Dr. Meltzer and himself after operation under magnesium sulphate-ether anesthesia (Meltzer's method). In three cases hyaline casts, which completely disappeared after forty-eight hours, were found in the urine. In one of the three a faint trace of albumin occurred; in the other two, none. In two cases hyaline and granular casts and a trace of albumin were found, persisting in one for six days, and in one for two days or more, the urine becoming normal on the fifth day. In none of the cases was there any later evidence of kidney irritation. In all, magnesium could be demonstrated in the urine for several days. No casts were present in the urine before operation in any case. This report led to a prompt further experimental investigation of the matter in Dr. Meltzer's laboratory at the Rockefeller Institute for Medical Research.[2] Epsom salt in sublethal doses, with and without ether by insufflation, was given to dogs intramuscularly and intravenously. In all, many hyaline casts appeared in the urine. They were most abundant from three to six hours after the injection and disappeared in twenty-four or at most forty-eight hours. No epithelial or granular casts were found and no measurable albuminuria occurred. Ether alone did not produce casts, and ether and magnesium produced no more than magnesium alone. In one experiment, magnesium chlorid gave the same results as the sulphate. The essential point is that hyaline casts in large numbers can be produced in dogs at will by injections of magnesium salts. Epithelial and granular casts and albuminuria do not occur, and the appearance of the hyaline casts is only temporary. In this connection it seems desirable to point out that, contrary to the generally accepted view, magnesium salts may be rapidly absorbed from the intestines, according to recent observations of Auer and Meltzer.[3] In view of their experiments, these investigators conclude that the method of injecting magnesium salts into the small intestines after laparotomies, as recommended by McCosh and practiced by some surgeons, contains an element of considerable danger.

PUBLIC HEALTH IN IOWA CITIES

Much of the discussion concerning public health conditions, whether in the nation, state or municipality, is necessarily general in character, owing to the lack of exact information regarding details. Any contribution to our knowledge of existing conditions is therefore of value. In the March issue of the *Journal of the Iowa State Medical Society* appears a report on a survey of public health work of twenty-seven Iowa cities and towns, representing a total population of 197,310. The total amount expended for public health in the twenty-seven cities was $20,950, an average of $779 per city a year, and a total per capita expenditure of 0.106 cent. In only three cities, Cedar Rapids, Burlington and Oskaloosa, did the expenditure for public health exceed 10 cents per capita a year. In five cities, Charles City, Carroll, Sheldon, Indianola and Harlan, the public health expenditure could be estimated only in mills, while one city of 2,500 inhabitants — Jefferson — expended no money at all for this purpose. Burlington pays its health officer a salary of $1,300 a year, Oskaloosa pays $1,200, Ottumwa, $750, Cedar Rapids, $720 and Waterloo and Muscatine pay $600 each. In Charles City, Knoxville, Algona, Jefferson and Lake City, the health officer receives no compensation whatever. In Shenandoah and Osceola the health officer is allowed fees for services rendered, while the other cities and towns pay from $25 to $150 a year for public-health work. Only one city, Oskaloosa, has a whole-time health officer. In five towns medical inspection of schoolchildren is one of the duties of the health officer. Two cities, Oskaloosa and Boone, have municipal laboratories. If the condition of birth and death registration in Iowa were such as to permit a comparison over a long period of time, between the death-rate in those cities which have no health organization and the death-rate in those which have even an inadequate one, the value of the facts elicited by this survey would be greatly increased. Unfortunately, Iowa is not in the registration area and has no modern system of recording births and deaths. The only conclusion that can be drawn from the report is that the amount of attention given and money expended for municipal health-control in Iowa is far too small to secure the desired result, namely, the reduction of the death-rate and the prevention of controllable disease.

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[4] Carlson, A. J., and Lewis, J. H.: Contributions to the Physiology of the Stomach, XIV. The Influence of Smoking and of Pressure on the Abdomen (Constriction of the Belt) on the Gastric Hunger Contractions, Am. Jour. Physiol., 1914, xxxiv, 149.

[1] Peck, Charles H.: The Occurrence of Casts in the Urine Following Magnesium Sulphate-Ether Anesthesia (Meltzer), Proc. Soc. Exper. Biol. and Med., 1914, xi, 103.

[2] Gates, F. L.: The Experimental Production of Hyaline Casts by Injections of Magnesium Salts, Proc. Soc. Exper. Biol. and Med., 1914, xi, 102.

[3] Auer, J., and Meltzer, S. J.: The Fatal Action of Magnesium Salts by Absorption from the Intestines and the Resuscitation by Calcium, Proc. Soc. Exper. Biol. and Med., 1914, xi, 95.

A WILLING SCAPEGOAT

Since The Journal instituted its educational campaign for the enlightenment of the public against frauds in medicine, it has become fashionable for every quack and "patent medicine" faker who is haled into court, to charge that the American Medical Association is behind his prosecution. Such charges, of course, are without foundation. The duty of the American Medical Association is done when it has turned the bright light of investigation and publicity on the evils of quackery. It is nevertheless true that, nowadays, there is hardly a case involving the prosecution of a quack or a manufacturer of fraudulent proprietary remedies in which the American Medical Association is not charged with having set the machinery of the law in motion. To instance one example: A few weeks ago, two quacks, August Kroening and B. J. Chenoski, who had operated in Iowa for several months under the firm name of the "Des Moines Specialists," were fined $1,000 and $500 respectively, for using the mails to defraud. According to the Des Moines newspapers, one of the attorneys for these fakers asked Postoffice Inspector Caine, who had caused their indictment, if the American Medical Association were not back of the prosecution, and if the Association had not offered him a reward for securing a conviction. Such insinuations are made for no other purpose than that of prejudicing the jury. Having no basis in fact, they are, necessarily, not followed up by those making them. Kroening and Chenoski were found guilty and Judge Smith McPherson of the federal court in assessing the fines is quoted, by the newspaper which reported the case, as saying:

> The charge has been made but no evidence presented in substantiation of the statement that the American Medical Association had influenced the federal officers in prosecuting these men. I do not know whether it is true, but if it is, the Association is to be commended, likewise everyone else who assisted in exposing their methods and bringing them to justice.

While The Journal heartily agrees with Judge McPherson's sentiments, it has to admit that the American Medical Association had no hand whatever in bringing these men to justice — at least directly. The Journal, in its issue of June 19, 1913, exposed the methods of the "Known Doctors" and the concern's promoter, B. J. Chenoski. Possibly this publicity had something to do with the authorities taking action against Chenoski and his accomplice, Kroening. Certain it is, that this very publicity sooner or later will make quackery less profitable and popular; for of all frauds perpetrated on the public, medical frauds can stand publicity least.

ASPHALT PAVING AND HEALTH

By some philosophers the earth has been conceived of as a single living organism which lives its own life distinct from the living beings which inhabit it. Some such idea seems to possess Stérian,[1] who warns against the increasing practice of covering the surface of the earth with an impermeable covering of asphalt as is being done by the larger cities. Stérian makes four counts in his indictment of asphalt pavements: 1. They create a tendency to unforeseen excavations from the accumulation of subterranean gases which find no outlet. 2. The roots of plants, especially trees, are surrounded by an atmosphere deprived of nitrogen which plant life needs and ordinarily obtains from the penetration of the outer air through the porous earth. 3. The pavement, not permitting the escape of polluted water, favors putrefaction and renders the lower strata of the atmosphere unfit to breathe. 4. Such pavements favor insolation. Stérian's article is interesting but not convincing. Possibly the fact that only a small proportion of the earth's surface is covered by an impermeable coating has prevented these disadvantages from making themselves unpleasantly manifest. The collection of subterranean gases so as to cause inconvenience is certainly not a common experience. The danger from the passage of gas from leaky gas-mains into houses is of importance, but Stérian does not mention it. The effect on vegetation appears to be real and should be obviated by securing open grass-plots around trees. The objection to asphalt paving because it pollutes the air is of minor importance, because, despite the objection of Stérian, asphalt is one of the most easily cleaned of all pavements. While in our opinion the objections of Stérian need not cause the residents of the boulevards to move to unpaved streets, they indicate the desirability of reliable information on the disadvantages as well as the advantages of modern advances in city building

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[1] Stérian: Presse méd., June 17 1914, p. 701.

Medical News

CALIFORNIA

Personal.—Dr. Fletcher G. Sanborn, Los Angeles, has been placed in charge of the new hospital of the Packers' Association at Larson Bay, U. Y. P. H., P. O., Alaska.——Dr. George W. Brown has been appointed oculist and aurist of the United States Pension Bureau, Los Angeles.——Dr. Frederick C. Gerlach has succeeded Dr. David A. Beattie as a member of the Board of Health of San Jose.——Dr. Bradford Woodbridge, Roseville, is reported to be critically ill in San Francisco, as a result of a runaway accident.

Fresno will Build Open-Air Schools.—The Board of Education of Fresno has announced its building policy, which contemplates the purchase of entire blocks for schools, with the idea of having each school located at the east end of the block. The buildings are to be of the open-air type, a solid wall of windows on one side and an open-air corridor with a western exposure. The city of Fresno recently made an appropriation of $450,000, of which $350,000 is to be devoted to the building of schools and $100,000 to the purchase of sites for the same.

COLORADO

New Officers.—Colorado Springs Clinical Club, May 27: president, Dr. Alexander C. Magruder; secretary-treasurer, Dr. Elmer Timmons.

Personal.—Dr. A. Hart Goodloe, Canon City, has been provisionally appointed physician to the state penitentiary, vice Dr. Thomas D. Palmer, deceased.——Dr. Edward F. Lake, Denver, who has been under treatment for cancer in Baltimore, has returned home.

CONNECTICUT

Centennial Dinner Alumni.—The Alumni Association of Yale Medical School held a dinner at the University Dining Hall, June 15, 1914, in commemoration of the one hundredth anniversary of that institution. A decorative menu was prepared containing portraits of the faculty. Addresses were delivered by many of the faculty of both the medical college and university. Dr. William H. Carmalt was toastmaster.

Provisional Gift of Hospital to Town.—Commodore E. C. Benedict has promised to give the Greenwich Medical Society a present of a hospital for the town of Greenwich, to cost $125,000, as a thankoffering for the recovery of his wife from a severe illness. This is conditional on the town giving up its rival hospitals: one 3 miles from the village, known as the General Hospital, and the other in the village known as the Greenwich Hospital. It is proposed to convert the General Hospital into an isolation hospital and the Greenwich Hospital into a private institution.

ILLINOIS

County Tuberculosis Sanatorium.—The new tuberculosis sanatorium for La Salle County is to be erected directly west of the men's ward of the infirmary, facing the park leading into the grounds. Work on the building, which is to cost about $3,000, will be commenced immediately.

Site for Epileptic Colony Purchased.—On June 30, the state of Illinois purchased 1,054 acres of land near Dixon, for which $216.40 per acre was paid. This will be the site of the state colony for epileptics, for which $500,000 has been appropriated. The work of erection of the building will soon be inaugurated.

Personal.—Dr. and Mrs. Louis Becker, Knoxville, have sailed for Europe.——Dr. George L. Eyster, Rock Island, while working on his automobile, was severely burned by gasoline.——Dr. R. Carl Dienst, Aurora, has been appointed surgeon and laboratory physician to the Marconi Wireless Telegraph Company, with headquarters at Mashall, Cal.

Chicago

Personal.—Drs. Isaac A. Abt and family, Willis O. Nance, Franklin H. Martin and Raymond W. McNealy have sailed for Europe.——Dr. Robert P. Preble had the honorary degree of M.A. conferred on him by the University of Michigan.——Dr. C. O. Schlaack, ambulance surgeon of the Des Plaines Street Station, was injured in a collision between the ambulance and an automobile, June 21.——Fire in the office of Dr. Alexander L. Blackwood, July 2, did damage amounting to $2,000.

Alienists and Neurologists to Meet.—The second annual meeting of alienists and neurologists, under the auspices of the Chicago Medical Society, will be held at the Hotel La Salle, July 13-17. Dr. L. Harrison Mettler is chairman and Dr. William T. Mefford, secretary, of the committee on arrangements. An elaborate program has been prepared, and a large attendance is expected. All meetings will be held at the Hotel La Salle, with the exception of the session of the morning of July 15, which will be held at the Psychopathic Hospital, Harrison and Wood streets.

KANSAS

Personal.—Dr. H. H. Keith, for many years coroner of Shawnee County, is reported to be seriously ill at St. Francis' Hospital, Topeka.——Dr. Walter J. Nichols, Pittsburg, was assaulted and robbed, June 26, near Frontenac.——Dr. O. W. Hughes, Jewell, has retired from practice on account of failing health.

Results of Increased Requirements.—The effect of the increased entrance requirements and more rigid curricula has been demonstrated by the decrease in the number of graduates who have applied to take the examination for license to practice in the state. At the last examination held in Kansas City, June 9, only twenty-four applicants appeared.

Hospital Dedicated.—St. John's Hospital, Salina, which has been erected at a cost of $110,000, was formally dedicated June 28. Dr. John W. Perkins, Kansas City, Mo., was selected as chief of staff of the institution, and the following staff has been appointed: consulting staff, Drs. Winfield S. Harvey, James R. Crawford, James W. Jenney, William H. Winterbotham, Joseph E. Miller and Wilson R. Priest, Concordia; surgeons, Drs. George Seitz, William E. Mowery, John K. Harvey, John D. Riddell and Louis O. Nordstrom; physicians, Drs. James A. Simpson, Charles M. Jenney, Jonathan H. Winterbotham, Howard N. Moses and Oman R. Brittain; obstetrics, Drs. James A. Simpson, Jessie Wheeler and Edgar J. Lutz; pathologists, Drs. Howard N. Moses and Earl G. Padfield; eye and ear, Drs. Carroll D. Armstrong and Andrew G. Anderson; nose and throat, Drs. John W. Simmons and Manuel J. Brown; neurologist, Dr. Oliver D. Walker; x-ray, Dr. Oman R. Brittain; skin diseases, Dr. John W. Neptune; anesthetist, Dr. Earl G. Padfield, and genito-urinary diseases, Dr. Melcher G. Cockey.

LOUSIANA

Loving-Cup for Dr. Dowling.—The State Pharmaceutical Association at its meeting in Shreveport, presented Dr. Oscar Dowling with a silver loving-cup in recognition of his services as president of the State Board of Health.

Detained at Quarantine.—The United Fruit Company's steamer *Cartago*, from Havana, which arrived at New Orleans, June 25, was detained in quarantine until the nature of a case of fever among its passengers could be ascertained. The passenger embarked at Colon, and was taken from the steamer at Havana.

New Medical Journal.—The *Pan-American Surgical and Medical Journal* appeared June 27. It is the official organ of the Louisiana State Medical Society, and has the following staff: editors in chief, Drs. Waldemar T. Richards and Adolph O. Hoefeld; assistant editor, Dr. Merrick W. Swords, and editorial representative for the state society, Dr. Laurence R. De Buys. The first issue of the journal presents a very creditable appearance. It contains much matter of merit. It is proposed to cater to Central American readers by having a portion of the journal printed in Spanish.

MARYLAND

Health Wardens Named.—In accordance with the provisions in the law passed by the last legislature, Maryland has been divided into ten sanitary districts by the State Board of Health. Over each of these districts a physician will be appointed who will be responsible for the enforcement and general health conditions in his territory. The four following health wardens have been appointed: District No. 1, Allegany and Garrett counties, Dr. Francis E. Harrington, Cumberland; District No. 3, Carroll, Howard and Montgomery counties, Dr. William C. Stone, Ellicott City; District No. 4, Baltimore County, Dr. Josiah S. Bowen, Washington; District No. 9, Talbot and Dorchester counties, Dr. Edgar A. Jones, Cambridge. Following the appointments of the four wardens, the board ordered an immediate survey to be made of Dorchester County. The work is to be done under the auspices of the County Medical Society of which Dr. Guy

Steele, Cambridge, is president. At the request of Dr. John Fulton, the State Health Officer, Surgeon-General Rupert Blue of the United States Health Department has detailed Dr. Leslie L. Lumsden and a number of his assistants to help. Dr. Fulton, with Dr. Clifford Woodruff and Richard B. Norment, of the State Health Department, will also take part in the survey. It is proposed that every house in the county be visited and health conditions examined. Many meetings throughout the county are to be held at which there will be talks on matters of sanitation illustrated with stereopticon and moving pictures. The idea is to arouse and instruct the people on health and sanitation, as well as to give the health officers accurate information as to sanitary conditions in the county.

MASSACHUSETTS

Floating Hospital Starts.—Boston's floating hospital made its first trip of the season on June 27. The morning trip was in honor of Isaac Kaffenburg, whose wife donated the money for the trip. The evening trip was Brookline night, the funds for which were provided from a dansant given by Mrs. John A. Curtis.

The Salem Fire.—It is announced that among the physicians who were burned out in the recent Salem fire, three are in straitened conditions, and the Essex South District Medical Society is raising a fund for their relief. The chairman of the Boston School Board offered the governor the services of the school nurses of Boston to relieve the refugees of the Salem fire. The services of Dr. Thomas F. Harrington, as sanitary officer, were also offered.

Harvard Faculty Changes.—Dr. Myles Standish, Boston, since 1886 a member of the Faculty of Harvard Medical School, and for the last five years Williams professor of ophthalmology at Harvard, has been appointed professor emeritus, beginning next September. Dr. Walter Ray Bloor, who has been a member of the faculty of the Medical School of Washington University, St. Louis, has been appointed assistant professor of biologic chemistry.

MISSOURI

Baby Camp Opened.—St. Luke's Baby Camp, Kansas City, was opened June 15. The camp consists of two screened and protected tents, with accommodations for eighteen babies, and clinics are held every morning at 8:30, in charge of Dr. David E. Broderick.

Personal.—Dr. George P. Pipkin was installed as superintendent of the Kansas City General Hospital, July 1; he will also continue in charge of the old City Hospital.——Dr. Lew Chee, Pekin, China, a member of the National Board of Health of China, is visiting Dr. Thomas J. Lynch, St. Joseph.——Dr. F. G. Beard has been appointed police surgeon of St. Joseph.——Dr. George R. Thompson, St. Joseph, has been appointed superintendent of State Hospital No. 2, in that city.——Dr. Clarence W. Russell, Springfield, attempted to leap from an automobile and was run over by the machine, sustaining severe bruises.

St. Louis

Work Begun on Isolation Wards.—Work on the construction of the two wards of the Isolation Hospital, between the city sanatorium and the city infirmary began July 1. The building, furnishing and equipment will cost about $228,000, of which $198,000 is now available. The new wards will accommodate 150 patients and the necessary attendants.

Hospital Staff Appointed.—At the meeting of the City Hospital Board, held June 24, the following appointees were named for the resident staff of the City Hospital: resident internist, Dr. Ralph A. Kinsella; alienist, Dr. John A. Pringle; resident surgeon, Dr. Benjamin W. Klippel, and assistants, Drs. Neil S. Moore, James F. Jolley, William L. Hanson, Floyd A. Burger, James R. Higgins, Ralph McReynolds, William F. Wagenbach, Louis Boonschaft, Thomas S. Fleming, Stephen L. O'Brien, Frank J. Smith and Preston Thompson.——Dr. Earle E. Kneale was appointed resident physician at the Infirmary and Isolation Hospital.

NEW YORK

Guard Against Bubonic Plague.—The Health Department of Yonkers is taking precautionary measures to guard against the introduction of the bubonic plague by the sugar boats which dock at the National and Federal refineries in that city. It is pointed out that the boats are so thoroughly inspected at the port of New York that Yonkers need not place a quarantine on them.

New Members of State Board.—Drs. Melvin J. Stearns, Ogdensburg; Henry B. Minton, Brooklyn; Hans Zinsser, New York City; William G. Bissell, Buffalo, and Ralph H. Williams, D.O., Rochester, were appointed members of the State Board of Medical Examiners by the Board of Regents, June 25.——Dr. William H. Park, New York City, and Dr. Herbert U. Williams, Buffalo, have been appointed by the State Board of Regents members of the medical council.——Dr. Jacob Diner, New York City, has been appointed a member of the State Board of Pharmacists.

New York City

Guild Needs Funds.—St. John's Guild makes an appeal to the public for subscriptions to defray the expenses of the floating hospital, the *Helen C. Juillard*, and the Seaside Hospital, Newdorp, S. I.

To Purchase Land for the Seaview Hospital.—The board of aldermen at its recent meeting passed an ordinance to increase the area of land occupied by the Seaview Hospital by purchase or condemnation to an extent of about 200 acres. It is stated that the space is needed for the present hospital and also to provide a site for future buildings.

Deaths Under Christian Science Treatment.—At an inquest into the death of George W. Robertson who had been attended for two weeks prior to his demise by two Christian Scientists, the jury recommended that the matter be turned over to the district attorney's office as the testimony appeared to indicate that the two women had practiced medicine without a license. A second death has just occurred under similar circumstances.

Street Accidents for June.—The National Highways Protective Society reports that fifty-three persons were killed in the streets of New York in June, twenty-six of these being children. Automobiles and motorcycles head the list as causes of these deaths. Records for the corresponding month last year show that the number of street accidents was forty-two. During the past months there have been 234 persons killed in the streets of the greater city of which 119 were children.

Blackwell's Island Conditions Bad.—The representative of the Prison Reform Association, after an investigation of Blackwell's Island, has submitted a report to the commissioner of corrections stating that the medical staff of Blackwell's Island consists of only one physician and one hospital helper. The hospital itself consists of two ill-furnished wards containing in all twenty-seven beds. It is also pointed out that no examination of the prisoners is made when they enter the prison.

Personal.—Dr. Jokichi Oguri, a Fordham graduate, the first Japanese ambulance surgeon to do service in New York City, has just gone on duty at the Fordham Hospital.——Dr. Simon Flexner, Dr. F. Peyton Rous and Dr. Linsley R. Williams have joined the pellagra commission, composed of physicians from the United States Navy and Army, the Public Health Service and the New York Post-Graduate Medical School at Spartansburg, S. C.——Dr. William L. Bulkley, Dr. Rolfe Kingsley, Dr. and Mrs. Charles H. May, Dr. and Mrs. Edward B. Dench and Dr. John Dwyer have sailed for Europe.——Dr. Graeme M. Hammond has returned from Europe.——Drs. Amy Walker, Helen Palliser and Anna Tjohnlands, graduates of Cornell, have begun their duties as interns at Bellevue Hospital, July 2.——Dr. Geraldine Watson of the same school begins her internship January 1.——Dr. Sigismund S. Goldwater, health commissioner of New York City, has returned from a trip to the West Indies and the Panama Canal.

Medical College Adopts Five-Year Course.—At the meeting of the alumni of the Long Island College Hospital on June 9, it was announced that a five-year course had been adopted and that, as a result, a number of changes had been made in the curriculum of the college. Candidates from high schools possessing a full medical student's certificate will be admitted to the subfreshman class and will study chemistry, biology, physiology, embryology, physics and French or German. The fifth or senior year will be given over to hospital bedside work. The new wing to the Long Island College Hospital will be completed this summer and will provide accommodation for 450 patients; the students will have free access to the building. All the clinical branches will have full-time resident instructors, so that ample opportunities for clinical instruction will be afforded. Dr. Thomas H. Evans has been appointed a full-time assistant in the department of anatomy, histology and embryology.

OHIO

New Officers.—Dayton Medical Society, June 12: president, Dr. Elmer E. Bechtel; secretary-treasurer, Dr. J. Fred Wuist. ——Salem Physicians' Club, June 24: president, Dr. Thomas J. Lyle; secretary, Dr. Ludwig F. Derfus.——Adams County Medical Association at Manchester, June 17: president, Dr. John W. Irwin, Seaman; secretary-treasurer, Dr. Oliver T. Sproull, West Union.

Visitors to State Board of Health.—Dr. Eugene R. Kelley, Seattle, commissioner of health of Washington, and Dr. Samuel J. Croumbine, secretary of the State Board of Health of Kansas, visited the Ohio State Board of Health at its weekly conference in Columbus, June 16. Dr. Kelley delivered an address on "The Fight Against Plague in Washington," outlining plans for the various systems of attacking it and methods by which rats were exterminated.

Diphtheria at Massillon State Hospital.—An outbreak of diphtheria comprising more than thirty cases recently occurred at Massillon State Hospital. A mild form of sore throat first prevailed and this was followed by a sharp outbreak of diphtheria among the inmates and attendants of the hospital. The outbreak was traced by Drs. Frank G. Boudreau and Walter E. Obetez, of the State Board of Health, to infection of the milk-supply, and immediate steps were taken to safeguard the supply by taking cultures from the throats of all who handled the milk and pasteurizing the entire supply. Four deaths occurred. Dr. Henry C. Eyman, superintendent of the hospital, placed all patients and suspects in one building, secured the immunization of all attendants and nurses, and placed Dr. Paul J. Alspaugh, senior resident physician, in charge, relieving him of all other duties. The outbreak is now believed to be under control.

Typhoid Fever at Canal Dover.—A peculiar epidemic of typhoid fever recently occurred at Canal Dover. This city experienced a similar outbreak in 1910, comprising nearly a hundred cases and traceable to one milk route. The same milk route was implicated in the present outbreak, more than 90 per cent. of the forty-one cases being restricted to customers of this dairy. Dr. A. W. Davis, the health officer, and Dr. F. G. Boudreau of the State Board of Health made a searching investigation but were unable to discover any evidence of carriers in the family of this dairyman. This milk-supply was temporarily stopped and arrangements made for pasteurizing the milk under the supervision of the health officer. This outbreak illustrates the danger of distributing milk in bulk, as contamination frequently results therefrom. All milk sold in Canal Dover hereafter will be distributed in bottles which are properly sterilized.

Personal.—Dr. Will J. Prince, Piqua, was operated on for appendicitis at the Memorial Hospital, June 25.——Dr. Simon Morgenroth has been elected a member of the staff of the Akron General Hospital. Dr. Clarence Ordway, of the East Side Hospital, Toledo, has purchased property adjoining the hospital, on which he expects to erect an addition to the institution.——Dr. Chester E. Kinzel, Wilmington, has been elected coroner of Clinton County to fill the unexpired term of Dr. Frank A. Peelee, resigned.——Dr. Martin Stamm, Fremont, and Dr. and Mrs. Charles M. Harpster and daughter, Toledo, have sailed for Europe.——Dr. Walter B. Turner, Youngstown, has been appointed local surgeon of the Baltimore and Ohio system.——Dr. George J. Smith, Niles, had conferred on him the honorary degree of M.A. at the commencement exercises of the University of Pittsburgh, Pa., June 17.——Dr. Daniel C. Houser, Dr. Colin R. Clark and Dr. James A. Sherbondy, Youngstown, have sailed for Europe.——Dr. Horace Bonner, Dayton, was the guest of honor at a dinner given by the sisters of St. Elizabeth Hospital to the medical staff of that institution in honor of the completion of his first quarter-century as a member of the staff.

Cincinnati

Alumni Meet.—The Ohio-Miami Alumnal Association elected the following officers for the ensuing year: president, Dr. Arthur C. Bachmeyer, Cincinnati; vice-presidents, Drs. Lockhart Nelson, Hillsboro, Ohio, John E. Wilson, Butler, Ky., Allen L. Bramkamp, Richmond, Ind., and Merrick T. McCarty, Cincinnati; secretary, Dr. Martin H. Urner, Cincinnati, Dr. Charles Stammel, Jr., Cincinnati.

City Physicians Instead of Fire Surgeons.—The city solicitor has prepared an ordinance which abolishes the position of fire surgeon and creates the post of city physician. It provides for the appointment of a chief city physician with a salary of $2,500; and for a city physician with a salary of $2,000 a year. Under the new arrangement the appointees will be under the direct supervision of the director of public safety, and will make examinations of the fire and police departments.

PENNSYLVANIA

Gift to Hospital.—The Abington Memorial Hospital has been given a $6,000 automobile ambulance by George D. Widener.

University of Pennsylvania to Admit Women.—It is reported that the trustees of the University of Pennsylvania have voted to admit women to the medical college of the university, beginning in the fall of 1914.

Antitoxin Stations.—In preparation for the Fourth of July accidents, Dr. Samuel G. Dixon, State Commissioner of Health, established sixty-nine lock jaw antitoxin stations throughout the state, where antitoxin was furnished to the poor without charge and these were so placed that every part of the state was within easy reach of one.

Hospital Chiefs Named.—On June 30 Dr. Harte, director of Public Health and Charities, made provisional appointments to positions at the Philadelphia General Hospital by naming Dr. Joseph C. Doane as chief resident physician to succeed Dr. Henry Sykes, deceased, and Dr. J. L. Donohue as assistant physician under Chief Physician Jackson, of the Hospital for the Insane.

Personal.—Drs. William H. Irwin and Haven Shoemaker have sailed for Europe.——Dr. William H. Walsh, superintendent and chief medical officer of the Municipal Hospital for Contagious Diseases, has been appointed medical administrator of the new Children's Hospital, which is now being erected at Eighteenth and Fitzwater streets.——Thomas S. Gates, president of the Philadelphia Trust, Safe Deposit and Insurance Company, has been elected president of the Board of Managers of the University Hospital to succeed John Sailer, deceased.——Dr. Frank R. Starkey was fired on by his intoxicated colored butler, June 30, but fortunately was not injured. ——Dr. William L. Rodman, President-Elect of the American Medical Association, was one of the guests of honor at a reception given by the Medical Club of Philadelphia, June 26.

WISCONSIN

Fresh-Air Camp Opened.—The municipal open-air camp of Neenah, at Gillingham's Corners, was opened June 17 with six children. The camp has a capacity of twelve, and will be conducted for ten weeks.

Personal.—Dr. and Mrs. Richard C. Buchanan, Green Bay, and Dr. James P. Lenfesty, De Pere, have returned from Europe.——Dr. and Mrs. Victor F. Marshall, Appleton, sailed for Europe, June 27.——Dr. William F. Lorenz of the staff of the Wisconsin State Hospital, Mendota, who has been on leave of absence for six months, to investigate pellagra in the South for the United States Public Health Service, has been granted an additional two months' leave to continue the work.——Dr. John J. McShane has been reelected health commissioner of Kenosha.——Dr. Charles A. Wright, Delavan, sailed for Europe, June 26.

GENERAL

The Service of Medicine to Civilization.—We have received a large number of letters commendatory of the address of President Vaughan, published in The Journal, June 27, and two or three have suggested that it is just the kind of matter to put into the hands of influential laymen. The address certainly will be of interest to the thinking layman, and undoubtedly many of our readers would like to present a copy to some of their friends or patients. We have had reprints made and shall be glad to furnish them on receipt of stamped addressed envelope, so long as the supply lasts.

Leper Colony.—The gift of $25,000 by the late Lord Strathcona is to be used for the establishment of the first leper colony in the United Kingdom. It is soon to be established in a deserted part of Essex. There are now only about twenty lepers in Great Britain, and these will be brought together for care at a central colony. A specially equipped hospital will be provided.

New Officers for Academy.—The American Academy of Medicine, at its annual meeting in Atlantic City, June 20-22, elected the following officers: president, Dr. Woods Hutchinson, New York City; secretary-treasurer, Dr. Charles McIntire, Easton, Pa. (reelected); and assistant secretary, Dr. William L. Estes, South Bethlehem, Pa. San Francisco was selected as the next place of meeting.

Climatologists Change Name.—At the thirty-first annual meeting of the American Climatological Association, held in Atlantic City, it was decided to change the name of the organization to the American Climatological and Clinical Association, and to hold the next meeting in San Francisco. Dr. Henry Sewell, Denver, was elected president, and Dr. Guy Hinsdale, Hot Springs, Va., was reelected secretary-treasurer.

Bequests and Donations.—The following bequests and donations have recently been announced:

Michael Reese Hospital, Chicago, a donation of $10,000 for the endowment of two beds in the children's ward, one in memory of Maurice Selz; the other in memory of Soloman and Miss Celia Austrian.

Children's Memorial Hospital, Montreal, $25,000, for the building of a wing in memory of the late Roswell Cross Lyman. Montreal General Hospital, $3,000; Royal Victoria Hospital, $3,000; Protestant Hospital for the Insane, Montreal, $3,000; Montreal Anti-Tuberculosis League, $1,000; and Grace Dart Home, $2,000, by the will of the late Henry Lyman, a victim of the *Empress of Ireland* disaster.

Lynn, Mass., Hospital, $10,000, by the will of Luther S. Johnson, Lynn.

New York Hospital, New York City, $10,000; Isabella McCosh Infirmary, Princeton, N. J., $5,000, by the will of Dr. Frank Hartley.

Lighthouse for the Blind, New York City, an endowment fund of $300,000, as a result of a four months' campaign.

Gift to Johns Hopkins.—Delivery was made July 6 at Baltimore of securities valued at $1,500,000 presented by the General Education Board to the Medical School of Johns Hopkins University, to be known as the William H. Welch Endowment for Clinical Education and Research. The entire income from this fund is to be utilized for the support of full-time teaching and research departments of medicine, surgery and pediatrics, or diseases of children. The trustees have provided that in reorganizing these three departments, professors and their assistants should hold their posts as salaried university officials, and accept personally no fees whatever for any medical or surgical services which they might render. The hospital wards and out-patient departments are to be under the control of the university medical or surgical teachers, but the teachers are to be free to render any service required in the interest of humanity and science. They are to be free to see any patient they desire. Private patients, however, will pay a reasonable fee to the university, rather than to the professors personally. Simultaneously with the completion of the reorganization of the Johns Hopkins Medical School, in accordance with this new plan, the university trustees have chosen Dr. Theodore C. Janeway, hitherto professor of medicine at Columbia University, to become professor of medicine of the Johns Hopkins Medical School. The chair of surgery at Johns Hopkins, under the full-time arrangement, is to be occupied by Dr. William S. Halsted, most of whose surgical career has been passed in the Johns Hopkins Medical School, where, since the establishment of the Johns Hopkins Hospital, he has been its surgeon-in-chief and professor of surgery. The chair of pediatrics will be occupied by Dr. John Howland, who was called a year ago from the professorship of pediatrics at Washington University, St. Louis, and appointed physician in charge of the Harriet Lane Home for Invalid Children, this institution being the pediatric clinic of Johns Hopkins Medical School. Johns Hopkins will become the first medical school to be placed on the full-time basis in all departments. A grant of $750,000 has been made to Washington University, St. Louis, and of $500,000 to the Medical School of Yale University, on an understanding that they also reorganize their work so as to put their clinical teaching on a full-time basis.

The Plague Situation.—A telegram under date of July 7, from New Orleans, states that up to date three cases of bubonic plague have occurred, with two deaths. The last case was discovered July 2. This focus of infection was three miles from the first. In the infected zone of the city, 6,000 rat-traps have been placed by direction of the health authorities. The infected area, with the Industrial Home of the Volunteers of America as a center, is under strict observation; and the trapping operations are being pushed to the limit of the area of rodent infection. Twenty-seven inmates of the Industrial Home of the Volunteers of America, where the two patients afflicted with plague were living when stricken, have been placed in an isolation camp, where they will remain until all danger is past. Plans have been made for the construction of a concrete barrier around the infected zone, extending four blocks from the center in all directions, and having four rat drives leading toward the center. Other barriers will be erected as the campaign progresses, with the ultimate idea of the extermination of every rat in the infected district. On July 7 the Public Health Service took control of the situation and established headquarters at 163 Dryades Street. All points outside the city are being thoroughly protected by rigid enforcement of outgoing quarantine. The officers of the Public Health Service on duty are: Assistant Surgeon-General William Colby Rucker, in charge; Surgeons Gustave M. Corput and Richard H. Creel, executive officers; Past Assistant Surgeon Friench Simpson and Assistant Surgeon Charles L. Williams, bacteriologist. Thirty inspectors, twenty foremen and one hundred laborers are already at work. Dr. Oscar Dowling, president of the State Board of Health; Dr. William P. O'Reilly, city health officer, and a committee of representative citizens are cooperating with the service officials to the fullest extent. Twelve lay inspectors from San Francisco, who are expert rat catchers, are on their way to New Orleans.——The embargo on the down-town district was lifted June 30, on advice from Surgeon-General Blue, so that normal business conditions now prevail in the forty-nine blocks of the business district, which have been under quarantine since the first case of bubonic plague was reported.

The Illinois State Board of Health has instructed its health officers along the Mississippi, Ohio, Wabash and Illinois rivers to begin the extermination of rats, and the railways entering the state from the South have been asked to lend their aid toward the exclusion of plague-bearing rats. ——The acting health commissioner of St. Louis, Dr. G. A. Jordan, has instructed the police to start an investigation regarding the rat question along the river front of that city. ——Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, has instructed all Missouri towns along the river front to begin a crusade against rats.——Memphis has adopted the necessary precautionary measures against the introduction of plague-infected rats.——Galveston has instituted a strict quarantine against the port of New Orleans, has planned a quarantine against the port of Santiago de Cuba, and has outlined plans for a determined campaign against rats, and for the destruction of their breeding places. The city of Galveston will pay 8 cents for each rat delivered to its health officers at the City Hall.——The quarantine board of Norfolk, Va., has recommended quarantine on vessels coming from New Orleans.——Dr. Eugene F. McCampbell, secretary of the Ohio State Board of Health, has notified the health officers of Cincinnati, Ironton, Portsmouth, Pomeroy, Middleport, Marietta, Bellaire, Bridgeport and Steubenville to guard carefully the landing of cargoes from Ohio River steamers, and to prevent rats from coming ashore. He has also dispatched state health inspectors, S. G. Boudreau and W. E. Obetz to make a trip of the river ports and see that instructions are rigidly enforced. He has also ordered that rat guards be placed on all ropes and hawsers from river vessels, and that watchmen be stationed at all gangplanks. He favors a state-wide campaign of extermination of rats.——At a meeting of the Kentucky State Board of Health, held in Louisville, June 29, a resolution was adopted authorizing Dr. John G. South to investigate the situation in New Orleans.——Dr. Charles A. Mohr, health officer of Mobile, has been delegated by Dr. W. H. Sanders, state health officer of Alabama, to represent the state and to render assistance in measures for the prevention of the spread of bubonic plague along the gulf coast. Vessels from New Orleans and other infected ports will not be allowed to dock without placing rat guards on all hawsers and taking all other precautions to prevent rats from coming ashore.

CANADA

New Officers.—Moose Jaw Medical Society: president, Dr. George P. Bawden; secretary-treasurer, Dr. Charles G. Sutherland.

Tuberculosis in Ontario.—In June only 95 cases of tuberculosis were reported to the Ontario Board of Health from that province. There were 143 for the same month in 1913. The board claims that physicians are not reporting these cases as required by the public-health act. The cases of infectious diseases in June totaled 1,503, with 89 deaths, as against 1,566 and 154 deaths for the corresponding month of 1913.

Personal.—Dr. John Hunter, Toronto, has gone abroad.——Dr. David Tannenbaum, Montreal, is summering in the Catskills.——Dr. Charles J. Patton, Montreal, is spending two months in Pennsylvania.——Dr. Walter Walker Wright, Toronto, will spend several months in the hospitals of Europe.——Dr. John T. Finnie, Montreal, has gone to England and the Continent.——Dr. Louis deL. Harwood, Montreal, has returned from Paris, much improved, after a serious operation.——Dr. Walter A. Wilkins, Montreal, is spending the summer in Germany.

LONDON LETTER

London, June 19, 1914.

Royal Commission on Venereal Diseases

At the fortieth meeting of the Royal Commission on Venereal Diseases, evidence was given by Dr. Dubois Havenith of Brussels, who was secretary to the international congresses of 1899 and 1902 dealing with venereal diseases. He said that in the case of syphilis, disinfection, by which he meant the getting rid of contagious lesions and the sterilizing of contaminated objects, was essential. In effect, disinfection in the case of syphilis consisted in treatment. Dr. Havenith laid stress on the need for early diagnosis, free and readily accessible treatment and supervision of the treatment for such time as might be necessary. For the purpose of early diagnosis, laboratories should be provided in which bacteriologic and other tests could be carried out. Clinics should be open after the ordinary hours of labor. In order that patients, who were often negligent or ill-instructed, should not abandon their treatment it was desirable to introduce some measure of control or surveillance. Such a system was already in operation at the dispensary founded by Malvoz at Liége, where arrangements had been made, with the consent of the patients, for keeping in touch with them, for the purpose of giving advice, for submitting them to the investigations necessary to determine the permanence of the cure, for warning them against contracting marriage too early, etc. The scheme worked well, and the patients were willing to fall in with the arrangements. The public should be enlightened on the gravity of syphilis from both the individual and the public point of view, but it was equally important that it should be realized that syphilis was a curable disease, that as a rule it was avoidable, and that if properly treated it ceased to be contagious.

The Problem of Clean Milk

Though the problem of a clean milk-supply has been discussed for many years by health officers and others, and some regulation attempted by the government, it still remains unsolved. Dr. Kenwood, Chadwick Professor of Hygiene and Public Health in the University of London, in a lecture on the subject at the Royal Sanitary Institute, said that there was overwhelming evidence that milk was one of the dirtiest articles of food sold. While the risk of the spread of tuberculosis through milk was considerable and called for further safeguards, the most urgent public health need was a cleaner milk-supply, for the bacteria and dirt in raw milk were doubtless responsible for much sickness and mortality among infants, especially in the summer months. The real solution of the problem was to produce a class of workers trained in the production of clean milk, and a general public with an educated concern to demand clean milk. The effective weapons were to educate, train, advise and supervise, and a great many inspector-instructors would have to be appointed if anything of value were to accrue to that branch of the work. The futile regulations of the Local Government Board made under the Dairies, Cowsheds and Milkshops Order, should be replaced by clearly defined conditions for the sanitary collection and distribution of milk, and for the circumstances which should determine the granting of an annual licensing. The time had gone by when without any knowledge or previous training, any one should be permitted to embark on this industry. Until the government seriously undertook to provide sufficient legal powers and an efficient machinery for administrative purposes, the heating of milk (low-temperature pasteurization) represented the only safe provisional solution of the milk problem.

Security of Tenure of Health Officers

Mr. Lloyd-George, Chancellor of the Exchequer, has received a deputation of the British Medical Association, the Society of Medical Officers of Health, the National Housing and Town-Planning Council, the Mansion House Council, the Rural Housing and the Sanitation Council, and the Royal Institute of Public Health on the subject of the security and tenure, and the superannuation of health officers. Among the points argued were that the health officers were practically under the direction of persons whose defects they very often had to point out, that superannuation should be given at the age limit, that they were liable to dismissal at three months' notice, that in one instance a health officer had been asked by his council to rewrite a portion of his report, and that it was impossible for health officers to be as fearless in the interests of the public good as they should be. Replying, Mr. Lloyd-George said that the speeches represented a case that only had to be stated to carry conviction to fair and impartial minds. The powers entrusted to local authorities even at the present moment were enormous. He should like to see some of these powers considerably strengthened, but he was convinced that until greater independence was insured for the officers who would administer those provisions, it was idle for Parliament to waste time in carrying more acts. Security of tenure to health officers and inspectors must be an essential part, if not an essential preliminary to any further legislation dealing with the housing question. He had had letters from health officers saying that they dared not report the true facts, and that the reports sent to the Local Government Board did not represent a tenth of the facts in their areas. Therefore he was wholeheartedly in sympathy with the demand, and the government had felt that there ought to be specific grants for a substantial part of the salaries of the officers concerned, and that they should be in a position to demand from the local authorities greater security of tenure.

The London School of Tropical Medicine

Portraits in bronze relief of Mr. Joseph Chamberlain and his son Mr. Austen Chamberlain have been placed in the hospital connected with the London School of Tropical Medicine as a memorial to the work which they have done in establishing the school. In unveiling the portraits Mr. Lewis Harcourt, Colonial Secretary, traced the development of the school to the conception and foresight of Sir Patrick Manson. The number of students attending the courses had grown from seventy in the first year to nearly 200 in the last, and nearly 1,800 passed through the school, about 700 of whom had entered colonial service. Only those like himself who had the vital statistics of the colonial service before their eyes could appreciate what these men had done to diminish the dangers of tropical life. The West African coast, once regarded as a death-trap, now might be esteemed a sanatorium. The death-rate of British officers had been reduced from 28 to 8 per thousand, and the invaliding from 62 to 28.

Increase in the Sale of Nostrums

Last year in his budget statement, Mr. Lloyd-George stated that there had been a decline in the revenue derived from stamps which have to be affixed to nostrums. This, as stated in The Journal, he attributed to two causes: the insurance act, which provided free attendance and medicine for the whole industrial population, and the revelations made at the government committee of inquiry into nostrums. The figures for the present year show an increase. The receipts from the sale of medicine duty stamps amounted to $1,800,000, or $160,000 more than in the twelve months 1912-1913. This is the greatest advance in any one year, for the last fifteen years at least. The increase in 1912-1913 was only $2,300. Last year also witnessed a small rise in the number of the licenses, 43,156 being issued, against 43,118 in 1912-1913.

PARIS LETTER

Paris, June 19, 1914.

Third Meeting of Interns

The third Congrès de l'internat des hôpitaux des villes de Facultés was held at Lyons, May 29 to June 2, under the presidency of Dr. Hugounenq, dean of the Faculté de médecine de Lyon.

The question of foreigners' internship and the practice of medicine in France was discussed. It was decided the present state of affairs might continue, which admits foreigners to internship on the same terms as French students, but allows the practice of medicine only on two conditions: the possession of a government diploma with a French bachelor's degree, and naturalization.

Cases in which the intern has been a victim of an infection or wound because of his service are numerous: wounds infected in the course of an operation or necropsy, infections or sicknesses of many kinds (typhoid fever, diphtheria, scarlatina, syphilis, etc.). Interns, however, may not benefit by the law of 1898 concerning occupational accidents, having no salaries, and not being in the position of workers in industrial establishments. Beside the facilities which are accorded them by the hospital administration to receive necessary care and the honorary distinctions which are sometimes conferred on them, the assembly thought it would be desirable if a compensation might be provided for the temporary and sometimes chronic disability which results from these professional accidents. It was unanimously decided to ask the administrations concerned for insurance against the professional risks to which interns are exposed in their hospital service.

Finally, it was voted to have the Associations amicales d'internes des hôpitaux des grandes villes de Facultés make the declaration of association prescribed by the law of 1901, so that the title of "hospital interns" and the legal power to protect the title against usurpers might be assured.

Homage to Military Physicians

At the opening of the session of the Académie de médecine, June 2, Raphael Blanchard, the secretary, read a list of physicians who had died in Morocco since the beginning of the present campaign. This list, prepared and sent by the sanitary service of the army, shows that in three years nine military physicians have died in Morocco—one from amebic dysentery, three from typhoid fever, two from exanthematous typhus and three under fire. Military physicians, Blanchard said, are non-combatants, and advantage is taken of this fact to limit their privileges and honors. But aside from the fact that the deaths which result from the care given to sick soldiers are sufficiently glorious, statistics show that the enemy's balls strike physicians as well as combatants, because their devotion forces them out on the firing-line to recover or to care for the wounded. The academy entered fully into the solemn homage which the orator rendered to these dead men.

In the name of the military health services, Vaillard, director of the Ecole d'application de médecine et de pharmacie militaires du Val-du-Grâce, feelingly thanked Blanchard and the academy for their manifestation of sympathy toward these victims of duty.

The Gastralgic Variety of Pyloric Stenosis

At the session of the Académie de médecine of June 16, Dr. Enriquez, physician to the hospitals of Paris, introduced a particular variety of pyloric stenosis, characterized essentially by the late painful paroxysm, to the exclusion of every other symptom. The lesions ascertained, sometimes neoplasms and sometimes ulcers, are situated at the level of the pylorus itself, at a distance, on the lesser curvature, or toward the duodenum. The clinical picture varies according as the stomach, examined on the roentgenoscopic screen, is of the hypertonic or atonic type. In the former case, the paroxysms are much more violent; the dilatation of the organ, always relative, seldom occurs, and is at times even exclusively segmentary, localized in the prepyloric antrum. In the hypotonic type, often accompanied in women by ptosis, the late pains are attenuated. The progress of the symptoms is essentially intermittent. Diagnosis is generally very difficult; but dechloridation followed very strictly for five or six weeks, thus reducing the secretion of hydrochloric acid to normal, will entirely eliminate the late pain in cases in which the hyperchlorhydria is of purely nervous origin, without organic lesion. For the rest, the use of a pneumatic cushion, more or less inflated, as the case may demand, rapidly improves the ptosis, whether simple or accompanied by other lesions. If this double therapeutic test is not efficacious, it reveals indirectly the existence of an organic lesion, whose location and nature repeated roentgenoscopy will determine. If the pain persists and the gastric distention increases, particularly if accompanied by alteration of the general condition, there is sufficient argument for surgical intervention, preferably pylorectomy, but if not practicable, gastro-enterostomy with complete exclusion of the pylorus.

Standardization of the Size of Medical Publications

The practitioner who desires to file methodically the numerous publications which he receives, in order to consult them when occasion arises, finds himself facing many difficulties, the greatest of which is the lack of uniformity in the dimensions of these publications. The result is a heap of diverse pamphlets of different sizes and bindings, merely a confused bundle, as hard to file as to consult. In mentioning these inconveniences in the *Gazette des hôpitaux*, Dr. P. Louge, surgeon of the hospitals of Marseilles, proposes the adoption of a standard form to facilitate the classification and preservation of these medical publications. The most convenient dimensions would be 15 by 23 cm. (6 by 9 inches). A class heading should be placed on the upper margin, and bear at the right the important word of the pamphlet's title, and on the left the capital letter of this word. The left margin should be left entirely blank for the rebinding, etc.

BERLIN LETTER

Berlin, June 19, 1914.

Personal

A few days ago Kehrer, formerly director of the obstetric clinic at Heidelberg, died at the age of 77. At the beginning of his university work, he devoted himself to physiology and was first privat-docent in this department at Giessen and later professor of obstetrics at Giessen and then at Heidelberg in 1881. He published a series of scientific monographs in the field of gynecology in general, a text-book on operative obstetrics and a text-book on obstetrics for midwives.

Reduction of Infant Mortality

According to the Imperial Statistical Bureau, the infant death-rate has never been so small in Germany as in 1912. The percentage of deaths to those born living in 1912 was 14.7 as compared with an average for the last ten years of 18.5. The rate varies much in different parts of the empire, ranging from 17.7 in Bavaria to 10 in Hesse and only 6.6 in Waldeck. The relatively greater mortality of male children in the first year of life is notable. Illegitimate children also show a higher death-rate, although in this case also there was marked improvement in 1912. The wide-spread assumption that the mortality of illegitimate children is markedly greater in large cities, especially in Berlin, is not sustained.

Accidents to Radium

This refers not to injuries to patients by radium, but accidents which have happened to the radium itself in its application. The newspapers reported the loss of a tube of radium worth $5,000 (20,000 marks) in a sanatorium in Charlottenburg. The tube was borrowed by the management of the sanatorium for the treatment of a patient. After its use it was laid in a small dish and later was thrown into the sink by a nurse who did not know the importance of the costly article. Although the Charlottenburg water-works were immediately notified and several of the connected canals of Charlottenburg were searched by workmen and three machines in the pumping-station removed and thoroughly searched, the radium was not found. The management of the sanatorium has now the doubtful pleasure of paying not only for the radium which was borrowed but also for the searching of the Charlottenburg water-system.

The other two accidents of a similar character turned out more fortunately. In a Munich hospital, in some unexplained way, a tube filled with radium valued at about $5,750 (23,000 marks) was thrown into the garbage and collected by the garbage-wagon. Notice was immediately given to the station for sorting the garbage at Puckheim near Munich and luckily the tube was found.

In a Strassburg deaconess' home, a patient had the misfortune to swallow a radium tube worth $6,250 (25,000 marks). The radium had been fastened inside the mouth and was to remain there for seventy-two hours. The fear that the radium might produce some disturbance inside the body was not justified. It was possible by the immediate administration of a powerful cathartic to free the patient from the foreign body. These experiences are, at any rate, a warning to be careful in the handling and preservation of the costly metal.

An Official Opinion on Friedmann's Remedy

June 15 there was a consultation in the medical division of the Prussian Department of the Interior on the value of Friedmann's remedy for tuberculosis, at which the ministerial director, Kirchner, presided and a number of clinicians, pathologists and bacteriologists participated. At this conference there was unanimity of opinion that there had been no pronounced curative action of the remedy either in cases of pulmonary or in other forms of tuberculosis. On the other hand, direct injuries from the use of the remedy had been established which depended in part on the action of the remedy itself and in part were to be explained by the fact that it was sometimes introduced into commerce contaminated with foreign bacteria. These experiences have led a number of prominent clinicians to refrain from the employment of Friedmann's remedy. An order forbidding its use is not to be issued because any limitation of the physician in the choice of his methods of treatment is foreign to German jurisprudence. It must be left to the scientific testing by the individual physician to determine whether and in what cases he will further use the remedy. The measures that the medical authorities have taken and still have in prospect in order to prevent the remedy from coming on the market in a contaminated condition received the approval of the meeting.

Marriages

John E. Hastings, M.D., Bernalillo, N. Mex., to Mrs. Mary S. Stickney of Washington, D. C., at Las Vegas, N. Mex., June 10.

Irwin Bradfield Smock, M.D., Canton, Ohio, to Miss Elizabeth Marvel Hutton of Atlantic City, N. J., June 24.

John Howard Nesbitt, M.D., Honey Grove, Texas, to Irene Thornton, M.D., of Atlanta, Ga., June 1.

Walter Martin Bucher, M.D., Warrensville, Ohio, to Miss Rena Richards of Toledo, Ohio, June 24.

Harry Leonard Merscher, M.D., Philadelphia, to Miss Elsie C. Hoffmann of Toronto, Ont., June 24.

Emmet Field Horine, M.D., to Miss Helen Brittingham Ruthenberg, both of Louisville, Ky., June 30.

Arthur Purdy Stout, M.D., New York City, to Miss Jean Stoddart of Toronto, Ont., in Paris, June 23.

J. Emmett Clark, M.D., to Miss Alice Louise Tennis, both of Oakland, Cal., at San Jose, Cal., June 20.

Edward Rosseter Mugrave, M.D., Denver, to Miss Leah M. Troutman of Fort Collins, Colo., June 24.

Charles H. Humphreys, M.D., Dayton, Ohio, to Miss Mary E. O. Sykes of Cincinnati, June 22.

Thomas Francis Nevins, M.D., to Miss Catherine E. Smith, both of Brooklyn, N. Y., June 24.

John Albert Chenoweth, M.D., Akron, Ohio, to Miss Ethel Ball of Webb City, Mo., June 22.

Harry V. Kitzmiller, M.D., to Miss Edna Bales, both of Wray, Colo., at Pueblo, Colo., June 13.

Paul Baldwin, M.D., Kennett, Mo., to Miss Elizabeth Brasfield of Unionville, Mo., June 17.

Francis Pierce Silva, M.D., to Miss Anna Louise Sullivan, both of Charlestown, Boston, June 24.

Nelius Julian Nessa, M.D., to Miss Florence Bankson, both of Sioux Falls, S. Dak., June 24.

Joseph L. Rose, M.D., to Miss Belle Netzer, both of Lena, Wis., at Green Bay, Wis., June 23.

Giles Anthony De Courcy, M.D., to Miss Martha Suddeck, both of Cincinnati, June 20.

David Henry Wherritt, M.D., Chicago, to Miss Elizabeth Griffith of New Orleans, June 23.

Fred H. Powers, M.D., to Miss Cora Sprecher, both of Baraboo, Wis., June 24.

Morris Fishbein, M.D., Chicago, to Miss Anna Mantel of Indianapolis, July 7.

Drexel Lowry Dawson, M.D., to Miss Lula Sinclair, both of Chicago, recently.

Deaths

Jeremiah Clark Stewart, M.D. College of Physicians and Surgeons in the City of New York, 1884; a Fellow of the American Medical Association; and Western Surgical and Gynecological Association; professor of principles of surgery and associate professor of surgery in the University of Minnesota, Minneapolis; surgeon to the Minneapolis City Hospital, and consulting surgeon to the Northwestern and Asbury hospitals, Minneapolis; died at his home in Minneapolis, June 25, from heart disease, aged 60.

Frank Martin Cunningham, M.D. Medical College of Virginia, Richmond, 1899; a member of the Medical Association of Georgia; and formerly president of the Macon Medical Society; and a specialist in diseases of the eye, ear, nose and throat of Macon, Ga.; consulting surgeon to the eye, ear, nose and throat department of the Macon City Hospital, and sometime department editor of *Southern Medicine and Surgery;* died in the University Hospital, Philadelphia, June 21, from pernicious anemia, aged 37.

William B. Moseley, M.D. University of Virginia, Charlottesville, 1890; of Brooklyn, N. Y.; a member of the American Medico-Psychological Society; an alienist to the Kings County Hospital and in charge of the observation ward since 1903; died suddenly in that institution, June 25, from heat prostration, aged 45.

George Strawbridge, M.D. University of Pennsylvania, Philadelphia, 1866; a Fellow of the American Medical Association; and of many American and German ophthalmologic and otologic societies; formerly professor of otology in his Alma Mater; ophthalmic surgeon to the Presbyterian Hospital and Pennsylvania Eye and Ear Infirmary, and consulting surgeon to the Wills Hospital, Philadelphia; died at his home in Philadelphia, June 29, aged 68.

Caleb Scattergood Middleton, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1862; formerly a member of the State Board of Medical Examiners of Pennsylvania; a trustee and director of the Hahnemann College and Hospital; for fifty years a practitioner of Philadelphia; died at his suburban home in Ardmore, Pa., June 24, aged 75.

Giles Eldon French, M.D. University of Oregon, Portland, 1899; a medical officer of the United States Reclamation Service; with headquarters at North Yakima, Wash.; but who had been on duty at the reclamation camp, Clear Creek, Wash.; died suddenly, June 22, from heart disease, aged 42.

James Hamilton Morgan, M.D. Jefferson Medical College, 1889; one of the founders of the Physicians and Surgeons Hospital, Wilmington, Del., and for two years instructor in science in Wilmington High School; died at his home in Wilmington, June 17, from cerebral hemorrhage, aged 56.

James Bryan Whitfield, M.D. University of Pennsylvania, Philadelphia, 1867; a Fellow of the American Medical Association, and once president of the Marengo County, Ala., Medical Society; a Confederate veteran; died at his home in Demopolis, Ala., June 19, aged 72.

Marvin Reed Palmer, M.D. College of Physicians and Surgeons in the City of New York, 1882; since 1895 chief surgeon of the police department of New York City; died at the Lloyd Sanitarium, New York City, five days after an operation for appendicitis, aged 54.

James B. Geyer, M.D. Medical College of Indiana, Indianapolis, 1882; a Fellow of the Ohio State Medical Association; for sixteen years a member of the school board of Sidney, Ohio; died at his home in that city, June 18, from carcinoma of the stomach, aged 66.

John William Gallaher, M.D. Washington University, St. Louis, 1878; a Fellow of the American Medical Association; for many years a practitioner of Graham, Texas; but for two months a resident of Fort Worth; died at his home in Fort Worth, June 20, aged 62.

John Richard Devine, M.D. Albany, N. Y., Medical College, 1910; a Fellow of the American Medical Association; and formerly a member of the staff of the Samaritan Hospital, Troy, N. Y.; died at his home in Utica, N. Y., March 4, from pneumonia, aged 27.

Edwin Darling (license, Iowa, years of practice, 1886). For forty-four years a practitioner of Crawford County, Iowa; and hospital steward during the Civil War; for one term postmaster of Vail, Iowa; died at his home in that place, June 20, aged 76.

George O. Murray, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1896; a member of the Wisconsin State Medical Society; for several years health officer of Tomah; died at his home in that city, June 20, from cerebral hemorrhage, aged 56.

Paul Sherman, M.D. St. Louis College of Physicians and Surgeons, 1898; a Fellow of the American Medical Association; and an inspector for the Illinois State Board of Health; died at his home in Shawneetown, Ill., June 19, from nephritis, aged 38.

James Howell Wilkes, M.D. University of Nashville, Tenn., 1862; a member of the Tennessee State Medical Association; assistant surgeon in the Confederate service during the Civil War; died at his home in Columbia, Tenn., June 20, aged 83.

Charles T. Palmer, M.D. Medico-Chirurgical College of Philadelphia, 1904; a Fellow of the American Medical Association; deputy health officer of Los Angeles; died in that city, June 15, from general nervous breakdown, aged 33.

William H. Kessler, M.D. Cincinnati College of Medicine and Surgery, 1869; a retired physician of West Milton, Ohio; died at his home, June 24, from heart disease, aged 75.

Charles Julius Funck, M.D. Medical College of Ohio, Cincinnati, 1878; was found dead in his home in Cincinnati, June 24, from heat exhaustion, aged 58.

Albert S. Clarke, M.D. New York University, New York City, 1848; died at his home in Bushnell, Ill., May 13, from senile debility, aged 90.

John Ambert Greer, M.D. University of Pennsylvania, Philadelphia, 1887; of Audubon, N. J., and Philadelphia; died in the Presbyterian Hospital, Philadelphia, April 18, from the effects of an overdose of laudanum, aged 47.

James Ewell Bell, M.D. Hampton-Sidney, Va., Medical College, 1849; for more than sixty years a practitioner of Virginia; died at the home of his daughter in Wilmington, N. C., May 27, from senile debility, aged 90.

George C. Soule (license, Rhode Island State Board of Health, 1895); for thirty-six years a practitioner of Wickford, R. I., and vicinity; died at the home of his daughter in Wickford, June 22, from nephritis, aged 60.

Otto Chester Joselyn, M.D. Detroit Medical College, 1893; whose license was revoked by the California State Board in 1905; died in the Lane Hospital, San Francisco, June 14, after an operation for appendicitis, aged 47.

Arthur Hurtado De Mendoza, M.D. Dearborn Medical College, Chicago, 1905; of Piper City, Ill.; died suddenly from cerebral hemorrhage while making a professional call near La Hogue, Ill., June 12, aged 50.

John E. Binns, M.D. University of Nashville, Tenn., 1861; a confederate veteran; for four years tax assessor of Davidson County, Tenn.; died at his home in Nashville, May 1, from senile debility, aged 75.

James L. Hogeboom (license, examination, New York). A practitioner since 1864; and for thirty-five years a resident of Castleton, N. Y.; died in New York City, June 2, from senile debility, aged 84.

Benjamin Franklin Harvey, M.D. New York University, New York City, 1880; a pioneer practitioner of Whitman County, Washington; died at his home in Colfax, Wash., June 22, aged 62.

William H. Booth, M.D. University of Iowa, Iowa City, 1877; a member of the Oregon State Medical Association; died at his home in Lebanon, Ore., June 18, from heart disease, aged 61.

Louis Van Altena (license, Wisconsin). For more than sixty years a practitioner of Sheboygan County, Wis.; died at his home in Cedar Grove, Wis., June 19, from heart disease, aged 84.

Daniel Boone Wilcox, M.D. Medical College of Ohio, Cincinnati, 1891; a member of the Kentucky State Medical Association; died at his home in Grayson, Ky., April 25, aged 57.

Clarence Weston Tolles, M.D. Bellevue Hospital Medical College, 1868; a member of the New Hampshire Medical Society; died at his home in Claremont, N. H., May 28, aged 69.

Samuel James Henderson, M.D. Long Island College Hospital, N. Y., 1866; of Bad Axe, Mich.; died at the home of his daughter in that city, June 14, from acute gastritis, aged 69.

Henry Augustus Gates, M.D. Bellevue Hospital Medical College, 1877; a member of the Medical Society of the state of New York; died at his home in Delhi, N. Y., May 23, aged 65.

Frederick Lee Johnson, M.D. Ohio Medical University, Columbus, 1895; of Worthington, Ohio; died in the Grant Hospital, Columbus, Ohio, June 20, aged 36.

George Richard Bowles, M.D. St. Louis University, 1866; of Ukiah, Cal., died at the home of his brother in Berkeley, Cal., March 7, from tuberculosis, aged 74.

William L. Cuthbert, M.D. Rush Medical College, 1862; of Long Beach, Cal.; died recently in St. Petersburg, Fla., aged 83.

Luman M. Godfrey, M.D. Detroit Homeopathic Medical College, 1875; died at his home in Kentland, Ind., May 4, aged 84.

Frank Richard Newman, M.D. Bellevue Hospital Medical College, 1871; died at his home in Brooklyn, N. Y., June 16.

Jesse Parker Bixby, M.D. Castleton (Vt.) Medical College, 1852; died at his home in Rushford, N. Y., April 3, aged 92.

Charles S. Barney, M.D. Albany, N. Y., Medical College, 1883; died at his home in Milford, N. Y., May 26, aged 55.

George L. Laforest, M.D. Victoria College, Cobourg, Ont., 1879; died at his home in Montreal, March 26, aged 57.

William Wayland Bonnell (license, Illinois, years of practice, 1878); died recently at his home in Astoria, Ill.

R. L. Barker (license, Tennessee, 1906); died at his home near Camden, Tenn., June 13, from tuberculosis.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

DR. JIROCH COMPANY

A Fraudulent Mail-Order Medical Concern

For some years, the Dr. Jiroch Company, 533 South Wabash Avenue, Chicago, has been conducting a mail-order medical concern. On June 24, 1914, the federal authorities declared the concern fraudulent and denied it the use of the mails. The attorney for the Dr. Jiroch Company was Fletcher Dobyns of Chicago, the same man who appeared in behalf of a similar fraud operated from Detroit, the "Interstate Remedy Company." The Jiroch fakery also introduced, through its attorney, a physician, who attempted to justify the methods of this concern. This physician was Dr. Nathaniel H. Adams of Chicago, member of the Chicago Medical Society and, through this membership, Fellow of the American Medical Association.

The methods of the Dr. Jiroch Company were investigated some time ago by The Journal, and much of the matter that follows was written nearly two years ago. Other matters prevented the completion of the "story" and it was filed away.

THE PERSONNEL

As in all such cases, the physician whose name gives the title to this fraud has been but a mere stool-pigeon. At the time of The Journal's investigation, the real men behind the scheme seem to have been:

Melville W. Johnson, Garrett, Indiana, *President.*
A. G. Hagerty, *Secretary.*
Thos. R. Bradford, *Treasurer.*
F. W. Jiroch, *Medical Director.*

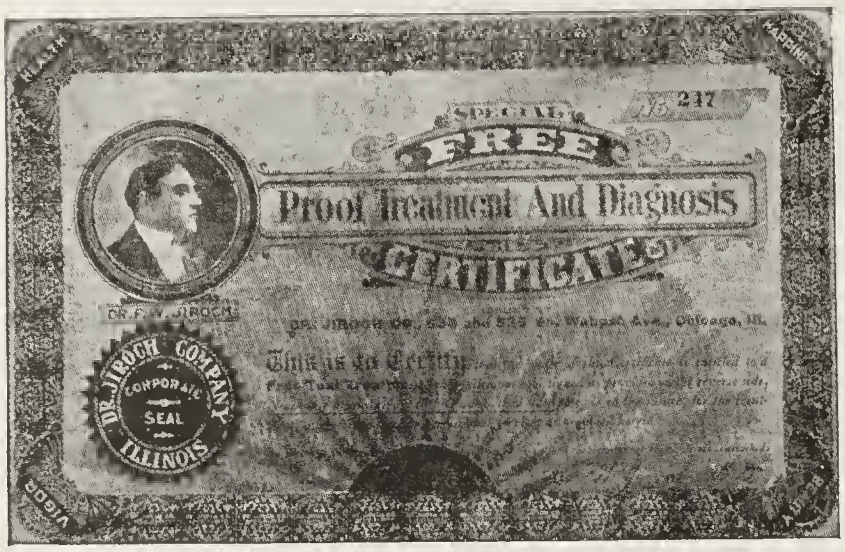
Jiroch was a student at the Harvey Medical College at Chicago at the time this low-grade institution went out of existence. He then seems to have gone over to Jenner Medical College, Chicago, by which school he was graduated in 1906, receiving a license to practice, from the State of Illinois, the same year. The practical man of affairs in the Dr. Jiroch Company seems to have been Thomas R. Bradford, who, it is said, was formerly with a somewhat similar fake concern, the "Blair Remedy Company" of Chicago. Bradford, apparently, is an old hand at mail-order medical frauds. In 1904, Thomas R. Bradford was operating a business in Cincinnati under the name of "Bradford & Company." The scheme was an attempt to sell an alleged cure for "lost vitality, sexual debility," etc., and was put out of business by the federal authorities in December, 1904.

ITS METHODS

The Dr. Jiroch Company obtained its victims through advertisements placed in the cheaper weeklies and daily papers. In addition, the concern bought or rented "sucker lists" either from letter brokers or from concerns in a similar disreputable business. An enormous amount of circularizing was done, much of it in a haphazard way; the member of The Journal staff, who has corresponded under assumed names with various medical frauds, was richly favored with Jiroch "bait" although he had never written to the concern, showing that these names had been purchased or rented.

While, in what follows, Jiroch's name is used as though he was the one individual responsible, it should be borne in mind that he was but the "hired-man" of the concern. Nevertheless all letters were signed (in facsimile) with Jiroch's name and the victim was led to believe that Jiroch gave personal and individual attention to each case.

The prospective victims were sent circular letters, printed in imitation of typewriting. With each letter was a brilliantly colored "certificate" that was alleged to entitle the holder to a "Special Free Proof Treatment and Diagnosis." Not all the "certificates" were the same; they varied in color and in the series of questions asked. Some were sent to those supposed to be suffering from "female trouble," others to those presumably deaf, still others to those whose ailments were of a general or indefinite nature. But whatever kind of "certificate" was sent they all offered the "Special Free Proof Treatment and Diagnosis."



No. 247

SPECIAL

FREE

Proof Treatment And Diagnosis

CERTIFICATE

DR. F. W. JIROCH

Dr. Jiroch Co., 533 and 535 So. Wabash Ave., Chicago, Ill.

This is to Certify

Photographic reproduction, reduced, of the "Special Free Proof Treatment and Diagnosis Certificate." This was one of the pieces of advertising claptrap used by the Dr. Jiroch Company to impress the ignorant. The evident intent was to make the recipient of these "certificates" imagine that he was receiving a special benefit from the company. The certificates were printed in various color combinations, the one reproduced above being in orange and purple. Each certificate bore what was apparently a serial number; as a matter of fact, all had the same number, "247."

THE "TREATMENT" FREE AND OTHERWISE

The Jiroch advertisements that appeared in the cheap weeklies also featured the "free treatment and diagnosis." Both the advertisements and the certificates contained a list of symptoms. Says the Jiroch Company:

> "Put an X mark before every symptom you have and two XX marks before your worst symptom."

Those who answered the advertisements or who sent in the "certificates" received a "free proof treatment" consisting of two small boxes of tablets, one kind pink, sugar coated and ovoid in shape varying in number from four to six; the other white or very faintly pinkish, sugar coated and cylinder-shaped varying in number from seven to fourteen. By the same mail, a circular letter came giving directions as to the use of the "free treatment." This "letter" also was prepared in imitation of typewriting and the name of the individual to whom it was sent was filled in by means of a typewriter. All of the "proof treatments" seem to have been identical irrespective of the age or sex of the persons to whom they were sent or whether the recipients were suffering from consumption, rheumatism or malaria.

Within twenty-four hours of receiving the "free treatment" the patient had inflicted on him, unasked, a "full size treatment." This came in a cardboard box holding four small boxes numbered respectively, "1," "2," "3" and "4." The boxes were labeled as follows:

Box 1.: "Prescription No. 16759. Directions: Take one tablet before or after the morning meal. Swallow with a little water."

Box 2.: "Prescription No. 29408. Directions: Take one tablet before or after the noon meal. Swallow with a little water."

Box 3.: "Prescription No. 30651. Directions: Take one tablet before or after the evening meal. Swallow with a little water."

Box 4.: "No. 4039. Directions: Take one tablet at bedtime, or as often as necessary to insure about two movements of your bowels each day."

The tablets labeled Prescription No. "16759" that came in Box 1 are white or faintly pinkish, sugar coated, cylindrical-shaped tablets, apparently identical with part of the "free proof treatment."

The tablets in the box labeled Prescription No. "29408" were large, bright yellow, sugar-coated tablets.

The tablets in Box 3—Prescription No. "30651" were brown, uncoated tablets oval in shape.

The tablets in Box 4, labeled "No. 4039" were apparently identical with the pink tablets that came with the "free proof treatment."

ANALYSIS OF THE "TREATMENT"

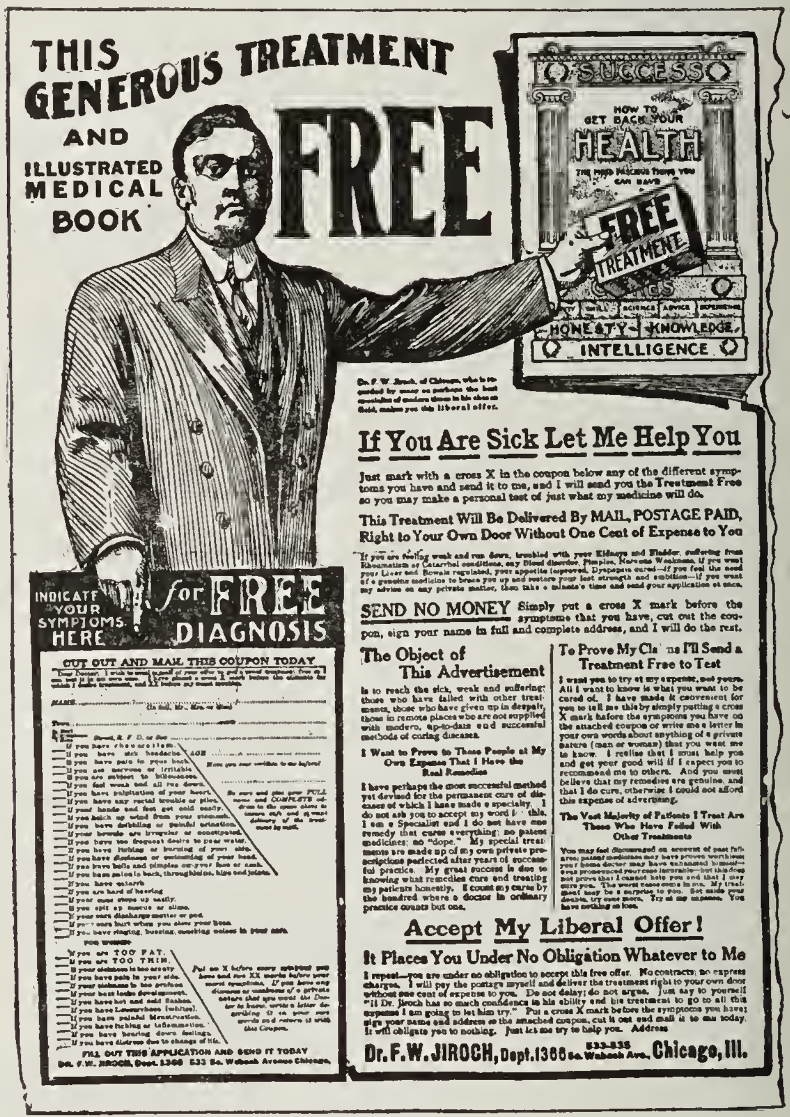
A complete set of the "Dr. Jiroch Treatment" was subjected to examination in the Association's laboratory, and the chemists' findings may be briefly summarized as follows:

Box 1. (℞ 16759): These pinkish pills were found to contain licorice root, starch, some vegetable extractive and a trace of alkaloid, apparently strychnin.

Box 2. (℞ 29408): These yellow pills were found to have for their chief constituents, powdered licorice root and cornstarch with small quantities of vegetable extractive.

Box 3. (℞ 30651): These tablets, according to the chemists, were found to consist essentially of cornstarch and extract of nux vomica. Quantitative analysis indicated that the total alkaloidal content was equivalent to about ⅓ grain of nux vomica in each tablet.

Box 4. (℞ 4039): These pink pills were found to consist essentially of starch and aloes, with a trace of strychnin. No other medicinal ingredient was found.



THIS GENEROUS TREATMENT
AND
ILLUSTRATED MEDICAL BOOK
FREE
SUCCESS
HOW TO GET BACK YOUR HEALTH
FREE TREATMENT
SCIENCE
ADVICE
HONESTY
KNOWLEDGE
INTELLIGENCE
INDICATE YOUR SYMPTOMS HERE
for FREE DIAGNOSIS

Dr. F. W. Jiroch, of Chicago, who is regarded by many as perhaps the best specialist of modern times in his chosen field, makes you this liberal offer.

If You Are Sick Let Me Help You

Just mark with a cross X in the coupon below any of the different symptoms you have and send it to me, and I will send you the Treatment Free so you may make a personal test of just what my medicine will do.

This Treatment Will Be Delivered By MAIL, POSTAGE PAID, Right to Your Own Door Without One Cent of Expense to You

If you are feeling weak and run down, troubled with your Kidneys and Bladder, suffering from Rheumatism or Catarrhal conditions, any Blood disorder, Pimples, Nervous Weakness, if you want your Liver and Bowels regulated, your appetite improved, Dyspepsia cured—if you feel the need of a genuine medicine to brace you up and restore your lost strength and ambition—if you want my advice on any private matter, then take a minute's time and send your application at once.

SEND NO MONEY Simply put a cross X mark before the symptoms that you have, cut out the coupon, sign your name in full and complete address, and I will do the rest.

The Object of This Advertisement

is to reach the sick, weak and suffering; those who have failed with other treatments, those who have given up in despair, those in remote places who are not supplied with modern, up-to-date and successful methods of curing diseases.

I Want to Prove to These People at My Own Expense That I Have the Real Remedies

I have perhaps the most successful method yet devised for the permanent cure of diseases of which I have made a specialty. I do not ask you to accept my word for this. I am a Specialist and I do not have one remedy that cures everything; no patent medicines; no "dope." My special treatments are made up of my own private prescriptions perfected after years of successful practice. My great success is due to knowing what remedies cure and treating my patients honestly. I count my cures by the hundred where a doctor in ordinary practice counts but one.

To Prove My Cla ns I'll Send a Treatment Free to Test

I want you to try at my expense, not yours. All I want to know is what you want to be cured of. I have made it convenient for you to tell me this by simply putting a cross X mark before the symptoms you have on the attached coupon or write me a letter in your own words about anything of a private nature (man or woman) that you want me to know. I realize that I must help you and get your good will if I expect you to recommend me to others. And you must believe that my remedies are genuine, and that I do cure, otherwise I could not afford this expense of advertising.

The Vast Majority of Patients I Treat Are Those Who Have Failed With Other Treatments

You may feel discouraged on account of past failures; patent medicines may have proven worthless; your home doctor may have exhausted himself—even pronounced your case incurable—but this does not prove that I cannot help you and that I may cure you. The worst cases come to me. My treatment may be a surprise to you. Set aside your doubts, try once more. Try at my expense. You have nothing to lose.

Accept My Liberal Offer!

It Places You Under No Obligation Whatever to Me

I repeat—you are under no obligation to accept this free offer. No contracts; no express charges. I will pay the postage myself and deliver the treatment right to your own door without one cent of expense to you. Do not delay; do not argue. Just say to yourself "If Dr. Jiroch has so much confidence in his ability and his treatment to go to all this expense I am going to let him try." Put a cross X mark before the symptoms you have; sign your name and address on the attached coupon, cut it out and mail it to me today. It will obligate you to nothing. Just let me try to help you. Address

Dr. F. W. JIROCH, Dept. 1366 533-535 So. Wabash Ave., Chicago, Ill.

CUT OUT AND MAIL THIS COUPON TODAY

NAME .... (In full, Mr., Mrs. or Miss)

Town ....

Street, R. F. D., or Box ....

AGE ....

Have you ever written to me before?

Be sure and give your FULL name and COMPLETE address in the space above to insure safe and prompt delivery of the treatment by mail.

— If you have rheumatism.
— If you have sick headache.
— If you have pain in your back.
— If you are nervous or irritable.
— If you are subject to biliousness.
— If you feel weak and all run down.
— If you have palpitation of your heart.
— If you have any rectal trouble or piles.
— If your hands and feet get cold easily.
— If you belch up wind from your stomach.
— If you have dribbling or painful urination.
— If your bowels are irregular or constipated.
— If you have too frequent desire to pass water.
— If you have itching or burning of your skin.
— If you have dizziness or swimming of your head.
— If you have boils and pimples on your face or neck.
— If you have pains in back, through sides, hips and joints.
— If you have catarrh.
— If you are hard of hearing.
— If your nose stops up easily.
— If you spit up mucus or slime.
— If your ears discharge matter or pus.
— If your ears hurt when you blow your nose.
— If you have ringing, buzzing, crackling noises in your ears.

FOR WOMEN

— If you are TOO FAT.
— If you are TOO THIN.
— If your sickness is too scanty.
— If you have pain in your side.
— If your sickness is too profuse.
— If your bust lacks development.
— If you have hot and cold flashes.
— If you have Leucorrhoea (whites).
— If you have painful Menstruation.
— If you have itching or inflammation.
— If you have bearing down feelings.
— If you have distress due to change of life.

Put an X before every symptom you have and two XX marks before your worst symptoms. If you have any diseases or weakness of a private nature that you want the Doctor to know, write a letter describing it in your own words and return it with this Coupon.

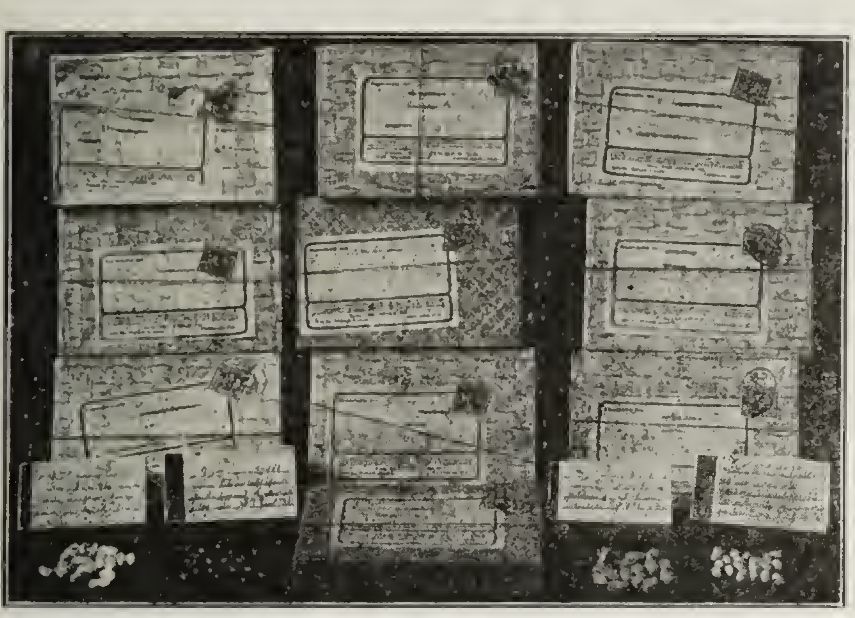
FILL OUT THIS APPLICATION AND SEND IT TODAY

DR. F. W. JIROCH, Dept. 1366 533 So. Wabash Avenue Chicago.

Greatly reduced facsimile of a typical Jiroch advertisement.

THE SLIDING PRICE SCALE

The same mail that brought the "full size treatment" also brought a circular letter—in imitation typewriting—supposed to contain a diagnosis of the patient's condition. These "diagnoses" were stock letters in which the name of the person addressed was filled in by means of a typewriter and two lines in the body of the letter purporting to be the "diagnosis" were also filled in. The victim was urged to send in $3 for this full-size treatment. If the request was ignored, the patient was bombarded with follow-up letters at more or less regular intervals, each letter more insistent than its predecessor in urging that money be sent for the treatment. As a rule, the first three follow-up letters maintained the original price, $3; the fourth letter offered to accept $1.50 while the fifth letter came down to $1.00. If this last offer failed to elicit a reply, Jiroch, apparently, decided that this individual did not belong in the "sucker" class and dropped the name from his books.



In investigating the Jiroch fraud, The Journal accumulated several of the "full size treatments" sent—unasked—to various hypothetical individuals. Here are ten of the "full size treatments," for which $3.00 each was asked—$30.00 worth. It would have cost the Jiroch Company 40 cents to have these medicines, for which they asked $30.00, returned, but the 40 cents was not sent. The reason? The $30.00 worth of pills were not worth 30 cents!

We know of no instance in which the Jiroch Company voluntarily sent the four cents postage for the return of the $3.00 "treatment." This is not surprising as it would not be "good business" to expend four cents in postage for the return of pills worth less than four cents.

WHAT WERE THE DIAGNOSES WORTH?

We have said that the second letter from Jiroch to his prospective victim gave what purported to be a "diagnosis" of the patient's case. As a matter of fact, this diagnosis, so-called, was one that could have been made by the girl typists who filled it in on the imitation typewritten letters—and perhaps was. Did the person put crosses against "rheumatism," "indigestion" and "piles," Jiroch made a "diagnosis" that the person was suffering from rheumatism, indigestion and piles. This was the method by which these quacks cajoled their victims into believing that a physician had carefully studied their cases and diagnosed their ailments.

To show the worthlessness of Jiroch's "diagnoses," The Journal had "symptom blanks" sent to the company from various parts of the country and describing widely varying forms of ailments. In every instance, Jiroch sent the free trial treatment and followed it up immediately with his "full-size treatment" together with a "diagnosis" letter detailing the very symptoms that had been sent in. The "full-size treatments" that were sent were all the same whether the supposed patient was suffering from consumption, rheumatism or Bright's disease.

One letter was sent from Virginia and a cross was put against the following list of symptoms:

"Spit up mucous and slime."
"Pain in the back."
"Heartburn and indigestion."
"Bowels irregular and constipated."
"Weak, nervous and trembling after slight exertion."

Back came the "diagnosis" letter which read:

"According to my diagnosis what you need to cure you completely is a thorough special treatment from the *Spitting up of Mucus, Pains and Soreness Across the Back, Poor Digestion, Constipation, Nervousness, Defective Elimination and Uric Acid Conditions.*"

The words that we have italicized are those that had been filled in on a typewriter. The "full-size treatment" sent in this case consisted of the four boxes containing the pills labeled respectively: Prescription Numbers "16759," "29408," "30651" and "4039"—price $3.

Another letter sent from a small town in Illinois had a cross placed against the following symptoms:

"Have sick headache."
"Heart trouble."
"Stomach trouble."
"Are depressed in spirits."
"Have twitching of the muscles."

The "diagnosis" letter to this supposititious patient read:

"According to my diagnosis what you need to cure you completely is a thorough special treatment for the *Headache, Poor Circulation, Stomach trouble, Depressed Spirits, Twitching Muscles, Defective elimination, and Uric Acid Conditions.*"

Here again the words we have italicized had been filled in with the typewriter—and the same boxes of pills were sent. Another symptom blank The Journal had mailed from a town in Ohio with crosses against the following:

"Are troubled with catarrh."
"Have dizziness."
"Are depressed in spirits."
"Have too frequent desire to pass water."

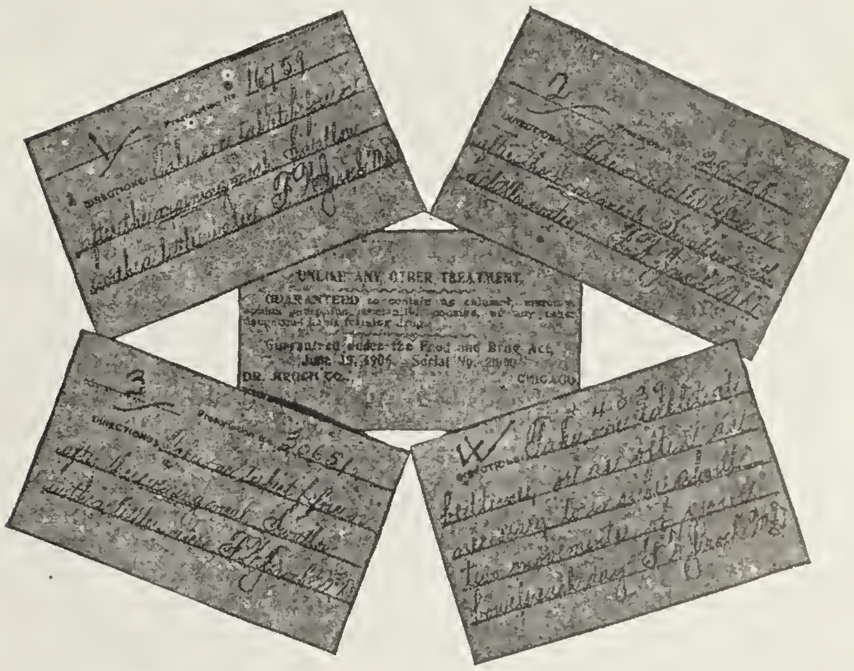
Quack Jiroch "diagnosed" this case:

"According to my diagnosis what you need to cure you is a thorough special treatment for the *Catarrh, Dizziness, Depressed Spirits, Bladder Trouble, Defective Elimination and Uric Acid Conditions.*"

In this case, too, the recipient of the diagnosis got the same stock "full-size treatment"—Prescription Nos. 16759, 29408, 30651 and 4039—with the usual request for a remittance of $3.

From a city in Pennsylvania The Journal had a symptom blank sent in describing as well as is possible by mail a case of diabetes mellitus. The person sending it in stated explicitly that he had diabetes and also put crosses against the following:

"Are losing flesh."
"Feel weak and all run down."
"Have itching or burning of skin."
"Have boils and pimples on face and on neck."
"Have too frequent desire to pass water."



Photographic facsimile of the labels on the four boxes sent to practically all those who filled out a "symptom blank" and sent it to the Dr. Jiroch Company. Whether suffering from rheumatism, diabetes, consumption, malaria or what not, the patient would receive the four boxes of pills labeled as shown above. The so-called individual treatment was a farce.

Diagnosing by mail is, of course, an anomaly. The scientific value of a diagnosis of ailments in persons who have never been seen and whose symptoms are described by the persons themselves, is *nil*. Nevertheless if any conclusion at all could be reached regarding the hypothetical case just described, it must have been that the patient was suffering from diabetes mellitus. What did Jiroch say?

"According to my diagnosis what your case requires now is a thorough special treatment for the *Kidney Trouble, Itching Skin, Impure Blood, Nervousness, Headaches, Defective Elimination and Uric Acid Conditions.*"

And the treatment? The same "full-size treatment" sent to the sufferer from consumption, rheumatism, etc., that is, Boxes Nos. 1, 2, 3 and 4 (Prescriptions Nos. 16759, 29408, 30651 and 4039). Worse yet, the diabetic—in common with all others—was told:

> "For your case I would advise a mixed diet."

A "mixed diet" recommended to a supposititious diabetic to whom the starches in such articles as bread, biscuits, potatoes, etc., and sugars, sirups and sweets might, in the amounts ordinarily taken, be deadly! A mixed diet, indeed!

Other diagnoses just as worthless as those detailed above, could be given, but these are sufficient to make plain the worthlessness of the diagnosis and the fraudulence of the Jiroch "treatment." Yet the Jiroch concern said about Jiroch:

> "I am a specialist and I do not have one remedy that cures everything . . . My special treatments are made up of my own private preparations perfected after years of successful practice."

One thing will be noticed regarding the fake diagnoses. No matter what other ailments the patients were supposed to have, they were all suffering—according to Jiroch—from "Defective Elimination and Uric Acid Conditions." Whether it was a case of consumption, kidney disease or "female trouble" every person whose case Jiroch professed to diagnose was a sufferer from "defective elimination and uric acid conditions."

The Post-Office Stops the Fraud

The matter preceding represents the investigations made by The Journal some time ago. That which follows is taken largely from the memorandum of Assistant Attorney-General Lamar to the postmaster general recommending the issuance of a fraud order. Judge Lamar's report says, that after a thorough review of the evidence submitted with the report of the post-office inspectors who investigated the Dr. Jiroch Company, he finds the facts to be as follows:

"The Dr. Jiroch Company and Dr. Jiroch are engaged in selling medicines through the mails. In order to obtain the names and addresses of persons to whom they may direct their solicitations, they advertise in newspapers and magazines having a general circulation throughout the United States."

THE CLAIMS MADE

A typical advertisement is then presented, of which the assistant attorney-general says:

"It will be noted that the representations contained in this advertisement are calculated to lead the reader to believe, among other things, (*a*) that for the purposes stated Dr. Jiroch will give free to anyone suffering from any of the symptoms described and responding to the advertisement a treatment for the permanent relief of the disease from which such person is suffering; (*b*) that this treatment will consist of special medicines adapted to the particular disease from which the applicant is suffering; (*c*) that Dr. Jiroch can and will diagnose and determine the disease from which the person so responding is suffering by means of the check marks placed before the symptoms set forth in the advertisement; and (*d*) that he can by this method cure kidney and bladder ailments, rheumatism, stomach, liver and bowel disorders, heart trouble, nervous weakness, catarrh and all other diseases arising from impure blood, uric acid conditions, etc."

SOME DIAGNOSES

Then follows the statement that those who answer the advertisements receive a stock letter, one of which was put in evidence, and with the letter the so-called free-proof treatment which was "the same in every case." The advent of the second letter was described and the letter itself put in evidence and the fact noted that the person who had answered the advertisement was sent, unasked, a "three-weeks' treatment," for which he was expected to send $3. Then the memorandum continues:

"In the investigation of this case, letters were written to the Dr. Jiroch Company by the inspectors under assumed names and asked treatment for the following conditions in turn: (1) 'Severe headaches for sometime and no medicine will give me any but temporary relief,' (2) 'A bad cough that I have had for quite a while—am all the time hawking and spitting,' (3) 'Loss of sexual power,' (4) 'Simply will not make flesh—otherwise well,' (5) 'Too fat and bust lacks development,' and (6) 'Female troubles.' In each of these cases, except that numbered 5 above, the applicant was sent the correspondence quoted above, and the affection of the applicant was diagnosed as follows: (1) Headache, defective elimination and uric acid conditions; (2) cough, spitting up slime and mucus, defective elimination and uric acid conditions; (3) failing manhood, defective elimination and uric acid conditions; (4) being too thin, defective elimination and uric acid conditions, and (6) female trouble, defective elimination and uric acid conditions. In case numbered 5 the applicant was written a letter in which she was advised that the symptoms given by her were rather unusual in combination and asked to give further particulars. In reply the inspectors gave the following information: 'Thirty-one years old, 5 feet 5 inches high, weight 154 pounds, not much fat on my breasts, have been fleshy ever since I was a young girl, both parents dead, father small, mother fleshy, breasts always have been flat.' Thereon the respondents sent to the writer the same letters as were sent out in the other cases, diagnosing her affection as obesity."

THE CLAIM OF INDIVIDUAL TREATMENT

The judge notes further:

"If a remittance is not received promptly in response to the letter accompanying the treatment for which a remittance of $3 is asked, other letters are sent the sufferer in which he or she is advised, among other things, that 'the treatment I sent you is exactly what you need,' that it 'was made up of my own private prescriptions, especially for your individual requirements,' that 'the treatment is a thorough one for every symptom and condition you described, and designed to cure you permanently,' and that 'I made a careful diagnosis of your symptoms and made up a treatment for the ailments you told me you wanted to be cured of.'

"The evidence also shows that, when a remittance is received and a report blank submitted, it is the practice of the respondents to advise the remitter that his case requires further treatment and to send him another supply of medicine for which they ask a remittance of $5, together with another report blank, on the receipt of which, filled out, they send him more medicine, and so on; and that the purpose of the representation that they have reserved for his use a free 'two-weeks' additional treatment' to be sent him after the receipt of his remittance of $3 and the report blank filled out is to give them an opportunity of sending him additional medicines for which they ask further remittances."

The memorandum then states that the post-office department had the assistance of some well-known practicing physicians of Washington, while, on the other hand:

DR. ADAMS TESTIFIES FOR JIROCH

". . . Mr. Dobyns introduced and examined as an expert witness for the respondents Dr. Nathaniel H. Adams of Chicago. The physicians called by the government testified that the symptoms set forth in the advertisement of the respondents, taken alone or in combination with any or all of the others, were symptoms of a large number of diseases; that each of these diseases required different treatment; that it was utterly impossible to tell the cause of these symptoms from the information obtained in accordance with the system followed by the respondents; that some of the diseases giving rise to those symptoms were incurable or only curable by a surgical operation, and that a postponement of proper treatment in many of those diseases would be dangerous.

"These facts are so well-recognized as hardly to require expert testimony to prove. They were admitted by Dr. Adams, who stated it as his belief, however, that the marking of the coupon in the manner directed by the prospective patient would afford to the respondents a clue by the use of report blanks, they could in the course of time determine with some certainty the disease from which he was suffering."

Then Judge Lamar continues:

ONLY 2 PER CENT. ADMIT BENEFIT

"I find from the evidence in this case that whether this treatment prescribed by the respondents is of value in any case where given in accordance with this system is entirely a matter of chance; and that this is well known to the respondents. That this is a fact is shown not only by the evidence above referred to, but also by the testimony of Inspector

Angier, who conducted the investigation in this case. Inspector Angier wrote to a large number of patrons of the respondents, and only 2 per cent. of those who replied stated that they had been benefited by the treatment given to them. There are also a large number of complaints in the case, alleging dissatisfaction.

NINETY PER CENT. OF THE "DIAGNOSES" MADE BY CLERKS

"Inspector Angier also testified, and no evidence to the contrary was submitted by the respondents, that but about 10 per cent. of the coupons on which the diagnosis and treatment are predicated are considered by Dr. Jiroch. The rest of the blanks are handled by clerks, who place on them numbers indicating the disease from which the applicant for treatment is suffering; these numbers indicate the medicines to be sent and the names of diseases or symptoms to be filled in in the diagnosing letter by other clerks. The letters sent out, however, although forms, are printed in imitation of typewriting and bear the signature of Dr. Jiroch in facsimile of handwriting."

HOW JIROCH GAVE "INDIVIDUAL TREATMENT!"

Showing in tabular form some of the results obtained by The Journal in its endeavor to test the scientific value of the Jiroch company's methods

Letter Sent	To	"Diagnosis" Made by Jiroch	Special, "Individual Treatment" Sent	Price Asked in Letters				
				1st	2nd	3rd	4th	5th
Dec., '11....	J. D. G—— Wyoming	Debility and neurasthenia; kidney trouble; dizziness; poor digestion; defective elimination; uric acid conditions.	℞16759; ℞29408; ℞30651; ℞4039	$3.00	$3.00	$3.00	$1.50	$1.00
April, '12....	W. H. M—— Ohio	Catarrh; dizziness; depressed spirits; bladder trouble; defective elimination; uric acid conditions.	" "	"	"	"	"	"
April, '12....	T. S—— Minnesota	Rheumatism; sore joints and muscles; diarrhea; defective elimination; uric acid conditions.	" "	"	"	"	"	"
April, '12....	E. R. B—— Minnesota	Itching skin; stomach trouble; weak lungs; impaired appetite; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Sept., '12....	C. H. F—— Minnesota	Stomach trouble; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Oct., '12....	F. L. C—— Illinois	Headaches; poor circulation; stomach trouble; depressed spirits; twitching muscles; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Oct., '12....	W. B. D—— Virginia	Spitting up mucus and slime; pains and soreness across back; poor digestion; constipation; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Dec., '12....	G. W. T—— Pennsylvania	Kidney trouble; itching skin; impure blood; nervousness; headaches; defective elimination; uric acid conditions.	" "	"	"	"	"	"

A SUMMARY

In summing up, Judge Lamar says:

"From the evidence in this case it is clear, and I find, that the representations in the advertisements and circular matters of these respondents are false and fraudulent in that:

"1. Dr. Jiroch does not give free for advertising purposes a remedy for the permanent relief of disease; but on the contrary requires from persons who answer the advertisement a payment for the treatment which he prescribes.

"2. Dr. Jiroch does not intend to 'go over your other questions and symptoms and prepare my answer in full, and to pay careful attention to every phase of your trouble and write you fully in a day or so and tell you what else ought to be done to cure you completely,' as represented in the letter accompanying the free treatment, but intends to at that time send the addressee in a few days a form-letter made up by a clerk, together with certain medicines put together by a clerk, in accordance with the system followed in the conduct of this business.

"3. The free treatment does not consist of medicines adapted to the particular disease from which the applicant is suffering, but is in fact merely a tonic and laxative sent to all alike without regard to the particular symptoms of the individual case.

"4. The respondents cannot and do not determine the disease or affection from which the applicant for treatment is suffering by means of the marking of the symptoms set forth in the advertisement; and therefore cannot and do not prescribe medicines adapted to the cure or relief of the disease from which such applicant is suffering, unless by chance.

"5. The respondents do not know whether or not the applicant is curable, for they do not have sufficient information on which to determine this fact.

"6. The respondents cannot by this method cure kidney and bladder trouble, rheumatism, stomach, liver and bowel disorders, heart trouble, nervous weakness, catarrh and all other diseases arising from impure blood, uric acid conditions, etc.; but on the contrary this system is utterly impractical and any benefit resulting therefrom is due to chance.

"The postmaster at Chicago reports that the respondents receive approximately 275 pieces of first-class mail daily."

As a result, the assistant attorney-general for the postmaster-general recommended the issuance of a fraud order which, as previously noted, was put in force June 24, 1914.

Correspondence

The Plague in the Sixteenth Century and Now

To the Editor:—In connection with the recent reported occurrence of a few cases of bubonic plague in New Orleans, it may be interesting to take a glance backward and see how times have changed and the world has moved, particularly through the intellectual development of the medical profession as regards preventive hygiene or sanitary science.

In Reyburn's "Life of John Calvin," the theologian, published this year, mention is made of the outbreak of plague at Geneva, Switzerland, in 1543, and he quotes a letter by John Calvin dated March 27, 1545, as follows:

> "A conspiracy of men and women has been discovered, who for the space of three years have spread the plague through the city, by what means I know not. Fifteen women have been burnt. Some men have been punished even more severely. Some have committed suicide in prison. Twenty-five are still in custody. Notwithstanding, the conspirators do not cease to smear the locks of the doors with their poisonous ointment."

The methodical detail in cases of execution was to chop off the hands of the victims and then burn the bodies alive in a public place.

Geneva, a city of less than 20,000 population at that time, was regarded as one of the chief intellectual centers of Europe, but nevertheless ignorance, superstition and savagery went hand in hand; probably conditions there were no worse than in many other populous centers throughout the Continent. Torquemada had flourished during the preceding generation, Servetus was burned at Geneva in 1553 for a mere theological quibble, and, for witchcraft, George Jacobs was hanged at Salem, Mass., so late as 1692.

So the world does move.

George H[illegible], M.D., St. Louis.

HENRY B. WARD
STATE UNIVERSITY,

Intra-Uterine Crying of Child during Labor

To the Editor:—I enclose a short report of an obstetric case that was novel to me.

Mrs. H., aged 17, American, primipara, was confined June 10. It was a breech presentation in which attempts at version were unsuccessful. The patient was put under anesthesia, the cervix dilated with the hand and one foot grasped and brought down. While I was trying to bring down the other foot, the peculiar phenomenon occurred. When I passed my left hand into the uterus, the baby began crying and continued uninterruptedly until the body and shoulders were delivered and the head engaged, the crying being heard by the anesthetist and others in the room. The child is living and weighs 10½ pounds.

H. A. Cables, M.D., East St. Louis, Ill.

[Comment.—The crying of the infant during the parturition while the head is still in the uterus, although a somewhat rare occurrence, is quite possible and cases are mentioned by most authorities on obstetrics. In order for this to occur, the membranes must be ruptured and air must have access to the interior of the uterus. Like ordinary respiration, it is excited by reflex action, and hence would be favored by manipulations. Stories of children crying in the uterus during pregnancy must be considered, from the evidence available, as absolutely fabulous.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WASSERMANN REACTION IN LEAD-POISONING

To the Editor:—Can you tell me if a positive Wassermann reaction is obtained in lead-poisoning? If so, please give references to the literature.

John H. Burke, M.D., Rockland, Mass.

Answer.—A positive Wassermann reaction has been obtained in a considerable number of cases of lead-poisoning; in a smaller number of cases, the reaction has been negative. The evidence is not sufficient to determine whether the positive reaction is due to syphilis or, in some way, to the influence of lead. It seems probable that many syphilitics are especially susceptible to lead-poisoning. It is also possible that the reaction, in some cases, is due to the fact that the lead-poisoning favors a positive result of the Wassermann reaction in cases of latent syphilis which would not otherwise react.

The following articles may be referred to:

Field, Cyrus W.: The Occurrence of a Positive Wassermann Reaction in Cases of Lead-Poisoning, The Journal A. M. A., June 1, 1912, p. 1681.
Dreyer, A.: The Wassermann Reaction in Lead-Poisoning, *Deutsch. med. Wchnschr.*, 1911, xxxvii, 769; abst., The Journal A. M. A., June 3, 1911, p. 1694.
Schnitter: The Wassermann Reaction in Lead-Poisoning, *Deutsch. med. Wchnschr.*, 1911, xxxvii, 1009; abstr., The Journal A. M. A., July 8, 1911, p. 174.
Perussia, F.: Lead-Poisoning and the Wassermann Reaction, *Deutsch. med. Wchnschr.*, 1911, xxxvii, 1545; abstr., The Journal A. M. A., Sept. 30, 1911, p. 1169.
Gibson, J. L.: Wassermann Reaction in Lead-Poisoning, *Australasian Med. Gaz.*, 1913, xxxiii, No. 14.
Hilgermann, R.: Wassermann Reaction and Lead-Poisoning, *Deutsch. med. Wchnschr.*, 1912, xxxviii, 118.

LITHIUM SALTS IN URIC ACID DIATHESIS

To the Editor:—There appears to be a diversity of opinion regarding the action of lithium salts in uric acid diathesis, some authorities declaring that their action as a solvent is much overrated and that the addition of lithium to the blood-serum does not increase the solubility of the uric acid in it. An opinion on this subject through The Journal would be greatly appreciated.

E. Clayton, M.D., Vancouver, B. C.

Answer.—There is no reliable clinical evidence that lithium salts increase the excretion of uric acid by the kidney except as they exert a diuretic action. Experimental work has failed to show that lithium salts or the alkalies cause the absorption of deposited urates in gouty tophi, etc. The theory of the administration of lithium is founded on a misinterpretation of chemical facts. Lithium forms a highly soluble urate and in the test-tube may favor the solution of urates, but in the blood-serum and the urine other salts react in such a way that the urate is not made more soluble; thus, sodium urate is much less soluble than lithium urate, and as sodium is present in large amount in the blood-serum and in the urine there is, according to chemical principles, a tendency to the formation of sodium urate, which is soluble with difficulty, instead of the easily soluble lithium urate. Furthermore, the blood contains phosphates which tend to form with lithium the insoluble lithium phosphate so that the tendency, on the introduction of a lithium salt into the blood-serum or urine containing sodium urate and sodium phosphate, is to the formation of the insoluble lithium phosphate and the sodium urate, which is with difficulty soluble. There is no reason, therefore, to expect lithium salts to favor the solution of uric acid or urates, in the tissues, the blood-serum or the urine.

ARTICLES ON JUVENILE DELINQUENCY

To the Editor:—I should like to obtain material for a book on juvenile delinquency from a medical and surgical point of view. Can you refer me to any literature on that subject?

J. C. Crossland, M.D., Zanesville, Ohio.

Answer.—The following is a list of articles on this subject:

Literature on Relation of Disease and Crime, Queries and Minor Notes, The Journal, April 25, 1914, p. 1350.
Literature on Disease and Crime, Queries and Minor Notes, The Journal, May 9, 1914, p. 1494.
The Physical Basis of Crime: A Symposium, published by American Academy of Medicine, 52 North Fourth Street, Easton, Pa., $4.
Brown, P. K.: The Neurotic Basis of Juvenile Delinquency, The Journal, Jan. 20, 1912, p. 184.
Coulter, E. K.: Mentally Defective Delinquents and the Law, National Conf. Char. and Cor., 1911, p. 68.
Evans, E. G., and Dawson, M. W.: Feeblemindedness and Juvenile Delinquency, *Charities,* 1908, xx, 183.
Falconer, M. P.: Causes of Delinquency Among Girls, *Ann. Am. Acad. Pol. and Soc. Sc.*, 1910, xxxvi, 77.
Healy, W.: Factors Involved in Juvenile Delinquency, The Journal, April 25, 1914, p. 1328.
Newkirk, H. D.: Relation of Physical Defect to Delinquency, with Special Reference to Hennepin County Juvenile Court, *Bull. Am. Acad. Med.*, February, 1914.
Toeplitz, M.: Five Hundred Examinations of Nose and Throat in an Institution for Delinquent Boys, *Med. Rec.*, New York, March 14, 1914.
Frost, C. A.: Degenerate Girl, *Wisconsin Med. Jour.*, February, 1914.
Christian, F. L.: Defective Delinquent, *Albany Med. Ann.*, May, 1913.

KEROSENE THERAPY—TREATMENT OF NICOTIN HABIT

To the Editor:—1. One hears a great deal in rural practice about the therapy of kerosene. "It cures almost everything from rattlesnake bites to scarlet fever." Please discuss the physiologic action and therapy.

2. What drugs are used in the treatment of the nicotin habit, chewing, snuffing and smoking?

A. C. S.

Answer.—1. Kerosene is an irritant. Its only effect would be due to the counterirritation produced by local applications for which there are much better agents.

2. The treatment of the nicotin habit is similar to that of the alcohol habit. See The Journal, June 21, 1913, p. 1933. For a description of the treatment of the cigaret habit by silver nitrate see The Journal, Jan. 17, 1914, p. 224.

ARTICLES ON TROPICAL MALARIA

To the Editor:—I desire to secure some recent literature on the treatment of malaria such as is brought to us from the Orient, which may not differ from other malaria.

W. E. Allaman, M.D., Dayton, Ohio.

Answer.—The following is a list of articles on this subject:

Hand, A.: Quinin in Malaria, *South. Med. Jour.*, September, 1912.
Goldthwaite, R. H.: Salvarsan and Malaria, *Mil. Surgeon,* October, 1912.
Fusco, V.: Salvarsan not Effectual in Malaria, *Gazz. d. Osp.*, Nov. 10, 1912.
Harris, S.: The Radical Cure of Malaria, The Journal, Nov. 26, 1910, p. 1879.
Lambelle, F. W.: Trypsin and Amylopsin in Malaria, *Pub. Health Rep.*, Jan. 3, 1914; abstr., The Journal, Feb. 14, 1914, p. 506.
Carter, H. R.: Quinin Prophylaxis for Malaria, *Pub. Health, Rep.*, March 27, 1914; Reprint 175, abstr., The Journal, June 27, 1914, p. 2042.
Braddock, C. S., Jr.: Tropical Malaria and Its Causes, *New York Med. Jour.*, May 16, 1914; abstr., The Journal, May 30, 1914, p. 1756.
Bass, C. C.: Treatment and Cure of Malaria, *South. Med. Jour.*, May, 1914; abstr., The Journal, Dec. 20, 1913, p. 2269.
Baermann, G.: Salvarsan-Copper in Frambesia, Malaria, Amebic Dysentery and Leprosy, *München. med. Wchnschr.*, Jan. 6, 1914.
Baetze, P.: Neosalvarsan in Malaria, *München. med. Wchnschr.*, Dec. 16, 1913.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

STATE INSURANCE AGAINST SICKNESS

Robert A. Allen, A.B., M.D.
Surgeon A. C. White Lumber Company
LACLEDE, IDA.

Mike Ginski, coal-miner, had the misfortune to be hit by a rock falling from the roof of the slope where he was at work and when he was taken to the surface it was found that one of his legs was badly broken. He was removed to the local hospital and was there informed by the doctor it would probably be three months at the least before he could return to work. Now as Mike had a wife and three little children depending on him for support it would seem that that news should have caused him to worry. Such was not the case, however, and with reason, as the sequel will show. Mike was not at all indifferent to his family's welfare nor had he a bank account to draw on.

The coal-mine where this accident happened is in the state of Washington. This state has a workmen's compensation law which awarded him $2 for each working-day lost on account of his injury or $12 per week until he should be able to return to work. Mike also was a member in good standing of two fraternal orders, each of which, regardless of the number of his dependents, paid him $7 per week during the period of his disability. Thus, while his broken leg was knitting, he was receiving each week $26 for the support of his family. That was more than he had ever received for his labor underground. But what about his doctor's and hospital bills? He was in the hospital two months and under the care of a skilful surgeon. Several roentgenograms were taken and when by means of these it was found that the ends of the broken bone would not remain in apposition owing to the pulling of the patient's powerful muscles, the surgeon cut down on the fracture and united it firmly by means of steel plates. Three plaster casts had to be molded on the injured member before Mike could use it. By the time he was able to work it would seem that he might have bills to pay amounting to something like $300 for all this hospital care and medical service. On the contrary he did not have to pay a nickel.

The employees of the mining corporation for which Mike Ginski worked had for many years been organized into an association which provided medical, surgical and hospital care for themselves and their families. Every employee of the corporation *ipso facto* was a member of this association and one dollar was deducted from his wages each month and turned over to the treasurer of the association. It was out of the fund thus raised that the bills for Mike's care were paid. He was given the best possible treatment and the period of his disability was reduced to the minimum. No amount of wealth could have secured him a better result in a shorter space of time.

This was not all Mike got for his dollar. No matter what might ail him, whether it were a sore back or appendicitis, he was given all the necessary medical attention and medicines at no additional expense to himself. Should one of his little ones get sick, the association's physician attended the child throughout the illness. It cost his wife nothing to consult the same doctor concerning any of her ailments and receive treatment therefor. The only additional charges the association's physician was allowed to make were in confinement cases (for which he was limited to a fee of $10) and for treatment of venereal diseases and injuries resulting from fighting or intoxication.

Now contrast the case of Mike Ginski with that of John Smith, a well-dressed bank-clerk who lives in a city not many miles distant from the above-mentioned mining camp. Smith also is blessed with a wife and two little ones and his salary is equal to the monthly wages of the coal-miner. He is not exposed to the hazards of occupation incurred by the miner but he is just as apt to become ill. As a matter of fact, he did become ill one summer. It began with a headache for which he consulted the clerk at a corner drug-store and procured some tablets. He could not very well afford to consult a physician about such a small matter as a headache and pay $2 for what would cost him 25 cents at the druggist's. But the tablets did not stop the headache and John's appetite failed and he felt all out of sorts. His wife, becoming anxious, tried some home treatment, but without avail. He continued to grow worse and so finally, yielding to the importunities of his wife, he consulted a physician, with the result that he was ordered home and to bed. The following day he was told that he had typhoid fever and was advised to go to a hospital. So there he went.

It was three months before John Smith could resume his desk at the bank. For those three months he was without his salary. The bills for doctor, hospital care and nursing totaled $300 and meanwhile there was rent to pay and bills for groceries and fuel to meet. John was pretty badly in the hole. With the prevalent high cost of living the salary, $100 a month, did not leave much of a balance after paying for the necessaries of life, and that $400 or more of indebtedness looked like a huge mountain to remove. So John went back to work just as soon as he could. He really should have recuperated for a month in the mountains or at the seashore and would have done so had he been financially able. Poverty forces many a sick man to work when his body demands rest. It was many months before Smith caught up with his debts, and it might be added that the last one to get paid was the doctor whose faithful, kindly and skilful services had successfully carried him through his long illness. In the meantime the account with the physician had grown, for with the winter came the measles and unluckily the two Smith children caught it. Then the following spring another baby came to bless their home. This added $25 to the doctor's bill. A practical nurse for two weeks cost $30. It was necessary to have a girl to help with the housework and she cost $5 a week. Then there were the druggist's bills to pay. The filling of each prescription cost from 75 cents to a dollar.

What a contrast there is between the situations of these two men in meeting the exigencies of sickness or accident to themselves and their families! The Polish miner has all the best of it over the native American bank-clerk. Sickness and accident have no financial terrors for the miner. Simply by paying the fee of $1 per month he is enabled to meet all of the bills for doctor, hospital and drugs (with the possible exception of $10 for a confinement), and besides that, should he become incapacitated through an accident, the state pays him sufficient to keep his family in comfort. As to lodge benefits, of course, they are open equally to the bank clerk and the miner. The workingman, by means of a simple organization with the payment of a small fee, has been able to rid himself entirely of the burden, the ofttimes calamitous burden, imposed on him when sickness comes to himself or one of his family.

It is not surprising that workingmen who have learned to organize themselves in trade-unions should also unite for mutual protection against accident and illness. It is not surprising that American workingmen should be following in the footsteps of their European confrères with their Friendly Societies and their Krankenkassen. The only wonder is that they should have been so slow to imitate them. That the "sick-club" idea is rapidly taking root in the United States is not a matter for doubt. There is scarcely a city in the country in which medical societies have not issued edicts against members who accept contracts for lodge practice. The Eagles and Moose orders have been particularly active in this work. Although contracts of this nature certainly are open to severe criticism, yet it seems that able and reputable physicians can always be found to accept them.

It is the custom of large industrial corporations in all parts of the country, especially those involving the more hazardous occupations, such as mining, railroading and lumbering, to provide proper medical and hospital care for their employees in case of accidental injury. The cost of these services as a rule is defrayed from a permanent fund raised by deductions from each man's monthly pay check. Some corporations, such as the Northern Pacific Railway Company, permit their employees to administer this fund.

Through these voluntary and involuntary cooperative efforts to secure medical and hospital care at a low cost, workingmen are becoming more and more familiar with the economic value of the "sick-club" idea. They are getting rather well educated as to the power of their union organizations in bargaining with their employers. They are learning the lesson of solidarity of interest. It is easy for them, through their unions to adopt the "sick-club." The machinery of organization is already there. All they have to do is to appoint a committee to administer the sick-fund and arrange to have the monthly fees collected through the office of the employing corporation. This plan is now being followed in many mining towns on the coast in the state of Washington. There is ground for the belief that the time is not far distant when "Krankenkassen" will be as numerous in the United States as they now are in Germany and Austria. And from "Krankenkassen" to state insurance against sickness and accident such as was recently inaugurated in England is but another step.

The situation of John Smith is one big argument in favor of some such system of state sickness-insurance. The workingmen are able to secure that insurance through their industrial unions. At the other end of the social scale the wealthy have the means to command the most expert medical service and the best hospital care and nursing. Between these two extremes exists that large class, of which John Smith is offered as a type, which for want of a better term we may call the middle class or bourgeois, including the small merchants, the bookkeepers and accountants, the managers of departments and branches for large corporations, the technical engineers, the schoolteachers and college professors and the farmers. Here is a large class of the most intelligent and thrifty elements of the population, who are wholly unorganized and for whom absolutely no medical or hospital service is provided except what each individual is able to purchase out of his own income.

Of all this class the farmer is the most neglected. He is far worse off than the city dweller, whose water-supply is protected, whose milk-supply is inspected, whose garbage and sewage are disposed of, whose schools are sanitary and whose schoolchildren are given free medical and dental examinations; medical specialists of all kinds are within reach of the city clerk or bookkeeper, and hospitals and nurses are at his command. The municipality gives its citizens all possible protection against disease. The condition of the rural dweller, on the other hand, is little better than it was a hundred years ago. His water-supply is unprotected, his milk and perishable foods receive only what inspection he himself gives; his own excreta are deposited in an open privy-vault and his garbage and other refuse are thrown out on the surface of the ground; his schools are ill ventilated and improperly lighted and their sanitation is nil, while his schoolchildren grow up without any but the most haphazard supervision of their bodily health; for his medical service he is dependent on an overworked general practitioner, and for him hospital service is a luxury to be procured only in the most desperate cases. It has recently been shown by a careful social survey of certain rural districts that there is a much higher percentage of physical defectives among country children of school age than among city children of similar age.

At the meeting of the American Academy of Medicine in June, 1909, Dr. Woods Hutchinson said: "Our present system of medical attendance is a makeshift and an anomaly. Born in an emergency and tinkered up at odd times, it has never been properly planned out or thought through. It combines the maximum of expense to the patient and of loss by all sorts of accident to the physician, with the minimum of health production and prevention."

That sickness often imposes a crushing burden of financial loss on the thrifty is well known to every physician. This burden comprises not only the expense of medical treatment and nursing but the loss of wages and the temporary or permanent impairment of the patient's earning power. This loss in the end must be borne by society.

I have already cited the case of John Smith as exemplifying the situation of the middle-class people as regards the expense of medical attendance. Let me further illustrate this situation by two concrete cases out of my own experience:

Frank M. was a traveling salesman. He was buying a home in the city on the monthly payment plan. His son had just entered the state university and his daughter was in the high school. Then he became ill. His illness was chronic Bright's disease and he was incapacitated for work for months. Of course the outlook was not very favorable. His son was forced to quit the university and earn his own living. His wife secured employment in a department store to meet the expense of keeping her husband in the hospital. The house on which they were making payments finally had to be given up. Between non-employment and the cost of hospital and medical service, the home was wrecked.

The other case is that of a Slovak who for years had worked at the coke-ovens and had carefully saved his money with the hope of buying some farm land. Pulling coke out of the ovens is especially hard work, for fierce heat must be faced and hot dust and noxious gases inhaled. The Slovak was sober, thrifty and industrious. He had been married a few years but his wife had borne no children. Being anxious for a child they consulted a physician in the city and were prevailed on to submit her to an operation to remove the causal lesion. Unfortunately a fecal fistula resulted and it was nearly a year before the woman could leave the hospital. Other operations were performed in an endeavor to cure the fistula but without result. Needless to say, the woman did not become pregnant. All of this cost the Slovak workingman about $1,000, which more than wiped out his savings, and he had to begin again to save for the long-deferred purchase of the farm.

The fee system of remuneration for medical services is another potent argument in favor of state sickness-insurance. It is arbitrary, unreasonable and unsatisfactory and is not based on the value of the services rendered; it is utterly impossible to express the value of professional service in terms of dollars and cents. A physician who makes an unvarying charge of $2 for each visit to a sick person, regardless of whether it be to treat a sniveling coryza or to avert impending death from acute dilatation of the heart, merely admits the futility of an attempt to state the exact value of the work performed. As a matter of fact, it is doubtful if any physician pretends to stick to a certain schedule of fees. He uses his own judgment in making his charges. He takes into consideration the amount and character of the work performed and the ability of the patient to pay for it. Doubtless there are some unscrupulous practitioners who take advantage of this fact and demand more than the actual value of the services; but these are exceptions that only prove the rule. In the vast majority of cases the physician is the loser. Probably 90 per cent. of physicians do not receive one-half of what they actually earn, and even that statement may seem to some to be too moderate. The majority of practitioners do not even collect 25 to 50 per cent. of what they charge on their books. It is notorious that doctors' bills are the hardest to collect. It was stated in the report of the Judicial Council to the House of Delegates last June that "hardly more than 10 per cent. of the physicians in the United States are able to earn a comfortable income." What an enormous amount of charitable work the medical profession is doing!

State sickness-insurance would not only be a boon to the man of small income and large family (the usual combination) but it would greatly increase the fixed income of the large part of the medical profession. At the same time it would relieve the physician of the perplexing and disagreeable task of bill-collecting. In England the national insurance law has, in the first year of its operation, added from $750 to $2,000 to the annual incomes of the physicians who are working under it. One of the principal reasons why it is hopeless to wage war against contract practice is that it provides for a fixed and certain income and there are no unpaid bills to collect. All of the work done is paid for, no matter if some may argue that the pay is inadequate. These two facts make a strong appeal to the average physician. An advertisement in The Journal offering a contract practice with a fixed income of $300 a month and all expenses paid, would bring a bushel of replies.

One of the evil results of this uncertain and unreasonable system of medical rewards is that a large part of the public avoids consulting a physician until compelled to do so by pain or misery for which no relief can be found otherwise, or is impelled to do so by fear aroused by symptoms associated in the popular mind with serious disease.

A few days ago I happened to be standing in a city drugstore when a woman was asking the clerk for some medicine for her baby.

"I want something for the cramps," she explained. "Please give me something that won't hurt him but that will surely stop the cramps."

Now it was very evident that it was not medicine but good medical advice that she needed for her child. It must be that a vast amount of this counter prescribing is being done by druggists. It is easy to understand the reason. When a man has a headache he will consult a druggist rather than pay a doctor $1.50 for a prescription and then 50 cents or a dollar to have the prescription filled. If a child in the home becomes ill the mother is apt to use "old women's" remedies or consult a pharmacist rather than incur the expense of a physician who will charge $2 for his visit and perhaps write a prescription that will cost from 50 cents to a dollar to have filled. The headache may be the first symptom of serious disease, but it is not brought to the notice of a physician until all the drug-store nostrums have been tried without avail. The little child may have a diphtheria which is treated at home as a sore throat until all the rest of the family and a large part of the neighborhood have been infected.

The fear of the expense of medical treatment is also largely responsible for the patent-medicine evil. Many a man with a sore back decides that he has kidney trouble and purchases one of the innumerable nostrums advertised for this imaginary ailment. Could he have consulted a physician at small cost he would have learned the true nature of his trouble and have received rational treatment. There is no way of telling how many serious diseases are neglected in their incipient stages because of this all too prevalent habit of self-doping, to say nothing of the millions of dollars wasted on worthless nostrums.

If protected by sickness-insurance people are apt to consult the physician about their slightest ailments. They will go to him with their headaches and backaches, their cramps and constipation, their coughs and colds. Often trivial symptoms will thus lead to the discovery of incipient serious disease and it will be possible for the physician to take timely measures to prevent the spread of contagion, to institute proper remedial treatment and to instruct the patient how he may avoid chronic debilitating illness or early death. It will then be possible more nearly to approximate that medical ideal of eliminating preventable diseases and to advance toward that millenium when old age will be the only cause of death. Under such provision for medical attention its beneficiaries should soon become so well educated as to the value of disease prevention that they will submit themselves and their children for an annual physical examination by the physician, just as they now have their automobiles overhauled. Thus unsuspected abnormalities of structure or function may be discovered, defects of eyes, teeth, nose, ear and throat may be pointed out, beginning lesions of heart, lungs, stomach, liver and other internal organs may be detected, deficiencies of musculature or of mental development may be found and then the patient may be instructed how he may correct these defects, rid himself of these abnormalities and by proper hygiene and proper habits secure perfect health and ward off threatening disease.

In all social legislation the United States is following in the footsteps of Europe. Postal savings-banks, parcel-post and state insurance against industrial accidents all have been adopted after having been on trial for many years in European countries. It is only a matter of time when we will also have state insurance against sickness, non-employment and old age.

About 15,000,000 persons are now provided by the government with all necessary medical and hospital care and medicines. About 20,000 out of the 22,500 physicians in Great Britain are employed in this work and the government has paid them $20,500,000 or an average of $1,150 for each physician. Germany's new industrial insurance law, which went into effect on January 1, provides medical service and medicines for about 20,000,000 persons, in some districts covering from 92 to 95 per cent. of the population.

There are many indications that we are rapidly approaching the time when similar government insurance will be adopted in the United States. Many states already have adopted industrial insurance against accident and before many years it will have been adopted by every state in the union. The next step will be that which already is being vigorously advocated in the state of Washington, to provide for medical and hospital care for those injured in industrial accidents. It will then be but a short step to provide insurance against sickness as well as against accident and to extend the benefits of the act to all persons whose incomes fall below a certain limit. State medicine is the goal toward which we are traveling apace. We are more and more realizing that the health of the nation is the natural asset in greatest need of careful conservation. The prominence given such legislation as that covering child-labor, hours of labor for women, widow's pensions, the causes of poverty and non-employment, factory inspection, etc., reflects the intense popular concern for the physical well-being of the nation.

There is a clinic at Rochester, Minn., famous the world over. It is a Mecca for thousands of afflicted ones. The Mayos there have set up a supreme court of diagnosis and prognosis. One can accept their verdict as practically final. How has the Mayo clinic come to have such great authority? By reason of the fact that it utilizes every means and method known to science to arrive at a correct diagnosis and to establish a reasonable prognosis. Not a single part of the anatomy or physiology of the patient is overlooked. Every known test is made to ascertain any abnormalities of function or structure that may exist.

Such a clinic as this should be within the reach of every man, woman and child in the United States. The people, through their governmental organizations of municipality, state and nation, can establish such clinics and maintain them by general taxation. And the day will surely come when the people will do it. When that day comes we shall also have a system of state insurance against sickness such as is now operative in Germany and England.

Criminals and the Antisocial Diathesis.—There is no such thing as a distinct criminal type, and a careful study of anthropology does not justify the conclusion that there is. Our prison population, made up as it is of the weaklings of society—the flotsam and jetsam—who are incapable of and unable to maintain their places in the competitive struggle for existence, are not criminals in the deterministic sense, but they are necessarily of that diathesis from which we may expect, to a greater or less degree, antisocial attitudes.—D. C. Peyton, M.D., *Jour. Ind. State Med. Assn.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alabama: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.

Connecticut: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

Indiana: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.

Massachusetts: Boston, July 14-16. Sec., Dr. Walter P. Bowers, Room 159 State House, Boston.

New Mexico: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.

Oklahoma: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.

South Dakota: Deadwood, July 14. Sec., Dr. Park B. Jenkins, Waubay.

Vermont: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Underhill.

Montana April Report

Dr. William C. Riddel, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, April 7-9, 1914. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 41, of whom 25 passed and 16 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1912)	76.7
Chicago College of Medicine and Surgery	(1910) 77.1; (1913)	84.5
Hahnemann Medical College and Hospital of Chicago	(1913)	75.2
Northwestern University	(1898) 77; (1900) 83.5; (1903) 85.1; (1904)	75.4.
Rush Medical College	(1896), 76.4; (1912) 80.6; (1913)	82.8
State University of Iowa, Coll. of Homeo. Med	(1899)	77.7
University of Kansas	(1906)	84.8
Kentucky School of Medicine	(1898)	83.9
Harvard University	(1893)	79.1
Minnesota Hospital College	(1887)	82
University of Minnesota	(1909)	79.5
University Medical College, Kansas City	(1910)	75
John A. Creighton Medical College	(1913)	75, 79.8
Jefferson Medical College	(1909)	75.3
University of Tennessee	(1913)	76.7
University of Toronto	(1908) 77.9; (1910)	78.1
McGill University	(1896)	84.7
FAILED		
Rush Medical College	(1888)	64
Medical College of Indiana	(1900)	73.9
Keokuk Med. Coll., Coll. of Physicians and Surgeons	(1908)	47.7
State University of Iowa, College of Medicine	(1905)	73.8
Cioux City College of Medicinie	(1905)	54.2
University of Kansas	(1906)	66.3
University of Louisville	(1908)	62.9
Kansas City Medical College	(1905)	71.9
Marion-Sims-Beaumont Medical College	(1903)	62.4
John A. Creighton Medical College	(1909)	71.4
Ohio-Miami Medical College	(1911)	70
Medico-Chirurgical College of Philadelphia	(1908)	71.3
Marquette University	(1913)	68.5, 68.8
Milwaukee Medical College	(1910)	73
Wisconsin College of Physicians and Surgeons	(1905)	63.9

Rhode Island April Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, April 2-3, 1914. The number of subjects examined in was 7; total number of question asked, 70; percentage required to pass, 80. The total number of candidates examined was 7, of whom 6 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1909)	85.5
Harvard University	(1910)	90.5
Tufts College Medical School	(1913)	82.5
Dartmouth Medical School	(1910)	82
Columbia University, College of P. and S.	(1913)	88.2
Jefferson Medical College	(1912)	80
FAILED		
Laval University	(1912)	75.6

Book Notices

Pharmacology, Clinical and Experimental. A Groundwork of Medical Treatment. Being a Text-Book for Students and Physicians. By Dr. Hans H. Meyer and Dr. R. Gottlieb, Professors of Pharmacology. Authorized Translation into English by John Taylor Haldey, M.D., Professor of Pharmacology, Tulane University. Cloth. Price, $6. Pp. 604, with 62 illustrations. Philadelphia: J. B. Lippincott Company, 1914.

Two distinguished European pharmacologists have each written separate chapters in this work, but with such cooperation and collaboration as to form a homogeneous book. Pharmacology is regarded as a division of biology; those reactions have been chosen to illustrate it which have a relation to the cure of disease and may form the basis of "scientific drug therapy." In making this limitation the authors bring their subject into close relation to pathology and retain its significance for clinical teaching and medical practice. They have divided the drugs into two classes: organotropic, those which influence organs or their functions, and etiotropic, those which act on the causes of disease. Pharmacologic actions are discussed separately for each organ or functional system. By taking first the action of drugs on simple tissues such as voluntary muscle, the opportunity is afforded to develop the principles of the science gradually to suit the advancement of the student. By arrangement according to functions, the drugs of a group can be compared and the advantages of each pointed out. To be sure, this necessitates in many cases a consideration of the same drug under several different headings.

The first chapter deals with curare on account of its practical limitation to action on a single tissue, the voluntary muscles. To this is added a brief discussion of the nature of pharmacologic actions. The second chapter deals with the central nervous system. A single stimulant drug is described at considerable length, and this is followed by a general consideration of the chemical properties of alkaloids and a discussion of other stimulants. The actions are described fully but clearly and are illustrated by excellent diagrams. Each article is followed by a very full bibliography. The therapeutic sections deal largely with general principles. There is no detailed posology. A discussion of the size of the dose as affecting the action of the drug is given, but there seems to be no mention of the pharmaceutical preparations. Proprietary preparations receive comparatively little notice, but there appears to be a marked disparity in the space allotted to different remedies of this class. Thus digalen is dismissed with two sentences in small type, while digipuratum receives a paragraph of the larger type. Gottlieb says, "According to some observers (Höpffner) this preparation disturbs the stomach less than all other digitalis preparations of equal physiologic activity." There is a peculiar disagreement between the translator and this author. In discussing this proprietary (digipuratum), quite optimistic views are presented; this is quite natural since Gottlieb himself is the originator of and is interested in the preparation, but the translator evidently has forgotten this, and in a footnote calls attention to the laboratory investigations of Hatcher "which have clearly demonstrated that the nausea and vomiting produced by digitalis is usually the result of its action on the vomiting centers, and as the desired effects on the circulation often manifest themselves only with doses which also produce these undesirable effects, one must accept with extreme caution the claims made for any preparation of digitalis or any of its group that it does not cause gastric disturbances."

The translation is in general good, and the translator has added some valuable comments which add facts or correct misapprehensions liable to be produced by the text. Some minor inaccuracies and inelegancies of the translation or the text should be corrected in the next edition. The translator has the habit of using the obsolete expression "combust" for oxidize or burn, which is, at any rate, rather disquieting. On page 38 the statement is made that "0.02 gm. of Pantopon corresponds to about 0.1 gm. morphin hydrochlorid." In this case the amount of morphin meant was evidently 0.01 gm. since Pantopon contains 50 per cent. of morphin. This work is a very valuable and welcome addition to pharmacologic literature. The physician who bases his practice on the proved action of remedies as learned from such a book may use fewer books, but he is sure to use them with a certainty and efficiency which will greatly enhance his success.

Handbuch der Tuberculose. Herausgegeben von Prof. Dr. L. Brauer, Hamburg-Eppendorf, Allg. Krankenhaus, Dr. G. Schröder, Dirigierender Arzt der neuen Heilanstalt für Lungenkranke zu Schömberg, O.-A. Neuenburg, und Dr. F. Blumenfeld, Arzt für Nasen-, Hals- und Lungenkrankheiten in Wiesbaden. In 5 volumes. Volume 1. Paper. Price, 35 marks. Pp. 580, with 108 illustrations, Leipsic: Johann Ambrosius Barth, 1914.

This is the first part of the first volume of a thorough exposition of tuberculosis to be complete in five volumes. The work is really a second edition of the "Handbook of the Treatment of Chronic Pulmonary Tuberculosis," by Schröder and Blumenfeld, which appeared a decade ago. As the authors of that work found that in the attempt to lay a thorough foundation for treatment, they had laid themselves open to the criticism of writing a handbook of pathology as well as of treatment, they have avoided such criticism in the present edition by making the title cover the entire field of tuberculosis, and the better to accomplish their more comprehensive aim they have associated with themselves the noted investigator of the tuberculosis problem, L. Braner of Hamburg. The list of collaborators includes forty-five names of men prominent in Germany, Denmark and Holland. About forty pages are devoted to the history of tuberculosis. The changes of theory, advance in diagnosis and the variations in treatment are presented. In a monograph of about one hundred pages, Tendeloo discusses the pathologic anatomy of tuberculosis. Much describes the germ of the disease and the subject of immunity. Römer describes the channels of infection. Martius discusses predisposition and individual prophylaxis, and Gottstein epidemiology. Dammann discusses the campaign against tuberculosis and Kirchner its social relations. The work will be of value mainly to those paying special attention to tuberculosis. To such it seems safe to say this work will be invaluable. It is to be hoped that it may be translated into English.

Medicolegal

Provision for Revocation of Licenses for Unprofessional or Dishonorable Conduct Construed and Applied

(Forman vs. State Board of Health (Ky.), 162 S. W. R. 796)

The Court of Appeals of Kentucky affirms a judgment dismissing the plaintiff's petition to enjoin the defendant board from proceeding to determine whether his license to practice medicine should be revoked, on the ground that the statute under which it was acting was void. The court says that the statute prescribes three specific grounds on which a physician's license may be revoked. These are, briefly: (1) fraud in obtaining the certificate, (2) the commission of a criminal abortion or the conviction of a felony involving moral turpitude, and (3) chronic inebriety; then, "(4) or other grossly unprofessional or dishonorable conduct of a character likely to deceive or defraud the public." The whole of the charge against the plaintiff was based on this clause, which must be read in connection with the preceding three. Some force must be given the word "other" and the word "dishonorable," which were not in the former statute that was held invalid because it prescribed no standard by which unprofessional conduct was to be measured. Evidently the word "dishonorable" was added to qualify the word "unprofessional," the two words meaning "unprofessional conduct which is dishonorable," and these words are qualified by the word "other," which must mean that the unprofessional dishonorable conduct referred to is other than that above specified. The well-settled rule in the construction of statutes is that where certain things are specified, and then a general expression is used in referring to other things, the other things must be of like character with those named. Two of the things above named being fraud in obtaining the certificate and the conviction of a felony involving moral turpitude, the grossly unprofessional and dishonorable conduct referred to in Clause 4 must be of like character; that is, the conduct must be fraudulent and must involve moral turpitude; for, unless the statute is so construed, proper effect will not be given the word "other," and when it is so construed it erects a definite standard by which the board is to be governed, to which every member of a learned and honorable profession should conform, and he may know in advance that he should conform to this standard. Similar statutes, applicable to lawyers, dentists, and men of other similar professions as well as physicians, are in force in a number of states. Such statutes have generally been upheld as a valid exercise of the police power to protect the public from fraud and empiricism.

So much of the board's complaint as showed that Dr. Forman aided one Whittman in conducting the "Advanced Medical Science Institute," and practiced medicine for the corporation for hire in its name, showed a commission of a public offense by Dr. Forman, but not an offense involving moral turpitude. While it is unlawful for a physician to practice medicine in any other name than his own, and he may be punished for doing so, his license may not for this be revoked, as not every unlawful act is ground for the revocation of a license. There is nothing in the Kentucky statute regulating the advertising which a physician may properly do, and, though he may in this violate the physician's code, it will constitute no ground for revoking his license unless his conduct it dishonorable, fraudulent, and involves moral turpitude. Whether the physician's acts were sincere or fraudulent and done for the purpose of defrauding the public is a question to be decided by the board on all the facts.

Charging Ten Dollars An Hour for Detention Services

(Merchants' Collection Agency vs. Gopcevic (Cal.), 137 Pac. R. 609)

The District Court of Appeal of California, Third District, says that the plaintiff, in suing on a claim assigned to it, alleged that the defendant became and was indebted to its assignor for professional services rendered by him in the amount of $6,962.50, etc. The record was quite brief as to the evidence. The inference from the assignor's testimony was that the services were performed under an express agreement with the defendant for the payment of $10 an hour, which the defendant denied, and the trial court rejected the theory of an express promise to pay $10 an hour or $240 a day. Of course any conscientious judge would require the most convincing evidence of such a contract before he would allow such an enormous charge. Nor is it likely that he would hold $6,960 to be a reasonable charge for the services, even of a physician, for twenty-nine days. But it was not correct to say that there was no evidence of the value of the services. The physician testified that "detention fees were $10 an hour," and that, in response to the defendant's statement, "I want you to stay right here and not go away," he replied: "Mr. Gopcevic, that is a very expensive proposition. The lowest charge I can make according to the fee bill is $10 per hour for detention." It is, of course, a fair presumption that the fee bill is an expression of the opinion of the profession that such services are worth that amount. It would be at least a legal inference from the physician's testimony that his services were worth $10 an hour. This would manifestly support a finding of a less amount, namely, the sum of nearly $1.30 per hour. The promise implied by the law is to pay the reasonable value of the services; but the court's conclusion being based on an implied contract, it was not proper to allow interest before judgment. Wherefore a judgment rendered in the plaintiff's favor for $480 and $125.55 interest is affirmed as to the former, and modified by striking out the latter sum for interest.

Society Proceedings

CONNECTICUT STATE MEDICAL SOCIETY

One Hundred and Twenty-Second Annual Meeting, held at New Haven, May 20 and 21, 1914

The President, Dr. D. Chester Brown, Danbury, in the Chair

Diagnostic Methods in Gastro-Intestinal Diseases

Dr. L. M. Gompertz, New Haven: A man, in August, 1909, complained of symptoms that led to a diagnosis of gastric ulcer. He was treated for a short time and felt so much better that he failed to return for further treatment. May 11, 1914, he came back with an aggravation of the symptoms previously noted, and with loss of weight. A test supper was given him, and an examination of the contents of his stomach made. The test supper contained rice, meat, raisins and anything else he desired. In the morning, a tube was passed into the fasting stomach. Many physicians are unable to get a fasting stomach's contents. It is very simple. Suppose the patient has a dilated stomach; he leans forward, you compress the tube, and anything that may be in this tube comes out. No matter how little is obtained, it is enough for microscopic examination. We obtained a little of the contents of the stomach of this man which showed the presence of sarcinae and food-remnants. Hydrochloric acid must be present, in order to favor the growth of sarcinae. A diagnosis of cicatricial ulcer was made. Two roentgenograms were made; one shows the tube going down to the pylorus and then stopping. There is an abrupt ending of the bismuth meal at the pylorus, due to the cicatrix of an ulcer; so we know it is not a malignant growth.

Another patient, seen at odd times since 1908, when any excitement occurs has a spell of vomiting, and cannot eat anything. Everything comes up almost immediately after it is swallowed. A lot of mucus and food is vomited. In attempting to pass a bougie into her stomach, we encountered an obstruction just above the cardia, 42 cm. from the mouth. The treatment then was passing bougies, and giving tincture of belladonna and bromids. The patient recovered. Two years later she had another attack and immediately after it she had spasm. She has had these spells so often, coming on when there was any excitement, that there is dilatation of the esophagus above the cardia.

A third case shows very nicely the transition of a nonmalignant growth into a malignant growth. The patient came to me June 20, 1907, with symptoms of ulcer on the cardiac end of the stomach. He had increased acidity. I treated him and he improved and gained weight. I did not see him for a long time after that. He came back in 1908 with a different history. His appetite was good, but he could not get food down. His bowels were constipated. I passed a bougie and met an obstruction right at the cardia. At times, this obstruction lets up a little, so that food can go down through it. It is positively a malignant case, and the patient still has the obstruction.

A fourth case was that of a young woman whom I saw eight years ago for the first time. The clinical history, chemical examination, etc., showed the case to be one of ulcer. She was treated for a month and I told her she needed an operation. After that I did not see her until a year ago, when she returned and said that she was ready for an operation. In passing the stomach-tube I found hydrochloric acid, sarcinae and food-remnants from the night before. I made a diagnosis of cancer of the pylorus, which was wrong. The reason for the mistake was that when the stomach-tube was passed it reached the obstruction in the center of the stomach instead of the pylorus. Just before the operation I had a roentgenogram made, not suspecting the presence of an hour-glass stomach. An end-to-end anastomosis was made and two months after the operation, the stomach was smaller, but normal in position. I have seen the girl within two weeks, and she is well.

The fifth case was that of a woman who had stomach symptoms and evidently a gastroptosis. When first passing the tube I thought she had an hour-glass stomach, but the next time I passed it into the stomach I told her she should be operated on. At the operation multiple ulcers were found. The ulcers were taken out and the stomach was brought into proper position by end-to-end anastomosis.

Bone Grafting

Dr. E. H. Arnold, New Haven: I have done bone-grafting in almost every situation in the body. I have grafted in clubfoot, and have done two operations in the tuberculous tarsus by inserting pieces of bone. I have grafted once on the tibia for an osteomyelitic defect, and I have grafted in the knee. This boy had a tuberculous knee for three or four years. He had it treated elsewhere by scraping, brace, and plaster of Paris; but the process of destruction went on. I did a resection of the knee, cutting away as much as I could. The result was that he had some motion in the knee. He went back to his trade three months after the excision. As one of the sinuses still persisted, I put in a bone-graft at the front of the knee, in order to do away with the movement. I have succeeded in this, but have not stopped the discharge so far. A tuberculous knee does not make bone, and the best we can hope for is a fibrous union. No brace will secure absolute immobility, and a child cannot be kept in plaster always.

In another case, I opened the hip and inserted two grafts. One of these sloughed out, but the other remained in. It stimulated bone-making to such an extent that I obtained a firm bony union. The child now walks without a brace.

The next group in which I grafted consisted of cases of sacro-iliac and sacrolumbar disease. In one case I operated, inserting a graft shaped like an inverted Y in the lower lumbar and upper sacral region. That did away with the joints, and I have secured immobility. I have grafted into the cervical region twice, and into the elbow for ununited fractures. I have also grafted into the shoulder, inserting the graft right into the glenoid cavity, and it has held, so far.

Experiments in Nutrition

Dr. T. H. Osborne and Dr. L. B. Mendel, New Haven: The length of life in the rat is not more than 1,000 days on the milk food. The rat will grow for a time on starch and then decline, after forty or sixty days. The foods which we use are water-free, and are mixed with lard. The rats grew on this food when it was mixed with protein, and failed to grow when it was not. On certain foods there was practically no growth. All that was necessary in order to have growth start again was to change the diet from an imperfect to a perfect protein. Some proteins are enough for maintenance, but not for growth. When the animals declined, all that was necessary to make them come up was to substitute butter, butter-fat or cod-liver oil for a little of the lard. Instantly there was perfect recovery and continuation of growth. The same is true of egg-fat. Solid fats sometimes failed to nourish the animals, but they quickly recovered when that fraction of the total butter was substituted by the butter oil. Most of the proteins that we have at our disposal to prepare these foods contain all the amino-acids, and are complete proteins. Others lack one or more amino-acids, and are incomplete proteins. Using these enables us to determine whether or not the protein that is lacking is of importance for growth and maintenance. The tryptophan group is essential for maintenance, for without it the animal dies in a comparatively short time. The lysin group is essential for growth, but not for maintenance.

This brings up another question, How long can an animal be stunted and still recover the power to grow? They go down hill on zein alone, are maintained on zein with tryptophan, and have growth by the addition of lysin. Another question is, Can we supplement the deficiency of the protein by adding another protein to it; and how well can that be done? If the proportion of casein is doubled, up goes the growth. One-fourth of destin is insufficient for growth; one-half is nearly sufficient, and three-fourths is sufficient. The different proteins have very unequal value. Milk-protein contains lysin, and corn-protein does not. The addition of lysin makes it all right. We added cystin to a diet of 9 per cent. casein, on which the rat was growing slowly, and it improved the growth. Here is an illustration of a rather unique experiment—an animal that was kept for 168 days on a food that did not contain lysin, and so was inadequate for growth; yet it was able to give birth to young, and to produce milk for them; but it did not recover its original weight. The animal was an adult. Its young were produced at the expense of the mother's life.

When we talk of anorexia as being due to sameness of food, we are probably in error. It is due, rather, to individual social conditions. One can eat the same thing, day after day, if one has the right diet. As soon as one has defective food, however, anorexia is produced. When we give them a defective food, the rats stop eating. The malnutrition, then, is the cause of the anorexia, and not vice versa.

Transplantation and Explantation of Tissues and Organs

Dr. Ross G. Harrison, New Haven: These experiments were made with embryos. They are operated on under a binocular microscope, and the parts are brought together and held in position by means of wires. They have lived for weeks after the operation, and have grown remarkably. It is quite possible to unite organs of different species together. Very often a union between parts of different species is very useful for experimental purposes, because the fact that the cells of the two species are of different color enables one to follow the development of the movements of the cells.

My early work in this direction was done by uniting relatively large pieces; but more refined methods have since been devised, whereby it is possible to use very much smaller parts. If older embryos are used and it is necessary to give an anesthetic, about 2 parts of chlorbutanol added to 10,000 parts of water will stop movement. The animal can be kept in this for a week, and will undergo its whole development almost normally in this solution.

It was a great surprise to me to find that if the little disk of tissue that represents a limb be turned around 180 degrees in transplanting, we still have a perfectly normal limb, developing in a perfectly normal position. Therefore, the position must be determined by some factor in the body of the embryo as a whole. Likewise, in a great majority of cases, the interchange of right and left has no effect.

As to the question of explantation, whereby the parts are transplanted to some medium outside of the body: we know that the parts of animals may live for some time after the death of the organism as a whole. It is not strange, then, that muscles and nerves should survive outside the organism with which they have been connected, and undergo development as well. Muscle-tissue that is entirely undifferentiated when taken out of the embryo will differentiate without the presence of any other tissue whatever. Other tissues will also develop normally. The development of whole embryos has been shown by this method. Even the mammalian embryo will undergo at least a portion of its development. A method has been devised whereby it is possible to obtain large quantities of plasms with which to carry on experiments concerning these processes of growth. Tissues have been grown, not only in this plasma medium, but also in a saline medium. The latter is not so good as the former, but adding sugar or other nutritive material improves it.

As a usual thing, tissues cultivated outside the body retain their specific function, although the gross morphology may not be retained. The degree and kind of solid support has considerable effect on the movement of the cells.

Apparatus for Suction and Aspiration in the Treatment of Empyema

Dr. J. M. Flint, New Haven: We have had a series of forty cases of empyema of various kinds and types—the pneumonic, the hematogenous, and one or two interesting cases in which the empyematous process was secondary to abdominal infection. I mention this particularly, because of the recent discovery of a group of lymphatics passing through the diaphragm, and ramifying with the plexus on the surface of the pleura—which gives a definite anatomic route for infections occurring secondary to abdominal conditions, of which phrenic abscess is the most common. We have a method of treatment that we have found eminently satisfactory. Five or six years ago we devised an empyema tube, which has given most excellent results. It is like an ordinary empyema tube, but has a large rubber dam. Absolutely air-tight openings can be made in the chest wall, by which the normal tension can be replaced. The use of the Politzer bag is impossible in cases in which empyema is associated with bronchial fistula, because the leak through the bronchus causes the bag to collapse. We devised a water vacuum to obviate this difficulty. Thus we are able to suck through the empyema tube enough air to overcome the ordinary leak and still keep a partial vacuum in the empyema cavity.

(To be continued)

NEW YORK ACADEMY OF MEDICINE

Meeting held May 21, 1914

L. Emmett Holt in the Chair

The Cultivation of Human Cancer-Cells in Vitro

Dr. M. T. Burrows: During the past few months I have been testing a considerable number of human tissues by the culture method. The tests have been made either autoplastic or homoplastic. The specimens included lymphomas, a fibrosarcoma of the axilla, a recurrent chondroma of the femur, two melanomas, several carcinomas of the breast, a thyroid sarcoma, and adenocarcinomas of the lymph-nodes of the neck and groin, cystomas, and a recurrent adenocarcinoma of the ovary. When possible the tissue in small fragments was placed in plasma as soon as obtained. The plasma had in most instances been used pure. In other instances it had been diluted one-half with isotonic sodium chlorid solution. Control cultures of normal tissues of dogs and cats were prepared in a similar manner. About the fragments of the lymphomas, the chondroma, the fibrosarcoma and normal connective tissue taken from the same individuals, the reaction in the plasma was similar to that generally seen with the growth of similar tissues of other animals. The clot contracted, showing pitting of the free surface about the tissue border. The medium became more clear in this region. No extensive or disorganized accumulation occurred. Fragments of fibroma lived for eighteen days following several transplants. From the fragments of the lymphomas both round and spindle cells migrated into the plasma. The fragments of the carcinomas had varied considerably in their ability to survive in the cultures. In but two cases had actual growth of the cancerous element been observed. In the other cases a rapid autolysis with or without fibrin digestion was observed. This autolysis was most marked about the carcinomas of the breast and thyroid and one of the ovarian tumors. The medium was digested slowly about many of the fragments of the melanomas.

Influence of Diet on Transplantable Sarcoma in Rats

Dr. S. P. Beebe: We found that if carbohydrates were entirely eliminated there was a smaller percentage of positive takes; the tumor grew more slowly and a larger percentage showed complete regression as compared with control animals on a full diet. In one experiment 26 animals were placed on a special diet and 26 on a full diet. They were all planted with the same tumor the same day. Every animal planted took the tumor. Of those animals on a special diet which contained no carbohydrate, 2 died from the tumor, 4 died from accident or unknown cause and 20 showed complete regression of the tumor. Of the 26 animals on the control diet containing carbohydrate, 24 died from the tumor and 2 recovered. In order to obtain such effects it was found necessary to prepare the animals by feeding them on a special diet for some time before planting the tumor. Our experiments have shown that butter is a very effective stimulant to the growth of the buffalo sarcoma. A much larger percentage of animals were killed by the tumor when the animals were fed on butter. In some instances at the time of death of the animal, the tumor mass weighed two and one-half times as much as the rest of the animal. In one instance the weight of the tumor dissected out at the time of death was 130 gm. compared with 51 gm. of the body of the rat. We have made some experiments with diet containing certain proteins and we have found that it is impossible to maintain an animal in a fairly satisfactory condition of nutrition and yet prevent the growth of the tumor.

The Sugar-Content of the Blood in Cancer

Dr. S. R. Benedict and Dr. R. C. Lewis: Rats with transplantable sarcoma when fed on a non-carbohydrate diet showed an increased resistance to tumor growth, provided there had been a long preliminary period of non-carbohydrate feeding. There were a fewer number of takes, a greater number of retrogressions, and a slower rate of growth of the tumor in rats on a non-carbohydrate diet than in those in which a mixed diet was employed. When the diet contained carbohydrate, the tumors grew luxuriantly. Far more striking results were obtained on phloridzinized tumor-bearing rats. The animals were positively hopeless from the point of view of spontaneous retrogression. Almost at once after the injection of the phloridzin the tumor began to soften. This was followed by a breaking down of the growth and finally by a sloughing of the entire mass. In these phloridzinized rats there was a condition of complete carbohydrate starvation in that not only were the carbohydrates of the diet excluded but also the carbohydrate arising in the body from metabolism of proteins was eliminated in the urine. This result might be due to a general malnutrition, which, in turn, was followed by the effect on the tumor; or it might be that the carbohydrate *per se* was necessary for the tumor growth. In our study of the blood-sugar content of cancer patients we have developed a simple method of blood-sugar determination which offers certain advantages over the older methods; one marked advantage is that only a very small amount of blood is required. We have examined the blood of fifty-three hospital patients suffering from malignant growths, making about 200 examinations in all. No special relation between the pathology of the growth and the blood-sugar content has been found, but during more severe stages of malignant growth there was certainly a marked hyperglycemia.

Treatment of Cancer by Electrical Methods

Dr. Arthur F. Holding: The electrical methods employed in my series of cases were Roentgen deep therapy, effulguration (de Keating-Hart), desiccation (Clark) and thermopenetration. These therapeutic agencies were combined with surgery, radium, toxins and vaccines, when such adjuvants were indicated. The results were due not so much to any originality of method as to the correlation of very excellent methods. Incipient surface cancers can be cured. If they are superficial, physical methods should be employed. These in the order of their preference, are massive doses of Roentgen rays, desiccation, radium and destructive caustics, provided the more expensive equipments are not available. Surface cancers, if tending to extend into the deeper structures, demand surgical treatment, but should also be treated by preoperative massive doses of Roentgen rays, effulguration at the time of operation, and postoperative deep Roentgen- or radiotherapy. Beginning cancer of the gastro-intestinal tract can be diagnosed with accuracy by recently improved Roentgen-ray methods. Inoperable malignant conditions cannot be cured by any method of treatment as the ultimate prognosis is 100 per cent. bad. The methods advocated are very expensive, and hence, if the work is to be continued, sufficient money must be raised to carry it on. This means for institutions proper endowment and for individuals adequate fees.

General and Experimental Therapeutics in Cancer

Dr. Richard Weil: In undertaking the treatment of any case of cancer we have accepted as axiomatic the principle that operation, whenever available, is the method of choice. This rule applies not only to all cases in which operation offers a hope of radical removal of all traces of the disease, but also to those border-line cases in which radical removal is excluded by anatomic conditions. In all cases of both groups we have made a practice of reenforcing the operation by supplementary measures in order to obviate the possibility of implantation recurrence, as by an immediate and thorough fulguration of every recess of the wound. This procedure was associated with no disadvantage of any kind that we have been able to discover. For a varying time after the operation the site was subjected to intensive Roentgen irradiation. In addition we have used the operative procedure as an adjuvant to other measures and, finally, we have used it in combination with other modes of attack, as, for instance, radium. The physical methods of treatment have been employed as extensively as possible. It might be said of both operative and the physical modes of attack that their effectiveness is sharply circumscribed and local in character. In addition to these we have attempted to develop the metabolic treatment of the disease. We have studied the effects of colloidal solutions of a series of metals, including mercury, arsenic, copper, lead and selenium, on human cancer. None of these substances is actually toxic to the cancer-cell, and we have therefore discarded their use. We have also studied the localization of a large series of synthetic dyes in rat-tumors, and although it has not been possible to discover any dye possessing a distinct affinity for neoplastic tissue, it was found that certain dyes of the diazo-group lodged in larger amounts and remained for much longer periods in the tumor-tissue than in the normal tissues of the body. The use of toxins, as elaborated by Coley, is to be regarded as a form of chemotherapy, even though the chemical constitution of the agent is entirely unknown. Closely related to the chemical methods is the attack on cancer by the alteration of the metabolic environment. The immunologic methods of treatment seem to offer the most hopeful promise. Active immunization has been accredited in the literature with certain apparently indisputable cures. There has been a fairly extensive use of vaccination, and although it is too early to form a definite judgment as to the final results, there can be no doubt that in many cases it has produced very marked shrinkage of the tumor, which has, in some instances, disappeared completely.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Thirty-Third Annual Session held at Watertown, May 26-28, 1914

(Concluded from page 58)

Chronic Gastric Disturbances; Differential Diagnosis

Dr. G. Eusterman, Rochester, Minn: Chronic simple ulcers of the stomach and duodenum furnish the typical syndrome of dyspepsia. The attacks alternate with free intervals, as a rule, and last from several weeks to a month or longer. The symptoms are less variable with duodenal than with gastric ulcers. Spring and fall seizures are quite common in the former. Hunger-pains, so-called, are frequently absent. Definite hemorrhage occurs in less than one-third of all cases. Tenderness plays a minor rôle and is invariably absent until the peritoneum is involved. Persistent tenderness to a marked degree suggests protected perforation. In the majority of instances, one may make a reasonably safe clinical diagnosis of ulcer, but to say that a given case is definitely gastric or duodenal is a more difficult matter. The atypical cases or in types in which there is a paucity of symptoms, the result of test-meal analyses and roentgenoscopic findings are of correspondingly greater importance.

Uncomplicated ulcers of the duodenum and pylorus are usually so definite in their symptomatology that they may be diagnosed with but little trouble. In ulcer of the stomach proper the facts are not so clear-cut as in the duodenal and pyloric types, nor are the day-by-day symptoms so clearly defined. In cases with lesions well above the pylorus the symptoms are apt to be continuous for longer periods, or remissions rather than free intervals are apt to be present. The pain and distress are not so often eased by food, or small amounts of food may give relief, while increased food may give distress. More care in diet and careful attention to the physical and nervous states are necessary. Soda relieves when food does not. Pain begins earlier, as a rule, often disappearing before the next meal, and thus the food-relief feature is minimized; but pain from half an hour to one hour after food is the usual rule and is of great diagnostic significance. Radiation and diffuseness of pain are considerably more extensive in gastric than duodenal types. Vomiting is rather more common in gastric ulcers than in uncomplicated ulcers of the duodenum and pylorus. Owing to a delayed emptying capacity, the vomitus usually contains food in an early to a moderate stage of digestion. Hematemesis is more frequent in cases of the gastric type. Chronic recurrent types of appendicitis may closely simulate the clinical picture of a peptic ulcer owing to reflex motor and secretory perversion of the gastric functions.

In ulcer of the stomach, definite diagnosis is made in over 60 per cent. of the cases by a combined use of the fluoroscope and roentgenogram of the bismuth-filled stomach. In duodenal ulcer the cardinal sign is that of heightened peristaltic activity of the stomach. In these cases the clinical symptom-complex is so definite in about 90 per cent. that the present Roentgen-ray limitations are of less significance. In addition, the roentgenographic examination may give the first definite evidence of spasmodic or hour-glass deformity, cirrhosis and of other malformations whether due to intragastric or extragastric disease processes. The screen also furnishes most reliable information as to the position, size, tonus, mobility, peristaltic activity and emptying capacity of the stomach.

DISCUSSION

Dr. W. D. Farrell, Aberdeen: One reason why so many cases of upper abdominal disease are not diagnosed until there are complications is that we are looking for cardinal symptoms which do not develop until there are complications. We should look for the lesser symptoms and endeavor to make a diagnosis from them. Adhesions in the upper abdomen are produced by a low grade of inflammation; they are therefore slow in forming and may not produce any symptoms until they have become extensive. Some of the abdominal pains are reflected from the pleura, from the spinal column, and from the hips, and they may be very confusing.

Dr. A. C. Stokes, Omaha: I divide stomach conditions into three classes; first, stomach conditions due to habit, which embrace irregularities in eating, improper food, too much food, too much drinking, too much sitting up at night, or too much getting up early in the morning; second, stomach reflexes; stomach conditions due to kidney disease, eye disease, to bad teeth, etc.; third, pain referred to the upper abdominal region. In this division I have not conceived any method or system by which I can always make a definite diagnosis.

Dr. T. F. Riggs, Pierre: A man, aged 33, had recurrent pains in the upper abdomen for two or three years. The period of recurrences varied from three to six weeks, and the duration of the recurrence was about a week. He had marked hyperacidity. His free hydrochloric acid was 68; there was blood in the stools, microscopic as well as macroscopic, and tenderness over the right quadrant of the abdomen, but no definite diagnosis was made. There were three provisional diagnoses made. The first one was ulcer of the duodenum; second, gall-bladder adhesions or old cholecystitis, and third, possible involvement of the appendix. At operation the second and third conditions were found.

Dr. Thorsen N. Kjerland, Webster: A woman had been sick for about three years with all the symptoms of duodenal ulcer. We operated and found the duodenum in a perfect condition, but the gall-bladder was greatly distended with bile and there was general visceroptosis. We also found a large concretion in the appendix.

Dr. A. H. Young, Pierre: It is a great mistake to see such a lack of cooperation between the surgeon, the general practitioner and the laboratory man. They should work together.

Prevention of Disease

Dr. F. H. Spafford, Flandreau: The most valuable service which we can perform for mankind is the prevention of disease, and this can be done only by men trained to meet the new conditions. In the past this work has devolved almost entirely on the physician, but as the science of sanitation is broadening there will be an imperative call for men of some fundamental training and of good executive ability. The health officer of the future will be a biologic engineer as well as physician. This is going to open up a broad field, a new career for young men, men who will effectively put into active operation and enforce all the laws, rules and regulations which have been enacted for the conservation of health.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

June, VII. No. 6, pp. 409-500

1 *Excretion of Phosphates in Infancy. J. H. M. Knox, Jr., Baltimore, and M. Tracy, Philadelphia.
2 *Voice Sign in Chorea. W. B. Swift, Boston.
3 *Observations on Physiologic Anatomy of Infant's Stomach Noted in Course of Use of Balloon-Duodenal Catheter. A. F. Hess, New York.
4 Metabolism in Osteogenesis Imperfecta with Special Reference to Calcium. A. Bookman, New York.

1. **Excretion of Phosphates in Infancy.**—Knox and Tracy's work confirms the earlier observations that the urinary phosphorus excreted in twenty-four hours by an artificially fed infant is greater than that recorded for the breast-fed child. The data obtained by experiments, however, do not, in their opinion, justify the conclusion that any deduction as to the nature or severity of the nutritional derangement can be drawn merely from the amount of urinary phosphorus. The estimation of the daily phosphorus excretion from small, single urine samples is held to be unreliable, as the results thus are often at variance with those determined by examination of the twenty-four-hour urine.

2. **Voice Sign in Chorea.**—Examination by Swift of vocal utterance in chorea on the kymograph demonstrated a pretty constant voice change of rise in pitch and increase in intensity accompanying choreic movements—a vocal change —which, he says, deserves recognition as a new sign in chorea. He found that choreic contractions cause changes of pitch and intensity in vocal utterance. The most marked change is in the rendering of the vowel *a* as in *around*. Increase of intensity comes from increased contraction of expiratory muscles, and rise in pitch results from increased contraction of the muscles of the vocal cords. And chorea makes these contractions. In other words, or stating the same in its order of sequence, choreic muscle contractions in the expiratory muscles makes increased air pressure, which results in increased intensity in the voice; and choreic muscle contractions in the muscles moving the vocal cords result in increased tension there, which increases the frequency of vibration and raises the pitch in the voice.

3. **Anatomy of Stomach.**—In several instances Hess has been able, by means of the balloon-catheter, to bring about cardiospasm artificially, although he could not invariably accomplish this result. If the balloon was dilated within the stomach and then retracted so that firm pressure was brought to bear on the cardia for a few minutes, at times marked cardiospasm resulted. In some instances, after carrying out this procedure it was absolutely impossible to pass an ordinary catheter into the stomach. It is difficult to state, says Hess, whether this fact has clinical or pathologic significance, but it suggests the possibility, however, that cardiospasm may be the result of increased pressure within the gastric cavity, that it may be incited by an over distention of the stomach with food, or, more probably, with food and gas, and that the *Magenblase*, or air cushion, so constantly seen at the uppermost part of the infant's stomach, may at times assume pathogenetic importance.

American Journal of Medical Sciences, Philadelphia

June, CXLVII, No. 6, pp. 781-936

5 Sarcoma of Stomach. C. H. Frazier, Philadelphia.
6 Examination of One Hundred Painters for Evidences of Lead Poisoning. E. R. Hayhurst, Columbus, O.
7 Three Cases of Fatal Gastro-Intestinal Hemorrhage. G. E. Armstrong and E. J. Mullally, Montreal.
8 *Process of Bone Repair Following Trauma. F. W. Bancroft, New York.
9 Diabetes Mellitus and Its Differentiation from Alimentary Glycosuria. A. Eustis, New Orleans.
10 Chloroma of Myeloid Variety. F. X. Walls and A. A. Goldsmith, Chicago.
11 *New Method of Gastric Testing. M. E. Rehfuss, Philadelphia.
12 Osteitis Deformans (Paget) Involving Right Femur Only. S. H. Hurwitz, Baltimore.
13 *Valvular Heart Disease Contributory Etiologic Factor in Pulmonary Tuberculosis. N. B. Burns, North Wilmington, Mass.
14 Classification and Treatment of Hemoptysis. F. M. Pottenger, Monrovia, Cal.
15 Case of Congenital Absence of Lower Half of Interauricular Septum. R. Kilduffe, Jr., Chester.

8. **Process of Bone Repair Following Trauma.**—Bancroft's work was undertaken to attempt to learn the method of repair in bone cavities. An effort was made to secure a cavity in which absolute hemostasis occurred, and therefore a dead space. The humerus was exposed usually by a median incision, the periosteum was removed for a distance of at least 3 cm. in length and for almost the entire circumference of the bone. A rectangular piece, 1 by 0.6 cm., extending into the medullary canal, was removed from the median surface of the diaphysis, and the medullary cavity was thoroughly curetted and packed until hemostasis occurred. Realizing that this hemostasis was only temporary, and that oozing probably occurred from the medullary cavity after suturing the muscles over it, various experiments were tried: (1) the cavity was packed and then filled with hot sterile oil and the wound closed; (2) the cavity was packed with gauze, which was removed in twenty-four hours; (3) the cavity was packed with gauze sterilized in oil, which was removed twenty-four hours later (the purpose of this was to prevent the gauze adhering to the sides of the bone cavity and the subsequent oozing on its removal); (4) both ends of the cavity were filled with Morehof's bone wax; this caused very good hemostasis, and was used in the largest number of experiments. In one case a sac was made of the peritoneum covering the appendix. The peritoneum was stripped off and a purse-string suture applied around the opening of the peritoneum; the sac was then filled with salt solution and placed in the bone cavity, completely filling it. The idea was to prevent the cavity from filling with blood-clot, and with the hope that the sac would be absorbed.

After varying lengths of time the dogs were killed and the bones examined. The findings were as follows: Where the periosteum has been well stripped off the bone for a distance of several centimeters it is separated from it by serosanguinous fluid. Here the bone was apparently repaired from the medullary cavity by a framework of connective tissue, on which calcium salts have been deposited, forming osteoid tissue; there has also been a reparative process from the connective tissue of the Haversian canals at the sides of the bone incision. Where the bone has repaired under a definite fibrous connective-tissue capsule, which is continuous with periosteum and also adherent to the surrounding muscles. This connective tissue is apparently not different from other connective tissue, except that in immediate approximation to the newly forming bone there is a single layer of cells which are larger in shape and have nuclei that take a heavy stain. In places there is a metaplasia from the connective-tissue cells to these osteogenetic cells. In the process of repair in fractures by the output of callus there is a metaplasia from connective tissue which seems to arise from the surrounding tissues rather than being a direct continuation of the periosteum. There is also a direct metaplasia from a tissue closely resembling fibrocartilage into young bone.

In attempting to draw clinical deductions from these experiments in regard to transplantation of bone, Bancroft says it is reasonable to assume that the periosteum acts as a limiting membrane to the bone, tends to conserve its shape and to furnish its blood-supply. If the periosteum is stripped from the bone of the transplanted part, numerous thrombi will occur, in which the vessels enter the diaphysis; but if the periosteum is left attached, the blood-supply will probably be more quickly established through the vessels of the periosteum. If small pieces of bone are transplanted, it is obvious that Haversian canals must be cut in many directions, thus allowing easy ingress to the newly forming blood-vessels. The fragments also must receive a good blood-supply from the entire periphery. They grow in this case without the aid of periosteum.

11. **New Method of Gastric Testing.**—Rehfuss used a simple capsule which could be easily swallowed and withdrawn at any given interval. In this capsule substances were placed capable of indicating the condition of the gastric juice. The capsule was made of hard steel, plated with silver. It consists of two parts: the head, perforated to permit the passage of a small silk thread, and supplied with a screw thread, by which it is attached to the body. This is likewise perforated and slotted to permit of the greatest possible ingress of liquid. Rehfuss found the best possible base was one of agar-agar. It is best to use a 2.5 per cent. solution, as the addition of various coloring matters will soften it somewhat. Rehfuss used a 1 per cent. aqueous solution of Congo red and agar-agar jelly distinctly alkaline after it has cooled to 40 F.; the same solution added to hot agar-agar results in a precipitation of the dye.

Capillary tubes were prepared by drawing out ordinary glass tubing in the usual manner until the diameter approached 1.5 mm. These pipets were then kept ready for use, and when it was desired to perform a test they were simply plunged into the jelly, withdrawn, and a core of the substance remained in the tube. Pieces were then cut off, 8 mm. in length, and inserted in the capsule. The capsule was then given at any stage after a test meal or, after an ordinary meal, swallowed in the usual manner, with a little water, and allowed to remain in the stomach ten to fifteen minutes and then withdrawn, taking the precaution to tell the patient to swallow when the capsule reaches the root of the tongue. Rehfuss usually performs Mett's test *in vivo* by taking one of the capillary tubes, sucking up some fresh egg albumin, holding the pipet over a boiling-water bath for two minutes, which results in a softly coagulated albumin capable of showing peptic digestion. Rehfuss has been able to demonstrate the digestion of more than 1 mm. for either end in the course of an ordinary Ewald meal.

While experimenting with the Einhorn duodenal tube, Rehfuss became convinced that if the tip was modified it would be possible to obtain acceptable specimens of the gastric juice. The new tip is slotted instead of perforated, and the slots are so cut that their diameter is as great as the caliber of the rubber tubing, in that way assuring the more perfect aspiration of material. It is made of steel, or can be made of manganese bronze; is bulbous in shape, so as to be easily swallowed; weighs from 90 to 120 grains, depending on the extent of the slotting and when linked with the customary No. 8 French tubing will not only serve as a most acceptable duodenal tube, but finds an even greater field in the study of the gastric contents, capable of being left in the stomach for long intervals, and enabling one to make a fractional study of the gastric juice over the whole period of digestion. The weight is sufficient to permit rapid swallowing, at the same time assisting by gravity its passage through the duodenum.

13. **Valvular Heart Disease and Tuberculosis.**—In reviewing 1,300 consecutive case records of patients admitted to and treated at the North Reading State Sanatorium in the past three years, Burns found definite records of valvular heart disease in 288, or 17.53 per cent. Of the 605 female cases, 128, or 21.15 per cent., had cardiac disease, and of the 695 male cases, 100, or 14.3 per cent., were similarly complicated; of the former 74, or 57.8 per cent., were diagnosed as mitral regurgitation, 42, or 33.5 per cent., as mitral regurgitation and stenosis, and 12, or 9.3 per cent., as aortic regurgi-

tation, 3 of the latter having also aortic stenosis and 2 others of the 12 having mitral regurgitation with aortic regurgitation. Of the men, 65 had mitral regurgitation, and of these 65 there were 28 showing also mitral stenosis. Aortic regurgitation appeared in 24 records, and together with aortic stenosis in 6 cases. Five cases were recorded as "undetermined" in character, although noted as "valvular heart disease." Two of these were suggestive of tricuspid insufficiency according to the record, but no definite diagnosis as such was made.

Boston Medical and Surgical Journal

June 18, CLXX, No. 25, pp. 937-974

16 *Possible Factor in Production and Distribution of Edema. F. C. Shattuck, Boston.
17 *Simultaneous Occurrence and Interrelation of Exophthalmic Goiter and Tabes. H. Barkan, San Francisco.
18 Sterility in Male. J. D. Barney, Boston.
19 *Six Thousand Wassermann Tests for Syphilis Performed in Harvard Neuropathologic Testing Laboratory, 1913. E. E. Southard, Boston.
20 Cystitis—An Incomplete Diagnosis. B. Tenney, Boston.
21 *Extrapulmonary and Other Sounds Which May Lead to Errors in Diagnosis of Pulmonary Tuberculosis. J. B. Hawes, 2d, Boston.
22 Plea for Early Operation for Gall-Stones Based on Autopsy Records. J. C. Hubbard, Boston.

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23 *Anal and Rectal Growths of Benign or Doubtful Character. T. C. Hill, Boston.
24 Back Pain and Its Diagnosis. H. Platt, Manchester, England.
25 *Vaccine Therapy of Typhoid. A. A. Hornor, Boston.
26 Function of Social Service of Psychopathic Hospital, Boston. M. C. Jarrett, Boston.

16. **Factor in Production and Distribution of Edema.**—The Bertillon system shows that by a sufficient number of accurate measurements any person can be distinguished from every other person. Even more remarkable proof of the individuality of the individual is afforded by the fact that no two persons have the same finger prints. Is it not at least possible, asks Shattuck, that analogous variations may exist in the texture of the tissues, of the organs, in the blood, or one or another of its constituents, which may be a factor in the distribution of edema? In the urticarias, perhaps especially the giant form, and in angioneurotic edemas, a nervous element must play an important part; but it would seem possible that individual peculiarity of tissue may play a part in the localization of the striking superficial changes.

17. **Occurrence and Interrelation of Exophthalmic Goiter and Tabes.**—Barkan cites 8 cases in which all the patients were afflicted at one and the same time with Basedow's disease and tabes. All but 1 showed a positive Wassermann reaction; all showed the cardinal symptoms of tabes; Argyll Robertson, absence of patellar or tendo achillis reflex; all but 2, Romberg's sign; 3 cases in addition to the cardinal symptoms, optic atrophy; 1 case, marked ataxia; 2 cases, distinct areas of paresthesia, 1, lancinating pains. Six of the 8 admit having lues. There can be no doubt that we are dealing with 8 tabetics. As a group they present just as typical picture of Basedow's disease. All show exophthalmos, a pulse varying from 95 to 120, and fine tremor of extended hands and tongue; a palpable and enlarged thyroid, though to slight degree in all but one; all complain of perspiration, or restlessness and nervousness. All show marked loss of weight. Two of his patients had been taking iodids and it is a question as to whether they belong to the type picture. They are instructive in another regard, however, to be referred to later. There is no case in which any one of the signs here ascribed to Basedow, or the combination of them in any case, could be counted as belonging to the tabes. This, however, in view of all the other signs and symptoms of Basedow's disease, can be safely reckoned as belonging to this latter.

The "time occurrence" of the two diseases, Barkan states, is an aspect of the combination on which Sattler has collected some interesting data. In the cases of Joffray, Barie, Sechchiere, P. Marie and Marinesco, the two were found coexistent at the first examination of the patient, who could not tell which group of symptoms had commenced first. In a second case Joffray and in one of Moebius', the symptoms of both appeared at the same time; in Moebius' case lightning pains, diplopia, tremor and tachycardia were all equally marked and had appeared at the same time; Argyll Robertson, optic atrophy, absence of patellar reflex, Romberg, exophthalmos and struma were found combined at the first examination. In the cases of Lewinck, Timotheef and Mannheim, and in one further case of Joffray the cardinal symptoms of tabes had existed for five years, to be followed by typical Basedow: in one case only was exophthalmos missing. In the further cases of Charcot, Moebius, Deliarde, Wiener, Cohen and Mannheim, Timotheef and Bernhardt, the Basedow antedated the tabes, but it is to be remembered in this connection that the Basedow symptoms are usually first noticed by the patient, incipient tabes being then found on examination. It is to be noted that in all the cases the specific infection occurred years ago, with the Basedow in all cases years after the infection, appearing in practically all cases shortly before, at the same time with, or shortly after, the symptoms of tabes. There is not a single case reported, in fact, in which the Basedow antedated the specific infection and in which in that case tabes-Basedow were found coexistent later, although in several cases struma had existed for years. One of Barkan's patients presented tabetic symptoms antedating the appearance of exophthalmos by eighteen years; one patient, tabetic symptoms antedating those of Basedow by five years; one patient had suffered from Basedow for two to three months previous to examination and at that time presented marked tabetic signs. Without question these have existed for a longer period. One patient states having noticed loss of feeling in the distribution of the ulnar nerve twelve to fifteen years ago, exophthalmos since eight years. One patient had had paralysis of the third nerve six years ago and had noted symptoms of Basedow in the last few months only. One patient had had diplopia a year ago and had noticed exophthalmos with loss of weight since four months. One patient had noticed the exophthalmos two years ago and was found to have objective marks of tabes, whose beginning must certainly be traced as far back as that. One patient had well-marked optic atrophy, had had diplopia six years ago, had had gastric crisis three years ago; her Basedow symptoms are of only a few months' duration.

19. **Wassermann Tests for Syphilis in Harvard Laboratory.**—Twenty-three per cent. of all sera examined in the Harvard Laboratory were positive, and since the cases are in many instances picked as likely to be positive, this percentage is doubtless much higher than the community's total percentage. Thirty-three per cent. of all cerebrospinal fluids examined were positive. Aside from its capacity to solve problems of individual diagnosis, Southard believes that the Wassermann method is obviously of such value to the community that a community Wassermann service might well be undertaken by a state agency such as Board of Insanity or the Board of Health.

21. **Sounds May Lead to Errors in Diagnosis of Tuberculosis.**—Muscle sounds, Hawes says, were a potential source of error in 9.2 per cent. of 250 cases studied by him. Such sounds occur, particularly in muscular persons of nervous temperament. These sounds can be lessened by quieting and calming the patient and by seeing that the examining room is sufficiently warm. Errors due to these sounds can be avoided only by great care and concentration on the part of the physician. Joint sounds, resembling râles and a potential source of error, occurred in 22 per cent. of this series. Errors due to this cause may be avoided by the procedure described in detail above, of making the patient "go through the motions of breathing without taking a breath." This should be done in every doubtful case. Tendon or bursal sounds, atelectatic râles or marginal sounds, Hawes thinks, ought to cause confusion or be sources of any mistakes in diagnosis.

23. **Anal and Rectal Growths of Benign or Doubtful Character.**—The vast majority of benign tumors of the rectum according to Hill are easily recognized. The two most

common varieties are the adenoid and the fibroid polyps. They may arise from any part of the rectum, but are generally found in the lower 2 inches. Their presence is generally undetected until the pedicle has stretched sufficiently for them to protrude at the anal orifice during defecation. When found, they should always be removed even if causing no discomfort and submitted to examination for possible malignancy. Operative removal is simple and in most cases can be done under local anesthesia. The growth should be hooked down with the finger or instruments and the pedicle infiltrated with a weak solution of cocain and clamped with a suitable pair of forceps as close as may be to its attachment to the rectal wall. A linen or silk ligature is next applied on the proximal side of the clamp, or, if broad, the pedicle is transfixed with it and it is tied in sections. The growth is then cut away on the distal side of the clamp, which is removed, and in due time the ligature sloughs away.

When more than one or two polypoid or semisessile growths present to the examining finger in the rectum, and particularly if they are rather higher than the zone of ordinary occurrence of single growths, and there is an associated history of diarrheal and mucoid discharges, Hill states, one must consider the possibility of multiple adenomata, a most serious condition, rarely or never met or diagnosed by most physicians. When the growths are numerous and close together the feeling is distinctly like malignancy, and only by means of the proctoscope or sigmoidoscope can a certain diagnosis be made. These growths may, and usually do, occupy the major portion of the large bowel, bleed easily and may be soft or dense according to the amount of contained glandular or fibrous structure. They are very prone to malignant degeneration, and because one tumor is removed and found not to have been so transformed, one had no right to infer that it has not occurred in others.

25. **Vaccine Therapy of Typhoid.**—One hundred and thirty-five cases of typhoid were studied by Hornor, comparing 40 cases in which vaccines were administered with 95 cases in which vaccines were not used. The 135 cases were treated alike save for the use of vaccines. The vaccine used was made by suspending in physiologic salt solution a twenty-four-hour agar slant growth of *Bacillus typhosus* and then killing the organisms by a thirty-minute exposure to a temperature of 56 C. The initial dose of the vaccine was ten million killed bacteria. The number of organisms injected was increased daily by ten million, being administered every afternoon for one week, then on alternate afternoons with a twenty million increase until the temperature remained normal for three days or patient had received 700 million dead bacilli. The average total number of organisms given each patient was 516 million.

The inoculations were intracuticular and were all accompanied by local reactions—or redness, induration, pain and tenderness. These appeared within twenty-four hours and lasted twelve to forty-eight hours. No systemic reactions were detected. The average duration of fever in uncomplicated cases treated with vaccines was 24.39 days; in uncomplicated cases not receiving vaccines was 23.08 days. The percentage of cases showing complications were: inoculated, 55; uninoculated, 50½; all cases, 51. The percentages of mortality were: of vaccinated cases, 10; of unvaccinated cases, 11½; of all cases, 11⅒. The duration of fever in uncomplicated cases was approximately the same whether the cases did or did not receive vaccines. Defervescence in the uncomplicated cases began usually on the third day after admission no matter whether vaccines were or were not administered. A more detailed study of the incidence and of the character of complications shows relapses occurring in 20 per cent. of inoculated cases in contrast to 11.5 per cent. of uninoculated cases; recrudescences in 17.5 per cent. of inoculated cases as against 28.4 per cent. of uninoculated cases; other complications in 37.5 per cent. of inoculated cases compared with 21 per cent. of uninoculated cases. The complications include hemorrhage, perforation, phlebitis, pneumonia, parotitis, tonsillitis, osteomyelitis, acute hallucinosis, Vincent's angina, and decubitus.

Four deaths occurred among patients treated with vaccines, the first death due to an intestinal perforation, after the fifth inoculation of vaccine and after patient had received a total of 150 million dead bacilli; the second death was due to septic parotitis developing during a relapse which began after three weeks without fever and after patient had received 880 million killed bacteria; the third death was due to an intestinal hemorrhage occurring on eighteenth day after patient's admission to the hospital and after he had received 530 million dead organisms; the fourth death was due to bronchopneumonia on patient's twenty-first day in hospital and after he had received 500 million killed typhoid bacilli. These deaths were obviously not due to complications extraneous to typhoid. The deaths occurring among the 95 cases not inoculated with dead typhoid bacilli were as follows: 4 pneumonia, 2 hemorrhage, 3 severity of the disease, 1 perforation, 1 alcoholism.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

June, VI, No. 12, pp. 197-212

27 Surgical Repair of Blood-Vessels. J. S. Horsley, Richmond, Va.

Colorado Medicine, Denver

June, XI, No. 5, pp. 213-242

28 Surgical Treatment of Thoracic Empyema. C. E. Tennant, Denver.
29 Art of Obstetrics Among Primitive Peoples and Its Development Among Civilized Classes. C. B. Ingraham, Denver.
30 Acapnia—Its Relation to Anesthesia and Surgery. C. G. Parsons, Denver.
31 Anesthetization—Anesthetizer and Surgeon. R. L. Charles, Denver.

Delaware State Medical Journal, Wilmington

April, V, No. 5, pp. 1-26

32 Phylacogens in Every Day Work. W. Linn, Wilmington.

Georgia Medical Association Journal, Augusta

June, IV, No. 2, pp. 33-69

33 Some Work for Georgia Doctors. L. C. Allen, Hoschton.
34 Surgical Treatment of Goiter. E. G. Jones, Atlanta.
35 Means and Methods That Should Be Employed to Increase Longevity of Man. A. L. R. Avant, Savannah.
36 *Three Thousand Cases of Fever under Salicylate of Soda Treatment. B. P. Oliveros, Savannah.

36. **Cases of Fever under Salicylate of Soda Treatment.**—Oliveros believes that at least 75 per cent. of continued fever cases treated from the very beginning with salicylate of soda can be aborted in anywhere from six to fourteen days. His mode of procedure is like this: From the first day of seeing the case, for adults, 15-grain doses are given every two hours from 6 a. m. to 6 p. m. and continued from day to day. His idea in discontinuing the drug after the seventh dose is owing to the fact that with a longer continuation the patient becomes excitable and hallucinated, and passes a very restless night. In children he finds that in pushing the drug the doses have to be lessened on account of the depression and bad breathing which it causes. He has found it very rare to have a stomach refuse the drug; given with tincture cardamon or zinziberis it will stick about as well or better than anything else. Under the treatment that much-to-be-desired condition, a clean mouth and constantly soft tongue, is nearly always a present joy. There is an absence of delirium, a pleasant skin and a soft pulse. Where the temperature runs about 102 and sponging is necessary, the patient is in condition to thoroughly enjoy the mode of procedure. Any other drug as calomel, turpentine and salts, may be used when necessary without discontinuing the use of soda.

Journal of the Indiana State Medical Association, Fort Wayne

June, VII, No. 6, pp. 255-308

37 Visceroptosis: Symptomatology. J. C. Sexton, Rushville.
38 Id.: Roentgen Diagnosis. A. M. Cole, Indianapolis.
39 Id.: Medical Treatment. W. Schell, Terre Haute.
40 Id.: Surgical Treatment. E. Walker, Evansville.
41 Contact Points of Ophthalmology and Rhinology with General Medicine. T. Potter, Indianapolis.
42 Care and Treatment of Pneumonia. J. B. Maple, Shelburn.
43 Sanitary Laws. W. F. King, Indianapolis.

Journal-Lancet, Minneapolis

June 1, XXXIV, No. 11, pp. 289-319

44 Fractures in Neighborhood of Joints. J. B. Murphy, Chicago.
45 Brachial Plexus Anesthesia: Complete Local Anesthesia of Upper Extremity, Permitting of all Major Surgical Procedures. A. C. Strachauer, Minneapolis.
46 Carcinoma of Cecum and Appendix. G. Earl, St. Paul.
47 Case of Thoracic Aneurism without Physical Findings. H. S. Willson, Minneapolis.

June 15, No. 12, pp. 321-346

48 Cervical Ribs as Cause of Brachial Neuritis. A. S. Hamilton, Minneapolis.
49 Surgical Aspect of Cervical Ribs. A. A. Law, Minneapolis.
50 Intestinal Parasites of Minnesota. A. H. Sanford, Rochester.
51 *Case of Psoas Parvus Contraction. M. H. Cremer, Red Wing.

51. **Psoas Parvus Contraction.**—Cremer's patient, female, aged 27 years, was always well until Oct. 2, 1912, when, on arising in the morning she could not step on her left limb, owing to severe and continuous pain involving the anterior, posterior and internal surfaces of the left leg, and pain in the back and left inguinal region. The thigh was flexed and adducted. An examination could not be made owing to the extreme sensitiveness over the areas above mentioned.

After two days' rest the symptoms abated somewhat, and the patient walked into Cremer's office with a pronounced limp. On examination there seemed to be a fixed tumor in the left groin, apparently the size of a hen's egg. The limb thus always being flexed and adducted, any attempt at manipulation gave her excruciating pain. There was tenderness along the course of the sciatic nerve. A roentgenogram of the pelvis and body was taken, which showed the osseous system normal throughout. Extension was applied to the limb, but this aggravated rather than relieved the pain. On Oct. 25, 1912, an exploratory laparotomy was made, but Cremer was unable to find any pathologic condition. She left the institution ten days later, unimproved.

She then went to a mud-cure institution, in which she remained for a period of nine weeks, returning with the same train of symptoms as had existed since the onset of her trouble. Cremer again made a roentgenogram of the hip, spine, stomach and lower bowel, but could not define any lesion. The kidneys were normal; cystoscopy, negative; Wassermann, negative; blood, normal; tuberculin reaction, negative. It was a question of giving the patient sufficient comfort that she might meet her engagements rather than curing her of an ailment of which we had no knowledge. Excluding the various lesions which might cause the symptom complex, as, for instance, sciatica, Pott's disease, synovitis of the hip-joint, sacro-iliac disease, thrombosis of the lumbar cord and appendicitis, Cremer decided it must be a psoas contraction; an operation was done on December 26. The abdomen was opened in the midline below the umbilicus, going through the posterior peritoneum transversely, dividing the muscle tendon, the ends of which quickly separated for a distance of about 2 inches. The patient, when visited the following morning, had no pain in the limb and had had none since the operation. The limb was straight and not partially flexed as before, but freely movable without pain. She made an eventful recovery, leaving the hospital on the ninth day following the operation and soon assumed her regular vocation as saleswoman.

Lancet-Clinic, Cincinnati

June 13, CXI, No. 24, pp. 687-710

52 Exstrophy of Bladder. J. A. Johnston, Cincinnati.
53 Frederick Forchheimer—An Appreciation. O. Juettner, Cincinnati.
54 Thrombosis and Embolism—Series of Unusual Circulatory Accidents Occurring in Acute Infections. W. L. Bierring, Des Moines, Ia.

Laryngoscope, St. Louis

May, XXIV, No. 5, pp. 485-562

55 Roentgenoscopy of Nasal Sinuses. D. MacFarlan, Philadelphia.
56 Improved Method for Removing Posterior Tip of Inferior Turbinate. M. Lubman, New York.
57 Physiologic and Pathologic Relations on Eye and Accessory Sinuses of Nose. C. B. Wylie, Morgantown, W. Va.
58 Atrophic Rhinitis, Treatment with Scarlet Red. W. C. Wood, Philadelphia.
59 Surgery of Faucial Tonsil as It Relates to Functions of Tongue and Soft Palate in Production of Voice. G. Hudson-Makuen, Philadelphia.
60 Surgical Conditions of Jaw. H. S. Dunning, New York.
61 Unusual Laryngeal Tumor. Specimen. Curious Esophageal Experience. Skiagraph and Foreign Body. H. Arrowsmith, New York.
62 Broncho-Esophagoscopy. E. W. Carpenter, Greensville, S. C.
63 New Tonsil Hemostat. A. W. Watson, Philadelphia.
64 Universal Syringe for Ear, Nose and Throat. P. Schoonmaker, New York.
65 Two Modified Forceps. E. Amberg, Detroit.

Medical Record, New York

June 20, LXXXV, No. 25, pp. 1105-1150

66 Uric Acid Overproduction. W. H. Porter, New York.
67 Langerhansian Hormone, and Hormone Treatment of Diabetes. H. R. Harrower, London.
68 Treatment of Trifacial Neuralgia by Injection of Alcohol, into Gasserian Ganglion. C. D. Camp, Ann Arbor, Mich.
69 Injuries of Inner Ear. E. Amberg, Detroit.
70 *Medical Management of Exophthalmic Goiter. R. Abrahams, New York.
71 Wright's Solution: Substitute for Antiseptic Solutions. G. K. Dickinson, Jersey City, N. J.

June 27, No. 26, pp. 1151-1218

72 Service of Medicine to Civilization. V. C. Vaughan, Ann Arbor, Mich.
73 Splenectomy for Pernicious Anemia: Report of Case. W. Coleman and J. A. Hartwell, New York.
74 Primary Lupus of Larynx. E. Mayer, New York.
75 Arterial Hypertension. I. W. Ballard, Opelika, Ala.
76 Varix of Internal Saphenous Vein Resembling Strangulated Femoral Hernia. G. P. Coopernail, Bedford.

70. **Treatment of Exophthalmic Goiter.**—The ideal treatment of exophthalmic goiter, Abrahams states, is found in complete isolation, rest and freedom from every conceivable care and worry. With this treatment, no medicinal agents need be associated. The most distressing sign of the disease is the rapidity of the heart action. Abrahams finds that the tincture of strophanthus given in 5- or 10-minim doses, three time a day, is most useful to steady the heart. If strophanthus fails, the tincture of belladonna in the same dose is a good second best. The other distressing conditions in exophthalmic goiter are tremor and nervousness. These are very well controlled by ammonium bromid in doses of 20 grains three times a day; this need be given for a short time only, because when the strophanthus begins to act the nervousness subsides, as a good share of it results from the consciousness of a rapid and pounding heart. The lukewarm shower-bath is another means to allay tremor and nervousness. The bath also works well as a hypnotic. Iron is rarely indicated, an opiate never. Once in a great while, when the patient is much disturbed at night with frequent urination, 0.25 grain of codein taken at bedtime will mitigate that evil. The diet should be of the simplest kind. Tea and coffee should be forbidden. Abrahams has also used serums. Beebe's and the antithyroidin of Möbius with some good results.

Military Surgeon, Chicago

June, XXXIV, No. 6, pp. 501-607

77 Ambulance Company. F. T. Woodbury, U. S. Army.
78 Disposal of Wastes. A. Farenholt, U. S. Navy.
79 Fracture of Jaws. T. E. Carmody, Colo. N. G.

Missouri State Medical Association Journal, St. Louis

June, X, No. 12, pp. 447-502

80 Feeding of Sick Infant. F. C. Neff, Kansas City.
81 Neurologic Manifestations of Pernicious Anemia. F. M. Barnes, Jr., St. Louis.
82 Bacterial Vaccines and Theory of Their Use. W. G. Thompson, Holden.
83 Eclampsia. A. L. Gray, St. Joseph.
84 Fracture of Skull. Report of Two Cases. A. W. McArthur, Kansas City.
85 Legal Aspects of Medical Practice and Some Preferences in Particular to Eye work. J. S. Weaver, Kansas City.

New York Medical Journal

June 20, XCIX, No. 25, pp. 1217-1264

86 Scoliosis Clinic of Children's Hospital, Boston. J. W. Sever, Boston.
87 Determinants of Tabes. W. J. M. A. Maloney, New York.
88 Alien in Relation to Spread of Acute Infectious Disease. L. L. Williams, Ellis Island.

89 Antituberculosis Campaign. J. Rosenberg, Margaretsville and New York.
90 Erroneous Deductions from Tracheal Insufflation. R. C. Coburn, New York.
91 Identity of Lane Kink with Joseph Price Elbow. J. W. Kennedy, Philadelphia.
92 *Case of Idiopathic Splenomegaly; Splenectomy. A. E. Sellenings, New York.
93 Sources of Error in Wassermann Technic. C. T. Stone, New York.
94 Neosalvarsan in Concentrated Solution. J. Girsdansky, New York.
95 *Possible Solution of Mercury Bichlorid Problem. J. H. Heacock, New York.

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96 Service of Medicine to Civilization. V. C. Vaughan, Ann Arbor, Mich.
97 Cerebrospinal Fluid and Its Relation to Brain Tumors. C. H. Frazier, Philadelphia.
98 Liver in Acquired Syphilis. H. Brooks, New York.
99 Diagnostic Pitfalls in Mental Examination of Negroes. J. E. Lind, Washington, D. C.
100 Treatment of Whitlow: Later, Felon. B. Robinson, New York.
101 Auscultatory Inflation of Colon. J. H. Musser, Jr., Philadelphia.
102 Pituitary Extract in Obstetrics. G. L. Brodhead, New York.
103 Effect of New Regulation Restricting Sale of Bichlorid of Mercury. C. F. Pabst, New York.
104 Visit to Lourdes. H. L. Shively, New York.

92. **Idiopathic Splenomegaly.**—Sellenings cites the case of a man, 23 years old. Used alcohol occasionally; venereal history denied; no history of acute or chronic illness except present condition. At the age of one year he fell out of bed and to this circumstance was attributed the abdominal swelling, which gradually increased in size, causing increasing pain, to which he had become more or less tolerant. However, two weeks prior to date of admission, he began to experience severe and increasing pains in the epigastrium and left side of abdomen. These pains were paroxysmal at first, later becoming more severe and continuous, when he sent for an ambulance and came to the hospital. The patient was an anemic, poorly nourished adult; heart and lungs apparently normal. There were no lymph-node enlargements. The striking feature was a large solid tumor lying in the left side of the abdomen and extending from its dome to well below the umbilicus. The tumor anteriorly presented a distinct and sharp border. The liver was apparently not increased in size. There was no ascites. Veins of the abdomen were not prominent; no jaundice or pigmentation. A diagnosis of enlarged spleen with undetermined etiology was made. Examination of urine showed a trace of albumin. Von Pirquet test was positive; Wassermann was negative. Blood examination, July 5: Hemoglobin, 70 per cent.; red cells, 4,800,000; white cells, 8,000; polynuclears, 81 per cent.; lymphocytes, 17 per cent.; eosinophils, 2 per cent.

Operation for removal of the spleen was done July 22, under gas-ether anesthesia. On the second day following the operation the patient's temperature rose to 105 F., with a remission to 100.4 F. on the fourth day. On the fifth day it again rose to 105 F., but on the sixth day it began to decline. A superficial infection at the site of the drain delayed his discharge from the hospital until August 22. The pathologic report was: Marked chronic interstitial splenitis and perisplenitis. Blood examination two days after operation showed: red cells, 4,970,000; white cells, 9,200; polynuclears, 96 per cent.; lymphocytes, 3 per cent.; eosinophils, 1 per cent. On September 13 the patient was readmitted to the hospital, suffering from an anal abscess, which was evacuated. Following this the blood-picture was as follows: red calls, 4,850,000; white cells, 11,000; lymphocytes, 19 per cent.; polynuclears, 81 per cent.; hemoglobin, 72 per cent. In November, 1913, four months after operation, it was reported that the patient had gained 15 pounds.

95. **Bichlorid Problem.**—Heacock suggests that all bichlorid tablets be manufactured in coffin shape, each to be stamped with the word "poison" on upper and lower surfaces, and to be colored a jet black or an intense scarlet; and to be placed in dark colored bottles having spinous projections from their surfaces. The latter of itself has proved to arrest attention on the part of the prospective consumer. The label should have the usual red field with the word "poison" in white letters.

New York State Journal of Medicine

June, XIV, No. 6, pp. 289-338

105 Newer Methods of Treatment in Nervous and Mental Diseases. L. P. Clark, New York.
106 Relationship of General Practitioner to Surgeon. N. Jacobson, Syracuse.
107 *Infection with Bacillus Coli Communis, Complicating Pregnancy, Labor and Puerperal State: Its Medical and Surgical Treatment. E. P. Davis, Philadelphia.
108 Asphyxia Neonatorum and Its Sequelae. W. P. Manton, Detroit.
109 *Sterility in Women. W. E. Ford, Utica.
110 Obstetric Technic. R. L. Ellithrop, Gloversville.
111 Determination of Surgical Conditions of Stomach in Chronic Cases. W. A. Bastedo and L. T. LeWald, New York.
112 Importance of Urology in Women. H. D. Furniss, New York.
113 Should General Practitioner Take Part in Treatment of Gonococcus Infection? J. B. Clark, New York.
114 Landry's Paralysis and Its Relation to Acute Epidemic Poliomyelitis. E. A. Sharp, Buffalo.
115 Influence of Diet on Growth and Recurrence of Adenoids. F. Van der Bogert, Schenectady.

107 and 109. Abstracted in The Journal, May 30, pp. 1750 and 1751.

Northwest Medicine, Seattle, Wash.

June, VI, No. 6, pp. 155-188

116 Sacroiliac Traumatisms. C. R. McClure, Portland, Ore.
117 Fractures of Pelvis. Report of Cases. C. G. Sabin, Portland, Ore.
118 Useful Splint (Hacker) for Fracture of Upper End of Humerus. H. B. Thompson, Seattle.
119 Conclusions Reached after Twenty Years' Obstetric Practice Covering 2,108 Cases without Maternal Mortality. E. I. Rich, Ogden, Utah.
120 Impassable Contraction of Gravid Uterus, Report of one Case Verified by Cesarean Section. Dilatation of Stomach Recovery. E. J. Lawrence, Spokane.
121 Local Health Department. S. G. Paul, Salt Lake City.
122 Medical Inspection of Public Schools. E. A. Montague, Tacoma.
123 Cancer of Breast. J. W. Aird, Provo, Utah.
124 Treatment of Asiatic Cholera at San Lazaro Hospital. A. C. Garton, Manila, P. I.

Ohio State Medical Journal, Columbus

June, X, No. 6, pp. 327-390

125 What Are Practical Health Measures? Who Should Lead, and Why? O. Dowling, Shreveport, La.
126 *Pecancerous Conditions of Involuting Breast and Importance of Their Condition. J. W. Means and J. Forman, Columbus.
127 Scientific Aspect of Early Infantile Ocular Contagion. (Ophthalmia Neonatorum.) R. Sattler, Cincinnati.
128 Surgical and Postoperative Treatment of Empyema of Chest. L. G. Bowers, Dayton.

126. **Involuting Breast.**—The authors point out that both histologically and clinically abnormal involution bears a distinctly closer relation to carcinoma than mere coincidence, and should be regarded with more seriousness than has formerly been attributed to it. The following points seem to stand out preeminently: (1) The proliferating group of abnormal involution is frequently associated with cancer. In their series of twenty cases of cancer occurring in women past middle life, it is associated eight times, or 40 per cent. (2) The proliferating group of abnormal involution has connective tissue increase, blood-vessel obliteration and the consequent disturbed nutrition in common with other precancerous lesions. (3) The development of early malignant change cannot be detected from the clinical symptoms, hence; (4) the radical removal of the gland whenever the seat of this disease is indicated. (5) Examination and dissection of the axilla is demanded whenever the proliferation is at all marked. (6) The absolute necessity of the surgeon familiarizing himself with the gross sectional appearance and the need of cooperation between the laboratory and operating room.

Southern Medical Journal, Nashville, Tenn.

June, VII, No. 6, pp. 431-514

129 Management of Carbohydrates in Infant Feeding. L. W. Elias, Asheville, N. C.
130 Management of Proteids and Fats in Infant Feeding. A. W. Calloway, Asheville, N. C.
131 Chronic Splenic Anemia, Banti's Disease and Allied Conditions. J. B. McElroy, Memphis.
132 Treatment of Gastro-Intestinal Tract in Pellagra. C. C. Elebash, Selma, Ala.

133 Pellagra. R. E. Sylvester, Tylertown, Miss.
134 Rational Psychotherapy. R. S. Carroll, Asheville, N. C.
135 Negro, Public Health Problem. C. E. Terry, Jacksonville, Fla.
136 Postoperative Care of Abdominal Cases. G. C. Rodgers, Elkins, W. Va.
137 Unusual Cases. E. D. Holland, Hot Springs, Ark.
138 Nasal Tampon Treatment of Sinus Diseases and Ocular Complications. J. I. Dowling, Albany, N. Y.
139 Pellagra. J. E. Evans, Fulton, Ala.
140 Case of Diabetes Mellitus Showing Uncinaria Infection. W. W. Dinsmore and P. B. Moss, Montgomery, Ala.
141 Effects of Continued Use of Opiates on Human System. W. C. Ashworth, Greensboro, N. C.
142 Surgical Treatment of Goiter. J. R. Wathen, Louisville, Ky.
143 Galveston Autopsies. G. C. Kindley, Galveston, Tex.
144 Prevention of Deafness. J. B. Greene, Asheville, N. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 6, I, No. 2788, pp. 1221-1276

1 *Prophylactic Use of Sensitized Bacterial Vaccines in Puerperal Sepsis. S. T. Champtaloup.
2 *Treatment of Uterine Abscess by Sensitized Bacillus Proteus. W. Broughton-Alcock.
3 Excision of Bladder for Malignant Disease. C. A. Morton.
4 *Case of Ectopia Vesica in which Ureters Were Grafted Successfully into Rectum. T. Y. Simpson.
5 *Direct Intragastric Method of Treating Certain Ulcers of Stomach. J. L. Thomas.
6 Cholecystotomy in Lieu of Cholecystostomy in Certain Cases of Cholelithiasis. A. E. Maylard.
7 Urinary Diastase Test and Loewi's Reaction in Pancreatic Lesions. L. Humphry.
8 *Two Cases of Acidosis Terminating Chronic Myocardial Disease. C. Coombs.
9 Suppurating Hydatid of Crura of Diaphragm. J. Oliver.
10 Dyspareunia and Its Surgical Treatment. J. Phillips.
11 Identity of T. Rhodesiense with Trypanosome of Same Appearance Found in Game. W. Yorke and B. Blacklock.
12 Electrargol in Small-Pox and Plague. R. Denman.

June 13, No. 2789, pp. 1277-1336

13 Influence and Responsibilities of Medical Profession in Social Legislation and Administration. A. C. Farquharson.
14 Obstetric Medicine in Uganda. A. R. Cook.
15 Plea for Surgical Work in Cottage by Country Practitioner. J. E. Webb.
16 Place of Roentgen Rays in Treatment of Cancer. F. Fowler.
17 Small Outbreak of Epidemic Cerebrospinal Meningitis. J. M. Clarke and J. O. Symes.
18 Frey's Method of Anesthetizing Larynx. C. Yorke.
19 Gumma of Larynx Necessitating Tracheotomy. W. J. Harrison.
20 Rare Form of Lichen Ruber Planus. C. H. Cattle.

1. **Prophylactic Use of Sensitized Bacterial Vaccines.**—Champtaloup suggests that health departments issue sensitized streptococcal vaccines for prophylactic use in maternity practice. In view of the fact that 80 per cent. of cases of puerperal sepsis are due to streptococci, he thinks it would be well to use a stock sensitized polyvalent streptococcal vaccine as a prophylactic, in the face of an epidemic of puerperal infection, such as is sometimes witnessed in an institution, or in private practice in which the house surroundings are not of the best, or in which the practitioner has already recently attended a case which has gone septic. Champtaloup suggests that doses of 100, 250 and 500 million of this vaccine be given the expectant mother at forty-eight-hour intervals, ten to fourteen days before the expected date of confinement. The sensitized vaccine is preferable to the ordinary vaccine because of the absence of reaction and the more rapid immunization.

2. **Treatment of Uterine Abscess by Sensitized Bacilli Protei.**—A married woman aged 55 complained of a long-continued vaginal discharge of pus. Three years previously she had undergone subtotal hysterectomy for fibroma. For six months subsequent to this operation the patient had trouble with her bladder and then became subject to a vaginal discharge. On examination the vagina was found to be full of yellowish, thick, tenacious pus, without marked smell; it was seen to be exuding from the cervix, and a probe passed into the latter led into an abscess cavity a little under 1½ inches in diameter. Some pus withdrawn from this cavity was submitted after microscopic examination to culture, and colonies of pure *B. proteus* resulted. The first part of the treatment consisted in giving, at intervals of three or four days, seven injections of a culture of the bacilli derived from the pus; the doses gradually increased in amount, the first being equal to 100 million bacilli, and the last to 2,000 million. The bacilli were heated to 60 C. for an hour before administration. A very slight local and general reaction followed each injection.

On the eighth day after the last injection of these dead bacilli 20 c.cm. of blood was taken from the patient and used for the preparation of an autogenous vaccine consisting of living bacilli, sensitized by contact with the serum of the patient's blood, which was rich in amboceptor and specific agglutinating properties. At this date a vaginal examination was again made, and the abscess found to be still secreting, though in lessened quantity, pus containing the *B. proteus* in pure culture. On the tenth day after the last injection of dead bacilli injection of the sensitized autogenous vaccine was commenced, one injection being given weekly for four weeks, and the dose increased from 400 million at the beginning to 1,000 million at the end. Again very slight reactions followed the injections. At the same time the abscess cavity was washed out with a dilute antiseptic solution. By the time the fourth injection had been given the discharge of pus had entirely ceased, but to render the cure more secure four further injections were subsequently given.

4. **Ectopia Vesica in which Ureters were Grafted Successfully into Rectum.**—The subject of this report had ectopia vesicae. Urine was continually spurting in drops from the two ureteric openings, calcareous concretions had formed on the pubic hairs, she was unable to walk except for a short distance, and had to be wheeled about. Her clothing adhered to the protruding posterior bladder wall, causing pain and discomfort by rubbing on it and the concretions; slight hemorrhage also occurred at times. There was a urinous odor about her, and she was unable to attend school; she was fretful and irritable; the posterior bladder wall bulged like a large ventral hernia, and contained coils of intestine; the pubic symphysis was absent.

Simpson decided to transplant the ureters into the rectum and under a general anesthetic, he dissected up the posterior bladder wall from the peritoneum above and triangular ligament below. A catheter was inserted into each ureter, which was cleared for about 2 inches; the redundant portion of the bladder was removed except just around the ureters. Simpson next divided some fibrous tissue in the position of the hymen admitting the finger into the vagina, and then divided the triangular ligament, permitting the lower end of the ureters to be turned back into the vagina in close proximity to the anterior rectal wall. With a finger in the rectum an opening was made through the posterior vaginal and anterior rectal walls, and through this the catheters and ureters were placed; the free edges of the rectovaginal incision were sutured to the sides of the ureters, the triangular ligament, perineum and abdominal wounds were respectively drawn together with catgut. Urine was collected in a receptacle for seven days from the two catheters which protruded from the anus; they were then withdrawn, and the patient made an uninterrupted recovery. She is now able to retain her urine in the rectum for several hours at a time.

5. **Direct Intragastric Treatment of Ulcers of Stomach.**—The operation Thomas performed in one case was as follows: Scraping radially from the center of ulcer by Volkmann's spoon all the detachable unhealthy tissues as far as the under surface of the mucous membrane forming its edge. Thermocauterization of the exposed fresh base of the ulcer in order to stop hemorrhage completely and to sterilize. Mobilization of the mucous membrane all around the edge of the ulcer by means of a long blunt-pointed scissors curved on the flat and with a delicate end. Removal *par morcellement* by means of Lane's bone-nibbling forceps of all the unhealthy mucous membrane now forming the mobile edge of the ulcer. The edges of the healthy mucous membrane were brought together by means of suitable sutures—continuous or interrupted. The gastrotomy wound was closed by separate con-

tinuous suture for the mucous, muscular and serous layers. The abdominal wall was then closed. The result is a complete success.

8. **Acidosis Terminating Chronic Myocardial Disease.**—The first case cited by Coombs was one of cardiosclerosis. The symptoms which suggested the existence of an acidosis were the powerful smell of acetone in the breath; the incessant thirst; the type of dyspnea, which in its sighing, rhythmic character and its disproportionate intensity recalled the air-hunger of diabetic acidosis; and the nervous symptoms, of which delirium and pupillary contraction were the chief. In the second case a similar train of symptoms marked the last phase. There was the same strong smell of acetone, the same kind of breathlessness, and a similar set of nervous phenomena. To this was added an extraordinarily severe diarrhea. That this was toxic is suggested by its intensity, its intractability, and its independence of colic or other abdominal symptoms. Coombs suggests that it may have been the outcome of an effort on the part of the body to rid itself of poisonous substances.

To these toxic phenomena the term "acidosis" is applied by Coombs because of their resemblance in essentials to diabetic and other acid intoxications. The sweetish breath, the air-hunger and the cerebral aberrations all seem to set down the phenomena seen in this pair of cases among the acidoses. Two important divergences were noted—the almost complete absence of acetone and B-hydroxy acids from the urine, and the failure of alkalinization as a therapeutic measure. None of the commonly recognized causes of intoxication were operative in these two cases; in neither man was there any trace of glycosuria or any hint at a preexisting diabetes. Both patients were feeding adequately, neither was there any vomiting nor other cause of starvation, apart from the diarrhea which supervened in the second case after the symptoms of acidosis had been observed. No drug had been administered in either case, such as might have given rise to acid intoxication. It seems to Coombs, therefore, that these two cases represent an acidosis differing in origin and nature from those types which have been hitherto recognized.

Edinburgh Medical Journal

June, XII, No. 6, pp. 481-590

21 Urinary Antiseptics. (Hexamethylenetetramine.) J. W. T. Walker.
22 Hypertrophic Pulmonary Osteo-Arthropathy (Marie's Disease). A. Gilmour.
23 Royal College of Surgeons of Edinburgh: Their Professors of Surgery. C. H. Creswell.

Journal of State Medicine, London

June, XXII, No. 6, pp. 321-384

24 Sexual Disease and Individual. A. Corbett-Smith.
25 Occupational Fatigue. T. Oliver.
26 Housing of Irish Working Classes. R. F. Heron.

Journal of Tropical Medicine and Hygiene, London

June 1, XVII, No. 11, pp. 161-176

27 Emetin Treatment of Dysentery in Young Children. R. G. Archibald.
28 Recovery of Embryo of Filaria Bancrofti from Blood from Lung During Daytime. B. H. Dutcher.

Lancet, London

June 6, I, No. 4736, pp. 1589-1660

29 Some Effects Which Follow on Changes in Reaction of Blood. (To be continued.) F. G. Hopkins.
30 *Acute Pancreatitis. A. E. Barker.
31 *Use of Neosalvarsan in Active Pulmonary Tuberculosis. P. H.-S. Hartley.
32 Two Cases of Sprue Treated by Mouth Streptococcal Vaccines and Emetin Hydrochlorid Hypodermically. L. Rogers.
33 Congenital Deficiency of Radius and Homologous Condition in Leg. J. Fraser and H. H. Robarts.
34 Appendicitis Simulating Intussusception. R. E. Halahan.
35 Death Following Sting of Scorpion. R. McC. Linnell.

June 13, No. 4737, pp. 1616-1730

36 *Some Effects Which Follow on Changes in Reaction of Blood. (Concluded.) F. G. Hopkins.
37 Plea for Degenerate. T. C. Shaw.
38 *Aerial Conveyance of Infection. F. H. Thomson and C. Price.
39 *Experimental Production of Purpura in Animals. J. C. G. Ledingham.
40 Tuberculosis of Crus Cerebri Simulating Enteric Fever. F. E. Wynne.
41 Wassermann Reaction in Malaria. W. Fletcher.
42 *Effect of Gastric Pancreatic Ferments on Potency of Tincture of Digitalis. A. Goodall and H. S. Reid.
43 Traumatic Exfoliative Keratitis. P. A. Harry.

30. **Acute Pancreatitis.**—Three of Barker's patients described similar attacks at long intervals antecedent to that for which they sought surgical help. In one case there were two, one six years and one six months before the last; both after normal childbirth. In another case there was one attack nine months previously, described as quite similar to the last. It was not related to labor. In a third case the patient, male, described three illnesses of the same kind, the first five years before (in bed eleven weeks), the second four years before (in bed for three weeks) and the third three years before (for which he remained in bed one week). In the last of Barker's cases there was a history of very severe abdominal pain and shivering earlier in 1913, causing him to roll on the floor, and lasting some hours. In this case the sac of the omentum was empty, there was extensive fat necrosis in the retroperitoneal tissues but no sloughing at the moment of operation. This took place later. Another point noted as regards past history was that in two cases, there was much gastric trouble for some time previous to the attacks, and in one case the teeth were in very bad condition. A third patient was subjected to "frequent biliousness" before her attack.

In none of the cases was there anything in the history to suggest derangement of the biliary apparatus except doubtful jaundice in a previous attack in one case. Nor at the operations was anything wrong found in the gall-bladder. It was, however, of very great interest to note that at about the time when the exacerbation of symptoms followed by "fits" (tetany) came on (thirtieth day) the previously clear bile became turbid, and a considerable sediment of pus was found in the bottle for about a week. From the improvement which followed on this both in the general condition and the bile it seems clear that this pus found its way from the inflamed pancreas into the duct, then into the common duct, and thus into the gall-bladder. In one case there was no time for actual destructive change in or around the organ. The patient was killed outright by the shock of the onset in a few hours, and before any surgical relief could be undertaken.

The onset of the attack in all these cases was strikingly sudden except in one case in which four weeks "pain after food" elapsed before the condition was thought grave enough to call for admission into hospital. In the others, except for indefinite gastric disturbance, sudden severe pain in the epigastrium was the first and most prominent symptom. This was always described as very intense. The temperature in all cases was relatively low at the onset. The pulse was rapid and gradually increasing while losing tension. Vomiting was usual at the onset in these cases, not so prominent a feature later. The material brought up was usually bilious with mucus. In no case was a tumor found in the region of the pancreas without an anesthetic. In one case only was one discovered just before the operation when the anesthetic had been given.

On opening the abdomen turbid peritoneal fluid was found in three cases at operation (and in one case not operated on) in considerable amount. The intestines were injected and dilated in four out of the five cases operated on, but not paralyzed. They had not the appearance of being actually inflamed, their luster being unimpaired, and showing no lymph on them. But lymph was found in three cases in the neighborhood of the pancreas. From the character of the discharges coming from the inflamed gland there was only evidence of hemorrhage into or around it in three cases. The omental sac was opened in all the six cases operated on, but only in three had the destructive process made its way into it.

31. **Neosalvarsan in Pulmonary Tuberculosis.**—Of the sixteen cases in which Hartley has observed the effect of the drug, in one at least, that of a woman, aged 60, with extensive

pulmonary tuberculosis, two injections of neosalvarsan were given seemingly without effect. In another the beneficial effect was only temporary, and after a time pyrexia returned, though milder in degree. In others improvement resulted and the temperature became normal, the fall being a gradual one in some cases, but it has been difficult always to decide how far the result was due to the drug and how far to the rest in bed and favorable surroundiings to which phthisic patients may eventually respond even after a considerable period of pyrexia. Hartley says that the drug is not a specific, but it would appear to have the power of influencing very favorably certain cases of active and febrile tuberculous disease of the lungs which have resisted other treatment, and it merits, therefore, a more extended trial. If administered with care and with due precautions it may be given apparently without risk even in very advanced and grave forms of the disease.

36. **Changes in Reaction of Blood.**—The hydrogen ion concentration of the blood, Hopkins states, is a variable, but the interests of the body demand that its variations should be confined within a very narrow zone of change. In the maintenace of its mean value, which is such as to make the blood a very nearly neutral fluid, a great number of factors play a part—some chemical, some physiochemical, and others more purely physiologic. When appreciable variations occur they produce striking effects, especially on the mechanisms of respiration. Considerable departures from the normal indeed can only exist when the sensitivity of the respiratory center is simultaneously modified. In the tissues—at any rate in certain tissues—wider variations in the hydrogen ion concentration probably occur; but metabolic processes are nicely adjusted to the maintenance of approximate neutrality even in the tissues themselves. Any local change of reaction when it occurs may profoundly affect the general chemical equilibrium in a tissue of organ.

38. **Aerial Conveyance of Infection.**—As the result of experience, Thomson and Price assert that they could treat infectious diseases in one ward, almost certainly with perfect safety were they to select the day of the disease on which to admit them. They are in some doubt as to the conclusions to be deduced from their experience, but feel satisfied that the treatment of these diseases is more satisfactorily carried out in an open ward than in a cubicle ward —that is, rooms with incomplete partitions between the patients. It is open to perfect supervision, everything that is done can be seen by the staff. For the treatment of diseases when they are not conveyed by air, such a ward is also possibly better than box wards (rooms with complete partitions). The ward is a thoroughly well-ventilated one, and ample space is allowed for the patient.

Thomson and Price believe further that their evidence in the case of scarlet fever goes somewhat strongly to show that the infection is probably not air-borne. The evidence as to whooping-cough is less definite. The whooping-cough infections occurred in summer, when the ventilation was even more free than in winter. The infection of measles is probably air-borne early in the disease, but the power of infection soon passes. They are inclined to think that the infection of chicken-pox is air-borne early in the disease, but their experience goes to suggest that on and after the third day it is probably not air-borne. For many years they have held that diphtheria infection is not air-borne. No cross infection arose from German measles or from mumps.

39. **Production of Purpura in Animals.**—A condition resembling purpura and presenting other features of the hemorrhagic diathesis was produced by Ledingham in guinea-pigs by inoculation of an antiserum prepared by immunizing rabbits with guinea-pigs' blood-plates.

42. **Gastric and Pancreatic Ferments.**—The minimum lethal dose of samples of tincture of digitalis to frogs was ascertained by Goodall and Reid. Each sample was then kept in contact with a digestive ferment at body temperature for six hours and the minimum lethal dose was again determined. They found that the effect of pepsin in large quantity on the tincture of digitalis is comparatively slight. The effect of the pancreatic trypsin may be considerable, but it is doubtful whether tincture of digitalis given by the mouth ever comes much in contact with it. It is concluded that as tincture of digitalis is never likely to be subjected to such a severe digestive ordeal under the conditions in which it is administered therapeutically there is little likelihood of any loss of potency before it is absorbed.

Archives Mens. d'Obstét. et de Gynéc., Paris

May, III, No. 5, pp. 433-512

44 *Insufficiency of the Adrenals during Pregnancy. (Insuffisance surrénale dans la grossesse.) P. Zuloaga.
45 Retention of Membranes after Delivery at Term. Guildal.
46 Retention of Blood in Half of Double Uterus. P. Moiroud.
47 Postoperative Hernia. L. Imbert and D. Zwirn.

44. **Adrenal Insufficiency during Pregnancy.**—Zuloaga states that for nearly two years he has been treating the uncontrollable vomiting of pregnancy with epinephrin, and with complete success in a number of cases. Benefit can be anticipated only when the adrenals are functioning defectively. He gives the details of two extreme cases of this; the first patient was a woman of 25 whose adrenals had evidently been impaired by typhoid at 15; their functioning sufficed for ordinary conditions, but not to carry the woman through a pregnancy. By the second month uncontrollable vomiting, diarrhea, cold sweats, syncopes and nervous excitement suggested either acute poisoning, ruptured tubal pregnancy or acute peritonitis. The pulse was 145, tongue dry, respiration rapid and shallow and the blood-pressure low. Injection of caffein and saline was supplemented with 15 drops of epinephrin and ice to the abdomen. Improvement followed at once. In seeking for McBurney's point to exclude appendicitis, Zuloaga noticed that a persisting white line was left wherever his finger had been drawn along the skin. This recalled Sergent's statement that a persisting white line of this kind is pathognomonic of adrenal insufficiency, and Zuloaga therefore continued the epinephrin systematically, 10 drops every eight hours. All symptoms subsided and the pulse and blood-pressure returned to normal. The epinephrin was suspended after a month and the woman began to vomit anew, so that the epinephrin was resumed and she took 5 drops every twelve hours until her normal delivery. The second case was less severe and on a milk-vegetable diet and 5 drops of epinephrin every twelve hours the woman was tided along until delivery. During the latter months he alternated two weeks of the epinephrin with two weeks of calcium glycerophosphate. The "white streak" disappeared in all the cases under the influence of the epinephrin. In another group of cases the adrenal insufficiency did not cause trouble until the puerperium.

Bulletin de l'Académie de Médecine, Paris

LXXVIII, Nos. 21-22, pp. 701-754

48 Conjunctivitis with Pigmentation. (Encore sur un cas de chromidrose.) R. Blanchard.
49 Antityphoid Vaccination of Personnel of Paris Hospitals. Mesureur.
50 *Adrenal Tumor in Woman Accompanied by Development of Male Characters. (Le virilisme surrénal.)* T. Tuffier.
51 *Color-Serodiagnosis of Cerebral Hemorrhage. P. Marie and A. Léri.
52 *Fatal Tetanus from Felt in Orthopedic Appliance; Two Cases. E. Kirmisson.
53 Peritoneal Complications of Scarlet Fever. P. Teissier.
54 *Paralysis from Long Use of Colchicin. A. Souques.
55 Vaccination against Tuberculosis. (Du rôle de la tuberculine dans la vaccination antituberculeuse.) A. Jousset.

50. See Paris Letter, June 20, p. 1978.

51. **Serodiagnosis of Cerebral Hemorrhage.**—Marie and Léri noticed that certain serums were greenish and more or less fluorescent and found in each case that the serum came from a patient with cerebral or meningeal hemorrhage. In three other patients with symptoms suggesting cerebral hemorrhage, but which proved to be softening of brain and no hemorrhage, there was no greenish tint to the serum, as also with serum from a hundred patients without hemor-

rhage. It was noticed in some cases the same day as the hemorrhage and it persisted in some up to the fifth or seventh day. This chromoserodiagnosis may apply to internal hemorrhage at any point.

52. **Tetanus from Felt in Orthopedic Appliance.**—See Paris Letter, July 4, p. 44.

54. **Paralysis from Colchicin in Self Medication.**—Souques relates that a robust man of 50 was subject about once a year to attacks of acute gout. Last November fearing that an attack was impending he began to take a proprietary remedy for gout, corresponding to a total of 34 mg. of colchicin, with 6 to 8 teaspoonfuls of Laville's liquid (said to contain colocynthin, quinin and cinchonin with calcium salts, in wine)—all in the course of nineteen days. Diarrhea came on, and abdominal pains but he still kept up his medicine. The nineteenth day paralysis developed in the hand and in twelve days had become complete, except for the head. It was accompanied at first by anesthesia of the feet and intense pains in the deep muscles. It persisted this way for a month and then rapidly improved. There was no mental disturbance at any time nor symptoms on the part of the heart, bladder or rectum, no albuminuria and no fever. Some muscular weakness and tenderness findings persist to date, six months after the first symptoms. Fatal poisoning from colchicin has been known with doses of 0.03 gm. and even with 0.003 gm.; the outcome depends mainly on the functional capacity of the kidneys. Diarrhea should warn to suspend the drug.

Bulletins de la Société de Pédiatrie, Paris

May 5, XVI, No. 5, pp. 241-326

56 *Chronic Appendicitis and Inguinal Hernia. V. Veau.
57 Heliotherapy in Surgical Tuberculosis. A. Trèves.
58 Recovery from Meningitis under Antiparameningococcus Serum; Two Infants. M. Delort and J. Stiassnie.
59 *The Blood-Dust in Infants' Serum. (Etude des hémoconies chez les nourissons.) Nobécourt and A. Maillet.

56. **Appendicitis and Inguinal Hernia.**—Veau has had operations for this combination of chronic appendicitis and hernia done on fifty-three children in his service. When a child complains of pains from an inguinal hernia or undescended testicle, appendicitis should always be suspected. Neither hernia nor undescended testicles cause pain as a rule. He prefers to operate separately on the hernia and the appendix except in quite small children outside of an acute stage.

59. **Blood-Dust in Infants' Serum as Basis for Prognosis.**—Nobécourt and Maillet conclude from their study of the hemoconiae in the blood-serum of forty-two infants that a large proportion is generally but not always a favorable sign; a progressive reduction in their numbers or their constant absence from the serum is a bad sign.

Presse Médicale, Paris

XXII, Nos. 44-45, pp. 421-436

60 Umbilical Fistula Symptomatic of Tuberculous Process in Pubis. E. Kirmisson.
61 Colloidal Sulphur in Therapeutics. A. Martinet.
62 *Decompressive Trephining on Sound Side for Intracranial Hemorrhage. (Le coma dans l'hémorrhagie cérébrale.) P. Marie and M. L. Kindberg.
63 Congenital Disease of the Heart. (Pathogénie des affections congénitales du cœur.) M. Letulle.

62. **Trephining on Sound Side for Intracranial Hemorrhage.**—Marie and Kindberg remark that total coma is scarcely ever encountered except with intracranial hemorrhage. Complete unconsciousness can be due only to pressure on both hemispheres; the blood accumulated on one side pushes the hemisphere over on the sound side, and thus both suffer from the pressure, and total coma results. They give illustrations of the findings in the brain in a number of typical cases showing that total coma does not appear unless the sound hemisphere is compressed by the other being pushed over on it. This pressure can be relieved by making an extensive opening in the skull on the sound side. This is a harmless measure in comparison to the dangers in operating on the focus of the hemorrhage. It opens up only sound tissue while the hemorrhagic focus itself is left unmolested and further hemorrhage is not invited by any reduction of the pressure on the focus itself. The trephining can be done without general anesthesia and it may not be necessary to incise the dura.

Revue de Gynécologie, Paris

April, XXII, No. 4, pp. 273-368

64 The Conservative Tendency in Operative Treatment of Uterine Myomas. W. Falgowski.
65 Adenomas of the Umbilicus. M. Guibé.
66 Abdominal Wounds in the Field. (Les blessures de guerre de l'abdomen.) O. Laurent.

Revue Pratique d'Obstét. et de Gyn., Paris

May, XXII, No. 5, pp. 129-156

67 Abscess in Uterine Wall. (Les collections suppurées de la paroi utérine.) J. Roy.
68 Ovarian Cyst in Two Children. F. Potvin.
69 *Ovariectomy for Uterine Hemorrhage. (Valeur actuelle de la castration ovarienne dans les hémorrhagies des fibro-myomes.) de Rouville.

69. **Ovariectomy for Uterine Hemorrhage.**—De Rouville has removed both ovaries in seven cases for the purpose of arresting hemorrhage from fibromyomas in the uterus. In one case a scrap of ovary tissue was inadvertently left and this was enough to keep up the tendency to hemorrhages. Nothing of the kind occurred in any of the other cases. He was not able to detect any reduction in the size of the myomas but they lost their disposition to bleed after the ovaries were removed.

Semaine Médicale, Paris

June 10, XXXIV, No. 23, pp. 265-276

70 Operative Treatment for Incontinence of Urine and Genital Prolapse. R. de Bovis.

Archiv für klinische Chirurgie, Berlin

May 22, CIV, No. 3, pp. 581-842. Last indexed June 9, p. 1849

71 *Origin of Loose Bodies in Joints and Their Connection with Deforming Arthritis. G. Axhausen.
72 Chondroma in Joint Capsule. (Gelenkkapselchondrome.) A. Troell.
73 *Jejunal Ulcer. (Zur Kasuistik und chirurgischen Therapie des peptischen Jejunalgeschwürs.) K. Schwarz.
74 Experiences with Appendicectomy, 1898-1913; 641 Cases; Mortality 5.4 per cent. Zahradnicky.
75 Perinephritis from Perforation by Kidney Calculus; Three Cases. (Paranephritis durch Nierensteinperforation.) A. Hahn.
76 Splenectomy for Cystic Disease; Recovery. (Zur Kasuistik der Milzcysten.) H. Fossler.
77 *Ileosigmoidostomy for Intractable Constipation; Two Cases. E. Ruge.
78 *Value of Tuberculin Focal Reaction in Diagnosis of Puzzling Hip-Joint Disease. (Tuberkulinherdreaktion für die Diagnose unklarer Hüftgelenkserkrankungen.) W. Keppler and F. Erkes.
79 Actinomycosis of Shoulder Compelling Exarticulation. (Zur Entstehung der Aktinomykose.) W. Keppler.

71. **Treatment and Prevention of Loose Bodies in Joints.**—Axhausen devotes nearly a hundred pages to a discussion of the causes of deforming arthritis in the knee and describes eight typical cases with numerous illustrations. His plea is that trauma of some kind — known or ignored — is responsible for injury of the cartilage-covered surface of the femur near the space between the condyles and the rear surface of the patella. This injury is the source of the loose bodies in the knee-joint, and readily explains a large proportion of the cases of deforming arthritis in the young, even when no trauma is known. The practical conclusion is the necessity for operating to ward off the deforming arthritis when the course of the case shows that healing is not complete after the usual interval, or there are recurring pains and effusion. The joint injured is easily opened up through a lengthwise incision at the side of the patella, excising into sound tissue all abnormal cartilage showing fissures, softening or roughness or separation of the fibers.

73. **Jejunal Ulcer.**—Schwarz reports 10 cases and compares them with 146 on record. In only 80 of the total number of cases of peptic ulceration in the jejunum given operative treatment was improvement realized, and in a large number

of these too short an interval had elapsed for a decisive judgment as to the outcome. In 25 cases the ulcer had entailed diffuse peritonitis by perforation; an operation was done in 9 cases, saving 7; 18 died. In 4 cases peritonitis followed without perforation; one patient was saved by evacuating a subphrenic abscess. In 53 cases the ulcer had eaten its way into the abdominal wall and 7 died notwithstanding one or more operations. The outcome is not known in most of the others. He had 7 of this type in his own 10 cases and cured 6 of them. In 27 other cases the ulcer invaded the chest wall, mesentery, liver or colon.

In prophylaxis he emphasizes that a peptic ulcer does not develop except where there is gastric juice which has not been "paralyzed" by the antipeptic protecting substance. In applying gastro-enterostomy provision must be made for a sufficient area of mucosa to supply an adequate amount of the protecting substance. When he encounters a recurring peptic ulcer following an anterior gastro-enterostomy, he closes it up, resects all morbid tissue and makes a new, posterior opening. Even much debilitated patients bore the operation surprisingly well and seem to be permanently cured. In the total 146 cases the age of the patients ranged from 2 months to 70 years; only 19 were women. He adds that he has also encountered a case of primary jejunal ulcer in a boy of 10.

77. **Operative Treatment of Intractable Constipation.**—Ruge describes a method of short-circuiting the bowel by an end-to-end ileosigmoidostomy, with a fascia strip thrown around the sigmoid flexure just above the junction and drawn merely tight enough to bring the mucosa walls together.

78. **Importance of Focal Tuberculin Reaction in Diagnosis of Hip-Joint Disease.**—Keppler and Erkes write from the university clinic at Berlin in charge of Bier to call attention to the characteristic changes in the focus after injection of 0.1 or 1 mg. of tuberculin in puzzling cases of hip-joint disease. This focal reaction develops in from six to twelve hours after the injection and usually lasts for a day or two. A positive focal reaction was obtained in 16 of the 41 cases of hip-joint disease tested, and the course confirmed the non-tuberculous nature of the trouble in the 25 negative cases.

Beiträge zur klinischen Chirurgie, Tübingen

XC, No. 2, pp. 247-514

80 *Compression of Tuberculous Lung by Extrapleural Filling. (Behandlung der Lungentuberkulose mit extrapleuraler Plombierung.) Sauerbruch.
81 Roentgenoscopic Diagnosis for Mechanical Treatment of Pulmonary Tuberculosis. H. Staub.
82 Pathologic-Anatomic Bases for Surgical Treatment of Pulmonary Tuberculosis. W. Jehn.
83 Modification of Serologic Reaction of the Blood after Extrapleural Thoracoplastics. T. Naegeli.
84 Roentgenologic Control of Action of Phrenicotomy. H. E. Walther.
85 Experimental Research on Intrathoracic Surgery of the Lungs. K. Henschen.
86 Trendelenburg's Operation for Pulmonary Embolism; Survival for Fifty Hours. Schumacher.
87 Traumatic Rupture of Mediastinal Pleura; Two Cases. (Ruptur des hinteren Mittelfells.) H. Freysz.
88 Transverse Resection of Larynx and Esophagus. W. Schelbert.
89 *Frequency of Secondary Gastric Cancer with Gastric Ulcer. A. Billeter.
90 Retroperitoneal Rupture of the Duodenum. R. Keller.
91 Steeple Skull. (Zur Pathologie des Turmschädels.) T. Herzog.
92 Atrophy of the Prostate with Stenosis. J. Dubs.

80. **Mechanical Treatment of Pulmonary Tuberculosis.**—Sauerbruch expatiates on the advantages of combining several mechanical measures to ensure the compression of the diseased lung. A paraffin total filling had to be removed in one case, but the patient recovered after an extensive plastic operation on that side of the chest. Two other patients given the paraffin filling had certain disturbances, but not sufficient to call for removal of the filling.

89. **Secondary Gastric Cancer after Ulcer.**—All the thirteen articles of the *Beiträge* issue from the university surgical clinic at Zurich in charge of Sauerbruch. Billeter here reports the present condition of 116 patients out of 125 given operative treatment for gastric ulcer in the thirteen years before 1910. His data demonstrate that among these 116 patients a secondary cancer has developed during all these years only in one.

Berliner klinische Wochenschrift

June 1, LI, No. 22, pp. 1013-1060

93 Modern Methods of Studying the Physiology of the Brain. (Hirnphysiologie.) W. Trendelenburg.
94 *Influence of Muscular Exercise on Sugar and Lactic-Acid Content of the Blood. (Einfluss der Muskelarbeit auf den Gehalt des Blutes an Zucker und Milchsäure.) L. Lichtwitz.
95 *Action of Altitudes on the Perception and Will Power of Aviators. (Wirkung der Höhe auf das Seelenleben des Luftfahrers.) A. Loewy and S. Placzek.
96 *Feeding by Duodenal Tube. (Duodenalernährung.) E. Reuss.
97 *Influence of Spleen on Red-Corpuscle Production. (Einfluss der Milz auf die erythroplastische Tätigkeit des Knochenmarks.) H. Hirschfeld and A. Weinert.
98 Mechanism of Oxidation Processes in Animal Organism. L. Stern.
99 *Friedmann's Remedy. (Erfahrungen über die Behandlung der chirurgischen Tuberkulose mit F. F. Friedmann's Heil- und Schutzmittel.) F. Karewski. Concluded in No. 23. (Das F. F. Friedmann'sche Heil- und Schutzmittel zur Bekämpfung der Tuberkulose.) P. Wichmann.

June 8, No. 23, pp. 1061-1108

100 *The Prognosis in Morphin Addiction. H. König.
101 Changes in Tissues and Tumors after Radiotherapy. (Veränderungen der Gewebe und der Geschwülste nach Strahlenbehandlung.) D. V. Hansemann.
102 Duodenal Ulcer. F. H. v. Tappeiner.
103 Erysipelas of Anemia Type. E. v. Czyhlarz.
104 Intra-Uterine Forceps. K. Neuwirth.
105 Psychic Research. (Zur Kritik des Hellsehens, der Ahnungen und des Gedankenlesens, sowie der denkenden Tiere u. a.) R. Meyer.

94. **Influence of Muscular Exercise on the Sugar Content of the Blood.**—Lichtwitz gives the details of the technic and findings in regard to the changes in the sugar and lactic-acid content of the blood in seven healthy persons and twelve patients exercising with the ergostat until fatigued. He recommends the method as useful to test whether a diabetic is favorably or unfavorably influenced by exercise, and the amount he can stand without harm.

95. **The Psychic Factors in Aviation.**—Loewy and Placzek report a series of tests of the attention and other psychic phenomena on themselves and two others in a cabinet with an atmospheric pressure corresponding to that of an altitude of 4,000 meters. The objective findings were comparatively slight although mistakes in doing sums were more frequent the more rarefied the air. But the sensation of being incapable of giving close attention, of being unable to act promptly and with precision—these subjective factors were pronounced, and even a subjective sensation of the kind has always more or less of a paralyzing effect and may serve to explain some of the fatalities to aviators for which the machines were not responsible. The effects in these tests were the more significant as the subjects were quiet, warm and free from responsibility in the pneumatic cabinet. Compare this with the condition of the aviator, they remark, the rapid changes in altitude causing physical disturbances and weakening the will power while the wind makes it hard to breathe and chills the surface, and finally paralyzes the peripheral vessels so that the blood pours into them and the brain, etc., become anemic. They think that the death of Chavez, for instance, was due to these causes as he strove to break the altitude record. They warn aviators against high altitudes and urge them to train themselves to bear abrupt changes in atmospheric pressure.

96. **Feeding through the Duodenal Tube.**—Reuss says that this method of feeding has solved the problem of nourishing the patient while leaving the stomach at rest, and reports the metabolic findings showing the excellent utilization of the food thus supplied. He gives mostly milk and cream with sugar and sometimes a sweet wine, commencing with small amounts, but by the end of the week reaching the full ration. As the stomach is always empty of food, drugs act on an ulcer more effectually, and he thinks duodenal feeding should be given a thorough trial before operating for rebellious gastric ulcer. He never witnessed any injury from the tube in his four cases, all women but one.

97. **Influence of Splenectomy on Blood-Production.**—Hirschfeld and Weinert had opportunity to study the red-corpuscle production after splenectomy in fifteen cases and found that it had a marked influence on the appearance of Jolly bodies. There is evidently some close connection between the spleen and these bodies, and their behavior in anemias should receive more attention.

99. **Friedmann's Remedy for Tuberculosis.**—Karewski states that he applied Friedmann's remedy only to patients who did not need local measures at the time, and thus only in the cases with a more favorable prognosis—a total of fifty cases of surgical tuberculosis. With the exception of one case, no manifest improvement was evident in any instance while the reactions were severe in a number of cases, chills, temperature up to 41.1 C. (106 F.), fever for days, vomiting, and in five cases delirium. Some patients lost flesh, one 3 pounds in five days, and a number felt sick for a long time afterward. One patient developed a pyemic condition, involving previously sound joints, with pneumonia. The remedy, as marketed, he declares, is thus a dangerous preparation (*ein gefährliches Mittel*). The one patient whose condition improved was a robust young woman with a tuberculous process in the wrist which improved after three injections of the remedy and complete rest for nearly four months. He compares the improvement in this case with the cure in another similar case under mere fixation and exposure to the sunshine without further measures, the patient weakly and with an apical process besides. No other patient displayed any lasting improvement from Friedmann's remedy; and judging from his experience, he remarks, no other method of treatment has so little benefit to show as Friedmann's. It does not ward off recurrence, it is not a tonic, it does not confer immunity, and it is not harmless.

Wichmann's seven patients with lupus were given the treatment by Friedmann himself. Reactions with chills, fever to 40.5 C. (105 F.) and general malaise were numerous. Wichmann says that his experience shows that the remedy is liable to activate and spread an existing tuberculosis; that any protecting action on its part against tuberculosis has not been demonstrated in any instance, but that a curative action from it is possible. In four of his seven patients the condition became permanently much worse after the injections, the disease being evidently activated and invading new territory.

[In the same number of the *Wochenschrift,* among the society transactions, Steinitz reported twenty cases of pulmonary tuberculosis; no benefit and no manifest injury, although in some cases the possibility of an unfavorable influence was suggested. He adds that the absence in his cases of the disagreeable byeffects mentioned by all the other Berlin physicians who have reported on the remedy may be due to the fact that he made a point of injecting the remedy the same day it was received. He, like Karewski, had tuberculous mastitis develop in one case about three months after the intravenous injection. He reiterated in conclusion that the remedy cannot be called free from danger for all cases.

Brühann of Osterburg and Isaac reported a favorable influence from the remedy in their cases of lupus; the former in seven, the latter in nine cases of lupus. Brühann stated that in none of his fifty-five cases, including forty-eight of pulmonary tuberculosis, was any harm from the remedy observed, while Isaac emphasized that the remedy has an unmistakable action on lupus and on verrucous tuberculosis of the skin, but in no case was there an actual cure. One girl reacted with temperature of 42 C. (107.6 F.) and hemorrhage in the kidney, and another lost considerable flesh and grew very weak, suffering for a long time from these after-effects of the remedy.]

100. **Prognosis with Morphin Addiction.**—König emphasizes that the outlook naturally varies according as the addiction was acquired in connection with a chronic painful affection such as tabes, neuralgia or peritoneal adhesions, or with single periods of pain, such as gall-stone colic, or in connection with periods of melancholy or insomnia. He reviews his experience with 28 cases, demonstrating a successful outcome in over 50 per cent. of the 14 in the gall-stone group. The treatment required from three to ten months in these cases.

Deutsche medizinische Wochenschrift, Berlin

June 11, XL, No. 24, pp. 1201-1248

106 *Treatment of Acute Miliary Tuberculosis. Grober.
107 Sterilization of Vaccines with Ultraviolet Rays. (Neue Methode, Vakzine ohne Zusatz von Desinfizientien unter Erhaltung der Virulenz keimfrei zu machen.) E. Friedberger and E. Mironescu.
108 *Roentgenography of Liver, Spleen and Diaphragm. (Röntgenphotographie der Leber, der Milz und des Zwerchfells.) E. Rautenberg.
109 *Pancreas Disturbance Secondary to Disease of Stomach or Bile Apparatus. (Pankreasachylie und akute Pankreatitis.) A. Schmidt.
110 *Duodenal Ulcer. H. Kümmell. Commenced in No. 23.
111 Passive Transmission of Protective Ferments. (Passive Uebertragung der sog. Abwehrfermente.) A. E. Lampé.
112 Cholesterol as Factor in Arteriosclerosis. (Bedeutung des erhöhten Cholesteringehaltes für die Entstehung der Aortenatherosklerose.) N. Anitschkow.
113 *Experiments on Guinea-Pigs with Friedmann's Remedy. (Tierversuche mit den Bazillen des Friedmannschen Tuberkuloseheilmittels.) E. Baumann.
114 Capillary Aspiration of Ascites. (Kapillarpunktion des Ascites.) Buth.
115 Asynchronism of Ventricle Functioning. S. La Franca.
116 Urease (Soy Bean Extract) as Test for Urea in Body Fluids. (Darstellung fester Urease und ihre Verwendung zur quantitativen Bestimmung von Harnstoff im Harn, Blut und in der Zerebrospinalflüssigkeit.) D. D. van Slyke, G. Zacharias and G. E. Cullen (New York).
117 Colloidal Gold as Reagent in Serodiagnosis. (Kolloidale Goldlösung als Reagens für die A. R.) J. Matzkiewitsch.

106. **Acute Miliary Tuberculosis.**—Grober emphasizes the importance of symptomatic measures and means to maintain the patient's strength with nourishing, appetizing food. He knows of a case in which the disease lasted for seven months, with two such pronounced remissions that they amounted to a temporary clinical cure.

108. **Oxygen as Aid in Roentgenoscopy of the Liver, Spleen and Diaphragm.**—Rautenberg relates that after tapping patients with ascites he injected from 1 to 6 liters of oxygen, after which it was easy to outline the liver, spleen and diaphragm with the Roentgen rays and show adhesions. The procedure is facilitated by examining the patient both erect and reclining on his left side, after thorough evacuation of the bowels. Without ascites the technic is similar to that with induced pneumothorax.

109. **Pancreatic Disturbances.**—Schmidt seeks to differentiate between defective secretion in the pancreas and acute inflammation, reporting typical cases of each. With pancreas achylia, the stools show the characteristic findings. The mild form of acute pancreatitis has in addition the stormy onset with pains, slight rise in temperature and steatorrhea with much free fat acids, while the creatorrhea is less pronounced than with functional disturbances alone. The lack of hydrochloric acid — the most powerful stimulant for trypsin production — explains the findings with gastric achylia, while disturbance in the biliary apparatus modifies the bile — the most powerful stimulant for the other pancreas ferments.

110. **Duodenal Ulcer.**—Kümmell compares duodenal ulcer with appendicitis, stating that a complete spontaneous cure is as little liable with one as with the other. The tendency to spontaneous healing is much less than with gastric ulcers. In his sixty-five operations for duodenal ulcer he always made a posterior gastro-enterostomy, with one exception, and threw a ligature around the pylorus. He generally used for this a strip of the ligamentum teres. Two patients succumbed to postoperative pneumonia; the others seem to have been permanently cured by the operation, omitting from the record fifteen patients with severe peritonitis from the perforated ulcer when first seen.

113. **Friedmann's Remedy.**—Baumann reports that the therapeutic application of Friedmann's bacilli to nine guinea-pigs previously infected with human tubercle bacilli hastened the fatal outcome instead of retarding it. He obtained the bacilli from the sediment in an ampule of the Friedmann

remedy centrifugated without opening. The bacilli from the sediment in their response to the usual tests seemed to stand midway between human and cold-blooded animals' tubercle bacilli. They grew luxuriantly and the guinea-pigs were inoculated with an eight-day culture of this strain. The eight controls survived considerably longer than those thus treated. These experiences do not harmonize with Friedmann's statement in 1903 that "by preliminary treatment in the way of isopathic self-immunization he succeeded in conferring quite a high degree of protective immunity on the most susceptible of our laboratory animals, the guinea-pig, against a following virulent infection with human tubercle bacilli."

Münchener medizinische Wochenschrift, Berlin

June 2, LXI, No. 22, pp. 1209-1264

118 Further Research on Protective Ferments. (Das Verhalten von Tieren, die plasmafremde Substrate nebst den zugehörigen Fermenten resp. nur erstere allein im Blute besitzen, gegenüber der parenteralen Zufuhr bestimmter Peptone, Proteine und Serumarten.) E. Abderhalden and L. Grigorescu. (Zur Frage der Spezifität und klinischen Brauchbarkeit der Abderhaldenschen Reaktion.) F. M. Betz and Others.

119 *Potassium Permanganate Reaction in Pathologic Cerebrospinal Fluid. P. Boveri.

120 *Lange's Colloidal Gold Reaction in Cerebrospinal Fluid. (Die Goldsolreaktion im Liquor cerebrospinalis.) M. de Crinis and E. Frank.

121 *Carbohydrates in Diabetic Diet. (Die gemischte Amylazeenkur bei Diabetes mellitus.) W. Falta.

122 Clinical Importance of Roentgenoscopic Outline of Heart. (Herzsilhouette.) R. Geigel.

123 Salvarsan and Neosalvarsan in Office Practice. K. Rühl.

124 Radiotherapy of Cancer. (Probleme der Krebsbehandlung im Zeichen der Radiotherapy.) F. König.

125 Operation versus Radiotherapy. C. Müller.

126 Local Anesthetic to Combat Photophobia with Conjunctivitis. (Lichtscheu bei Conjunctivitis ekzematosa.) H. Peterka.

127 Inward Prolapse of Lining of Lower Intestine. (Innere Prolapszustände der Schleimhaut der Flexura sigmoidea und des Rektums.) A. Reizenstein.

128 Toxic By-Effects of Embarim. G. Merzbach.

129 Tonsillectomy. (Plastische Variation bei der extrakapsulären Totalexstirpation der Tonsille.) G. Trautmann.

130 To Prevent Breakage of Cover-Glasses. (Verhütung des Bruches beim Deckgläschenreinigen.) Böttcher.

131 The State Orthopedic Clinic at Munich. F. Lange.

June 9, No. 23, pp. 1265-1320

132 *Gastric Ulcer Result of Erosion from Trypsin. B. Stuber.

133 *Pathology of Nephritis and Functional Diagnosis. H. Machwitz, M. Rosenberg and J. Tschertkoff.

134 Sources of Error in Radioscopy of the Heart. (Fehlerquellen der klinischen Herzgrössenbestimmung.) E. Müller.

135 *The Luetin Test in Syphilis. (Luetinreaktion nach Noguchi.) J. N. Muscel, C. A. Dersca and L. Friedmann.

136 Traces of Blood in Tissues Used for Serodiagnosis a Source of Error. (Abderhaldensche Fermentreaktion.) W. Lahm.

137 *Diet Which Keeps Urine Alkaline Wards Off Joint Trouble. (Entstehung der Arthritis.) R. Berg.

138 Symptoms from Congenital Dilatation of Duodenum. A. Schmidt and A. Ohly.

139 *Treatment of Pernicious Anemia. H. Flörcken.

140 Scorbutus in German Africa. (Zur Skorbutätiologie.) E. Scherer.

141 Peritonsillar Abscess. Levinger.

142 Differentiation of Soft Chancre and Primary Lesion of Syphilis. (Ulcus molle oder Primäraffekt.) H. Müller.

119. **Color Reaction in Cerebrospinal Fluid.**—Boveri writes from Milan to call attention to the decoloration which occurs in a pathologic cerebrospinal fluid when 1 c.c. of a 0.1 per thousand solution of potassium permanganate is poured into a small test-tube containing 1 c.c. of the fluid being examined. There is a zonal reaction at the point of contact, but the global reaction when the tube is shaken is more distinct. The fluid turns a bright yellow while it retains its pinkish-violet tint unmodified if the fluid is normal. The findings with this test harmonized constantly with those of the Nonne, Noguchi and other tests, but it seems to be much more sensitive than these others.

120. **The Colloidal Gold Reaction in Cerebrospinal Fluid.**—De Crinis and Frank report their experience with Lange's gold test. It confirms, they say, that this test is by far the most sensitive of all methods for detecting pathologic changes in the fluid. They obtained constantly positive results in 120 cases of paresis, tabes or brain and spinal syphilis, even when the findings were negative with other tests in some of the cases. The findings were positive also in all their 4 cases of multiple sclerosis, 2 of chorea and 2 of purulent meningitis, but were constantly negative in 19 healthy controls and in 1 case of acute poliomyelitis.

121. **Mixed Starch Diet in Diabetes.**—Falta tabulates the details of the diet, the sugar and ketone output and weight in four severe cases of diabetes to emphasize the importance of excluding from the diet all forms of animal albumin while carbohydrates can be taken in the form of different starches, either entirely as gruels or partly in bread or crackers. This means excluding all meat, eggs, cheese and milk, and interposition of "vegetable days" or "fasting days." The benefit from a diet on these principles is not striking at first, but it gradually leads to permanent improvement. Fasting for even half a day may aid materially. Eight of his twenty diabetic patients treated on these principles were between 12 and 25. Some had such intense acidosis that a tendency to comatous conditions developed when the diet was restricted too rigorously.

132. **Trypsin Responsible for Gastric Ulcer.** — Stuber announces that trypsin getting into the stomach is the cause of the digestion of the stomach wall which we know as gastric ulcer. He induced insufficiency of the pylorus in five dogs, permitting reflux of intestinal juices. While a variety of control tests always gave negative findings, there was constantly ulceration in the stomach when conditions were realized which guaranteed an increased and frequent reflux of intestinal ferments into the stomach. When the pancreas was shut off no ulceration occurred unless trypsin was fed by the mouth, when ulceration followed inevitably. Gastric ulcer is hence a tryptic ulcer, he declares; the causal insufficiency of the pylorus in clinical cases may be of purely nervous origin. The old idea that hyperchlorhydria must necessarily precede the gastric ulcer has been shown to be erroneous by the number of cases that have been recorded recently with subnormal or total lack of gastric secretion; the hyperchlorhydria is more likely to be a secondary phenomenon.

133. **Tests of Kidney Functioning.**—Of all the various methods of estimating the functional capacity of the kidneys, Machwitz and his coworkers think that the amount of retention of nitrogen is by far the most instructive. It is an index of the functioning of the vascular system in the kidneys. In chronic nephritis it therefore serves to reveal the degree of insufficiency of this apparatus. The iodin and lactose tests they regard as of very little aid for either treatment, diagnosis or prognosis. Estimation of the retention of salt is important for treatment but not from the other standpoints, but tests for the elimination of water and for the power of concentration of the urine are instructive as to the presence or absence of insufficiency in the chronic vascular forms of nephritis and sclerosis.

135. **The Luetin Reaction in Syphilis.**—This communication from Bucharest states that the luetin test applied to 62 syphilitics and 93 patients with other diseases gave positive reactions in 89 per cent. of the cases of syphilis in the tertiary phase, in 20 per cent. of the cases of tabes, in 47 per cent. of the secondary phase cases and in only 2 per cent. of the supposedly non-syphilis cases.

Comparison with the Wassermann test showed the luetin positive in 2 cases of secondary syphilis in which the Wasserman was negative while in the tertiary phase there were 12 cases in which the Wassermann was negative and the luetin positive out of the total 37 in this stage. These findings suggest, they say, that luetin is the more sensitive and reliable test in syphilis in the third stage or in a latent form.

137. **Origin and Prevention of Arthritis.**—Berg theorizes and then presents concrete examples to demonstrate the possibility of warding off gout and other joint diseases in many instances by a rational diet. By this he means a diet which reduces the production of uric acid. The potency of the diet in this respect can be estimated by the reaction of the urine to neutral tincture of litmus. With a suitable diet the urine will turn the litmus solution blue while the reaction will be acid on an unsuitable diet. This indicates

that an excess of uric acid is being produced and that the urine is being oversaturated with the uric acid. There is no precipitation of phosphates and carbonates in urine giving an alkaline reaction under normal conditions, and the putrefying properties of the urine seem less. He thinks there is reason to assume that the endogenous production of uric acid can thus be kept within normal bounds with care as to diet. The so-called exogenous production of uric acid is far more likely to be almost exclusively of endogenous origin from abnormal secretion of digestive juices in response to unsuitable food.

139. **Pernicious Anemia.**—Flörcken reports four cases of pernicious anemia which demonstrate that thorium X may have a pronounced beneficial action for a time, inducing prolonged remissions. No cure was realized and in one of his cases the thorium seemed to aggravate the condition. Splenectomy was done as a last resort in one case but the patient died within an hour. In the fourth case, after a remission of four months had been induced under thorium, the spleen was removed on return of symptoms and the man has been in apparent health during the seven months to date; the hemoglobin increased from 10 to 40 per cent. and the reds are in normal numbers, with no megaloblasts or normoblasts and only slight poikilocytosis and very few Jolly bodies. The spleen in both cases was only moderately enlarged and no special changes could be found with the microscope. Direct transfusion of blood gave but transient benefit in the two cases in which it was applied.

Zentralblatt für Chirurgie, Leipsic

May 30, XLI, No. 22, pp. 929-968

143 Osteoplastic Bone Flap from Vertebral Process. (Osteoplastische Knochenlappenbildung aus den Dornfortsätzen der Wirbelsäule.) Borchard.
144 *Symptom of Fracture of the Patella. L. Dreyer.

June 6, No. 23, pp. 969-1016

145 Diverticulum Developing in Stomach from Peptic Ulcer; Two Cases. K. Borszeky.
146 Infectious Diseases as Factor in Varices. D. G. Zesas.

144. **Symptoms of Fracture of Patella with Intact Muscle Apparatus.**—Dreyer illustrates a case to show the possibility of differentiating between cases which can be treated conservatively and those for which an operation will probably be required sooner or later. Roentgenoscopy ten days after the fracture showed a gap of 1 cm. and the man was totally unable to extend his knee. The fracture was treated by extension applied to the thigh alone, and it was found that the patient was then able to lift up his leg. If the weight was removed he could not do this at all. It was evident, therefore, that the supposed laceration of the stretching apparatus did not exist in fact, and was only simulated. Treatment therefore was conservative and the cure was soon complete. Dreyer advocates the extension bandage even when an operation is necessary, declaring that it protects better than plaster or splints against the tearing out of the suture.

Zentralblatt für Gynäkologie, Leipsic

May 30, XXXVIII, No. 22, pp. 793-832

147 Shape of Fetal Skull with Contracted Pelvis. (In der Schwangerschaft konfigurierte Schädel bei engem Becken.) Walcher, Jr.
148 Silver Salt in Salve Vehicle for Roentgenoscopic Diagnosis of Uterine Tumors. S. Stiassny.
149 Case of Pregnancy Neuritis. (Polyneuritis gravidarum.) A. Farani.

June 6, No. 23, pp. 833-964

150 Improved Technic for Watching over Sponges at Laparotomies. (Verfahren zur Kontrolle der Tupfer bei Laparotomien.) P. v. Kubinyi.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 65-68, pp. 681-728

151 Lipoid Substances in the Blood-Corpuscles. (Ricerche istochimiche sulle sostanze lipoidi degli elementi morfologici del sangue.) N. Barbaro.
152 *Hydrocele as First Symptom of Polyserositis or Other Disease. (Sull'importanza prognostica dell'idrocele idiopatico e circa la tubercolosi del sacco erniario.) N. Federici.
153 Severe and Rebellious "Sciatica" Cured by Removal of Subfascial Lipoma in the Foot. R. Casali.
154 Psychoses in Course of Malta Fever. A. Cantani.

152. **Hydrocele as Sign of General Disease.**—Federici called attention fourteen years ago to a case in which pleurisy with effusion followed on the heels of a hydrocele and polyserositis on the pleurisy. A so-called idiopathic hydrocele may prove the primary manifestation of tuberculosis, so that he urges the importance of testing for tuberculosis in every case of hydrocele of obscure origin. A tuberculous process in a hernial sac also comes into this same category of possible primary manifestations of unsuspected or latent tuberculosis.

Policlinico, Rome

May 24, XXI, No. 21, pp. 741-776

155 Phlebitis in Malta Fever; Two Cases. A. Cantani.

May 31, No. 22, pp. 777-812

156 Influence of Bile Pigments and Heat on the Urochromogen Reaction. (Influenza dei pigmenti biliari e del riscaldamento sulla reazione di Moriz Weisz.) S. Valbusa.
157 The Conditional Reflexes. (Nuovi orizzonti per lo studio dei fenomeni neuro-psichici.) Dragotti.

Riforma Medica, Naples

May 30, XX, No. 22, pp. 589-616

158 Experimental Study of Effect of Tobacco Smoke on Animals. (Sull azione del fumo di tabacco comune e attenuato di nicotina.) C. Carginale.
159 Unusual Symptoms and Complications of Malta Fever. A. Cantani.

St. Peterburger medizinische Zeitschrift

April 28, XXXIX, No. 8, pp. 97-110

160 *Radium in Treatment of Uterine Cancer. T. Dobbert.
161 Malignant Granuloma; Nine Cases. A. Bertels.
162 Induced Pneumothorax. E. Zimmermann.

160. **Radium for Uterine Cancer.**—Dobbert reports 44 cases and gives the details of a typical case out of each variety of cancer. The prompt subsidence of the pain after one or two applications of the radium is a remarkable feature of the treatment. The patients are no longer kept awake by the pain, and they begin to improve at once. A subfebrile rise in temperature is common, and chills were occasionally observed, with other signs of severe intoxication. Symptoms of irritation on the part of rectum and bladder were frequently noted; in a few rare instances the patients became nervous and sleepless. In one inoperable case the infiltration entirely disappeared and in 5 it subsided materially, the cancer becoming operable in two. In 3 cases no change could be detected, and in 4 the cancer became aggravated.

Hospitalstidende, Copenhagen

June 3, LVII, No. 22, pp. 705-736

163 Serodiagnosis of Pregnancy. (Abderhaldens Reaktion.) S. Kjærgaard. Commenced in No. 21.

Norsk Magazin for Lægevidenskaben, Christiania

June, LXXV, No. 6, pp. 649-744

164 Osteomyelitis Developing after Trauma. (Osteomyelit som følge av ulykkestilfælde.) P. Bull.
165 History of Anthrax Bacillus. (Miltbrandbacillens opdagelse.) O. Malm.
166 Tuberculous Peritonitis without Clinical Manifestations. S. Widerøe.
167 Ileus from Stenosis of Splenic Flexure; Two Cases. S. Widerøe.
168 *Retroplacental Hemorrhage with Normally Situated Placenta. (Retroplacentær blødning.) K. Brandt.

168. **Retroplacental Hemorrhage.**—Brandt's patient was a primipara of 30 and the hemorrhage from premature separation of the normally situated placenta was so serious that cesarean section had to be done at once. The uterine wall was the seat of hemorrhages similar to those encountered in the liver with eclampsia. He gives the details of fourteen other cases all terminating favorably for the mother, but ten of the children died; in some of the cases the pregnancy was only at the thirty-second week.

Ugeskrift for Læger, Copenhagen

May 21, LXXVI, No. 21, pp. 971-996

169 Idiosyncrasy to Milk in Young Infants. (Komælksidiosynkrasi hos spæde Børn.) P. Hertz.
170 Negative Results of Electrophoresis in Attempt to Eradicate Diphtheria Bacilli from Tonsils. J. R. Kragh.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 3 Chicago, Illinois July 18, 1914

A CASE OF ILIOFEMORAL ANEURYSM EXEMPLIFYING THE VALUE OF THE PRELIMINARY PARTIAL OCCLUSION OF AN ARTERY IN THE TREATMENT OF ANEURYSM

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BALTIMORE

Excision of an iliofemoral aneurysm three weeks after preliminary partial occlusion of the external iliac artery.—Surgical No. 31928. W. C., colored man, aged 40, admitted to the Johns Hopkins Hospital April 10, 1913. Eleven months before admission, patient noticed a dull pain on stooping and found a small, pulsating lump in the left groin which has steadily increased in size. Five months ago the limb began to swell.

Examination.—The patient is a tall, muscular, robust negro. The thorax is negative except for a systolic blow over lower left interscapular region. Superficial blood-vessels are sclerotic. Blood-pressure is 130. The abdomen is distended; there are tortuous superficial veins over left abdomen, and edema of the skin to the level of the twelfth rib. Over the aorta, which seems unusually large, a distinct bruit is heard. The left leg is enormously swollen from groin to toe, and so hard that even on forcible pressure there is barely a suggestion of pitting. The entire thigh seems to throb with each pulsation, and the skin of the whole extremity is very much darker than on the opposite side. In the region of the groin is a great pulsating expansile swelling which extends from near the symphysis pubis to the anterior superior spine of the ilium, and from a line joining the iliac spines of the two sides to a point about 10 cm. below Poupart's ligament. The precise outlines of the aneurysm cannot be determined, on account of the great swelling all about it, except above, where it terminates quite abruptly. A thrill is felt over the tumor and a bruit can be heard from the abdominal aorta down to a point about 15 cm. below Poupart's ligament.

The measurements of the extremities are as follows:

	Right cm.	Left cm.
Thigh at level of gluteal fold.........	48.5	63
Knee, across patella..................	33.5	45
Calf of leg, 15 cm. below knee-joint...	31.5	40.5
Ankle, 2 cm. above internal malleolus..	20	26.5

Wassermann is positive.

Believing that the danger of gangrene in this case would be unusually great either from ligation of the external iliac artery, from excision of the sac, or from the Matas endoaneurysmorrhaphy, indeed, from any method which would suddenly cure the aneurysm, except possibly vessel transplantation, I decided to make a preliminary partial occlusion of the external iliac artery.

First Operation.—Partial occlusion of the left external iliac artery with an aluminum band. May 21, 1913: The artery was readily found. It was abnormally large, very deeply situated and ran from behind forward instead of from above downward. The vessel was freed with two long blunt dissectors and lifted from its bed with two tapes, between which the aluminum band was curled about it. With the thumb and finger the band was rolled (tightened) until a thrill could be distinctly felt in the artery below it. The band was again rolled—tight enough this time to obliterate the thrill in the artery and the pulsation in the aneurysm. A very faint, hardly perceptible pulse could still be felt in the external iliac artery between the band and the aneurysm. Thus the vessel had been occluded to precisely the desired amount. The foot immediately became quite cold. Had the artery been totally occluded gangrene might have resulted.

After closure of the wound a faint bruit, now confined to an area not over 4 cm. in diameter, could be heard just below Poupart's ligament. There was no appreciable pulsation in the aneurysm.

May 22 (twenty-four hours after operation): Circulation in foot has improved. Patient can move toes and ankle freely. He has had some pain in the leg. During the night the toes were numb and insensitive to touch.

May 23: The swelling of the limb has decreased. The thrill extends higher over the aneurysm and along the course of the external iliac artery than before the operation. The band is probably responsible for this.

I may remark here that the thrill has been an important guide to us in the conduction of our experimental and clinical work, for it indicates quite accurately the degree of constriction which has been attained. In the histories of our experiments we read, "Artery has been constricted to the thrill-point," or "thrill-points passed but pulse perceptible," or "thrill and pulse obliterated but lumen of vessel not completely closed."

May 25: Patient is free from pain. Sensation and temperature of the limb are normal. A previously much-dilated tributary to the long saphenous vein is no longer visible. There is a suspicion of pulsation in the aneurysm.

June 6: The swelling of the limb has steadily decreased since the operation. There is a very faint but definite pulsation in the aneurysm.

Second Operation.—Excision of the aneurysm. June 7: The skin having been disinfected with alcohol and tincture of iodin, the entire field of operation including scrotum, penis, abdomen, gluteal region and anterior surface and sides of thigh were covered with a layer of very thin linen soaked in celloidin. A long vertical incision was made through the dried celloidin and linen over the greatest convexity of the aneurysm. Before resorting to temporary occlusion of the common iliac artery an attempt was made to enucleate the sac to the extent which might prove feasible (1) in the hope that it might be unnecessary to complicate the operation by the dissection of the common iliac and (2) because I wished to note the condition of the circulation in the anastomotic vessels as well as in the femoral vein and artery. The tissues over and about the aneurysm seemed to be abnormally vascular, many more clamps than usual being required to control the bleeding. Two large, flattened and apparently obliterated veins lay over the inner part of the sac. The epigastric and external iliac vessels had been dissected out and tied, and the enucleation of the sac, above and at the sides, bloodlessly executed, when I decided that much time would be saved by making temporary compression of the common iliac. This vessel was exposed by cutting upward over the left rectus muscle in the line of the scar of the original incision. A broad tape was wound twice around the common iliac, twisted until the artery was occluded, and the twist maintained by a clamp.

The aneurysm was found to terminate below in a broad funnel from the inner and posterior side of which a large artery, presumably the profunda, was given off. Just below the funnel-shaped dilatation of the femoral, this artery was divided between two ligatures and the sac dissected out from below upward. A cord-like structure, later supposed to be the femoral vein, was cut across and dissected up with the sac. The external iliac artery, without change in its size, plunged abruptly into the sac at the upper part of its posterior surface. The aneurysm was then split longitudinally from one end to the other and the clots rapidly evacuated. The wall was perfectly dry, not a single bleeding point being seen. The sac was found to extend deeply into the pelvis. It, undoubtedly, had pressed on the internal iliac vessels and their branches. The further liberation of the sac was very easily and swiftly carried out, not a single vessel being divided except by the final stroke of the knife which severed the proximal end of the external iliac vein. This vessel having been occluded and cut through in its peripheral part was not definitely identified until redivided. Altogether the operation was carried out in a bloodless manner.

The sutured wound was 45 cm. in length. It was closed without drainage except for one short cigaret of gutta-percha tissue. A silver-foil dressing was applied. After the operation the left foot and leg up to the knee were distinctly cooler than the right. A difference in the temperature of the two legs was observable until the fifth day.

On recovery from the anesthesia the patient could move the toes and ankle freely. He stated that his foot felt numb, but he could locate accurately pin-pricks at every point except along the inner margin of the nail of the great toe, and could readily distinguish heat from cold.

June 11: First dressing. Wound healed throughout by first intention except for the drainage opening. Patient has been remarkably comfortable, requiring no morphin since the operation. The swelling throughout the entire limb has greatly decreased. There has been no distention of the abdomen, notwithstanding the transperitoneal exposure of the common iliac artery.

July 16 (nine days after operation): Patient has been walking about for several days. He states that his leg is absolutely comfortable and rapidly gaining in strength. The entire limb is soft and quite natural. The circumference of the thigh measures 11 cm. less than before operation. Elsewhere the swelling has decreased proportionately.

November, 1913: Patient writes enthusiastically of his present condition. He states that he observes no sign of swelling or loss of power or sensation in the left leg, and that he is able to do a hard day's work without unusual fatigue.

I have cited this case at such length because it seems to me to demonstrate quite convincingly that the employment of the metal band was not without avail. One might well perhaps allow a longer time for the establishment of the collateral circulation, but in this instance it was not possible to do so as I was to sail for Europe two days after the second operation.

1201 Eutaw Place.

A Simple Equation.—If manure breeds flies and flies kill babies, what does the man do who maintains the manure pile on his premises?—*Bull. Chicago School Sanit. Instr.*

THE ABSORPTION OF EPINEPHRIN FROM THE NASAL SUBMUCOSA *

J. D. PILCHER, M.D.
CLEVELAND

Dr. W. B. Chamberlain called attention to the unusually pronounced vascular effects occasionally obtained from the injection of epinephrin and cocain into the nasal submucosa in nasal operations. After the application of cocain and epinephrin to the mucosa to render the parts anesthetic and anemic, one or two tablets of novocain, $\frac{1}{6}$ grain, and epinephrin, $\frac{1}{400}$ grain, dissolved in 5 c.c. of water are injected into the submucous tissue. The observations noted were cardiac irregularity with occasional decrease in the pulse-rate to 40 or 50 per minute; the blood-pressure was not determined. These phenomena suggested that the nasal submucosa must be an unusually good absorbing surface, since neither epinephrin nor cocain produces these marked effects on hypodermic or even intramuscular injection. Since this is of both practical and scientific interest, I have here confirmed it, at the suggestion of Sollmann, in the following manner:

METHODS

The epinephrin was injected into the submucosa of the nasal septum and anterior turbinals of fifteen dogs under anesthesia; the blood-pressure was recorded from the carotid artery. The usual dose of the drug was $\frac{1}{20}$ c.c. of the 1:1,000 solution per kilogram of animal; sometimes a little more or less was given. About forty injections were made. Inasmuch as the turbinals in dogs are quite prominent, the injections were made into the anterior part of the septum and turbinals only, and at times somewhat blindly; but as the vascular effect of the injections was obtained so frequently, a more elaborate technic was thought to be unnecessary.

THE VASCULAR EFFECT

Following about one-half of the injections (twenty-one of about forty), there was a striking rise in blood-pressure; the mean rise in all injections was 50 mm. of mercury, with extremes of 10 and 160 mm. (see tracing). In three experiments the maximal pressure attained was over 200 mm. (265, 238, 215 mm.). The pressure may rise quite promptly, reaching the maximal level in not more than thirty seconds and returning to the normal level within from two to four minutes. This effect is practically the same as that obtained from the rapid intravenous administration. In a somewhat larger number of experiments the pressure rose more gradually, attaining a lower maximum in one or two minutes, remaining at this level briefly and gradually falling to the normal; in one experiment the normal level was not reached until nine minutes after the injection.

The vascular effect seems to depend somewhat on the pressure exerted in injecting the solution. When considerable pressure is required to introduce the epinephrin, a greater vascular reaction is usually obtained, that is, the effect more closely approaches that following an intravenous injection with its sudden marked rise in pressure of short duration. This was not a constant occurrence, however.

The epinephrin was given at all levels of blood-pressure (from 30 to 170 mm.). Attention should be directed to the marked reaction which may be obtained at very low pressures: in one experiment, on the injection of 1/15 c.c. per kilogram of epinephrin, the pressure rose from 30 to 190 mm., which was the maximum rise attained in any experiment.

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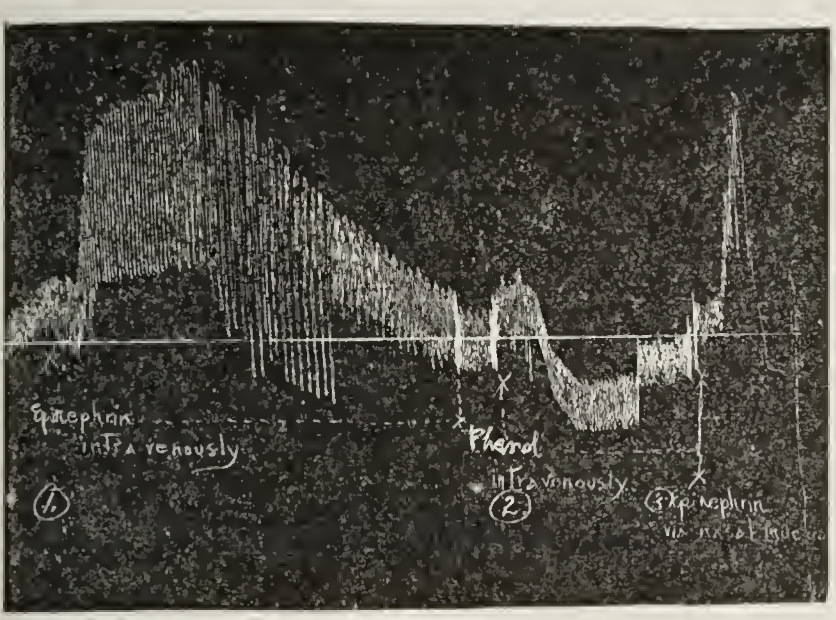
* From the Pharmacological Laboratory of the Western Reserve University Medical Department.

DISCUSSION

1. These experiments show that the submucosa of the nasal passages forms an excellent absorbing surface, at least for epinephrin, and probably therefore for other drugs. The effects often approach and sometimes parallel those produced by rapid intravenous injection. Evidently this phenomenon is a result of the very great vascularity of the region, the injected material at times passing directly into the venous circulation, as was shown in the following manner: Injections of carmin gelatin were made into the turbinals and septa of several dogs either shortly before or after death. Microscopic examination of sections of these parts shows portions of the injected mass in the lumen of the veins, not only at the site of injection, but also at some distance from it. The great vascularity of the region is well illustrated by the sections.



Carotid blood-pressure tracing to compare the effect of epinephrin administration by vein and into the nasal submucosa, and to illustrate the result of the rise in blood from the nasal injection on a heart weakened by phenol.

1. Epinephrin 1/20 mg. per kilogram (1/20 c.c. of a 1 : 1000 solution) by vein.
2. Phenol 50 mg. per kilogram by vein.
3. Epinephrin 1/20 mg. per kilogram into nasal submucosa.

(The submucous injection gave almost the same rise in blood-pressure as the intravenous injection; at the height of the curve the heart, weakened by the phenol, dilated and stopped, unable to resist the increased tension in the arterial system.

2. The administration of epinephrin in this manner clinically could possibly be of serious moment. In persons in whom a sudden rise of blood-pressure is especially contra-indicated—those with cardiovascular disease, arteriosclerosis, etc. — the nasal submucous injection of epinephrin could well be of serious moment. While the danger of the administration of epinephrin to persons with arteriosclerosis should be borne in mind, it is also true that arteriosclerosis occurs later in life, when nasal operations are less frequent. Of course, the quantities used in nasal work are much smaller than those used in these experiments; in susceptible persons, however, enough epinephrin could be absorbed to effect a serious rise in blood-pressure. A case in point was met in this series: A dog had received a non-fatal dose of phenol (carbolic acid) intravenously; this was followed in a few minutes by a nasal submucous injection of epinephrin. The blood-pressure rose rapidly, and when the maximum level was reached, the heart dilated and the animal could not be recovered; the heart weakened by the phenol, could not resist the high pressure of the epinephrin (see tracing).

The effects of the cocain would doubtless also be exaggerated by the method of administration. I am not prepared to say how much of the effects observed in the clinical cases mentioned in the introduction is due to each of these drugs.

3. In conditions of circulatory collapse necessitating rapid stimulation, it would seem that the injection of epinephrin into the submucosa of the nasal septum or turbinals could well be of much value. The technic is simple, and the quantity of the drug readily controlled. This method is of course not as satisfactory as the intravenous method when the latter is feasible, which is not often the case, however, in cases of sudden failure of the heart. The method would require considerable caution in view of the fatal result mentioned above.

1353 East Ninth Street.

HEREDITARY GLAUCOMA (SIMPLEX)

THE REPORT, WITH OPERATIVE NOTES, OF THREE GENERATIONS OF ONE FAMILY *

F. PHINIZY CALHOUN, A.B., M.D.
ATLANTA, GA.

Heredity is recognized as a common factor in the causation of glaucoma, both of the inflammatory and non-inflammatory types. As a hereditary type glaucoma simplex is exceptionally rare beyond the second generation, and in my exhaustive search I have been able to find recorded only four other cases or families. The earliest cases are mentioned by Benedict in his publication in 1842; von Graefe in 1869 mentioned the importance of heredity in the causation of glaucoma, although no specific cases were given. Much literature is found on the direct inheritance of glaucoma of the acute or inflammatory type and special mention should be given Harlan's family, where members of five generations were afflicted. The discussion of this type of glaucoma is purposely omitted from this monograph. Lawford's very excellent review of the subject in 1907 in his report of "Examples of Hereditary Primary Glaucoma," has been kindly placed in my hands by the author and I have taken the liberty of quoting freely from the text and of copying his pedigrees.

I have had an unusual opportunity to study clinically this type of glaucoma in a family in which I found no peculiarities, common ailments (other than malaria and glaucoma) or serious illness, and in which eight members are blind or going blind from this mysterious disease. "Anticipation," so prominently mentioned by von Graefe and Lawford, is as prominently displayed in the family of which I present an account.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* On account of lack of space this paper has been abbreviated for The Journal. It will appear in full in the Transactions of the Sections and in the author's reprints.

* Much confusion exists in the selection of titles given papers on the subject of glaucoma and no index could properly classify them. It would be most simple to adhere to the old classification, namely, primary glaucoma, including the acute and chronic inflammatory types; glaucoma simplex, the non-inflammatory type, and secondary glaucoma.

REPORT OF CASES

Case 1.—This interesting family commences with W. F. H., aged 59, seen by request March 3, 1911. He states positively that his father and mother and other near relatives whom he knew had good sight. The patient always enjoyed good health, having worked on a railroad and farm all of his life. When 29 years of age he was struck in the right eye with a twig, and soon afterward discovered that he could not see well with the left eye. He consulted a competent ophthalmologist six months later, who told him that he had glaucoma in each eye. An iridectomy was made in the left eye, and later the right eye was enucleated on account of pain. Since then he has been able to do his work in a moderate way, although his sight gradually failed until now he is almost blind. Examination: Left eye, cystoid cicatrix in region of old sclera incision. Pupil widely dilated; grey atrophic iris, media clear and marked cupping of vessels, with their caliber much reduced; nerve bluish white. Horizontal diameter of the cornea, 12 mm. Tension + 2. Light perception only.

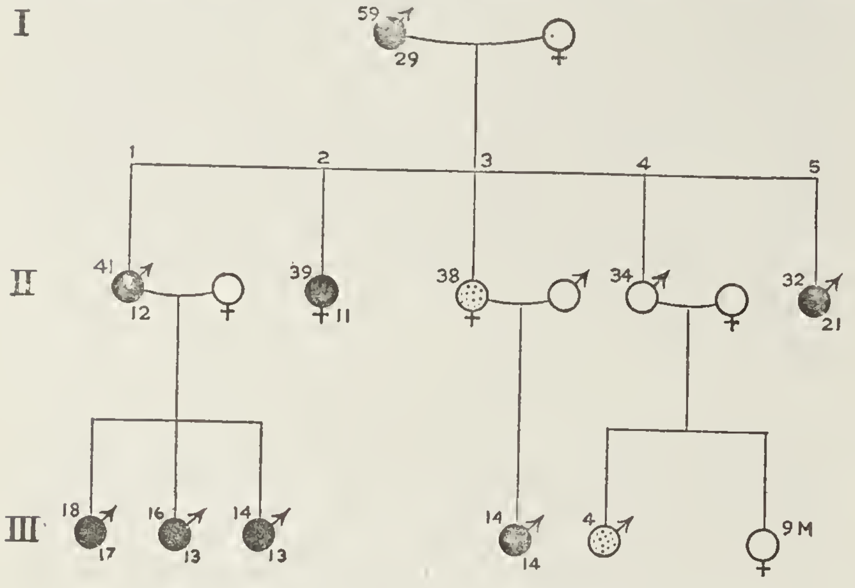

Fig. 1.—Pedigree of author's patient. Explanation of signs employed in this and the following pedigrees: ♂ male; ♀ female; the same characters in black indicate affected persons; the dotted characters persons with amblyopia and doubtful glaucoma. The numbers above each individual indicate the present age; below, the age when bad sight was first detected. Generations are indicated by Roman numerals, I, II, III, etc.

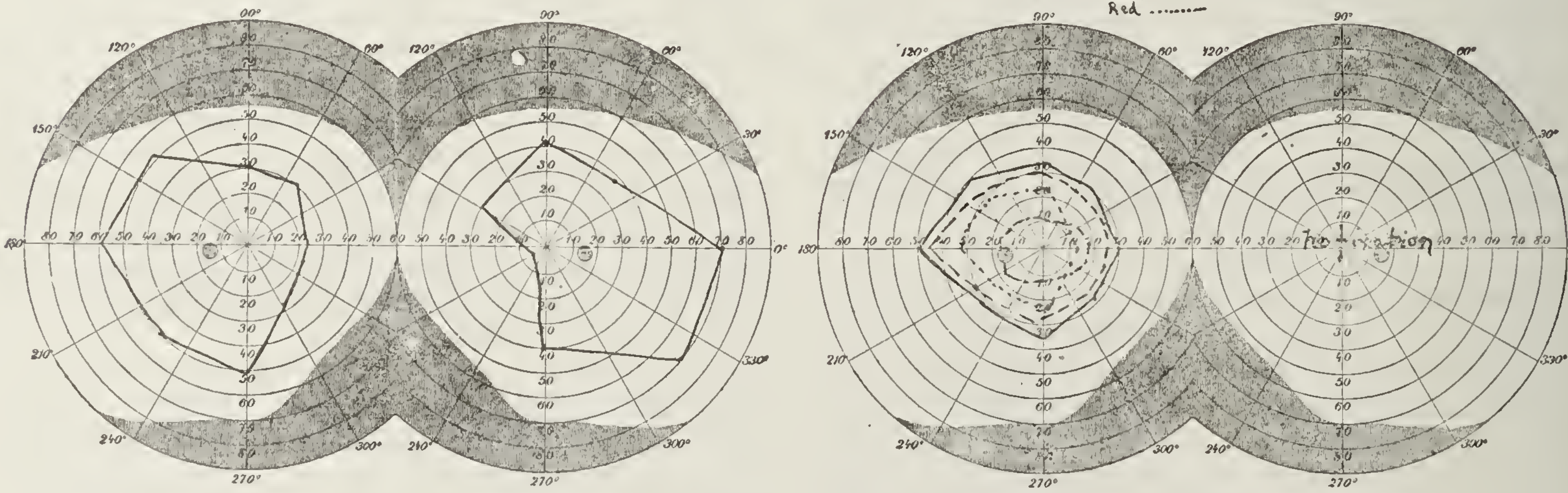

Fig. 3.—Field of vision in Case 3, taken Sept. 11, 1911, and Nov. 3, 1912. Confusion of colors indicated by crossing of colors.

Case 2.—Mrs. S. C. G., aged 41, seen by request July, 1912. Her past history has been good, pneumonia her only serious illness. She first noticed defective sight in the right eye at 12, and later her sight became so bad that she stumbled over chairs and other objects about the house. She never saw halos around lights or had pain in the eyes. At 15 an iridectomy was made on the right eye and soon afterward on the left. She states that the operations have not benefited her. Examination: right eye, vision 0; ciliary staphyloma in the region of old scleral wound; tension +3; horizontal diameter of cornea 11 mm.; iris drawn up in staphyloma; good black pupil and media clear; bluish-white nerve with marked excavation; vessels thread-like; external squint 15°. Left eye, vision 5/200 unimproved; tension +1; corneal diameter 11 mm.; anterior chamber very deep; media clear; atrophic nerve with excavation; vessels small. Color of irises brown. Three months later: Tonometer, right, 11 mm. Hg; left, 16 mm. Hg. Refraction, left, —3 S. She complains that when "bilious" she sees spangles of light; staphyloma more prominent, which accounts for low tension.

Case 3.—D. G., first son of Patient 2, aged 18, was seen Aug. 16, 1909. His health has always been good and six weeks before visit he discovered that while out hunting he could not see well with the right eye; thinks it has been growing worse since. There has been some deep pain in the eye. Examination: Right eye 20/100 unimproved; anterior chamber deep; peculiar physiologic cupping, with a serpentine twist of vessels over the nerve, which at its center dips slightly; field, slight contraction nasally; tension (digital) normal. Left eye, vision 20/20 unimproved, but reads best at normal distance with +1.25 S; eye apparently normal; field normal. Irises brown; diameter of corneas 11.5 mm. The patient passed from notice until Feb. 10, 1911. Vision, right 20/70; vision, left 20/50. Field, marked contraction nasally; tension each eye +1. (For chart of vision and tension see Fig. 2.)

February 21: LaGrange sclerectomy with broad iridectomy right eye. Patient was allowed to go home immediately. Ultimate result satisfactory. March 15: Vision, right, 20/200 — 1 ⊂ — 1 × 90 = 20/70; tertian malaria.

March 16: Iridectomy (left) section made with thin knife. Patient allowed to leave. Healing uneventful. Gave physostigmin (eserin) to use constantly.

November 17: Vision, right, 3/200; left, 18/200; tension + 1.

June 24: Vision, right, 20/200; left, 12/200; tonometer, right, 65 mm. Hg; left, 32 mm. Hg (physostigmin).

July 2: No miotic, tonometer, right, 69 mm. Hg; left, 38 mm. Hg; fundus, each eye, marked cupping with atrophic nerves. Has developed tuberculosis and has been sent to county sanatorium.

November 4: Right, 2/200 — 1.50 ⊂ — 0.50 × 60 = 20/200; left, 20/200 — 1.25 ⊂ — 1.50 × 165 = 20/70; tonometer, right, 75 mm. Hg; left, 60 mm. Hg (no miotic). Chambers very deep. Atrophic nerves, with cupping. Calls green light blue; left field much contracted, health much better.

Jan. 2, 1913: Tonometer, right, 70 mm. Hg; left, 40 mm. Hg. Operation; right eye, scleral trephine.

January 3: Chamber restored.

January 4: Eye quiet.

January 17: Tonometer, right, 15 mm. Hg; left, 33 mm. Hg.

February 7: Right 6/200, unimproved; left, 20/200 — 1.25 ⊂ + 2 × 165 = 20/70; tonometer, right, 20 mm. Hg; left, 37 mm. Hg (physostigmin).

April 17: Tonometer, right, 8 mm. Hg; left, 44 mm. (physostigmin).

April 18: Right, 5/200; left 15/200; with glass = 20/100.

June 6: Operation: Left, scleral trephine.

June 7: Chamber restored.

June 9: Comfortable.

June 23: Tonometer, right, 11 mm. Hg; left, 23 mm. Hg (physostigmin).

July 1: Tonometer, right, 7 mm. Hg; left, 25 mm. Hg.

July 22: Tonometer, right, 7 mm. Hg; left, 27 mm. Hg.

Jan. 5, 1914: Vision, right, 4/200; left, 20/100, unimproved; tonometer, right, 14 mm. Hg; left, 7 mm. Hg; good filtration scars.

Case 4.—E. G., second son of Patient 2, aged 16, was first seen Jan. 2, 1912. His health has always been good, but sight has been failing three months; no other symptom of eye trouble is present. Examination: Right eye, vision 20/50 unimproved; anterior chamber deep; fundus normal; tension + 1; field, slightly contracted for form, markedly for colors. Left eye, 20/50 unimproved; rest of examination same as right; field more contracted. Irises brown, diameter of cornea 11.5 mm.

February 16: Iridectomy (right) section made with knife; patient allowed to leave operating-room for home.

February 16: Anterior chamber unrestored.

February 17: Chamber slowly restoring.

March 7: Vision, right, 20/70 + 0.50 × 45 = 20/50; tension (digital) normal. Vision, left, 20/40 (physostigmin). (Vision and tension shown in Fig. 4).

March 8: La Grange operation (left); patient allowed to go home.

March 10: Chamber unrestored.

March 11: Chamber slowly restoring.

June 17: Right eye, 20/100. Left eye, 20/70.

July 5: Tonometer, right, 53 mm. Hg; left, 34 mm. Hg; vision, right, 20/70; left, 20/50 using physostigmin one month.

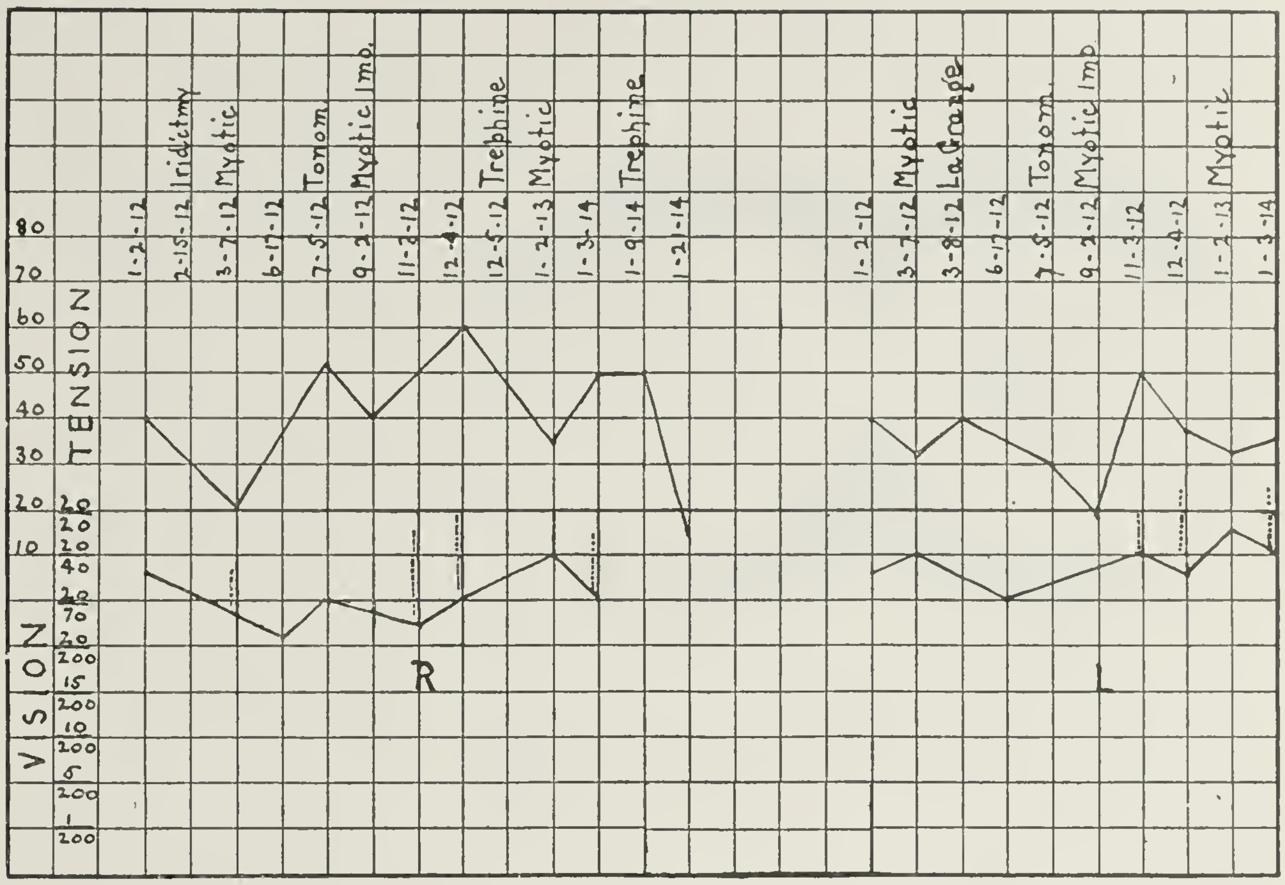

Fig. 4.—Vision and tension in Case 4. Dotted lines indicate improvement with glasses.

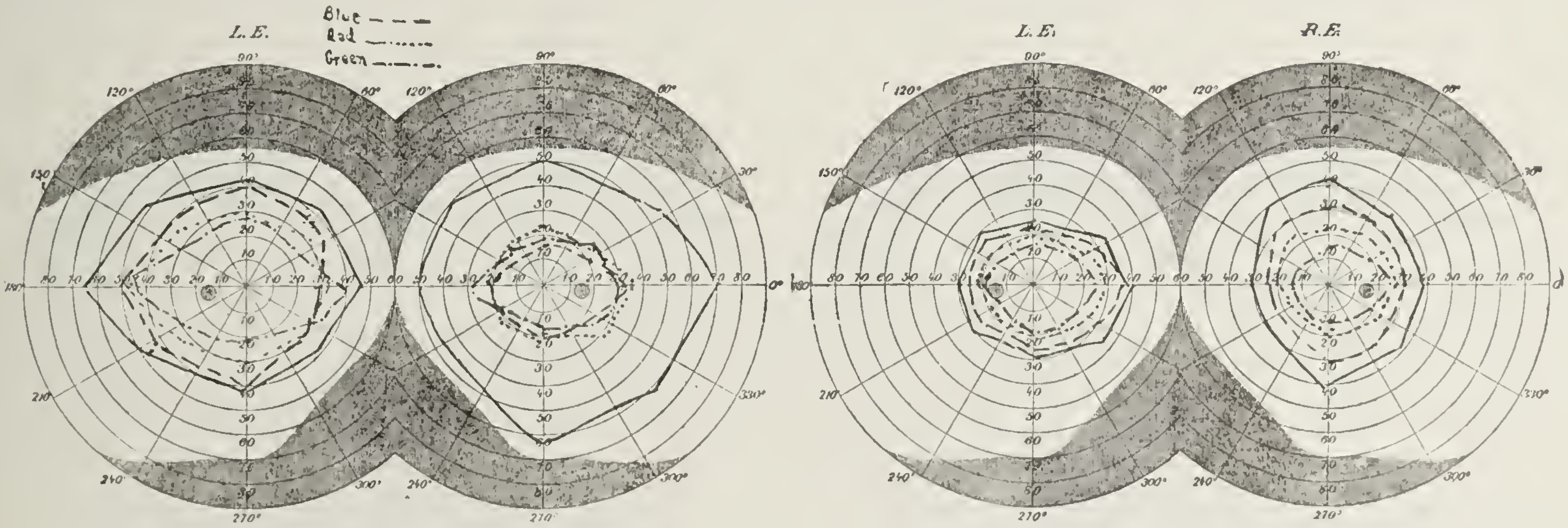

Fig. 5.—Fields of vision in Case 4, first taken Jan. 2, 1912, before miotic and later, after use of miotic.

September 2: Tonometer, right, 40 mm. Hg; left, 18 mm. Hg (physostigmin).

November 3: Right, 20/100 — 1 × 120 = 20/30; left, 20/40 + 0.50 ⌒ — 1 × 75 = 20/20; field very contracted. Tonometer, right and left, 50 mm. Hg.

December 4: Right, 20/70 + 0.50 ⌒ — 1.50 × 105 = 20/20; left, 20/50 — 1 × 75 = 20/15; tonometer, right, 60 mm. Hg; left, 38 mm. Hg.

December 5: Operation: Right, scleral trephine; large conjunctival flap containing much scar-tissue. Trephine not a perfect one, although good scleral button removed.

December 6: Chamber restored.

December 11: Chemosis.

December 18: Eye quiet.

December 28: Eye white.

Jan. 3, 1914: Right, 20/70 — 50 ⌒ + 1.50 × 30 = 20/30. Left, 20/40 + 0.75 × 165 = 20/15. Tonometer, right, 52 mm. Hg; left, 36 mm. Hg. No filtration scar in right eye. Operation advised.

January 9: Operation: Scleral trephine right eye, corresponding to 1 o'clock on watch dial. Not perfectly done on account of scar tissue of former operations, although good button of sclera removed.

January 21: Tonometer, right, 13 mm. Hg; good filtration scar and eye very quiet.

Case 5.—B. G., aged 13, third son of Patient 2, seen March 1, 1911. His health is good; sight has been failing for some months. Examination: Right, 20/50 unimproved. Tension normal, rigidity of sclera; field contracted for form, great confusion of colors; fundus normal, except pale nerve; anterior chamber deep. Left, 20/70 unimproved. Tension +1; field very contracted and great confusion of colors. Diameter of cornea, right, 11.5 mm.; left, 12 mm.; irises light brown. Gave physostigmin.

September 16: Vision, right, 20/40; vision, left, 20/50; tension same. (Vision and tension shown in Fig. 7.)

September 2: Developed tuberculosis.

December 16: Right, 20/40 + 37 × 15 = 20/30; left, 20/40 + 0.50 × 105 = 20/40. Chambers appear of normal depths. Tonometer, right, 35 mm. Hg; left, 40 mm. Hg. Fundus, right, pallor to temporal half of disk, pulsation of large vein; left, decided pallor to temporal half of disk with atrophic chorioid adjoining temporal side of disk.

December 19: Operation: left, scleral trephine with iridectomy. Allowed to go home.

December 23: Unrestored chamber; pain in eye.

December 24: Chamber restored.

December 28: Eye quiet.

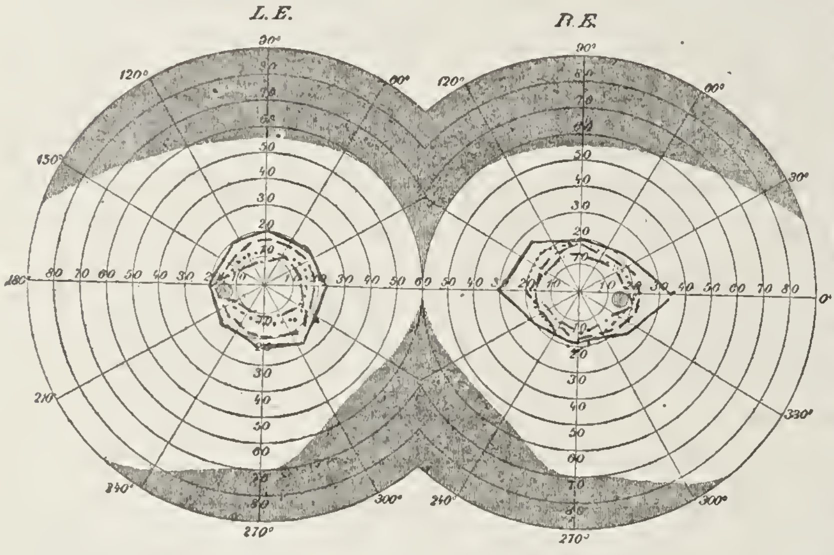

Fig. 6.—Fields of vision in Case 4 nearly 12 months later. No miotics, and great contraction for form.

January 2: Tonometer, right, 40 mm. Hg; left, 14 mm. Hg. Operation: right, scleral trephine with iridectomy. Allowed to go home.

January 7: Chamber restored slowly.

January 17: Right, 20/30 + 25 × 45 = 20/20; left, 20/40 + 50 × 15 = 20/30.

March 12: Tonometer, right, 15 mm. Hg; left, 18 mm. Hg. Scope, one vessel, cupping in right disk. Good filtration scars.

January 2: Right, 20/40 + 0.50 × 90 = 20/40; left, 20/50 — 50 × 180 = 20/50. Tonometer, right, 14 mm. Hg; left, 23 mm. Hg; flat filtration scars; fundus, no change; condition satisfactory.

Case 6.—P. H., aged 39, sister of patient in Case 2. Past history unimportant, malaria several times. Attention called to eyes at 11 years of age on account of inability to read well. Always saw "rings" around lights. Left eye inflamed at 3 years of age and has never been able to see. At the age of 12, right eye operated on and sight since has been good. Examination: Right, 20/70, unimproved. Tension: Tonometer, 17 mm. Hg; chamber deep; scope optic atrophy; little cupping; vessels of normal caliber. Good broad base iridectomy. Field very contracted. Left aphakic eye. Iridodonesis, optic atrophy, cupping of vessels. Diameter of cornea, 11 mm.; blue irises.

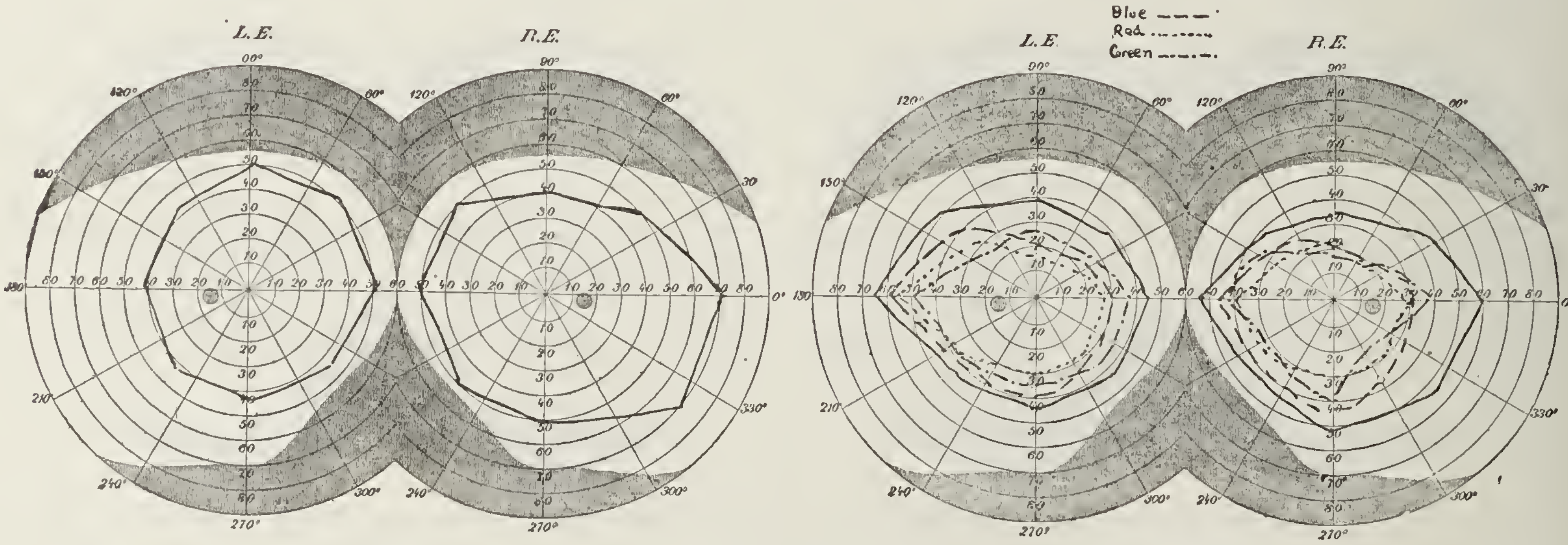

Fig. 8.—Fields of vision in Case 5, taken March, 1911, and Dec. 17, 1912. Great confusion of colors.

Case 7.—L. S., aged 14, came to the clinic to have his eyes examined, March 3, 1911, as all of his cousins and most of his family had bad sight. He was unaware that his sight was defective. He too, like other members of this series, had malaria. Examination: Right, 20/70, very deep chamber; fundus normal; hyperopia 2 D; field, some peripheral contraction. Left, 20/20, deep chamber; fundus, normal; field, some contraction; hyperopia, 1 D. Blue irises, tension normal (digital) but rigid sclera; diameter of corneas 12 mm. I did not consider that he had glaucoma, but he was directed to return for further observations.

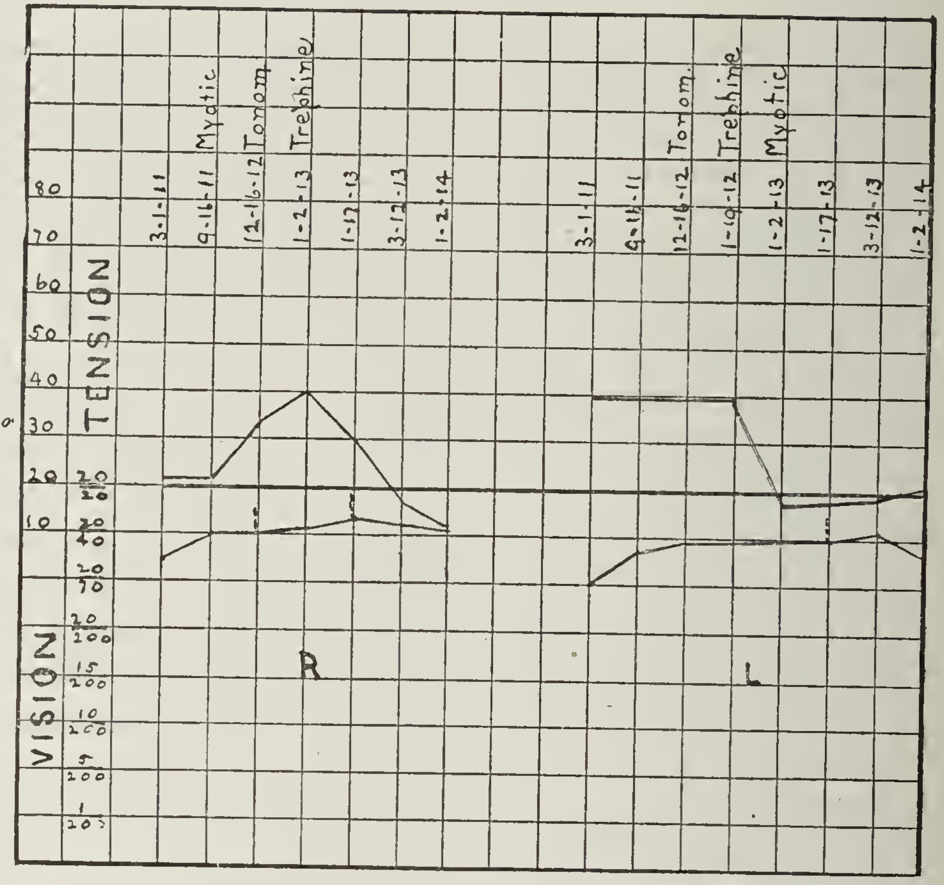

Fig. 7.—Vision and tension in Case 5. Dotted lines indicate improvement with glasses.

February 12: Right, 20/70; left, 20/40; fields, decided narrowing with great confusion of colors, so much so that accurate charts could not be made. Patient given physostigmin.

March 1, 1912: Right, 20/50; left, 20/30; Tension normal March 15, fields, decided contraction in right eye. (Fig. 9.)

March 28: Operation: Right, LaGrange sclerectomy with iridectomy. Allowed to return home.

March 29: Chamber restored, very deep.

May 20: No physostigmin, right, 20/70; left, 20/30.

November 3: Fundus, each eye, vessels normal, pale nerves, tonometer with difficulty, 27 mm. Hg; fields normal, Right, 20/70 — 1.50 S = 20/30; left, 20/20 — 0.50 × 90 = 20/20; patient lost sight of for several months.

Jan. 3, 1914: Right, 20/200 — 1.50 S = 20/30; left, 20/30 + 50 × 90 = 20/30. Tonometer: right, 15 mm. Hg; left, 25 mm. Hg. Field, left decided contraction for red and green. Fundus right, slightly pale nerve, left normal. Anterior chamber very deep and the light reflex on the cornea appears like that in keratoconus. Even now I am not positive that this patient has glaucoma, but with a variable vision, a contracted field for form and colors, and with the unquestionable family history, he should be regarded as "suspicious." I believe the sclerectomy performed has been of help.

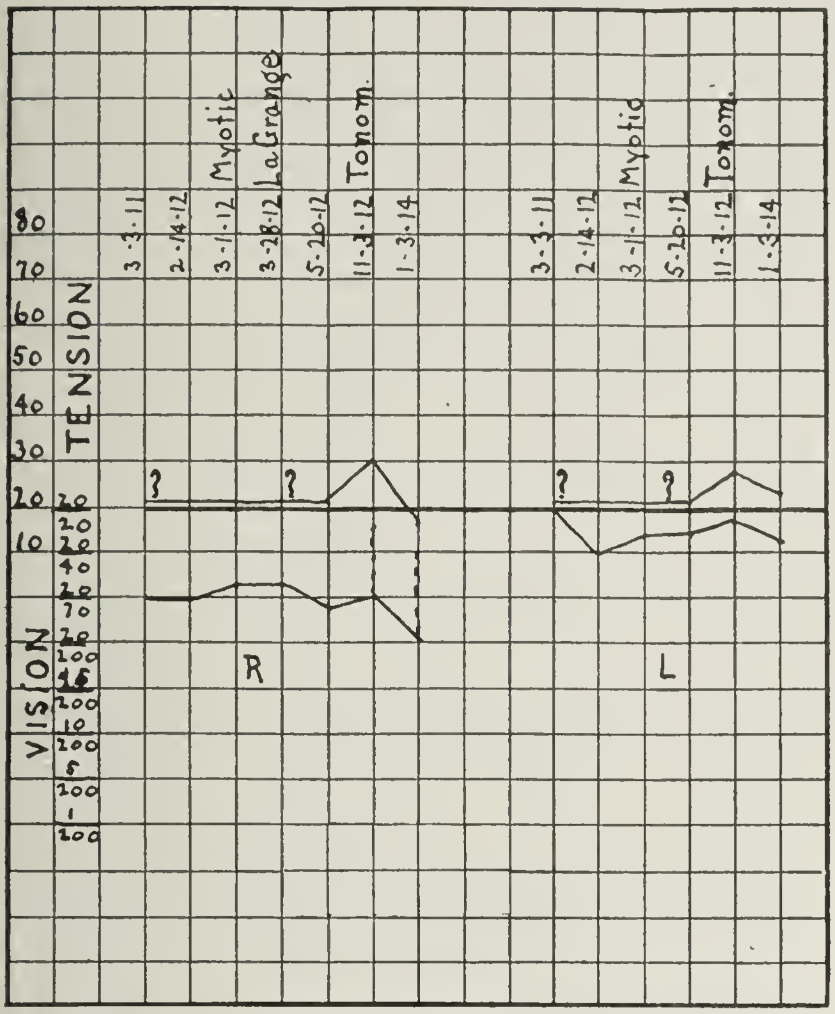

Fig. 9.—Vision and tension in Case 7. Dotted lines indicate improvement with glasses.

Case 8.—C. R. H., aged 23, brother of Patients 2 and 3. His past history is negative. Five months before the first visit, Feb. 5, 1909, he noticed that his sight was failing. Examination: Right, light perception; atrophic nerve; contracted vessels and marked cupping; chamber very deep. Tension +2. Left, 20/70, deep chamber; atrophic nerve; cupping of vessels, which were moderately contracted. Tension + 1; field, marked contraction of nasal half. Brown irises, diameter of corneas 12 mm. Hg. Gave physostigmin.

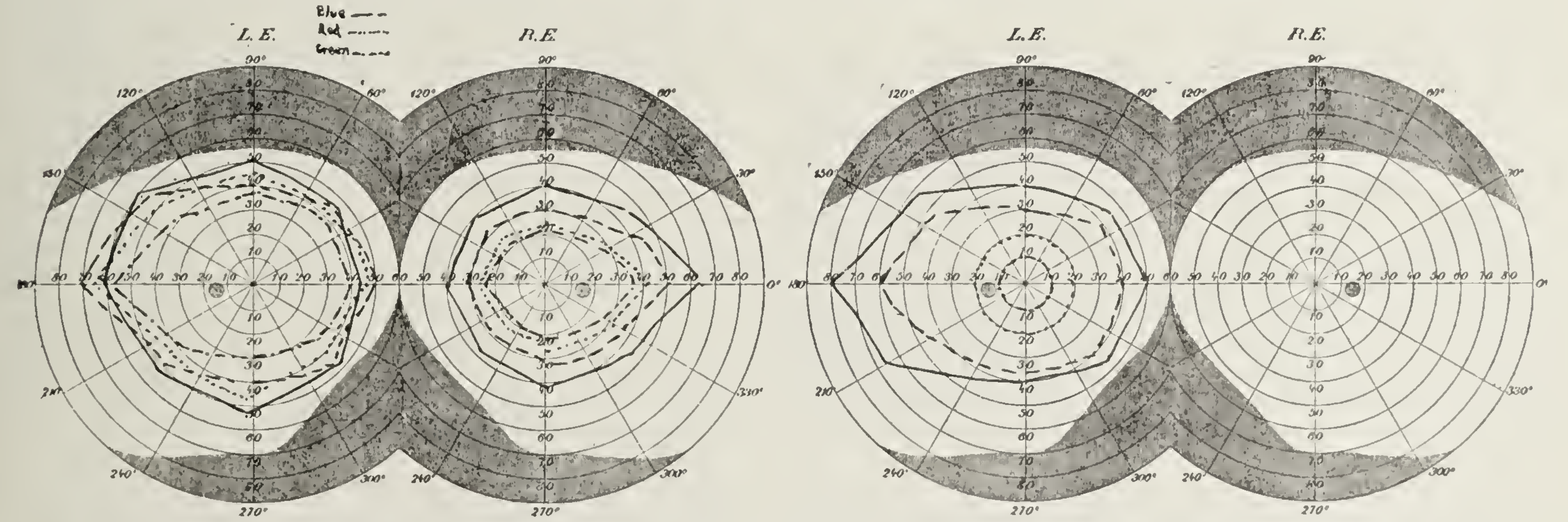

Fig. 10.—Fields of vision in Case 7, taken March 15, 1912. The contraction of the field in the right eye, and the confusion of colors in the left eye, led to operation on the right eye. The second field was taken for the left eye only, Jan. 3, 1914.

December 8 to 10: Seen for the first time in several months. Has been using drops almost continually. Right, peripheral vision only. Left, 10/200. Operation: Right eye, LaGrange sclerectomy, with iridectomy. Chamber not restored for four days. Kept in hospital bed, very quiet. Result very good at dismissal.

Feb. 2, 1911: Tension, normal right (digital). (Vision and tension shown in Fig. 11.)

February 10: Operation: Left iridectomy; allowed to leave hospital. Chamber restored in two days.

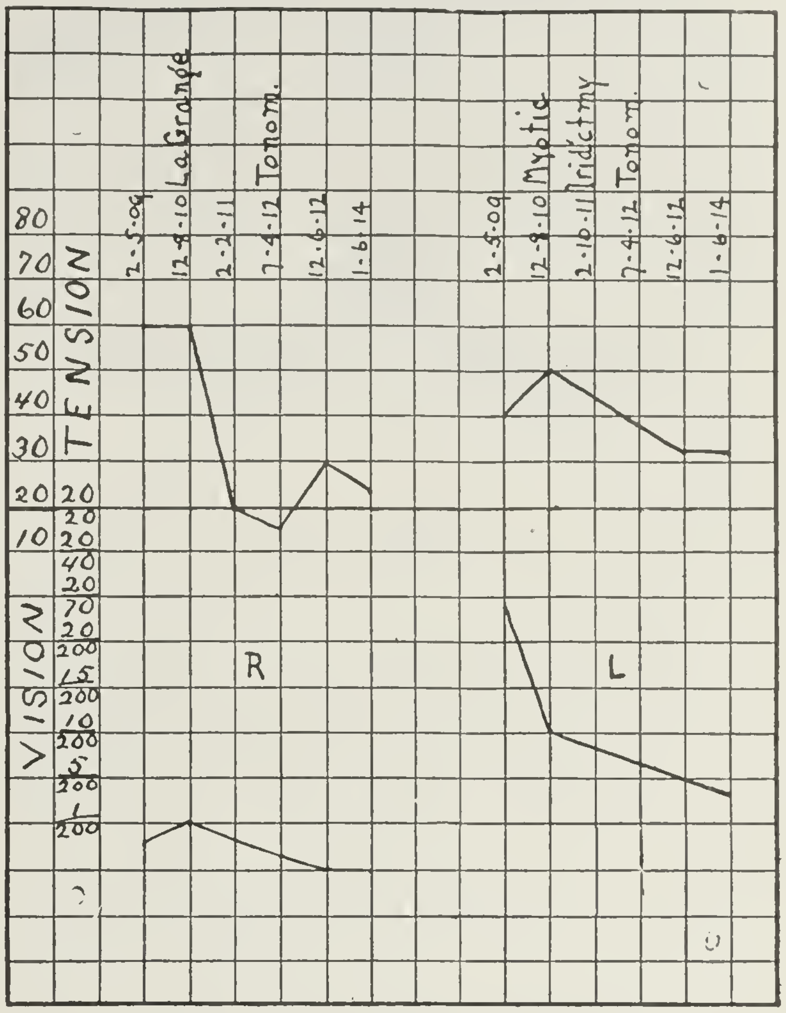

Fig. 11.—Vision and tension in Case 8.

July 4, 1912: Tonometer, right, 18 mm. Hg; left, 38 mm. Hg (no physostigmin). Fundus no change.

December 6: Right, light perception; left, 5/200. Tonometer: right, 29 mm. Hg; left, 34 mm. Hg.

Jan. 6, 1914: Right, light perception; left, 4/200. Tonometer: right, 24 mm. Hg; left, 33 mm. Hg. Fundus, optic atrophy complete, vessels thread-like.

Lawford's Case.—McL., blind for some years before death. Information from two daughters, undoubtedly chronic glaucoma. He had thirteen children, of which the first, third and seventh died in infancy; the fifth and ninth from accidents and paralysis. The sixth became attacked with bilateral glaucoma when 66 and was operated on by Lawford. She died at 71 from cerebral hemorrhage. She had seven children, all living. Author has seen all but the first. Three of them, the second, third and fifth are affected. The third and fifth have been operated on for marked chronic glaucoma, coming on at the age of 48 and 40 respectively. The second child has no objective symptoms (doubtful rainbows once), but showed slight contraction of the left field in its basal part and a large deep cup in left disk. In Generation IV there are eleven persons, children of the first and second offspring in Generation III. The eldest in the first family is 27 years of age; the eldest in the second family 29; all are reported to have good sight. "Anticipation" is well exemplified in this (For pedigree see Fig. 13).

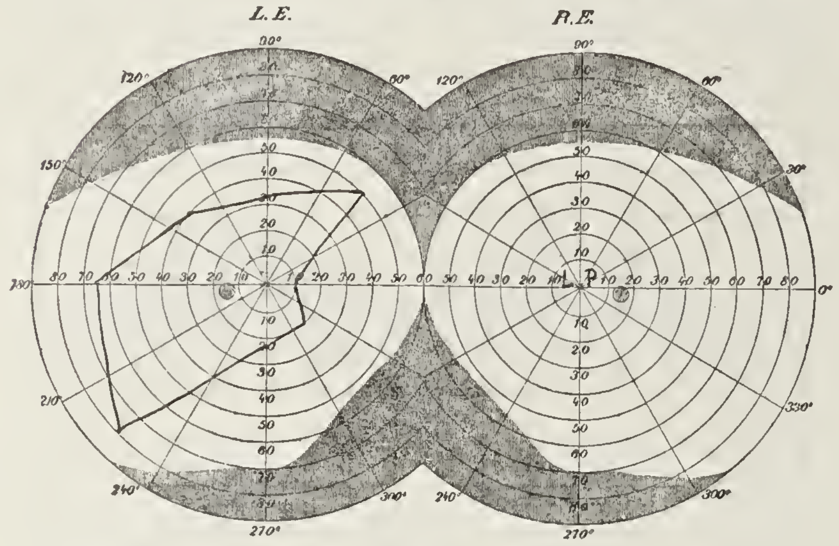

Fig. 12.—Fields of vision in Case 8, taken late in the disease.

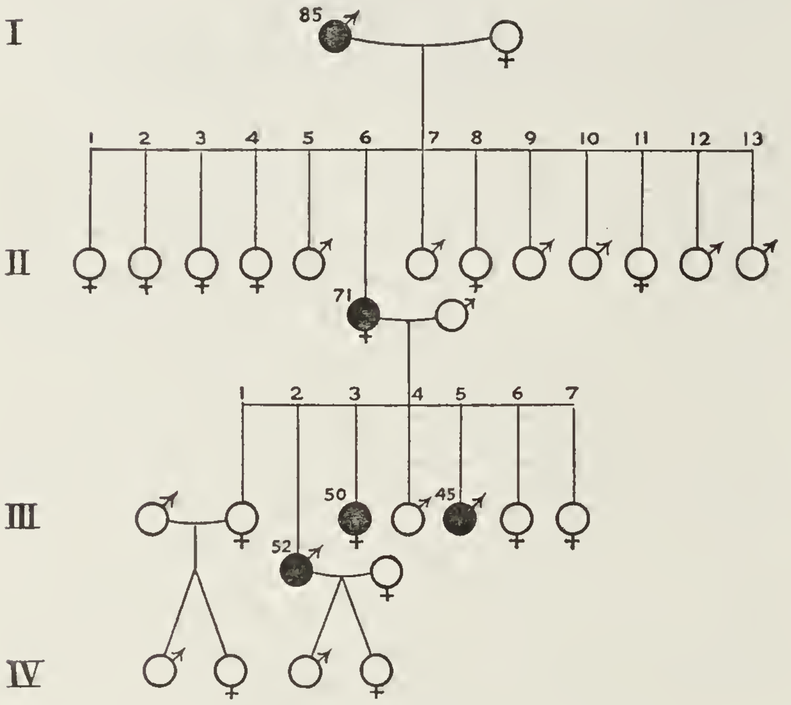

Fig. 13.—Pedigree of Lawford's patient.

Lucien Howe's Case.—"Anticipation" was well pronounced in this family. In Generation I, the fourth born developed glaucoma at 40 which led to complete blindness. The two affected children, in Generation II, the second and fourth, developed the disease at 28 and 25 respectively. In Generation III, the age of onset in the five persons attacked varied from 28 to 17 (Pedigree given in Fig. 14).

Nettleship's Case.—Three persons in three generations were affected and were all seen and operated on by the author. In Generation I, the disease began about the age of 71; in Generation II about the age of 40 and 48, and in Generation III between the ages of 25 and 30. A cousin of Generation II, the third on the maternal side is said to have been operated on for glaucoma (Pedigree given in Fig. 15).

Rudin's Case.—Generation I. Female blind from glaucoma at 30. Generation II, son of Generation I, became blind at 30. Generation III, two sons of Generation II were affected at 27 and 20 respectively.

In the review of the cases of glaucoma simplex of two and three generations, various comments by many authors were noted. Benedict in his early work cites a history of a gouty family all affected with glaucoma except one son, and he escaped because he had blue eyes. Arlt and Fischer, too, mention this phenomena, that in eyes with blue or gray irises glaucoma rarely develops.

Rogman reports a case of acute glaucoma developing from glaucoma simplex. Physiologic cupping was noted in the unaffected eye of one of the sons. The same condition with physiologic cupping was detected in a second son, who subsequently developed acute glaucoma. A third son has a similar picture of physiologic cupping in each eye with a hyperopia of 2.50 D. In none of these cases was there typical glaucomatous cupping, yet there was always a decided elevation in tension and diminished vision.

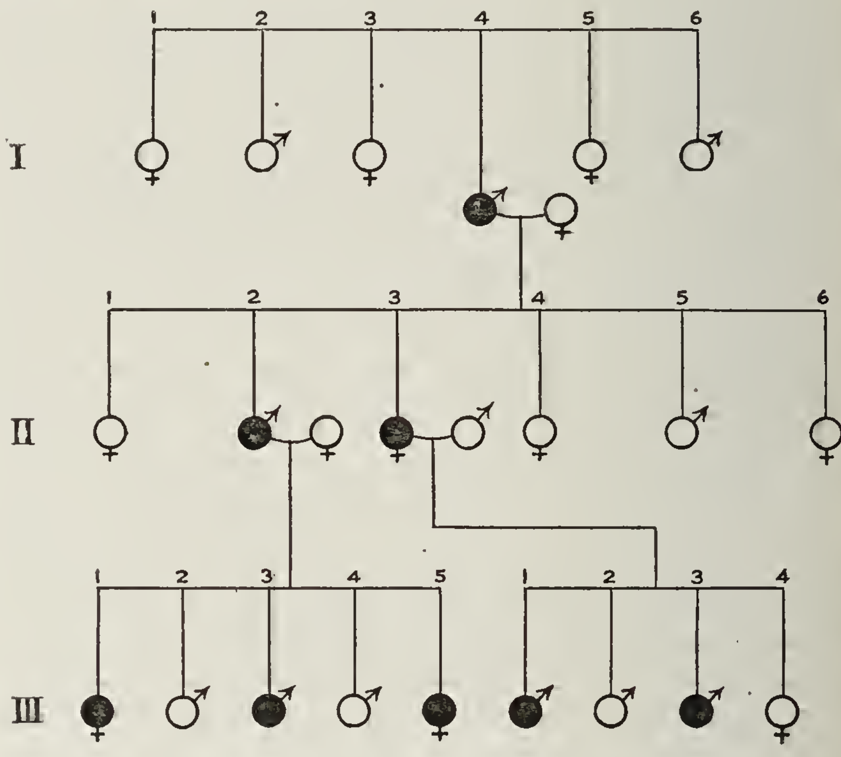

Fig. 14.—Pedigree of Howe's patient.

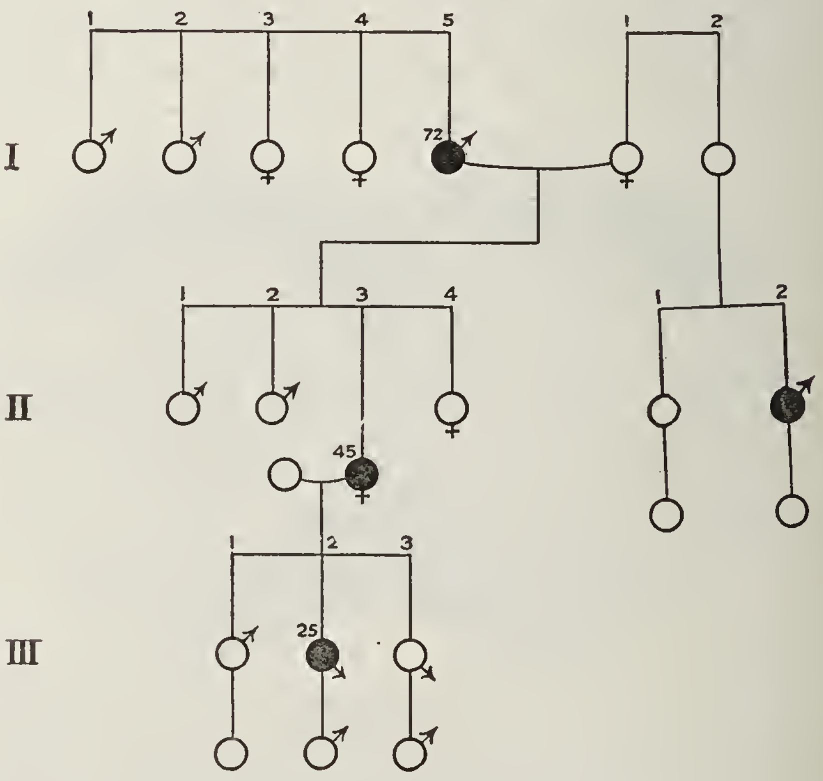

Fig. 15.—Pedigree of Nettleship's patient.

Priestley Smith has reported notes on glaucoma in two generations. A father, aged 65, hyperopia, 2.50 D.; horizontal diameter of the cornea, 10.5 mm.; a daughter, aged 29, left eye, hyperopia, 6 D. The right eye was excised for absolute glaucoma, and the measurements were: horizontal diameter of the cornea, 10 mm.; globe horizontally, 22 mm.; vertically, 21 mm.: pole to pole, 21.75 mm. The normal horizontal diameter of cornea is between 11 and 12 mm., and the same author ventures the assertion that an eye with a cornea whose horizontal diameter is 10.5 mm. rarely escapes glaucoma. Glaucoma simplex of the hereditary type developing in myopic eyes is conspicuously mentioned, especially in Somya's report of a family.

SUMMARY

In summarizing the reported cases of hereditary glaucoma (simplex) we may briefly say that:

1. "Anticipation" is the most prominent feature, as Lawford mentions. Hereditary glaucoma, usually, I might say always, develops in adults, or at an age far remote from the usual period, and whenever a case of glaucoma simplex is recognized in one under the age of 30, interest should be aroused as to the hereditary tendency.

2. The smallness of the cornea and globe does play an important part; it however, is not the sole cause, for two families of myopes have been reported. Unfortunately few corneas have been measured.

3. General diseases other than gout and rheumatism, mentioned by the older writers, have small part in the causation of this disease.

4. The liability to transmission by the two sexes is roughly equal. The male sex shows a greater liability to inheritance.

A study of the family which I have reported shows the remarkable fact that defective vision was discovered at an early age in all cases. The father, when a young man of 30, unquestionably had glaucoma, and an iridectomy was performed. The youngest age was 11 (Case 6) and the sister (Case 2) first noticed dim sight at the age of 12, whereas in the cases of her three sons, (Cases 3, 4 and 5) they were some years older. The normal refraction of the eyes was emmetropic, or slightly hypermetropic. After operations the corneal astigmatism frequently changed to minus or mixed astigmatism.

In five of the cases, thirteen operations were performed on nine eyes. The right eye in Case 4 received an iridectomy and two trephines, until lowered tension was obtained. In my hands the iridectomy as performed for glaucoma and the sclerectomy with iridectomy of LaGrange, did not give the results which were finally obtained by the scleral trephine. Time will tell, however, whether or not the subnormal tension of 7, 11 mm. Hg thus obtained acts detrimentally to the glaucomatous eye.

As for the results in the five of the eight cases which I personally cared for, we might reasonably say that after atrophic change and cupping had taken place in the nerve (Cases 3 and 8), the operations have prolonged sight and possibly arrested in a measure early blindness, whereas in the early cases without ophthalmoscopic nerve-changes, with only a reduction of vision, elevation in tension and contracted fields as symptoms of the disease, the results are gratifying. In this connection attention should be directed to the fact that after all of the thirteen operations except two (Case 8), the patients were immediately allowed to return to their homes, and no complication, unusual delay in healing or bad after-effect was the result.

Candler Building.

SCLEROCORNEAL TREPHINING FOR GLAUCOMA *

WALTER R. PARKER, M.D.
DETROIT

I. REPORT OF COLONEL ELLIOT'S CASES

At the request of Chairman Todd, and with the consent of Colonel Elliot, I have the privilege of presenting to the members of the Section the results of the sclerocorneal trephining operations for the relief of glaucoma performed by Col. R. H. Elliot during his visit to the United States last fall.

In preparing this report, circular letters were sent out to those for whom Colonel Elliot operated, and reports of cases were received from the surgeons named in Table 1, to whom I wish to express my sincere appreciation for their hearty cooperation.

TABLE 1.—SURGEONS REPORTING OPERATIONS BY COLONEL ELLIOT

Name	No. of Operations
Robert Beattie	1
F. E. Cheney	1
A. E. Davis	2
L. Webster Fox	10
W. H. Fox	1
P. J. Pontius	1
George S. Derby	1
J. M. Ray	2
R. A. Reeve	5
G. C. Savage	3
Frank C. Todd	18
E. Torok	1
W. H. Wendell	2
W. H. Wilmer	3
E. B. Cayce	1
L. W. Callan	2
E. T. Easton	2
John Green, Jr.	4
A. G. Morse	1
W. R. Parker	6
Samuel D. Risley	1
McCluney Radcliffe	2
William M. Sweet	1
George E. deSchweinitz	2
H. H. Tyson	1
Will Walter	1
F. E. Woodruff	1
Total	76

TABLE 2.—SUMMARY OF OPERATIONS BY COLONEL ELLIOT

Patients operated on 61
Eyes operated on 76

		Results		
	No.	Good	Poor	Failure
Males, right eye	9	7	0	2
Males, left eye	9	7	1	1
Total	18	14	1	3
Females, right eye	16	11	2	3
Females, left eye	12	11	0	1
Total	28	22	2	4
Males, both eyes	8	15	1	0
Females, both eyes	7	11	1	2
Total	15	26	2	2
Eyes trephined after iridectomy and glaucoma extraction	11	10	1	0
Eyes trephined after iridectomy for cataract	4	2	0	2
Total	15	12	1	2

Good results trephined after iridectomy ....90.9 per cent.
Good results trephined after combined extraction of cataract ....50 per cent.

The classification of results in Table 4 is based on the effect the operation produced on the tension of the eyeball, the data concerning the acuity of vision before and after operation being too meager to justify conclusions.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* A report of the tabulated results of seventy-six operations performed by Col. R. H. Elliot during his visit to the United States, and a clinical study of twenty-seven operations by the author.

TABLE 3.—NUMBER OF CASES, TYPES OF GLAUCOMA AND RESULTS IN EACH GROUP OF CASES

Type of Glaucoma		Previous Iridectomy	Without Iridectomy	Complete Iridectomy	Partial Iridectomy	Iritis	Without Iritis	Results: Good	Results: Poor	Results: Failure
Absolute	1	1	..	..	..	..	..	..	..	1
Acute inflammatory	7	..	..	1	6	..	5	6	..	1
Simple	61	8	8	6	39	26	4	51	5	5
Secondary	5	4	..	..	1	1	4	4	..	1
Hemorrhagic	2	..	1	..	1	1	1	1	1	..
	76	13	9	7	47	..	..	..	..	..

GOOD RESULTS IN DIFFERENT TYPES OF GLAUCOMA

	No. of Cases	Per Cent.
Simple glaucoma	61	83.6
Acute inflammatory	7	85.7
Secondary	5	80
Hemorrhagic	2	50
All cases except simple	15	73.3

Of the twenty cases in which an iridectomy had been made, either at time of operation or previously, 10 per cent. showed signs of iritis, whereas in the fifty-six cases in which the trephining had been performed without or with a partial iridectomy, iritis was present in 51.7 per cent.

I have to acknowledge my great indebtedness to Colonel Elliot for his kindness in allowing me to present the results of his splendid work before the members of this Section.

My thanks are due to my assistant, Dr. William L. Benedict, for valuable assistance in tabulating the statistics here presented.

II. REPORT OF AUTHOR'S CASES

In the twenty-seven cases here reported, operation was performed at the Ophthalmic Clinic of the University of Michigan, except two, which were done in private practice.

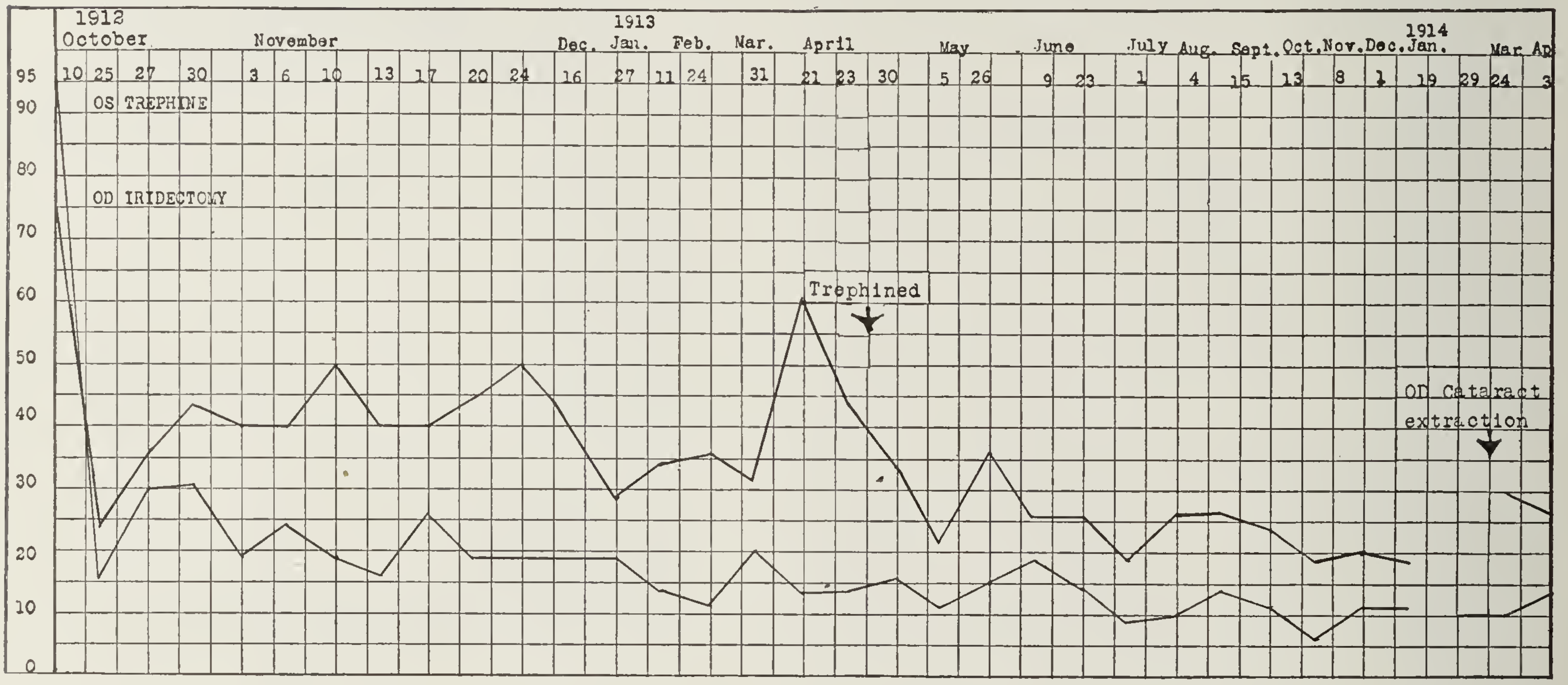

Chart 1.—Tonometric Records in Case 11.

TABLE 4.—RESULTS OF TREPHINING

	No.	Per Cent.
Operations	76	.....
Good results	62	81.58

	No.	Good	Poor	Failure	Not Stated
Eyes having had previous iridectomy	13	11	1	1	0
Eyes having complete iridectomy at time of trephining	7	7	0	0	0
Total	20	18	1	1	0
Good results in 90 per cent.					
Eyes having partial iridectomy at time of trephining	47	37	5	5	0
Eyes in which no iridectomy was done	9	7	0	2	0
Total	56	44	5	7	0
Good results in 78.4 per cent.					

TABLE 5.—CLASSIFICATION WITH REFERENCE TO THE PRESENCE OR ABSENCE OF IRITIS IN CASES IN WHICH A PREVIOUS IRIDECTOMY HAD BEEN PERFORMED OR A COMPLETE IRIDECTOMY WAS DONE AT THE TIME OF OPERATION

TREPHININGS FOLLOWED BY IRITIS

	No.	Iritis	No Iritis	Not Stated
Cases having complete iridectomy at time of trephining	7	1	5	1
Having had previous iridectomy	13	1	10	2
Total	20	2=10%	15=75%	3
Having no iridectomy	9	7	2	0
Having partial iridectomy	47	22	23	2
Total	56	29=51%	25=44.6%	2

TABLE 6.—SUMMARY OF AUTHOR'S CASES

Males	13	Eyes operated on	17
Females	7	Eyes operated on	10
	20		27
Cases in which both eyes were trephined			5
Cases in which the same eye was trephined twice			2

TABLE 8.—NUMBER AND TYPES OF CASES, TOGETHER WITH THE RESULTS OBTAINED IN EACH TYPE OF GLAUCOMA

Classification	No. of Cases	Good No. %	Poor Results No.	Failure No.
Acute	1	..	..	1
Simple	14	11=78.5	2	1
Chronic inflammatory	6	4=66.6	2	..
Secondary to cataract extract	2	..	1	1
Secondary to luxated lens	1	..	..	1
Secondary to traumatism	1	1	..	..
Buphthalmos	2	..	..	2
	27	16	5	6

TABLE 9.—RESULTS OBTAINED IN CASES OF SIMPLE GLAUCOMA, COMPARED WITH THOSE IN ALL OTHER TYPES OF THE DISEASE AS CLASSIFIED

Type	No.	Results: Good No. %	Results: Poor No. %	Results: Failure No. %
Simple	14	11=78.5	2=14.2	1=7.1
Other types	13	5=38.4	3=23.0	5=38.4
	27	16	5	6

Good results from simple cases.............78.5 per cent.
Good results from all other cases...........38.5 per cent.

I shall not discuss the technic of the sclerocorneal trephining operation, but rather confine my report to the clinical facts as presented by the case histories, and base my conclusions on these findings alone.

TABLE 10.—CLASSIFICATION WITH REFERENCE TO THE PRESENCE OR ABSENCE OF IRITIS IN CASES IN WHICH A PREVIOUS IRIDECTOMY HAD BEEN PERFORMED OR A COMPLETE IRIDECTOMY WAS DONE AT THE TIME OF OPERATION

Character of Iridectomy	No.	Iritis No. Per Ct.	No Iritis No. Per Ct.
Complete iridectomy at time of trephine operation	8	1 = 12.5	7 = 87.5
Previous iridectomy	7	2 = 28.5	5 = 71.4
Partial iridectomy	8	6 = 75.0	2 = 25
Without iridectomy	4	4 = 100	
	27	13	14

TABLE 11.—FREQUENCY OF OCCURRENCE OF IRITIS IN THE DIFFERENT FORMS OF IRIDECTOMY

	No.	Iritis No. Per Ct.	No Iritis No. Per Ct.
Total number of cases of complete and previous iridectomy	15	3 = 20	12 = 80
Total number of cases of partial or without iridectomy	12	10 = 83	2 = 16.6
	27	13	14

TABLE 7.—VISION AND TENSION BEFORE AND AFTER OPERATION, AND RESULT AS DETERMINED BY TENSION AT TIME OF LAST OBSERVATION

Case No.	Date	Type	Vision Before—After Operation *		Tension Before mm.	Tension Date	After mm.	Result	Remarks
1	12/ 9/12	Traumatic secondary.	Nil	Nil	95	4/ 9/13	21	Good	
2	12/16/12	Simple	6/15	6/15	44	2/ 2/13	21	Good	
3	5/ 3/13	Buphthalmos	?	?	48	7/14/13	70	Failure	
4	5/ 3/13	Buphthalmos	?	?	48	7/14/13	60	Failure	
5	5/26/13	Simple	Nil	Nil	70	6/ 4/13	16	Good	
6	5/26/13	Secondary cataract	5/30	1/60	83	7/12/13	47	Poor	Immediate result good 17 days after operation. Tension 16 mm. Discharged cured. One month later, tension 47.
7	7/ 7/13	Simple	1/60	l. p.	47	7/ 8/13	20	Good	
8	10/31/12	Chronic inflammation.	Nil	Nil	60	3/13/13	13	Good	
9	10/3 /12	Chronic inflammation.	Nil	Nil	71	3/13/13	18	Good	
10	10/10/12	Simple	l. p.	l. p.	39	1/27/14	16	Good	
11	10/17/12	Simple	l. p.	l. p.	105	3/24/14	10	Good	
12	4/24/13	Simple	5/60	1/60	45	3/24/14	27	Good	
13	10/17/12	Simple	Obj.	Obj.	60	10/ 3/12	12	Good	
14	10/31/12	Secondary	l. p.	Nil	36	2/ 7/13	100	Failure	Immediate results good. Tension at end of two weeks 14 mm.
15	11/21/12	Chronic inflammation.	Nil	Nil	83	12/22/12	82	Failure	Hemorrhagic, Glau. O. S.
16	2/24/13	Chronic inflammation.	Nil	Nil	60	5/ 5/13	60	Failure	
17	6/30/13	Chronic inflammation.	Nil	Nil	60	3/ 5/14	20	Good	
18	4/24/13	Sec. luxated lens	Nil	Nil	91	1/ 7/14	55	Failure	
19	7/ 7/13	Simple	5/60	5/60	51	11/ 6/13	15	Good	
20	7/21/13	Simple	5/60	6/60	51	11/ 6/13	7	Good	
21	11/20/13	Chronic inflammation.	Fingers	6/30	50	1/19/14	18	Good	
22	10/20/13	Simple	Nil	Nil	60	10/31/13	70	Poor	
23	10/10/13	Simple	Nil	Nil	44	10/31/13	60	Poor	
24	1/ 8/14	Acute inflammation	l. p.	Nil	62	2/ 2/14	50	Poor	Immediate results good. Tension 24, ten days after operation.
25	1/12/14	Simple	Nil	Nil	73	3/19/14	36	Good	Subsequent to last tension record eye soft, but tonometer record not recorded.
26	1/14/14	Simple	6/20	6/20	36	2/ 4/14	26	Good	
27	11/20/13	Simple	6/9	Obj.	43	4/ 6/14	15	Poor	Immediate result perfect, chamber closed on 19th day. Quiet iritis, with exudate in pupillary space.

* In this column l. p. stands for light perception.

Of the fifteen cases in which the iridectomy was complete, three showed signs of iritis and twelve showed no signs of inflammation of the iris. On the other hand, of the twelve cases in which a partial or no iridectomy was performed, ten had iritis, while but two escaped. These results favor a complete iridectomy in the proportion of 20 to 83.3.

The results obtained by Colonel Elliot as tabulated in Table 5 justify the same conclusion.

Of the twenty cases in which an iridectomy had been made, either at the time of operation or previously, 10 per cent. showed signs of iritis; whereas in the fifty-six cases in which the trephining had been performed without or with partial iridectomy, iritis was present in 51.7 per cent. These results favor a complete iridectomy in the proportion of 10 to 51.7.

Of the six failures two (Cases 3 and 4) were cases of buphthalmos in the same patient. In each eye there was loss of vitreous at the time of operation, and it is possible that the opening was made too far back. Photophobia and keratitis, which were present at the time of operation, were very much improved, but ten weeks later there was in each eye a small white spot at the site of the trephine opening, and the tension had increased from 48 to 70 mm. in the right eye, and from 48 to 68 mm. in the left eye. The tension both before and after operation was taken under ether anesthesia. One case of glaucoma, secondary to cataract operation followed by uveitis (Case 14), was a very unfavorable case for any operative procedure. The tension at the time of the operation was 36 mm. Twelve days after operation it was 14 mm., but soon increased, until in two months' time it had reached 100 mm. At this time the eye was enucleated for relief of pain, the patient refusing to submit to any other operative procedure. The fourth case (Case 15) was probably one of hemorrhagic glaucoma. No ophthalmoscopic examination could be made, but the fellow eye showed a marked hemorrhagic retinitis. The last case (Case 16) was one of chronic inflammatory glaucoma, vision nil, deep scleral injection, very shallow anterior chamber, iris inflamed, tension 60 mm. A 1.5-mm. trephine opening was made associated with a small iridectomy, with no relief of tension. Later a 2-mm. opening was made with small iridectomy. The tension was temporarily reduced, but the eye was too tender to permit of tonometric observations. Two months after the second operation the tension was 60 mm., and there was a large prolapse of iris or ciliary body at the site of each trephine opening, one about 2 mm. and the other fully 3 mm. in diameter.

A comparison of the results obtained from an iridectomy and a sclerocorneal trephining operation is well shown in Case 11 (Chart 1), an advanced case of simple glaucoma in both eyes. Vision was reduced to light perception, tension right eye 75 mm., left eye 105 mm. Oct. 10, 1912, I performed a deep iridectomy on the right eye and trephined the left, using a 1.5-mm. trephine, and included the pupillary border of the iris in the iridectomy. Fifteen days later the tension in the right eye was 22 mm., in the left eye 18 mm. Five days later the tension in the right eye, which had been trephined, was 30 mm., but later it dropped to between 11 and 20 mm., where it has since remained. The eye on which an iridectomy was done gradually increased in hardness until on April 21, 1913, five months after operation, the tension was 60 mm. A sclerocorneal trephining operation was performed at this time and the tension reduced to 20 mm., where it remained for nine months, when, following a cataract extraction, it increased to 30 mm., but soon dropped to normal, where it has remained until the present time.

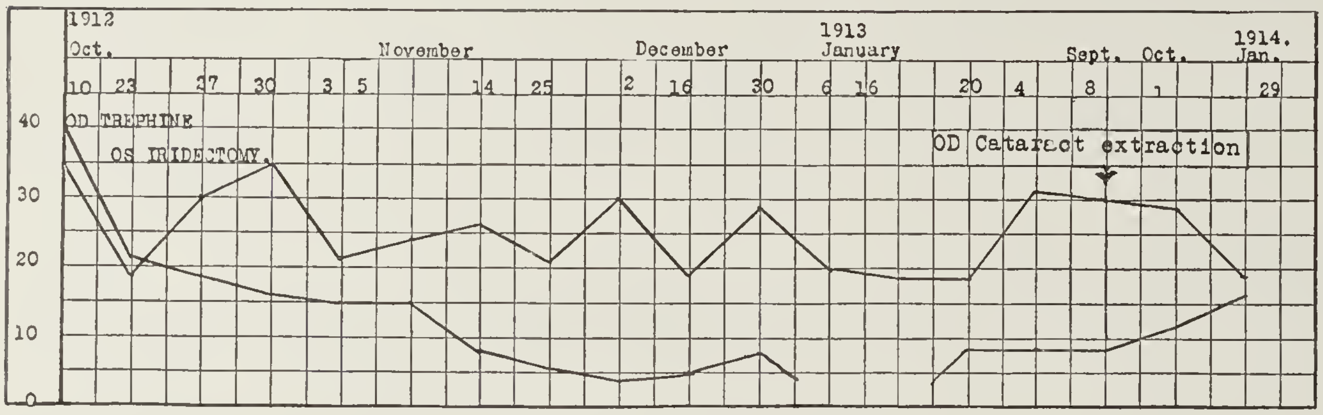

Chart 2.—Tonometric Records in Case 10.

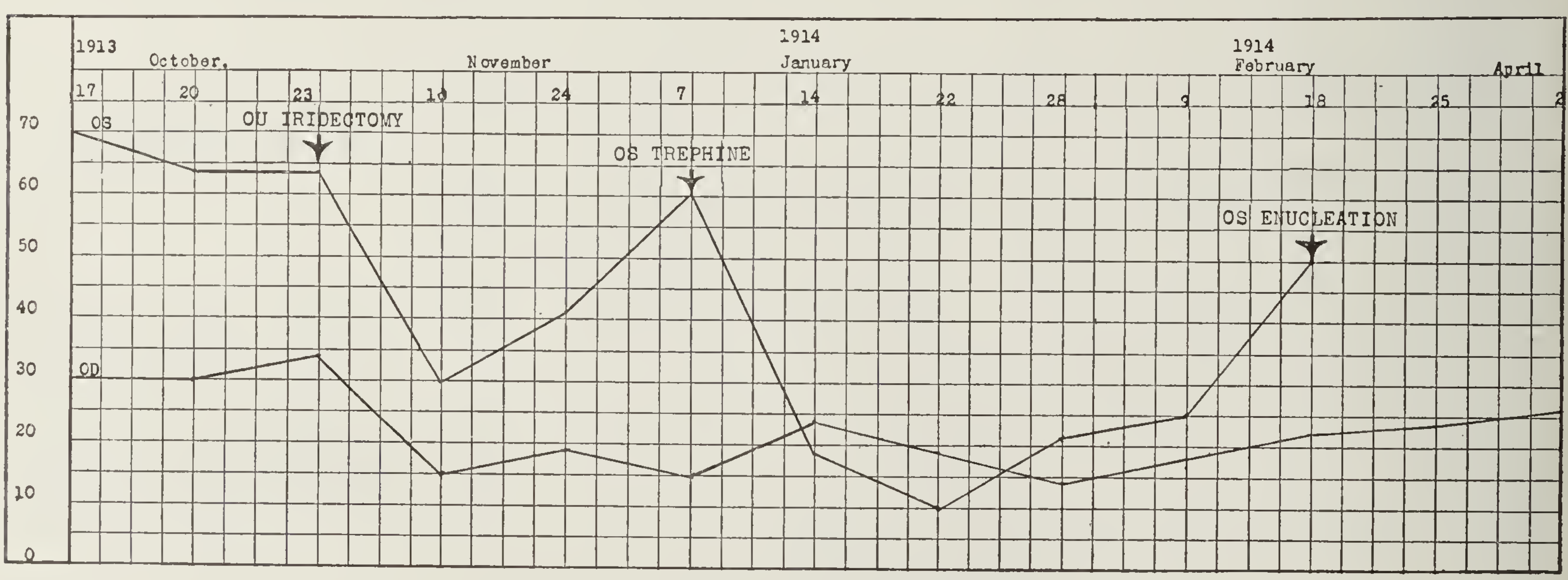

Chart 3.—Tonometric Records in Case 24.

The results in a second case on which a comparative test was made and kept under observation for a period of two and one-half years is shown in Chart 2 (Case 10). The right eye, with a tension of 30 mm., was trephined on Oct. 10, 1912, and at the same time the left eye, with a tension of 35 mm., was subjected to a broad, deep iridectomy. Vision in each eye at the time of operation was light perception. The tension of the eye which was trephined was reduced to between 4 and 10 mm., while that on which an iridectomy was done was reduced to between 20 and 30 mm. While the result in this case is recorded as good, it would be important to know what effect prolonged low tension would have on vision.

In Chart 3 is shown the tonometric result in a case of simple glaucoma in both eyes with an acute exacerbation in the left. An iridectomy in the left eye followed by a trephining operation failed to keep the tension down, and the eye was enucleated for the purpose of relieving pain. The tension in the right eye has remained normal since the time the iridectomy was performed.

CONCLUSIONS

The average results obtained from the sclerocorneal trephining operation for relieving glaucoma are better in the non-inflammatory type than in the other forms of the disease.

The results obtained when the operation was associated with a complete coloboma were better, as regards both the frequency of the occurrence of iritis and the effects on the tension, than when performed with a partial iridectomy or when the iris was left intact.

The remote results may not be so good as those shown immediately after the operation.

The number of cases here recorded is not sufficiently large to permit of definite conclusions concerning the real value of the sclerocorneal trephining operation in relieving glaucoma.

I am greatly indebted to Dr. D. V. Smith of the Ophthalmic Department of the University of Michigan for valuable aid in preparing the statistics presented in this paper.

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THE VALUE OF MIOTICS IN CHRONIC GLAUCOMA *

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I have already treated of this subject before the Section on two previous occasions, at the Boston session in 1906 and the Chicago session in 1908, and this third paper is largely supplementary to these earlier communications.

At the 1908 meeting, sixty-five cases of simple chronic glaucoma were analyzed which had been treated by miotics, of which all but seven had been observed over a period of two years, and twelve for more than ten years, and the results attained by the constant and prolonged use of these drugs were compared with a similar series of cases treated by iridectomy. Among the percentages deduced from this analytic study it was found that central vision was maintained in the miotic series, each case of which was observed over an average period of five years and eight months, in 80 per cent. of the cases, in comparison with 25 per cent. in the most favorable group of iridectomized eyes. Other figures bearing on other phases of the glaucoma problem were equally conclusive as to the superiority of the drug treatment and demonstrated conclusively that miotics exert a much more beneficial influence on the progress of simple chronic glaucoma than the removal of a portion of the iris. Whether or not better results will be found to follow the newer operations for glaucoma, time and the careful analysis of a large series of cases treated by these more recent methods can alone determine; and though it would appear that the establishment of a permanent filtration scar by the trephine gives greater hope of retaining vision in a higher percentage of cases than other operative means, it must be remembered that the claims for this procedure have not yet been proved, and some years must still elapse before a true estimate may be had of the value of this now popular measure.

Of the sixty-five cases analyzed by me in my 1908 series, twenty-two were taken from my own records, the remainder contributed by generous colleagues. During the six years which have elapsed since the publication of that report, nine of my twenty-two patients have either died or passed from under my observation; thirteen, however, still remain under my care, and their further progress, with the histories and analyses of eighteen additional cases, also from my private practice and all observed over a prolonged series of years, will form the basis of the present communication.

Of the 13 cases remaining from the 1908 series, 1 was observed for a period of 21 years, 3 for 18 years, 1 for 16 years, 2 for 14 years, 2 for 12 years, 1 for 10 years, 1 for 8 years, 1 for 7 years and 1 for 6½ years. In this series but 22 eyes lend themselves to analysis, as 3 were blind when they came under observation and one had been iridectomized.

Of the 22, 17 eyes were either normal or showed but the earliest traces of glaucoma at the first examination, in 3 the disease was moderately advanced, while in 2 the glaucomatous process had progressed to such an extent that but little vision remained. Fourteen eyes of this first group retained practically normal vision and field as long as they were under observation, a general average of ten years, as follows:

One eye presented practically normal vision and field after 21 years, 5 eyes after 18 years, 1 after 16 years, 1 after 14 years, 2 after 12 years, 1 after 10 years, 2 after 8 years and 1 after 7 years.

Three went blind while under treatment, in 5, 6 and 10 years, respectively. Of the 3 eyes in which the disease was but moderately advanced, 1 went blind in 2 years; the others have maintained vision 8 and 10 years, respectively. The results attained in the 2 eyes in which the disease was farthest advanced were strikingly good, vision and field being maintained without further loss in 1 case for 10 years, while in the second but a slight loss was recorded during the same period.

Of the 18 cases now reported for the first time, 1 was observed for a period of 18 years, 2 of 10 years, 1 of 8 years, 1 of 7 years, 7 of 6 years, 1 of 5 years, 2 of 3 years, 2 of 2 years and 1 of 1 year.

These 18 cases presented but 24 eyes for analysis, some of the patients having already lost one from glaucoma before consultation, while in others but 1 eye was affected. Of these 24 eyes, 13 showed but the rudiments of the disease at the first examination, the glaucomatous process was moderately advanced in 8, while in 3 central vision and the visual field were greatly compromised. In the first group practically normal vision has been maintained while the cases have been under observation, for periods ranging from 5 to 18 years, an average of 7½ years. In the second group of 8 eyes, vision has been maintained for periods ranging from 2 to 10 years, an average of about 4 years, while in the 3 eyes which were in the most advanced stage of the disease, vision has been maintained for periods ranging from 1 to 6 years, an average of 3 years. It should be noted that in 2 out of these 3 eyes the disease was of a pronounced hemorrhagic type and that notwithstanding this, vision is still maintained in 1 after a period of 6 years and that blindness ensued in the other after the maintenance of 6 years of fair vision.

The figures obtained by the analysis of these 31 cases agree in large measure with those published in connection with the 1908 series. As it was pointed out at that time, just as the advocates of operative measures find beginning cases to be more amenable to treatment than those in the more advanced stages of the disease, so cases treated by miotics from the early stages give better percentages so far as the maintenance of central and peripheral vision is concerned. Twenty-seven of the 46 eyes analyzed in the two groups of cases belonged to this class, and with the exception of 3, all preserved nearly normal vision and fields as long as they remained under observation, and this is the more extraordinary when it is considered that 1 of these cases has been observed for 21 years, 4 for 18 years and 8 for a period of 10 years or more. As I remarked in a previous paper, in view of such favorable statistics from the use of miotics, when the risks and complications attending all operations on the eye are considered, as well as the possibility of error in the diagnosis and operation being performed on eyes with merely atrophic nerves, is

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* On account of lack of space this paper has been abbreviated for The Journal by omission of some of the case reports. It will appear in full in the Transactions of the Sections and in the author's reprints.

operation ever justified when both central and peripheral vision are normal, without trial of what miotics can do?

In 11 eyes in which the disease was noted as being moderately advanced, in the first group, 2 maintained vision for 8 and 10 years, respectively, and 1 went blind in 2 years, in the second group vision has been maintained for periods ranging from 2 to 10 years, an average of about 4 years. The best results of all, relatively speaking, were attained in the far-advanced or desperate cases, for of the 5 cases so designated, vision and field were maintained without further loss in 1 case for 10 years, and in a second with but slight loss during the same period. In the remaining 3 eyes, vision has been maintained for periods ranging from 1 to 6 years, and this in spite of the fact that in 2 of the latter the disease had assumed a hemorrhagic type. I would recall, in this connection, the remarkable results attained in Case 48 of the 1908 series, in which full central vision was maintained in a typically glaucomatous eye with field cut almost to fixation for 14 years.

It is in this class of cases that iridectomy has been attended with such bad results, and while cyclodialysis and the trephining operations may be less injurious, I shall continue to employ miotics continuously and energetically until convinced by the report of a series of suitable cases that operative measures have proved their superiority. My observations have convinced me that miotics cannot be regarded in any sense as curative, for notwithstanding their continuous use, the glaucomatous process still goes on, very slowly, it is true, but the eye grows steadily harder, the excavation becomes broader and deeper and the anterior chamber shallower. Again, I desire to emphasize what I have already said elsewhere, namely, that miotics should be relied on as the sole means of treatment only in those cases which are free from attacks of so-called glaucomatous congestion, the presence of such congestive symptoms being in my opinion the chief indication for some form of operative treatment, be it iridectomy, cyclodialysis or trephining; and second, that to gain the full benefit of miotics it is necessary that they should be administered properly. Beginning in doses small enough to avoid creating spasm of the ciliary muscle, and rapidly increasing the dose until the pupil of the affected eye is strongly contracted, this degree of contraction should be maintained as long as life lasts by gradually increasing the strength of the solution, from time to time, and by instillations of the drug at intervals of every three or four hours.

The miotics which are best adapted to control intraocular tension are physostigmin (eserin) salicylate and pilocarpin nitrate. This salt of physostigmin is more persistent in its effects and less changeable in solution than other salts of the drug and is less irritating to the conjunctiva. I prescribe a solution of pilocarpin to be used about every four hours, morning, noon and evening, and one of physostigmin of twice the strength at bedtime, thereby avoiding in a measure the blurring of vision which is occasioned by the action of the physostigmin on the ciliary muscle during the day, while the eye receives the greatest effect of the drug during the eight hours or more which elapse between the instillations of the drops during the night. In incipient cases of the disease an excellent initial dose is that of ⅕ grain of pilocarpin to the ounce of water. The strength should be gradually increased, so that at the end of a year 1 grain to the ounce is employed, at the end of the second year 2 grains, and at the end of the third year 3 grains to the ounce solution. This strength will suffice to maintain the pupils at the desired point of almost pin-point contraction. Physostigmin should be employed in half the strength of pilocarpin and should be increased in solutions of equal proportions.

Conjunctival irritation can usually be avoided by employing only fresh and sterile solutions of the miotics and by frequent cleansing of the conjunctiva by boracic acid solution. Should such irritation arise, local applications of argyrol and flushing of the conjunctiva with mild lotions, conjoined with the use of ice compresses and a weakened dose of the miotic will usually occasion its prompt disappearance.

Gentle massage of the eyeball is of decided advantage and should be practiced several times each day, for five minutes at a time. In addition to these local measures, the patient should be instructed as to the number of hours daily the eyes should be used in near vision. All near work should, of course, be restricted, and should be carried on only under the most favorable conditions regarding illumination, posture of the patient, etc.

Proper lenses should be adjusted to the eyes for both near and far use, and the refraction should be frequently estimated and any error corrected, changes in the refraction being rendered frequent by the action of the miotic on the ciliary muscle.

A large number of hours daily should be spent in the open air, and, as the disease is frequently the ocular expression of chronic rheumatism and gout, the patient should be urged to spend the greater part of the year under the most favorable climatic conditions to combat that diathesis. The skin should be kept active, the gastro-intestinal apparatus regulated, and any local source of inflammation or irritation, neighboring on the eyes, such as inflammation in the nasal passages or their accessory sinuses, should be allayed. Particular care should be given to the peripheral circulation, nitroglycerin and strophanthus being often of value. Strychnin should be administered, not only on account of its action on the circulation, but also because of its influence on the optic nerve. On account of their antirheumatic properties, the salicylates are of decided value and should be administered frequently for continued periods.

The notes of the thirty-two cases follow. These are necessarily much abbreviated and give but the briefest description of the progress of each case. The fields are reproduced in outline merely, and though in many instances a careful test of the visual field was made every three or four months, on account of the necessity for brevity, but one set of fields is published for each year or series of years. The outlines were obtained by testing with 10 mm. white and red objects, the outer representing the white field, the inner the red. All reference to the dosage of the miotics has also been omitted, the treatment prescribed in each instance having been along the lines specified in the preceding paragraphs.

REPORT OF CASES

Case 1 (Case 1 of 1908 series).—Woman, aged[1] 81, under observation nearly twenty-one years, first sought treatment on account of secondary glaucoma in the right eye, following iritis. Iridectomy was performed, but without avail, vision soon being reduced to 2/40 eccentrically, and the field being much contracted.

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[1] The age given in all of the cases refers to what it was at the time of last observation.

Examination.—O. S., signs of chronic glaucoma, anterior chamber shallow, sclera rigid, commencing pathologic excavation.

O. S. V. + S. 0.50 D. ⊃ + C. 0.25 D. ax. 20° = 5/5.

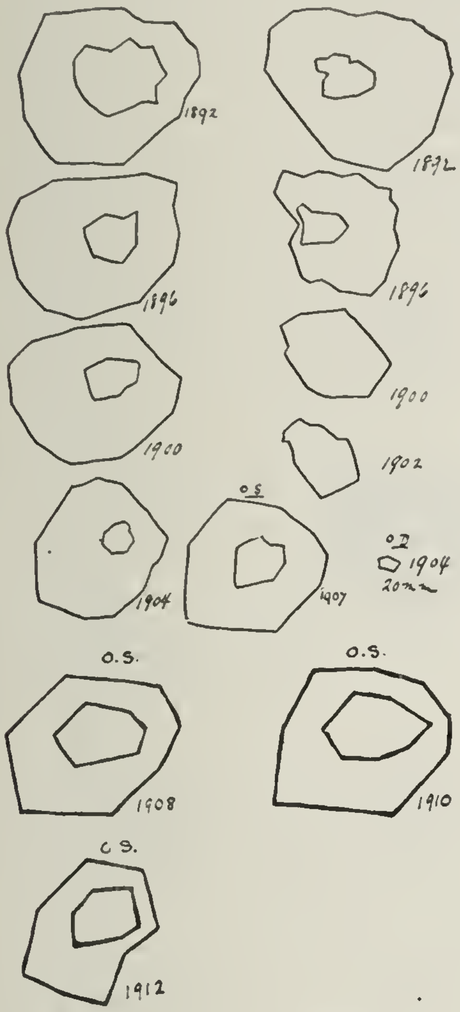


Fig. 1.—Fields of Case 1.

Field normal. This patient has been seen at intervals of at least every six months during twenty-one years, the miotics being gradually increased in strength until pilocarpin, 4 grains to 1 fluidounce, 2 drops three times a day, is now employed to keep the pupil contracted ad maximum.

During the past six years the disease has progressed but little. Vision equals 5/6, field but moderately cut. Reduction in vision and field doubtless are due to lenticular haze. This patient has been most assiduous in carrying out the treatment, and the splendid results must be attributed to that. At no time in the twenty-one years has there been any conjunctival irritation from the drugs.

Remarks. — Glaucomatous process held in check while under observation for almost twenty-one years, central vision being still normal and the field but slightly contracted.

Case 2 (Case 5 of 1908 series).—Woman, aged 64, under observation eighteen years. Full vision still maintained. Field but slightly contracted. Some tendency to conjunctival irritation, readily combated with astringents. At first examination in 1896:

O. D. + S. 1.75 D. ⊃ + C. 0.75 D. ax. 100° = 5/5.
O. S. + S. 1.25 D. ⊃ + C. 0.50 D. ax. 60° = 5/5.

Both optic nerves hyperemic, with central excavations. Patient seen at intervals of one or two years for change of glasses and minor symptoms. Eight years after first observation, both optic nerves were noted as being pale and "luminous" and the excavations were deep and undermined above, this being the more pronounced in the right eye. The anterior chambers were shallow and the sclera rigid. Vision and fields normal. The strength of the miotics has been gradually increased, the pupils being maintained at pin-point contraction, but the excavations have gradually extended until they are now pronouncedly glaucomatous. Vision and fields practically normal in each eye.

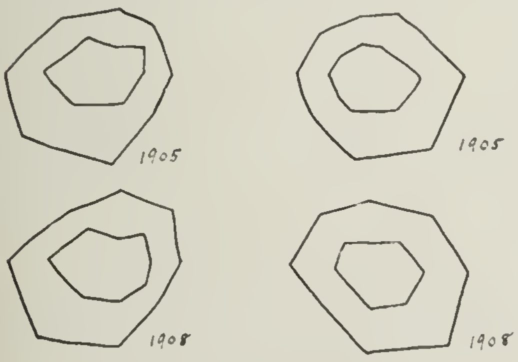


Fig. 2.—Fields of Case 2.

Remarks.—Development of glaucoma cups while under observation. Stage of hyperemia of the nerve preceding the atrophic process. Maintenance of full visual acuity and extent of visual fields with miotics.

Case 3 (Case 20 of 1908 series).—Woman, aged 86, under observation eighteen years. At time of first observation complained of occipitofrontal pains radiating into the eyes, worse on the left side. Six months previously she had had several attacks of sudden failure of vision in the left eye, which had lasted for a few minutes. During these periods of visual obscuration, the defect began in the temporal field. Both nerves were hyperemic, central excavation in the right eye becoming undermined down and out. Excavation in the left eye shallow but typically glaucomatous. Anterior chambers shallow. Sclerae rigid, especially in O.S.

At the end of two years, vision had deteriorated in O.S. to 3/60, and at the end of another year to 1/60, at which it still remains.

1901: O. D. V. + C. 0.25 D. ax. 70° = 5/5.
1902: O. D. V. — S. 0.25 D. ⊃ — C. 0.50 D. ax. 120° = 5/5.
1903: O. D. V. — S. 0.50 D. ⊃ — C. 0.75 D. ax. 145° = 5/5.
1905: O. D. V. — S. 1. D. ⊃ — C. 1.25 D. ax. 145° = 5/5.
1906: O. D. V. — S. 2. D. ⊃ — C. 1.25 D. ax. 145° = 5/5.
1907: O. D. V. — S. 1.25 D. ⊃ — C. 1.25 D. ax. 145° = 5/5.

This patient was seen once in 1908 and again in 1911, though the miotics were employed continuously in the interim. In 1908, vision equaled 5/9 in the remaining eye (O. D.), and in 1911, 5/15. The fields were not taken on either of these occasions. As the patient was 94 years of age when the last examination was made and as there was considerable haze of the lens, the result must be regarded as being most satisfactory.

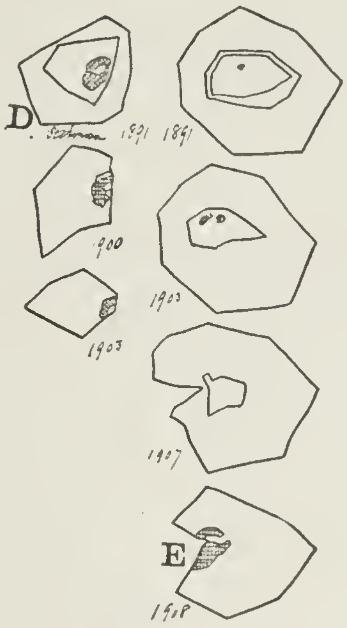


Fig. 3.—Fields of Case 3.

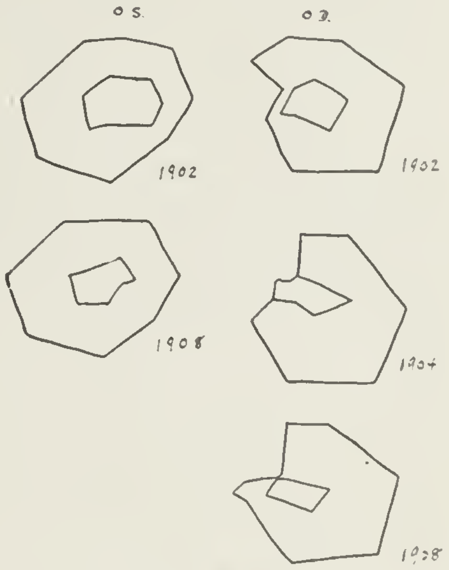


Fig. 4.—Fields of Case 4.

Remarks.—Glaucoma held in abeyance in O. D. for 18 years, in O. S. five or six years, by miotics. It is probable that a more favorable result would have been gained in O. S. had an interval of several years not elapsed during which the miotics were used irregularly. At times, during the course of the disease, subacute symptoms arose, which were promptly made to disappear by stronger doses of pilocarpin.

Case 4 (Case 4 of 1908 series).—Man, aged 51. Under observation 18 years. At time of first observation, both optic nerves hyperemic, especially the left.

O. D. + S. 0.50 D. ⊃ + C. 0.75 D. ax. 90° = 5/5.
O. S. + S. 0.50 D. ⊃ + C. 1. D. ax. 70° = 5/5.

Fields of vision normal. Left-sided neuralgia at times, with some pain in corresponding eye. Seen at intervals of one or two years. Eight years after first observation excavations in each eye noted as being suspicious, and physostigmin, 1/12 grain to the ounce, 2 drops each day, prescribed. Two years later excavations more pronounced, especially in O. D. Vision and field of vision normal in each eye. At present quite a deep glaucomatous excavation in O. D., extending to scleral ring externally. The excavation in O. S. has also become glaucomatous, being more extended but not so deep as in the fellow eye. Some contraction of O. S. field to nasal side. Tonometer shows O. D. 35 mm. Hg O. S. 25 mm. Hg.

CASE 5 (Case 6 of 1908 series).—Woman, aged 79, under observation sixteen years. Gradually failing vision in each eye for some months at time of first consultation. Gouty. Suffers from nasal catarrh. Both optic nerves hyperemic, with large temporal excavations. Sclera rigid. Anterior chambers shallow. Fields of vision normal.

O. D. V. + S. 1.75 D. ⊃ + C. 0.50 D. ax. 30° = 5/5.
O. S. V. + S. 1.25 D. ⊃ + C. 0.75 D. ax. 60° = 5/5.

The patient has been seen at intervals of six months, and, though the nerves have become somewhat atrophic and large shallow glaucomatous cups have developed in each eye, the anterior chambers shallower and tension increased, central vision and the fields of vision have remained almost normal. Considerable haze of O. D. lens with some involvement of pupil area.

Remarks.—Glaucoma developed under observation despite use of miotics, but vision and visual field have remained normal.

CASE 6 (Case 9 in 1908 series).—Woman, aged 74, under observation fourteen years. Gouty. Has always suffered from head pain. At time of first consultation nerves gray; shallow physiologic excavations, that in the left eye with undermined edges. Sclera rigid. Fields normal.

O. D. + S. 0.75 D. ⊃ + C. 0.50 D. ax. 50° = 5/5
O. S. + S. 0.75 D. ⊃ + C. 0.25 D. ax. 120° = 5/5.

Second observation, a year later, when excavation in O. S. was found to be deeper and more glaucomatous in type. Head pain had persisted despite use of glasses, but there was no obscuration of vision in either eye. Vision and field still normal.

The patient then passed from observation for four years, although she had been warned of the necessity of frequent observations of the left eye and told of its glaucomatous nature. At the visit, four years later, complaint of failing vision in O. S. for a year or more was made and also of a continuance of the head pain. Examination showed a deep typical glaucomatous cup in the left eye and a shallow glaucomatous one in the right. Both nerves quite gray and walls of retinal vessels thickened. Pilocarpin, 1 grain to 1 fluidounce three times a day, with strychnin and nitroglycerin.

O. D. V. + S. 1.5 D. ⊃ + C. 0.50 D. ax. 30° = 5/5
O. S. V. — C. 0.50 D. ax. 30° = 5/7½.

During the past six years, vision and field of vision have steadily deteriorated in each eye, that in the right eye now equaling 5/15 (— S. 0.50 D. ⊃ — C. 0.62 D. ax. 110°), that of the left hand-movements in the temporal field only. There is a moderately deep cup in the right eye and tension is decidedly elevated.

Remarks.—This case illustrates that the glaucomatous process may arise in an eye in which miotics are being continuously employed, and progress, though slowly, to a considerable degree. By reason of advanced intra-ocular changes, this case was thought to be inoperable, an opinion in which Mr. E. Treacher Collins of London, in consultation, concurred, so that while the results obtained from the miotics are not all that could be desired, nevertheless they have stayed the progress of the disease very markedly, and the patient still has useful vision remaining in one eye.

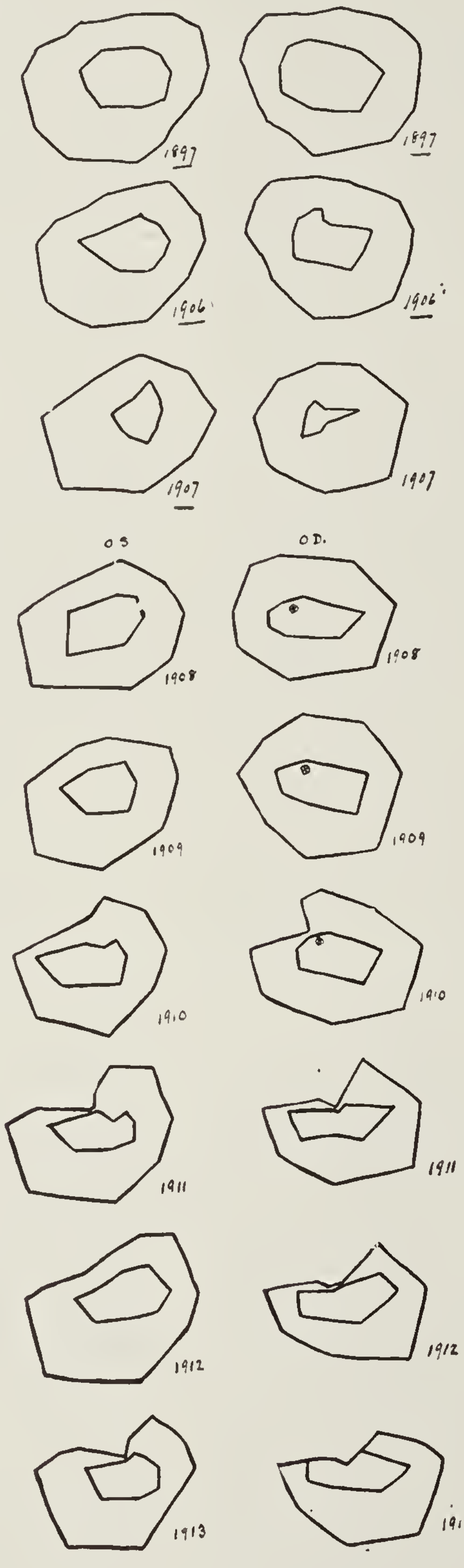


Fig. 5.—Fields of Case 5.

CASE 7 (Case 30 of 1908 series).—Woman, aged 83, under observation fourteen years. History of failing sight for two years. Rheumatic. Large glaucomatous excavations in each eye, more pronounced in the left eye. T. + in each eye.

O. D. V. + S. 0.50 D. = 5/5 partly.
O. S. V. + S. 0.50 D. ⊃ + C. 0.50 D. ax. 145° = 5/5 partly.

Remarks.—As the years have passed, tension has steadily risen, with all the attendant signs of a steadily progressive chronic glaucoma. Even at the first examination, sclerosis of the retinal vessels was marked and the circulation of the optic nerves manifestly poor. Two years ago, the left eye became suddenly blind from thrombosis of the central artery of the retina, and within the past few months the temporary half of the right field has been lost as part of a hemiplegia resulting from a cerebral thrombosis. Throughout the case, there has been the complication of a large mucocele of the frontal cells, which has fortunately at all times been kept freely drained by nasal treatment. Miotics have been persistently administered, without causing any conjunctival irritation.

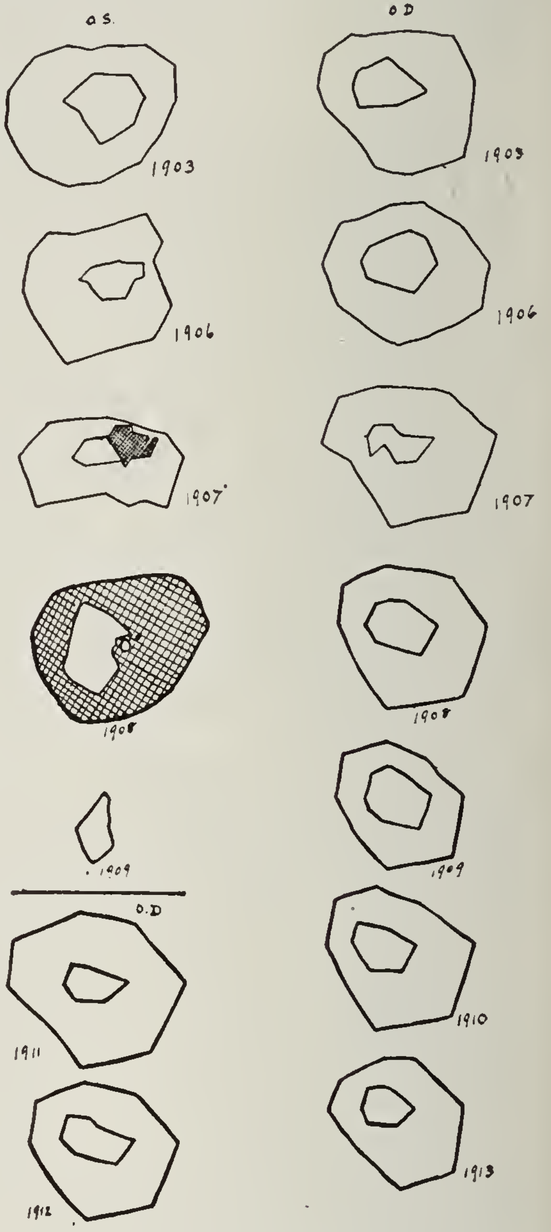


Fig. 6.—Fields of Case 6.

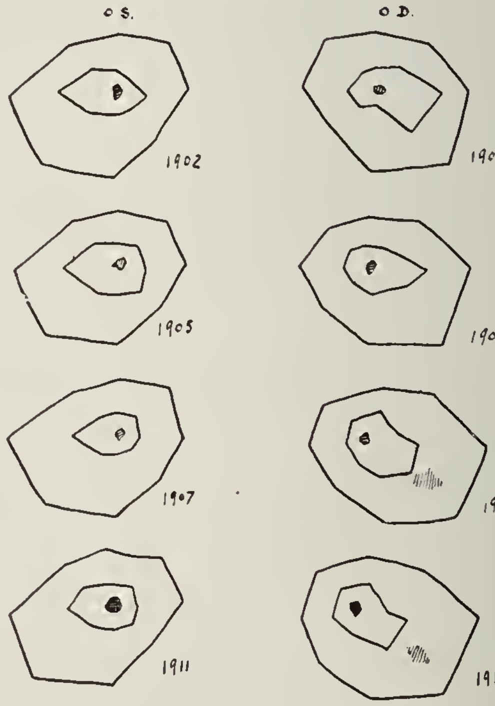


Fig. 7.—Fields of Case 7.

CASE 8 (Case 10 of 1908 series).—Woman, aged 77, under observation twelve years. At time of first consultation, vision said to have failed in each eye during the six months previous. Both nerves hyperemic, with large excavations becoming undermined to nasal side. Venous pulse. Anterior chambers shallow. Sclera rigid. Fields normal.

O. D. V. + S. 2.5 D. ⊃ + C. 0.25 D. ax. 145° = 5/5.
O. S. V. + S. 2.5 D. ⊃ + C. 0.25 D. ax. 160° = 5/5.

At end of two years cups had assumed a typical glaucomatous appearance, and tension was appreciably elevated in each eye. Central vision still normal, but form fields somewhat compromised concentrically, that for red being decidedly restricted.

At the end of six years, moderately deep glaucoma cups, anterior chambers quite shallow. Tension elevated.

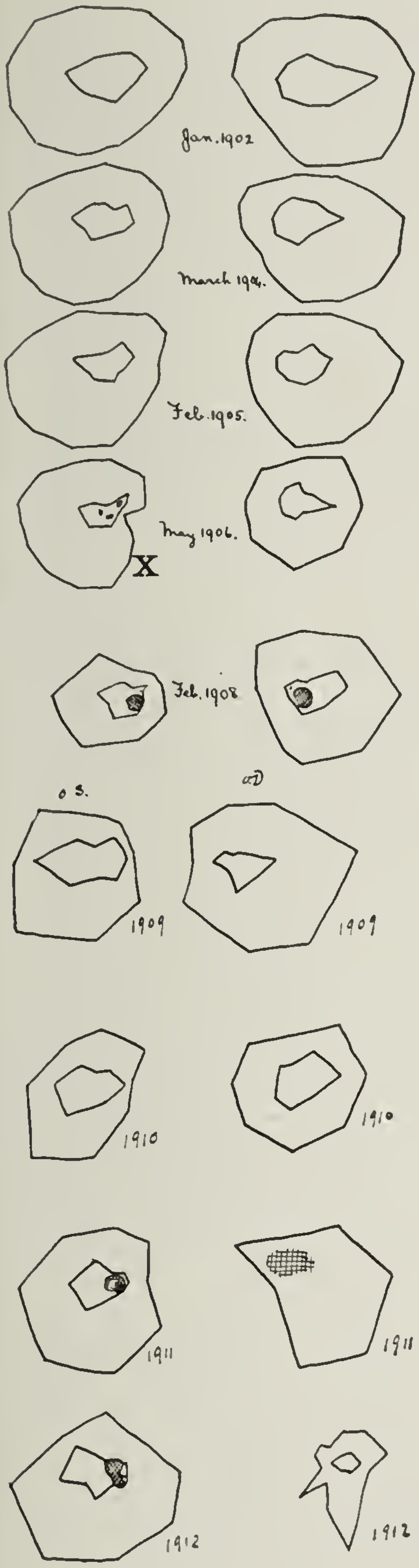


Fig. 8.—Fields of Case 8.

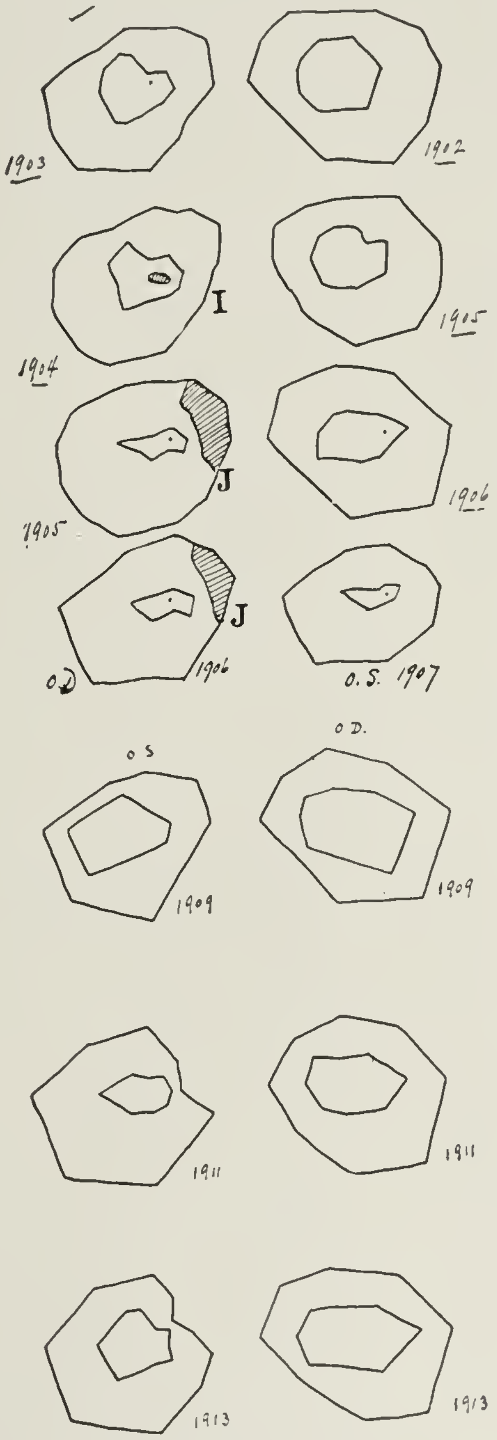


Fig. 9.—Fields of Case 9.

O. D. V. + S. 0.25 D. ⊃ + C. 0.62 D. ax. 30° = 5/5.
O. S. V. + S. 1.25 D. ⊃ + C. 0.37 D. ax. 30° = 5/5.

During the past six years, there has been a steady progression of the disease with an increasing lenticular haze. Vision reduced to 5/35 in O. D. and to 5/15 in O. S. This loss is not altogether attributable to the glaucoma, however, as the commencing cataracts undoubtedly obscure vision.

Remarks.—The patient, now aged 77, has been under observation since she was 65 years of age and still has useful vision. If central vision deteriorates further, iridectomies will be advised, with a view to enlarging the pupils, possibly decreasing tension, and to pave the way for the delivery of the cataractous lenses.

CASE 9 (Case 17 of 1908 series).—Woman, aged 61, under observation twelve years. At time of first observation, dimness in left eye of six weeks' standing. Gouty. Mother had glaucoma. Both optic nerves gray; central excavation in the right eye and a forming glaucomatous one in the temporal half of the left nerve; sclera rigid, especially in O. S.; both anterior chambers shallow.

O. D. V. + S. 0.50 D. ⊃ + C. 0.37 D. ax. 110° = 5/5.
O. S. V. + S. 0.50 D. ⊃ + C. 0.37 D. ax. 70° = 5/5.

During the past six years there has been but little progress in the disease. Vision is still normal in each eye and the field is but little more restricted than it was seven years ago. Miotics have been used constantly always with a tendency to create conjunctival irritation. Patient lives at a distance, and is doubtless not careful to use only fresh and sterile drugs.

Remarks.—Glaucoma controlled in left eye, despite the considerable involvement of nerve which was present when the patient first came under observation. Right eye still normal.

CASE 10 (Case 32 of 1908 series).—Man, aged 70, under observation ten years. Poor vision in right eye for some years past, following dynamite explosion. Vision of left eye totally lost at that time. O. D. V. worse past six months. Halos at times. Large glaucomatous excavation in right eye; anterior chamber shallow; pupil large; cornea maculated in pupillary area; T. +. Left eye, phthisis bulbi.

O. D. — S. 1. D. ⊃ — C. 1.5 D. ax. 180° = 5/9.

Seen at intervals of six months, miotics being increased from time to time. Now using pilocarpin, 3 grains to 1 fluidounce, 2 drops at night. During the ten years of treatment vision has practically held its own, that is, 5/15. There has been considerable loss in the nasal field, but the temporal field remains full.

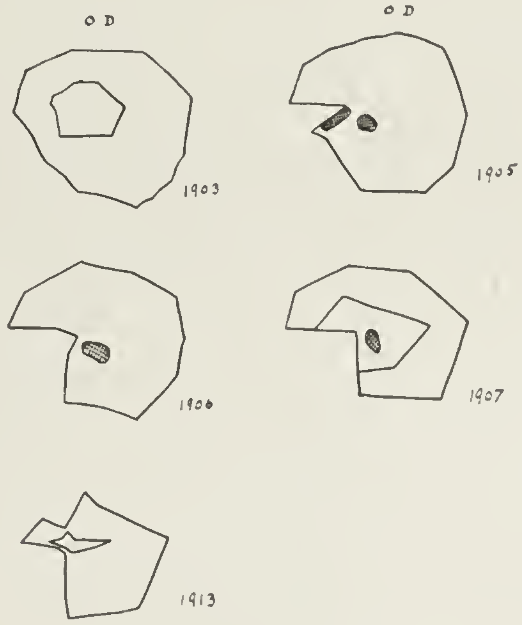


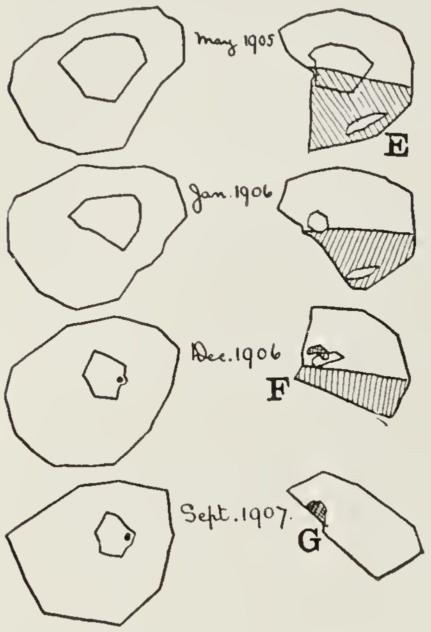
Fig. 10.—Fields of Case 10.

Remarks.—This result is exceptionally good, for the patient lives at a distance and cannot give so much care as is desirable to the conjunctiva. His health, too, has been bad, his vitality having been greatly lowered by repeated attacks of dysentery.

CASE 11 (Case 41 of 1908 series).—Man, aged 57, under observation eight years. At time of first consultation vision in right eye had been misty six months. Halos at times. Rheumatic history. Had been under ophthalmic care, but no miotics had been employed. There was a large glaucomatous excavation in right eye, with a shallower but also characteristic excavation in the left. Tension markedly elevated in both eyes. Anterior chambers shallow.

O. D. V. + C. 1. D. ax. 20° = 5/15.
O. S. V. + S. 0.25 D. ⊃ + C. 0.50 D. ax. 180° = 5/5.

Despite continuous use of miotics, vision gradually failed in O. D.; in 1909 to 5/35, in 1910 to 5/100, the reduction being occasioned by slight subacute exacerbations of the glaucoma. Operative interference rejected on account of hemorrhagic type of the disease. For the past two years the right eye has been practically blind. Vision in the left eye has been maintained at normal and the field of vision is normal. Tension, however, has increased and the cup has deepened.



Remarks.—Results from miotics disappointing in right eye, good in the left. Perhaps iridectomy in the right eye would have conserved vision longer.

Case 12 (Case 19 of 1908 series).—Woman, aged 69, under observation seven years. At time of first consultation, right eye just recovering from an iridectomy which had been done by another surgeon on account of acute glaucoma. Shallow excavation in head of optic nerve, but eye quiet and no glaucomatous symptoms. Left eye free from glaucoma, save for a doubtful excavation to outer side of nerve. Anterior chamber in each eye shallow. Tn. Fields of vision normal in each eye. Gouty subject.

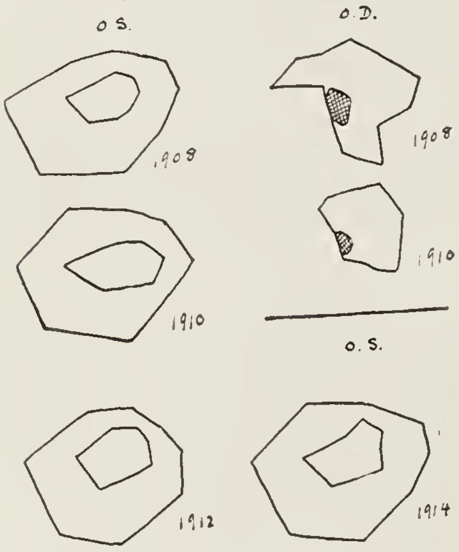


Fig. 11.—Fields of Case 11.

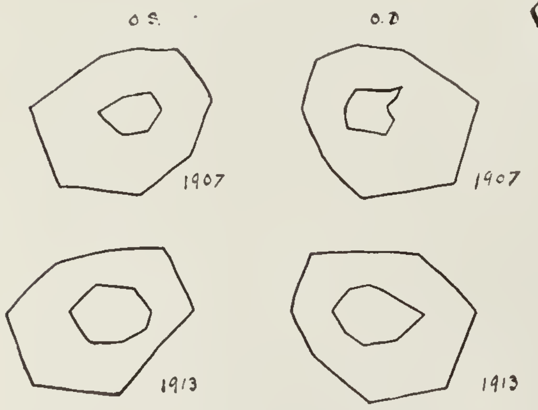


Fig. 12.—Fields of Case 12.

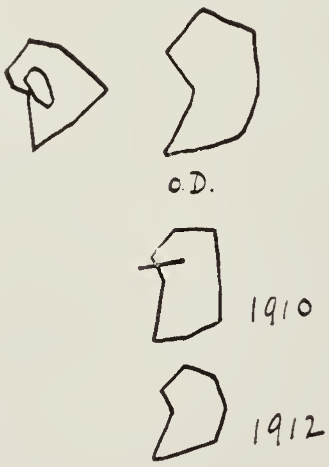


Fig. 13.—Fields of Case 13.

O. D. V. + S. 1.5 D. ⊃ + C. 1.75 D. ax. 160° = 5/5.
O. S. V. + S. 2.5 D. ⊃ + C. 0.62 D. ax. 90° = 5/5.

Glaucoma has made but little progress in either eye, as is evidenced by normal vision and fields. Miotic has been used in the operated eye as well as in the fellow, so that the maintenance of good vision in that eye may not be wholly the result of the iridectomy.

Remarks.—Despite glaucomatous outbreak in right eye, no glaucomatous symptoms have appeared in either eye, though a pathologic excavation has formed in the left eye, even though the pupil has been maintained at pin-point contraction.

Case 13 (Case 54 of 1908 series).—Woman, aged 77, under observation six and one-half years. Poor health. Advanced vascular degeneration, vision in the left eye failing five years, in the right three years. Had never used miotics, though under the care of an eye specialist for five years. At time of first consultation:

O. D. + S. 0.50 D. ⊃ + C. 0.50 D. ax. 180° = 5/7½.
O. S. V. faint light perception only.

Observation of this patient continued over a period of five years following the last report, and notwithstanding her advanced age (77 years at time of last observation in 1912), very high intra-ocular tension, the conjunctival irritation excited by the miotics, and insufficient home care, vision in O. D. has been maintained to a most remarkable degree, namely:

1907: O. D. + S. 0.50 D. ⊃ + C. 0.50 D. ax. 180° = 5/6.
1908: O. D. — S. 0.50 D. ⊃ — C. 0.50 D. ax. 90° = 5/9.
1909: O. D. — S 1. D. = 5/12.
1910: O. D. — S. 1. D. = 5/12.
1911: O. D. — S. 1.5 D. = 5/35.
1912: O. D. — S. 1.5 D. = 5/40.

As shown by the accompanying sketch, the field of vision in the right eye was much reduced even at time of first examination.

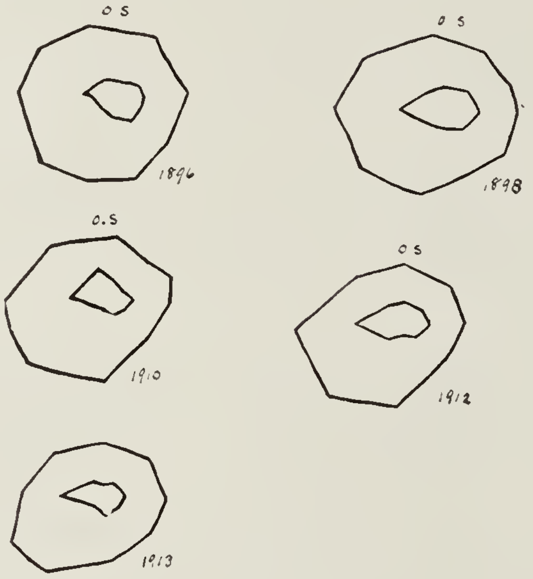


Fig. 14.—Fields of Case 14.

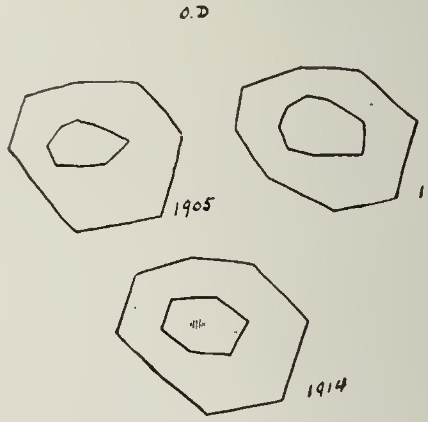


Fig. 15.—Fields of Case 15.

Remarks.—This case represents the power of miotics to retain vision for a long period even under the most desperate conditions, vision being maintained for six and one-half years in a person of very advanced years and great debility, the field of vision being greatly contracted and vision rapidly deteriorating.

Case 14.—Woman, aged 67. First consultation June 3, 1896.

O. D. V. reduced to 1/50.
O. S. V. — S. 1. D. ⊃ — C. 3. D. ax. 10° = 5/5.

Subacute glaucoma in O. D., deep cup. Commencing excavation in left eye. Iridectomy O. D., resultant vision of 2/40. O. D. totally blind two years after operation. O. S. V. now 5/7½ with — S. 0.75. D. ⊃ — C. 4. D. ax. 15°. Field somewhat concentrically contracted. Moderately deep cup. Tonometer = 38 mm. Hg. Pilocarpin has been used almost uninterruptedly during the past eighteen years, and despite the advanced age of the patient, vision is still almost normal and the field of vision fair.

Remarks.—In view of the loss of the right eye from inflammatory glaucoma, the control of the disease by miotics seems the more remarkable.

Case 15.—Woman, aged 64. First consultation November, 1904. Poor vision in O. S. for five years. Examination showed O. D. to be normal, O. S., seat of subacute glaucoma of a hemorrhagic type.

O. D. V. = 5/5
O. S. V. = 5/35

Iridectomy O. S., with resultant vision of 2/60.

During the past five years the left eye has remained *in statu quo*, while the glaucomatous process has progressed though ever so slightly in the right. Vision is still normal and the field of vision normal. During the last two years, there has been more or less irritation from the miotics, this condition being favored by a certain amount of obstruction in the lacrimal passages.

Remarks.—Notwithstanding the tendency to a hemorrhagic type of glaucoma, in the right eye, it remains practically unaffected, with normal vision.

Twenty-First and Chestnut Streets.

LATE INFECTION FOLLOWING A TREPHINING FOR GLAUCOMA *

E. V. L. BROWN, M.D.
CHICAGO

Just a year ago Wagenmann reported the first case of "late infection" following a sclerectomy operation for glaucoma. Since that time twenty-five observers have added thirty-eight cases, and Herbert says that the growing number of late septic infections in Europe is causing much concern. It is therefore a little surprising that only one such observation[1] has been published in this country and, believing that all allied observations on any new procedure should be published until its disadvantages as well as its advantages are thoroughly understood, I present the following case:

Patient.—W. G. F., aged 56. Vision in the left eye began to fail two years ago, in the right eye three months ago. Two months ago the left eye was entirely blind. Colored rings were seen earlier before the left eye and are now seen before the right. Lues was acquired twelve years ago.

Jan. 13, 1913: The right cornea and media are clear, iris normal, pupil 4 mm. and reacts sluggishly; the disk shows only a physiologic cupping. The retinal veins are dark and slightly tortuous. Tension normal to touch and 20 mm. Hg by the Schiötz tonometer. Right vision 3/10—1, not improved by his +1.D glass. Form field fully normal. The left anterior corneal stroma and epithelium are clouded, although the iris shows through; the direct and consensual reactions of the 4 mm. pupil are gone, the fundus gives a red reflex but no details. Tension + 1; Schiötz = 50-55 mm. Hg. No perception of light.

Physostigmin (eserin) instilled into the eyes for a few days narrowed both pupils to less than 1 mm. The further effect on the right eye greatly surprised me and proved that what I had considered to be a normal eye was in reality a glaucomatous one, for the tension decreased perceptibly to the touch and from 20 to 10 mm. according to the tonometer. The red field was now taken and found to be reduced to one-half, although the form field was normal, as before. The uncorrected vision improved from 3/10—1 to 6/10, and to 10/10 with his +1.D. The left cornea cleared and the disk was found to have a complete and total ampulliform excavation, all vessels disappearing beneath the overhanging scleral ring. Diagnosis: right and left simple glaucoma.

January 21: Trephine of the right scleral limbus with conjunctival flap and basal iridectomy.

February 7: Left subconjunctival injection of 4.5 per cent. sodium citrate to see if the tension would decrease.

February 8: Left tension not reduced.

February 11: Left tension not reduced (+ 3); cornea edematous. Physostigmin reordered.

February 12: Right tension normal to the fingers, cornea clear. The scleral limbus conjunctiva shows a 3 by 6 mm. flap-bleb straight up from the limbus between 10 and 12 o'clock. Vision, right + 1.5 = 8/10 — 4. Discharged with directions to continue the use of physostigmin in the left eye.

April 18: Patient returned twelve weeks after the operation, with the statement that three days before the right eye had suddenly become red and painful, the upper lid swollen, vision "foggy." The week before the patient had an acute cold.

Right eye: Photophobia, lacrimation and slight ciliary tenderness, marked ciliary and conjunctival injection, cornea clear. The site of the operation showed a yellowish, slightly elevated 4 mm. area between 10:30 and 12 o'clock. The anterior chamber was of normal depth, the 3 by 6 mm. coloboma above and the 4 mm. pupil area were filled with a cloudy exudate which obscured all view of fundus except for a small 0.5 mm. portion of the upper inner angle of the pupil, where a faint red reflex only could be seen. A hypopyon, 1 mm. high, 6 mm. broad, was present. The pupil did not respond to light or accommodation. The iris was dark green (left iris blue) and the vessels over the pupillary portion markedly injected. Tension 18.5 mm.

Diagnosis: Suppurative iridocyclitis.

April 19: Chemosis bulbi. Atropin revealed a brown posterior synechia at 3:15 o'clock and considerable exudate on the lens.

Five days later, under added heat, dionin and potassium iodid, the chemosis and pain were lessened and the hypopyon had entirely disappeared; a thick pad of spongy exudate almost completely filled the pupil area, the cornea was slightly clouded, lid edema marked, tension not increased. Synechiae going through all layers of the iris were found from 3 to 3:30 and from 8 to 9 o'clock.

May 10: Tension, increased for first time, not relieved by subconjunctive salt injection; anterior chamber everywhere abnormally deep; trephined area flattened. Vision, right 1/10. "Prognosis for vision bad."

May 17: Tension lower.

May 16: Vision, right 3/10; tension 40 mm. Left tension (physostigmin) 23 mm. Hg. Discharged.

SUMMARY OF CASE

An eye affected with simple glaucoma was trephined and the patient made an uneventful recovery. Twelve weeks later the patient returned with the statement that he had caught cold the week before and that the eye had become red and painful four days later. The conjunctival flap-bleb, which measured 4 by 6 mm., was yellowish and a severe suppurative iridocyclitis was present. Under treatment the hypopyon promptly disappeared and the uveitis got well in seven weeks, but a moderate increase of tension (40 mm. Hg) supervened and vision decreased from 8/10—4 (three weeks after the operation) to 3/10. The conjunctival bleb flattened down to the scleral level.

The case agrees in all essentials with those reported as "late septic infection" following sclerectomy and is therefore not worthy of extended summary and discussion. For a review of the literature the reader is referred to the article by Gifford.[2]

It is to be regretted that fluorescin was not used to determine the presence or absence of a defect in the conjunctival flap, as was done by Axenfeld and by Harms.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Gifford: Ophth. Rec., January 1914, xxiii, 1.

[2] This covers a wide range of experience in the hands of many competent observers and includes a discussion of the frequency of the infection, comparison between frequency after Lagrange's and after Elliot's operations, the interval, the influence of buttonholing the flap, the position of the trephine opening, the condition of the conjunctival bleb after operation and after infection, the factors of trauma, dacryocystitis and conjunctivitis, the use of fluorescin to detect a break in the flap, the relation of the pus beneath the flap to that within the eye, the resulting suppurative iridocyclitis and the course of the same, rises in tension, panophthalmitis, phthisis bulbi, sympathetic ophthalmia, histologic examination of the wound tract (Schur's case), Kuhnt's transplantation after buttonholing, cautery of flap, application of tincture of opium to toughen the flap, use of Roemer's antipneumococcus serum, etc.

The reports of cases published since the appearance of Gifford's article are those of Cramer, Herzau, Stock (second report), Bachstez, Herbert, Constantinesco and Pooley.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CALHOUN, PARKER, BROWN AND POSEY

Dr. Hiram Woods, Baltimore: Modern medicine has put heredity into the background as the cause of disease. Numerous eye troubles show a greater or less tendency to run in families. Lattice-shaped keratitis, various lens troubles, certain forms of retinal and nerve disease, choroidal degeneration, myopia, all show hereditary tendency. Of some of these troubles, essentially degenerative, we know nothing concerning the exciting causes. Others are called into activity through something definite—infectious or otherwise—effective because of lessened tissue resistance. I have never made such observation as was narrated by Dr. Calhoun; but in two cases of glaucoma in young people, both more or less of the chronic type, there were unusual features, just as there are in Dr. Calhoun's cases. Circulatory or nerve disturbances, undiscoverable by ordinary means of diagnosis, had probably been at work before the period of hypertension. In Cases 2, 4 and 6 the essayist says the anterior chamber was "deep"; in Case 3 "very deep." Is there any significance in this symptom-complex—hypertension, deep anterior chamber and sluggish pupil? It leads me to suspect something else than glaucoma dependent on defective filtration; in other words, an indolent uveitis, with serous exudate and secondary hypertension. The mother in Case 2 had had pneumonia. Patients 3 and 5, both her children, developed tuberculosis after glaucoma symptoms. Do we know how old this infection was; how it had affected ocular nutrition; how nutritive disturbance might have brought about glaucoma symptoms? The same reasoning is applicable to the malaria from which most of them suffered. In other words, such cases take us beyond eye symptoms. We meet a problem which is becoming more and more absorbing—the biologic or biochemic factor in eye health. Heredity fixes only the tendency. Something else does the rest. Glaucoma is but a symptom, its essential being increased tension. As Fuchs explains, this depends on the relation of fluid formation to outflow. The chief anatomic changes are in the uvea. Engorgement of its vessels may exist a long time and escape detection. When it reaches a certain point, increased tension appears in an eye with a glaucomatous tendency. This may be due to inherited anatomic peculiarities. So we are forced back to defective filtration—the characteristic symptoms of which, except hypertension, were absent—or to the causes of uveal hyperemia. Inherited syphilis, infections, anomalies of metabolism, probably reflex nerve influence through the autonomic system—these are some of the things which can produce uveal circulatory disturbances, manifesting themselves all the way from functional derangement to glaucoma. We shall not understand such interesting observations until we know more about the nutritive effects of systemic exciting causes, not alone in the presence of degenerative, inflammatory or glaucomatous symptoms, but in functional anomalies as well. When there exists a family tendency, whatever its nature, this study becomes mandatory before the eye disease appears and should consist of careful search for, and, so far as possible, protection against anything known to affect eye health.

Dr. John E. Weeks, New York: In determining the value of any operative procedure the careful analysis of cases with operation is essential until a very large number of cases has been so observed. Hence, we are much indebted to Dr. Parker for the compilation of the cases in which operation was done by Colonel Elliot while in this country, and the report of his own cases. With regard to the form of glaucoma for which this operation is adapted, the statistics of results by Elliott, Meller, Parker and others, indicate that the subacute and chronic forms in which simple iridectomy is least effective, are those more favorably affected by the Elliot procedure. In acute glaucoma, iridectomy, preferably performed after partial subsidence of the acute stage under the influence of miotics, laxatives and the salicylates, in the cases which can be influenced by these agents, is easier, is sufficient, and the subsequent condition does not admit of late infection. While it is applicable in some forms of secondary glaucoma, in hemorrhagic glaucoma and in buphthalmos the cases should be carefully selected. I am of the opinion that the 1 mm. trephine is too small, as it does not permit of the ready removal of iris tissue and of parts of the trephined disk that may remain. The 2 mm. trephine makes an opening that is often too large, permitting the prolapse of too much iris tissue, and not infrequently the prolapse of the anterior portion of the proximal part of the ciliary body and occasional subluxation of the lens into the opening. In my experience the 1.5 mm. trephine affords the best size opening for the majority of cases. Of course the size must be varied somewhat to suit the individual case.

While it is Colonel Elliot's custom to restore the flap without suture, my experience has been in favor of the use of the suture. In two or three cases the flap without suture has become bunched above the wound and has occasioned some discomfort to the patient. While the technic of the operation is not particularly difficult, in my hands iridectomy and the Lagrange operation are easier and the complications at the time of operation not more numerous. Of the subsequent complications that arise, iritis, hemorrhage, detachment of choroid, luxation of tissue into the wound, return of tension and late infection are the principal ones. Iritis, in my personal experience, has been very infrequent. I have employed the operation in approximately thirty cases. I have had iritis in three only and it was severe in but one. All who have studied the available statistics are aware of the fact that iritis is less frequent when the coloboma is complete.

Dr. Frederick E. Cheney: While a certain number of men have probably long appreciated the value of miotics in the treatment of glaucoma simplex, I think it safe to say that previous to Dr. Posey's first paper on this subject the attitude of the majority was one of considerable doubt and skepticism. Miotics, to be sure, were pretty generally used, but in a half-hearted "we must do something" fashion and the results were not as a rule satisfactory. Dr. Posey's carefully recorded cases most impressively emphasize the fact that surprisingly good results are often to be obtained if this treatment is intelligently and systematically used, day in and day out to the end of life. I fully agree with Dr. Posey as to the importance of "beginning in doses small enough to avoid creating a spasm of the ciliary muscle," though it is only exceptionally that I find it necessary to use a weaker solution of pilocarpin nitrate than 0.5 per cent. The fact must not be lost sight of, however, that, in exceptional cases, miotics tend to aggravate rather than control the disease, and it is therefore well to keep the case under careful observation until we have determined the dose that can be used without causing ciliary irritation. Another point made prominent in a certain number of Dr. Posey's cases is the value of treatment for eyes in which the disease has not become manifest. It cannot be too strongly insisted on that when a patient presents himself with glaucoma simplex in one eye and the other eye is free from the disease, the well eye should be as systematically treated and kept under as careful observation as though the disease already existed. In reply to Dr. Posey's question: In view of such favorable statistics from the use of miotics, when the risk and complication attending all operations on the eye are considered . . . is operation ever justified when both central and peripheral vision are normal without trial of what miotics can do? I must admit that in certain cases I am still favorably inclined to operation or at times operation plus miotics. The age of a patient is, it seems to me, one of the most important factors to be considered in this connection. In many cases beyond the sixtieth year we feel fairly confident that useful vision can be retained under miotic treatment until the end of life. If the patient is between 40 and 50, however, there is the probability of a much longer life, and other conditions being favorable, I am inclined to advise operation.

Dr. W. E. Gamble, Chicago: Colonel Elliot operated on seven eyes for me before the clinical congress last year. While I have no final report to make on the results, I feel that through courtesy to him I should make some sort of a statement at this time. Two of these cases were subacute. In the first case tension has remained normal since operation; the tension in the second case is and has been for some months 12 to 14 mm. These readings were, however, not made under an anesthetic. Finger palpation showed that the tension was below normal. I am uneasy about the final outcome of this case. The vision and fields remain the same as before the operation. Of the five cases of glaucoma simplex, one was complicated by trachoma. The conjunctival flap became very edematous, necessitating a stitch, which was made by my colleague, J. Brown Loring; however, no infection followed. There were no complications whatever in the other cases.

I wish to speak of one case in particular, a case of myopia complicated by glaucoma simplex in both eyes, the right eye having become blind from glaucoma. The case has been under observation since 1911. Miotics were used continuously, the tension gradually increasing up to the time of the operation. Dr. Elliot trephined with iridectomy. Tension has remained normal since the operation, so that I feel extremely grateful to him for the result. I am sure an iridectomy without the trephining would have been of no avail. I trephined an eye with acute glaucoma in which a large bleb formed. Two weeks later the tension went up and pain returned. The eye was massaged in the region of the bleb and I was gratified next day to find the tension down and pain relieved. I mention this, as in some of these cases adhesions about the filtrating area may be the cause of the increased tension, which may be broken up as indicated above.

Dr. Walter L. Pyle, Philadelphia: Before accepting the conclusions relative to any series of cases of glaucoma, I should, first of all, want a careful study of the clinical history in each case with a detailed description of the methods of diagnosis employed. It must be remembered that increased intra-ocular tension is not the only factor in glaucoma; and in some types it is of such little importance as to be negligible. Von Graefe and his successors did not advance operative means as curative or corrective in all cases now included under the generic name of "glaucoma." Primarily, iridectomy was recommended in cases of acute glaucoma and acute exacerbations of chronic glaucoma; and at present, it is an established fact that only in such cases may satisfactory results from operative procedures be expected. In many cases of so-called "chronic simple glaucoma," the main pathologic change is an advancing sclerosis of the optic nerve; and a study of the intra-ocular tension is of small importance beside that of the visual fields for form and color, the visual acuity and the ophthalmoscopic picture. The physical changes in the anterior chamber may be almost excluded as a causative factor; and for etiology, we must look to the biochemic changes that are commonly associated with arteriosclerosis elsewhere in the body. Of course, in such cases, operation is useless and often harmful. Reliance must be made on hygienic, physical and medicinal measures, both local and general. For the last fifteen years, I have found myself subconsciously dividing the cases of suspected chronic glaucoma under my observation into two general classes: (1) those cases in which palpation of the eyeball does not noticeably cause decrease of intra-ocular tension; (2) those cases in which, even during the brief testing of intra-ocular tension, the sentient finger-tips undoubtedly elicit decreasing tension. Since the general employment of the tonometer, this classification is confirmed. In the second class of cases, even the sustained pressure of the tonometer alone will show a gradual decrease from the initial record of intra-ocular tension. In the first class the register of intra-ocular tension does not appreciably vary with the time that the tonometer is left on the eyeball.

Dr. John Green, Jr., St. Louis: A description of two unusual features presented by one of my patients operated on by Colonel Elliot may be of interest. Miss A. A., aged 40, glaucoma simplex, both eyes. Right eye vision 6/12, moderately contracted field with broad annular scotoma; central field not extending more than 10 degrees in any meridian. Scleral ectasia 3 by 6 mm. and 2 mm. high, 8 mm. up and out from corneal margin. Tension 40 mm. Hg, left eye, blind, large scleral ectasia up and out. Tension 70 mm. Hg, right eye trephined, without iridectomy (iris failed to prolapse). About the end of the first week the iris assumed a peculiar greenish-brown hue comparable to the tint of an iron-stained iris. No visible hemorrhage. The iris slowly regained its normal color and at the end of six weeks was of the same tint as the iris in the other eye. I presume the discoloration is to be accounted for by staining from a minute-deep hemorrhage. The second point of interest is that the scleral ectasia gradually flattened and eventually disappeared. Six months after operation vision 6/16, tension 15 mm. Hg.

Dr. Lucien Howe, Buffalo: Dr. Calhoun referred to the family which I reported several years ago. I have since seen other members of the family and it has been charted down to date, with five members of the fourth generation. A family like that may seem at first to be unique. In looking into the literature I found that Love of St. Louis has tabulated these cases. On looking up his cases I was much interested to see the importance of the subject, which accords with the importance of the general subject heredity as it has developed during the last five years. I think there were eight cases in the series of glaucoma pigmentosa, which is a most remarkable condition. Those having their etiology in the condition of the muscles were very interesting. One was a nystagmus. Especially important is the sex tendency. We know that color-blindness is not only hereditary, but also goes down the male line, being frequently most marked in the first male child. The cases reported by Norris I think are the same as those of Leber, but in them also there is that same tendency to sex selection which was recently mentioned by Dr. Davenport. The study of heredity in connection with eye diseases is one direction in which ophthalmology is to advance.

Dr. G. E. de Schweinitz, Philadelphia: My experience with the Elliot operation comprises about thirty operations for absolute glaucoma secondary to intra-ocular hemorrhage; glaucoma after extraction of cataract; in association with swelling of a cataractous lens; acute; ordinary chronic; subacute or chronic congestive; associated with corneal lesions, for example, staphyloma and absolute glaucoma. The technic of Elliot was exactly followed and the Stephenson trephine was used, except in one case in which the von Hippel instrument was used. I have never observed extensive hemorrhage into the anterior chamber nor purulent infection in my own cases, but have seen an infection a month or six weeks after an operation by another surgeon. Iritis occurs with irritating frequency (Colonel Elliot admits this) either in the form of a quiet iritis, with the gradual development of soft synechia, or as a sharp, ordinary plastic iritis arising at longer or shorter intervals after the operation. The cause of quiet iritis is not known: it may be due to some toxic property which the aqueous humor begets; evidently the later iritis is due to filtration of contaminated conjunctival fluid. Unless the pupil is dilated, as advised by Elliot, mydriatics should be used early. He advised atropin. I prefer scopolamin or homatropin. I am unconvinced that corneoscleral trephining is a better operation in acute primary glaucoma than a technically correct iridectomy; it is superior to the usual iridectomy in chronic non-inflammatory glaucoma, and if iridectomy fails in this disease is better than an additional iridectomy; it appears to be safer in chronic glaucoma with greatly contracted visual field than iridectomy; it is not a wise operation in glaucoma complicated with cataract, but should be thought of in glaucoma secondary to cataract extraction; it is a proper operation in absolute glaucoma but success cannot be promised; it may be repeated in the hope of preventing enucleation; it is not satisfactory in glaucoma due to thrombosis of the central vein of the retina and blindness as the result of this form; it may be tried in staphyloma with secondary glaucoma, but the outlook is not brilliant. Not alone reduction of tension, but the preservation and the restoration and the improvement of visual acuteness and the widening of the field of vision should be given prominen place as standards in the estimation of the efficiency of the operation. The danger of prolonged hypotony must be considered.

Dr. Melville Black, Denver: My personal experience with the forms of glaucoma of the inflammatory type have led me to be a firm supporter of this operation. I have been doing it for the last three years, and I have had no failures. I am more than pleased with it from every possible point of view. During this time I have seen very few cases of glaucoma simplex, and these have been handled entirely by miotics. I use the von Hippel trephine exclusively. It seems to me to be much safer than any instrument that can be devised. It is quick, accurate, and in my hands most satisfactory.

Dr. M. H. Lebensohn, Chicago: My personal experience with scleral trephining is undoubtedly much better than with simple iridectomy, although I have to report one case of detachment of the choroid which occurred in my own practice, and one case that was reported to me by Dr. E. V. L. Brown of Chicago. To my mind the scleral trephining is the safer operation with less likelihood of injuring the lens than by iridectomy. Colonel Elliot, when in Chicago, insisted that it is not necessary to do an iridectomy. It should be done only when there is prolapse of the iris. In every case in which you do a peripheral, or a technically correct iridectomy, as Dr. de Schweinitz says, you will be successful. I exhibited before the Chicago Ophthalmological Society a man on whom I had operated for cataract with excellent results following the extraction. A few weeks later he developed glaucoma which ran on for four months. The tension was finally reduced to 52 mm. Scleral trephining with iridectomy brought the tension down to 42, which was normal in his eye. Ten days later he had detachment of the choroid, but recovered from it, and his vision, which was 20/15 after the extraction, has remained the same. In from twelve to fifteen cases the results have been good, except in one case of buphthalmus in a child. In one eye the tension came down after scleral trephining, and went up two months later. This is the only case in which the tension did not stay down to normal. I have had these cases under observation for from six months to a year. Every case of postoperative glaucoma was combined with a broad iridectomy. An iridectomy of two-fifths or half the circumference may be done and still the tension may remain high; but my opinion is that scleral trephining is the operation of choice, in the postoperative cases undoubtedly, and in most cases.

Dr. W. Gordon M. Byers, Montreal: I have not tabulated the cases, but I can say that we have operated at the Royal Victoria Hospital at Montreal during the last three years on some fifty-three patients by Colonel Elliot's method, and the statistics go to show that our results are essentially in agreement with those tabulated by Dr. Parker. We have had no case of late infection, although I think, through one of our assistants who has followed all the cases carefully and also by our close surgeon, we have cognizance of all the results up to date. One practical point in connection with this, a minor point, which may happen to operators, is the tearing out of the flap. I have not heard anyone speak of that today. In the two instances in which I have seen that occur it has been due to the common practice of knotting the suture. I think, as a suggestion, that if the needle is simply threaded and put through this accident is not likely to occur. I prefer to replace the flap and let it go without any threading.

Dr. Allen Greenwood, Boston: When first trying Colonel Elliott's operation the suggestion was followed that if the conjunctiva only was separated without lifting up the subconjunctival tissue a more permanent opening was likely to result, it being thought that if the subconjunctival tissue was incorporated with the conjunctival flap it was likely to fill the opening with new connective tissue and thus prevent filtration. Last February one of my patients, who had had a double trephining the previous October, developed an attack of acute conjunctivitis followed by a panophthalmitis in the poorer eye. In other words, one of the cases of late infection came to me, but fortunately the other eye is still good. This patient had a thin, watery-looking bleb over the sclerocorneal opening, and since the disturbing occurrence mentioned I have tried to incorporate in the conjunctival flap all the subconjunctival tissue possible and separating the layers of the sclerocorneal corona fairly deeply; preferring to run the risk of a second trephining in a few years rather than the risk of a disastrous late infection which in my opinion is much increased by a very thin conjunctival covering. Lately I am advising my patients to use a weak zinc solution daily to help prevent late infection. I was very glad to see Dr. Parker's table as to the results of the complete iridectomy which for the past year I have urged on my students and those associated with me. Dr. Standish at a meeting of the New England Ophthalmological Society also strongly urged a complete iridectomy. I am positive, as Dr Parker's statistics show, that complete iridectomy is the thing to do. It can be performed easily through a 1.5 mm. opening. I have used that in all cases but one, in which I used a 2 mm. opening. With regard to glaucoma secondary to complete thrombosis of the vein, I reiterate what I said at a former meeting, that in my opinion any operative procedure is contra-indicated.

Dr. E. C. Ellett, Memphis: I would like to refer briefly to the demonstration so widely made by Colonel Elliot to show that actual filtration was going on in operated eyes. By pressing on the eye with a probe just above the sclerocorneal junction a pitting could be observed. As a matter of fact, every eye, glaucomatous or non-glaucomatous, operated or not operated on, will pit there in exactly the same manner. I have spoken of this matter to a number of men of keen observation who have thought I was mistaken. I am encouraged to make this statement by the fact that some one has just told me he had tried this on 300 consecutive cases, regardless of what was the matter, and the pitting was observed in every one.

Dr. L. Webster Fox, Philadelphia: I wish to confirm the opinion of Dr. Posey that miotics are of great value in the preliminary stages of glaucoma, but I have found whenever the fields of vision are contracting and the tension is increasing it is time to discuss operative measures with your patient. That may be in three months or three years. We all have had cases that continued over a long period of time, eventuating in blindness if only miotics are used. There is a certain physical condition that enters into this eye-tension that shows itself through the system, whether auto-intoxication or arteriosclerosis, it is impossible to say; but the determination of that condition is evidenced by highly increased tension and contraction of the field of vision. As regards corneoscleral trephining for glaucoma, Colonel Elliot's operation is going to save the eyes of many people. Is his operation to be followed by the majority of operators? I followed him, saw his work in England, and traveled with him to Washington and Baltimore, and in my own clinic, I saw thirty operations performed by him, and it is a difficult operation.

Great success has undoubtedly followed the performance of the various newer operations for chronic glaucoma, but none of them has given me greater satisfaction than the Elliot trephining of the sclera. As already stated, Colonel Elliot makes the basis of his triangular flap at the sclerocorneal margin, but now I have reversed this practice, and as in the Van Lint sliding-flap operation for cataract, I seize with the forceps the conjunctiva on the inner side of the right cornea, about 4 mm. below its summit, and dissect it around the upper corneal margin of the outer side; then with scissors I detach the conjunctiva from 12 to 14 mm. upward. A suture is next inserted in the loosened conjunctiva at the lowest point of the inner side. From this point I make a perpendicular incision of 4 mm. through the conjunctiva, which is continued diagonally upward and outward to a similar distance. When operating on the left eye I begin the dissection of the flap on the outer side of the cornea and make similar perpendicular and diagonal incisions upward and inward. When completed the flap is drawn over to its attached side on the eyeball, leaving a space for the trephining along the upper sclerocorneal margin.

After the trephining the conjunctival flap is replaced and by means of the suture already inserted, it is drawn downward to cover the hole in the sclera and the upper part of the cornea. From time to time I have modified the treatment of the conjunctival flap, at one time stitching it down on one side and removing the thread at the end of twenty-four hours; at another, simply loosening the conjunctiva over the corneoscleral opening and allowing it to heal, then again carrying out Van Lint's sliding flap, that is, stitching the conjunctiva on both sides of the cornea.

Dr. W. E. Lambert, New York: My experience with regard to these operations entirely coincides with the views expressed by Dr. de Schweinitz. I employed the Elliot operation under protest in one case only of acute glaucoma, as I still prefer an iridectomy in acute cases. A physician had lost one eye, and had had repeated attacks of glaucoma in the other, controlled previously by miotics. Finally these attacks occurred so frequently and the condition became so serious that an operation seemed to be demanded. After consultation I advised iridectomy or a Lagrange operation. He, however, insisted on the Elliot operation, and it was done with a perfectly satisfactory result. His vision had been reduced to 20/100. He recovered 20/30 vision, and the tension has never increased since the operation five or six months ago. Two cases of hereditary glaucoma, which are not of particular interest as hereditary cases, as they were of the second generation, have a decided interest as bearing on the paper of Dr. Posey. The first was in a young man aged 25, first seen two years ago. Vision in each eye then, 20/20, with unmistakable evidences of chronic simple glaucoma—increased tension, contracted fields, deep cupping—and an operation was decided on. A Lagrange operation was done on the poor eye, and was particularly satisfactory. The vision and tension remained normal during some weeks of observation, miotics being used in the eye not operated on. The patient disappeared. Two months ago he reappeared, with the story that he had continued the drops in his eye more or less frequently. Vision in the operated eye had commenced to fail six months previously and gradually became worse. When I saw him it was 20/100. The other eye had remained the same as two years ago. In the eye operated on, the tension had increased to 50 and I did the Elliot trephining operation. The vision, however, has not improved. The other case was one of hereditary glaucoma in a woman aged 25. The fields were normal, or slightly contracted. Operation was advised, but was not accepted. The patient has been kept on miotics and vision in both eyes has remained practically the same during the past year.

Dr. F. Phinizy Calhoun, Atlanta, Ga.: I am glad to have Dr. Woods correct the misstatement made in the paper with regard to the depth of the anterior chambers. I meant to leave the impression that the anterior chambers were not shallow. They were quite deep. Dr. Howe's case seen recently in the fifth generation is the only case that goes beyond four generations in glaucoma simplex.

Dr. Walter R. Parker, Detroit: Case 27, the last reported in my paper, was one of glaucoma simplex and had been under miotics for three years, but in spite of their use the process had continued and I did a trephining operation last November. The vision before operation was 6/9, with correction. The operation seemed to me to be technically correct. The chamber remained open nineteen days. In spite of atropin used after the third day the pupillary space filled up with exudate and vision was reduced to objects. The patient was subject to mild exacerbations. In February I did a deep iridectomy on the other eye. Vision in the iridectomized eye has remained and the process has apparently stopped. In connection with Dr. Posey's paper I wish to report one case without operation under observation for twelve years. Twelve years ago the patient had a simple chronic glaucoma. I advised the use of miotics and after two years' time, the fields being more contracted, I advised an iridectomy, which was refused. She has used miotics faithfully all these years and although the field is somewhat more contracted she has a control vision of 6/6 and the eye seems to be in good condition. Miotics should not be used except in cases which can be kept under close observation. The danger is that they may be used for so long a time as to lose the best opportunity for surgical interference. In view of the good effects occasionally gained from miotics, the difficulty of doing complete iridectomy through a trephine opening, the many good results from iridectomy and the fewer cases of iritis following in the cases in which the iridectomy is complete, it seems to me a fair deduction would be as follows: 1. Use miotics as long as the field is kept under control. 2. Following this a deep iridectomy, the earlier the better after miotics have failed. Continue the miotics after iridectomy. If this fail, then do a sclerocorneal trephining operation over the site of the coloboma. I believe that Colonel Elliot has made a valuable contribution to the treatment of glaucoma in his sclerocorneal trephining operation.

Dr. E. V. L. Brown, Chicago: I would like to refer to Dr. Cheney's case with tension of only 22 mm., and yet a glaucomatous state. The one I have just reported with late infection is also of this type, but you will note that physostigmin lowered the tension to 10 mm., and since it is known that physostigmin never lowers normal tension, it must follow that 20 mm. is for this eye a pathologic tension. I would assume that a low-grade iridocyclitis had preceded and left the eye with a tension of 10; that when obstruction of outflow occurred, with a rise to 20 mm. I think many cases of so-called primary glaucoma are in reality secondary. Has Dr. Posey definite data showing how long it takes tension of say 20 to 30, 30 to 40, or 40 to 50 mm. to develop a definite glaucomatous cup and to narrow the field and lower the vision? Since he is able to study these cases through long periods the data could be gotten together. If we are going to give up the Elliot or other operations and use only miotics, I think we should get information as to what the effect of a given tension is.

Dr. W. C. Posey, Philadelphia: In this last paper I have not attempted to make a comparison of the results following the use of miotics and those attained by operation. In a paper before the Section in 1908 I showed the results obtained were better than those by iridectomy. My opinion is that we cannot say anything about the trephining operation for four or five years; then we may be able to say that the results are as good as or better than those obtained by a simple excision of the iris. In answer to Dr. Brown, I would be able to give such figures in a few cases, but the cases which I have reported have all been from my private practice and I find I have to be careful how I use the tonometer in this class of cases. Patients beg off from it. It is not easy to get patients to remain under any one form of treatment a long while unless you convince them that unless miotics are used four times a day religiously for the rest of their days they are going to lose their sight. It is after all the vision and the field of vision that we want to conserve; it is not so much the tension that we have to think of, because, as we all know, we may have pronounced glaucomatous symptoms in eyes in which the tension is comparatively low. I feel myself that if one is going to operate, this should be done early. I operate on all my hospital cases for you cannot trust hospital patients to carry out the miotic treatment. I advise an immediate operation of some kind, the earlier the better. If a patient comes to you in advanced years with a small field and you employ miotics the chances are that the patient will see almost as well for the rest of his days. But if you operate by trephining, iridectomy or cyclodialysis, that little field may be wiped out. I advise caution in these desperate cases. Dr. Cheney has asked the question, What are we going to do with a patient of 25 or 30 years with a deep cup and a high tension? These cases are rare, but they do come to us for treatment. Will you ask that patient to use miotics the rest of his or her life? Shall we bore a hole in the sclera, subjecting the eye to danger, or shall we do an iridectomy? I believe the best thing to do in such cases is iridectomy plus miotics.

It is Not Confined to Austria and Germany.—"It has become quite a custom in Austria and Germany for a medical periodical desirous of obtaining advertisements from pharmaceutical firms to offer to produce the necessary medical papers and articles extolling the different possibilities and uses of the remedy under consideration."—London *Pharmaceutical Journal and Pharmacist.*

GRANULOMA ANNULARE

A REPORT OF FIVE CASES *

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Although the credit of having first described this affection is usually, and properly, ascribed to Colcott Fox who, in 1895, reported a case under the name "ringed eruption," the first case to be found in dermatologic literature is probably the one reported by Radcliffe Crocker a year previously as a case of erythematous lupus resembling lichen planus. Crocker soon recognized his error after seeing other cases, and proposed the name "granuloma annulare," by which it is generally known at present among English and American dermatologists.

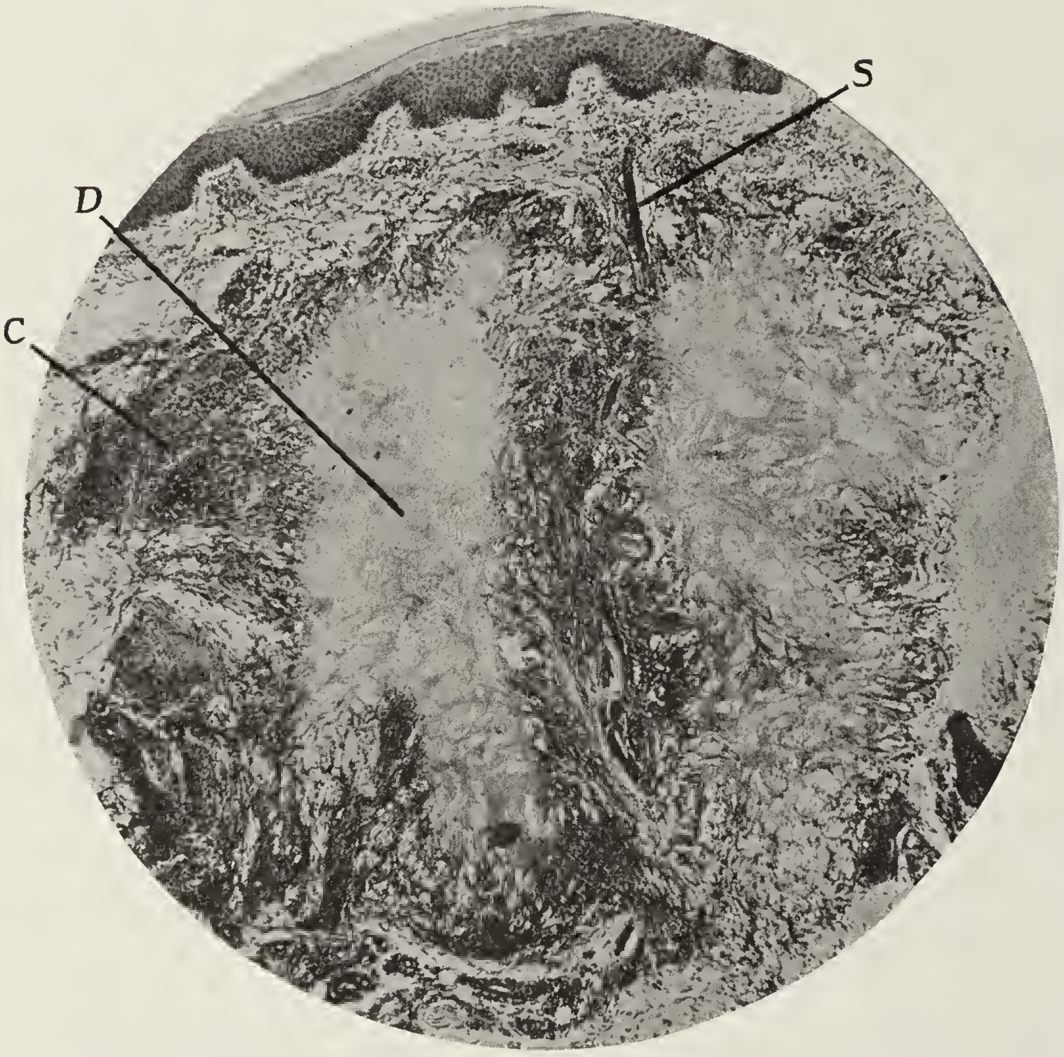

Fig. 1.—Granuloma annulare; section from Case 1; *C*, cell infiltrate; *D*, central area of necrosis; *S*, excretory duct sweat-gland.

Like so many other cutaneous affections, this one has suffered from a veritable plague of names. Ringed eruption, *éruption circinée chronique de la main*, lichen annularis (a most unfortunate name, leading to confusion since it has been already used to describe a variety of lichen planus), sarcoid, benign sarcoid, *néoplasie circinée et nodulaire, érythémato-sclérose du dos des mains, stéréo-phlogose nodulaire et circinée*, helodermia simplex et annularis are some of the names given to the malady by as many authors. The name proposed by Crocker, while not free from criticism, is descriptive, and seems in a fair way to be accepted by the majority of writers.

Although the affection is usually described as rare, Graham Little in an exhaustive paper published in 1908, had collected reports of not less than forty-nine cases, including six of his own, observed by various authors in a period of less than fifteen years; and since the publication of this paper a considerable number of additions to this list have been made by European and American observers. In view of the number of cases now on record, all of them reported within a period of twenty years, it can no longer be properly described as a rare malady. In all probability too, the reported cases by no means represent the frequency of its occurrence since, owing to the usual complete absence of annoying symptoms and the frequent insignificance of the lesions, many cases doubtless never came under the notice of a physician.

Case 1.—The first case which came under my observation occurred in the person of a girl, aged 17, who was brought to me a number of years ago; and I may say at once that it remained for a considerable time among the unclassified cases in my index. On the back of the right hand, and the dorsal surface of the index, middle and little fingers, were a number of shot to pea-sized, firm, whitish nodules, some of them isolated, others arranged in a circular patch. The nodules composing the circular patch which was situated at the base of the index-finger, were arranged about the border of a dime-sized cicatrix which had followed the destruction of a number of the lesions by a caustic of some sort applied by the patient's former medical adviser. The single lesions were the size of a split pea, were scattered about without any particular arrangement, and were situated almost without exception over the joints of the fingers. The disease had existed for two years, new nodules appearing from time to time, usually, but not always, in the neighborhood of the old ones which had been destroyed. Although the condition was not spontaneously painful, the patient complained much of pain if the nodules were pressed on. During the next nine months new lesions, usually single nodules, continued to appear as before, and occasionally one disappeared spontaneously. A considerable number were excised and several were destroyed by a pyrogallol plaster; at the end of another six months the disease had completely disappeared having lasted altogether about three years.

Case 2.—Anna K., aged 14, came to the skin dispensary of University Hospital in November, 1909, for advice concerning a cutaneous affection consisting of circinate patches made up of small firm, whitish nodules situated on the backs of the hands, one patch on each hand. The right-hand patch, situated over the knuckle of the index-finger formed a complete circle to which was attached a curved line about half an inch long, made up of discrete and confluent nodules; the patch on the left hand was semicircular, and was situated over the knuckle of the middle finger. The disease was not accompanied by any annoying symptoms, and had lasted about one year. After five Roentgen-ray exposures of from five to seven minutes' duration, the patch on the right hand had completely disappeared, and a similar result followed four exposures of the left-hand patch.

Case 3.—May L., aged 3, also a patient in the University Skin Dispensary, had six or eight finger-nail-sized annular patches composed of small, solid, pinkish nodules, scattered over the arms, abdomen and legs. These patches, some of which showed signs of involution, had been present for two years. The child was apparently in perfect health, and was in no way incommoded by the affection. Special inquiry was made concerning the presence of tuberculosis in any member, near or remote, of the patient's family, but the history was entirely negative in this respect. After a few visits to the dispensary the child was lost sight of, and the further history of the case is unknown.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Case 4.—Miss B., aged 24, who was referred to me by her family physician, for two years had had a number of dime to dollar-sized nodular, ring-shaped patches situated on the back of the left hand, the flexor surface of the left wrist, both elbows and the outer side of the left ankle. All these patches, with the exception of the one on the left elbow, were made up of small bright-red, quite solid, well-defined nodules; but the nodules in the patch on the left elbow were of a dull violaceous hue, quite deep-seated, much less well defined than those in the other patches, and quite as large as small peas. Although the eruption was not accompanied by any troublesome symptoms, the patient was greatly annoyed by its presence and was extremely anxious to have it removed. After a year of somewhat indifferent treatment under her family physician but little change had taken place except that the patch on the left elbow had lost its violaceous color, being almost the color of the normal skin, and the nodules composing it were much more sharply defined than formerly. Roentgen-ray treatment was now begun, and after six or eight exposures the patch on the back of the hand had almost completely disappeared and the one on the elbow was undergoing involution. As it was extremely inconvenient for the patient to continue under my care owing to the distance at which she lived from Philadelphia, she was transferred to a physician nearer her home who was to continue the treatment. What the final result of the treatment was I have not learned.

Case 5.—In all the preceding cases the annular disposition of the nodules making up the patches was one of the most striking clinical features, although there were single nodules as well as rings in the first case. In this case, which occurred in a boy aged 6, a patient in the University Skin Dispensary, there were neither rings nor nodules, but flat, irregularly shaped and oval, pinkish plaques varying in size from a finger-nail to a Lima bean, situated on the back of the neck, the back of the hand and on the outer side of the right leg. These plaques, which were unaccompanied by any subjective sensations, had appeared rather suddenly about six weeks before the patient's visit to the dispensary. A diagnosis of erythema elevatum diutinum was made, as the case corresponded closely in its clinical features with the disease described by Crocker under that name; but the microscopic examination of an excised lesion at once made it apparent that the affection was histologically at least, identical with granuloma annulare, and it is for this reason included here. As the patient ceased attendance at the dispensary after two or three visits, the further course of the case is unknown.

Microscopic examination of several of the discrete nodules and a portion of the annular patch removed from the hand of the first case showed that the pathologic alterations were confined exclusively to the corium. Beginning in the subpapillary portion and extending down to the hypoderm was a moderately dense, fairly well-circumscribed cellular exudate composed chiefly of lymphocytes and spindle-cells of the connective-tissue type with a few polymorphonuclears and some large epithelioid cells. The exudate was densest about the vessels and the coil-glands and their ducts, the cells being especially numerous in the latter situation. Neither giant- nor plasma-cells were seen in any of the many sections examined. The most striking feature, however, was an area of necrosis occupying the central part of the exudate from which all traces of cell-elements had disappeared, and about which were numerous oval and spindle-cells arranged in radiating lines. This necrotic area was present in every section of every lesion examined, the area involved being apparently in proportion to the age of the lesion, since in lesions a few weeks old it was quite small. The elastic and collagenous tissues were apparently but little affected except in the areas of necrosis where the former had entirely disappeared and the fibers of the latter had lost their sharpness of outline, were granular in places, and stained poorly.

As already mentioned, sections were also made and examined of the plaque on the back of the hand of the case in which a clinical diagnosis of erythema elevatum diutinum had been made. The most cursory examination of these sections showed that the histologic features of the lesion were practically the same as those observed in the ringed lesions of the first case: there was the same perivascular and periglandular cellular exudate composed of round cells and spindle-cells, and the same central area of necrosis, although this was much less in extent than in the sections made from the first case, owing doubtless to the much shorter duration of the lesion, which was only a few weeks old. There was one notable difference, however, and that was the presence of many small mast-cells, a variety of cell not seen at all in the first case.

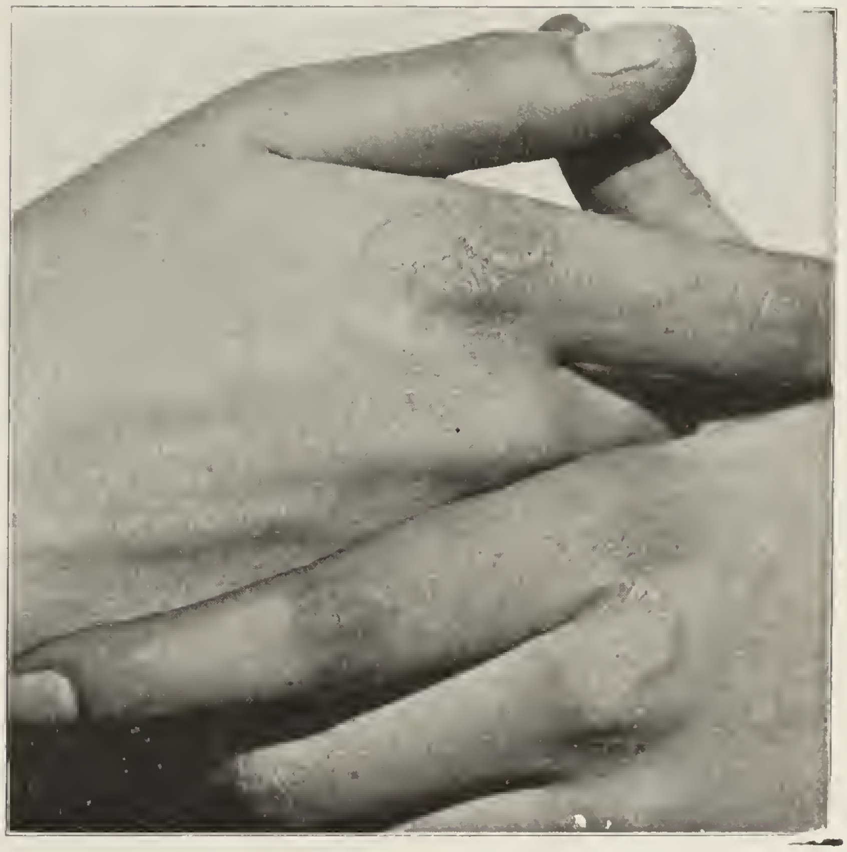
Fig. 2.—Granuloma annulare in Case 2.

A few words as to the relationship of this very interesting neoplasm to other affections.

The case reported by Rasch and Gregersen, in 1909, was regarded by them as a new type of sarcoid tumor; and Galewsky likewise described the case which he reported in the third fasciculus of the Ikonographia Dermatologica with an excellent colored portrait, as benign sarcoid tumor of the skin. Later observers, however, are practically in accord in rejecting this view of the character of the affection; indeed, its histopathology leaves but little doubt that it is in no way related to the malady described by Boeck as sarcoid.

Graham Little, to whose exhaustive study of the malady I have already referred, is strongly of the opinion that it is in some way closely related to tuberculosis, but the evidence which he presents in support of this opinion is far from conclusive; indeed, it seems to me quite the contrary. In only four of the forty-nine cases, reports of which were collected by this author — or in five out of fifty if we include a case presented later at a meeting of the Dermatological Section of the Royal Medical Society — was there a history of tuberculosis in the patient's family, and in but a single instance did the patient himself present signs of tuberculosis.

The observations of Wende, Graham Little and my own more recent study have quite convinced me that the so-called erythema elevatum diutinum of Crocker is simply a clinical variety of granuloma annulare; histologically, there is no essential difference between the two affections.

As to the essential nature of this curious malady, little or nothing definite is known. The objection which has been made to the name "granuloma annulare" that it is not a granuloma, is apparently supported by its histopathology, which is much more that of a connective-tissue neoplasm than of a granuloma. Some observers, it is true, have found plasma and giant-cells, usually in very small numbers, but this finding is decidedly the exception rather than the rule. Halle thinks it a chronic inflammation of the middle and deep portions of the corium, while Dalla Favera believes it dependent wholly and alone on the blood-vessels; none of these views, however, explain in the least the peculiarities of the neoplasm. My own belief is that it is an affection *sui generis*, not related, so far as our present imperfect knowledge permits us to form an opinion, to any other. As to its etiology we cannot furnish even a reasonable conjecture.

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ABSTRACT OF DISCUSSION

Dr. Charles J. White, Boston: One case of granuloma annulare which I had the pleasure of studying proved rebellious to many sorts of medication, but yielded to the Roentgen-ray treatment, unfortunately, however, only to recur in a few weeks.

Dr. A. Ravogli, Cincinnati: I have never seen a case of typical granuloma annulare in this country. I can recall a few cases in Italy; in those the lesions were typical, being limited to the hands and the fingers, in form of rings, near the joints, and giving rise to no itching nor other discomfort. I am inclined to regard this eruption as a localized lichen planus rather than to associate it with lupus erythematosus, tuberculosis or sarcoid. It is exceedingly stubborn, and I know of no remedy that will permanently relieve it. The Roentgen ray may hide it for a time, but there are cases in which it may aggravate the trouble.

Dr. Frank E. Simpson, Chicago: I have seen one case of this affection with Dr. Joseph Zeisler, which disappeared, apparently permanently, under the use of carbon dioxid snow.

Dr. Frank W. Gregor, Indianapolis: Before listening to Dr. Hartzell's paper, I had almost come to the conclusion that granuloma annulare was not a dermatologic entity. Of two cases I can recall that were regarded as examples of this affection, one proved to be a case of syphilis; the other a case of lichen ruber planus in which I was subsequently able to demonstrate the typical lesions of that disease on the buccal mucous membrane.

Dr. Richard L. Sutton, Kansas City: I have under my care a case of granuloma annulare in a girl, 2½ years old, who instead of improving under Roentgen-ray treatment, grew distinctly worse. I then tried the carbon dioxid snow, without knowing that Dr. Simpson had previously employed it in this affection. The results apparently, were very good, but it is still too early to make any definite statement concerning the final outcome.

Dr. M. B. Hartzell, Philadelphia: Of course, an experience with only two cases does not prove very much. In one the lesions disappeared absolutely and did not return. It should be borne in mind, however, that these lesions sometimes disappear spontaneously, but in this instance it followed so promptly after the use of the Roentgen ray that the patient could but attribute it to the treatment. These lesions show a certain predilection for the neighborhood of the joints. The eruption is most common in children, and occurs most frequently on the hands, particularly about the knuckles. As to its relationship to tuberculosis, I think that is a purely gratuitous assumption which is entirely negatived by the histologic picture. To repeat, I regard it as a disease *sui generis.*

THE PINEAL GLAND IN RELATION TO SOMATIC, SEXUAL AND MENTAL DEVELOPMENT *

CAREY PRATT McCORD, M.D.
DETROIT

From tumors involving the pineal gland, two distinct systems of symptoms and signs ensue, the neurologic and the metabolic. The neurologic manifestations arise from the encroachment of the neoplasm on the intracranial contents and are indications of changes in pressure, in placement and of destruction of tissue. Such changes are the consequence of pineal tumors at any age of the patient; but in pineal tumors appearing in prepuberal life a second group of changes arise, the metabolic. These metabolic alterations are referable to disturbance in the gland's secretory function. Apparently only in young males is this syndrome complete.[1] It consists of (1) early sexual development evidenced in the enlarged sex organs, pubic hair, general body hair, early changes in voice; (2) precocious mental development evidenced in the maturity of thought and speech, and (3) general body overgrowth to the extent that a child of 5 or 6 years may have the appearance of a child of 11 or 12.

A case reported by Machell[2] presents these changes in a striking manner. The patient was a boy less than 6 years old at the time of the publication. At the age of 5 months there was pubic hair, erections at 17 months, emissions at 30 months. The patient's weight was 7½ pounds above normal at 4 months of age, 12 pounds in excess at 8 months, 20 pounds in excess at 3 years. When the patient was 44 months old, his height was 8½ inches above normal for a child of that age. At 48 months the circumference of the head was over 2 inches in excess of normal. The voice was a deep bass. Mental precocity was very marked and the general bearing and language was that of a much older person.

On account of the difficulties attending experimentation on this vestigial organ, the clinical findings with subsequent necropsy records have been the prime factor in the formulation of the prevailing ideas as to this gland's functions. The conception of this gland's function, however, has in part been developed from laboratory studies, notably from the results concomitant to the extirpation of the organ. This has been attempted frequently, but the situation of the gland is such that in the greater number of instances death followed the operative procedure; from hemorrhage or injury to the vermis or the occipital lobes. By operating on a large number of animals some workers have had a few animals survive. No changes attended the removal of the gland by Biedl,[3] Dandy[4] and Exner and Boese,[5] but Foa[6] ablating the gland in chicks and Sarteschi[7] in young rabbits and puppies report the production of the precocious macrogenitosomatic syndrome.

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* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] For review of clinical cases see Bailey, Pearce, and Jelliffe, Smith Ely: Tumors of the Pineal Body, Arch. Int. Med., December, 1911, p. 851. For Physiology and Anatomy, see Vincent Swale: Internal Secretion and Ductless Glands, 1912.

[2] Abstract taken from Medical Chronicle, 1912, lvii, 154.

The publications growing out of these several clinical and laboratory studies have given rise to conceptions of this organ and its functions that may be thus epitomized:

> The pineal body (epiphysis cerebri), probably the remains of a parietal eye, is situated just beneath the splenium of the corpus callosum, resting on the anterior quadrigeminate bodies, and is attached by its base to the habenular commissure. The gland varies in size, shape and pigmentation and does not stand in any proportional relation to the size of the brain or size of the body. The pineal body contains glandular elements, but these are few and not well defined. The greatest postnatal development is in the first years of life, and as far as is known the gland is only functionally active in the prepuberal life. On the assumption that tumors destroy the gland and deprive the body of the substances generated by it, the function of the gland is generally described as retarding and holding in abeyance too rapid development in childhood, of the body, mind and sexual characteristics. When precocity in development appears in conjunction with pineal tumors, it is attributed to lack of glandular secretion.

Below are recorded some findings from experimental work that are entirely in accord with the results obtained by Dana and Berkeley.[8] Contrary to the view that precocious development is due to pineal deficiency (hypopinealism) the same precocity in development has been brought about by the oral administration of pineal gland tissue.

EXPERIMENTAL DATA

The general plan of work entailed in this study has been to feed to very young animals minute quantities of pineal tissue and to record the weight changes, sexual differences, and in the case of dogs increased mentality, over control animals maintained under otherwise identical conditions. One hundred and ten guinea-pigs, eighteen puppies, fourteen adult dogs and sixteen chicks have been under observation.

Fresh pineal glands from cattle have been employed. These were in part from veal, in part from young adults approximating 3 years, and in part from the general run of cattle from the abattoirs. The glands averaged in weight (on weighing sixty glands) 2.14 grains. There were in the many thousand glands making up the several pounds that have been used, marked variations in size, shape and melanopigment. This pigment, which was present in a high percentage of glands, involves chiefly the encapsulating tissue.

For feeding experiments the glands were prepared for permanent use in the following manner: The fresh glands were rinsed free of blood and stripped of adherent tissue. They were ground to a fine paste in the Latapie grinder, and without drying, the paste was admixed with milk-sugar in such quantity that ½ grain milk-sugar represented 10 mg. pineal tissue. The mass was made into ½-grain tablets and quickly dried at room temperature.

Early in the work it was apparent that the more striking results were being obtained from the animals fed with pineal substance from cattle not having reached adult life. Efforts were then made to establish quantitatively the activity and the identity of the various experimental lots of pineal preparations by employing the methods commonly used in testing the activity of endocrinous derivatives. Although certain cardiovascular changes regularly follow the intravenous administration of pineal extracts to dogs, the extent of these changes is not a measure of the activity of the gland as a stimulator of growth.

On the hypothesis that precocious development is due to hypopinealism, the first work was done in anticipation that feeding would retard development and prolong the presexual life. This was begun on two chicks incubated in the laboratory. Beginning at the age of two days one was fed 10 mg. veal pineal tissue, three times weekly, the other (and in all cases of controls) was fed a blank tablet of milk-sugar. The difference in growth should be noted (Table 1).

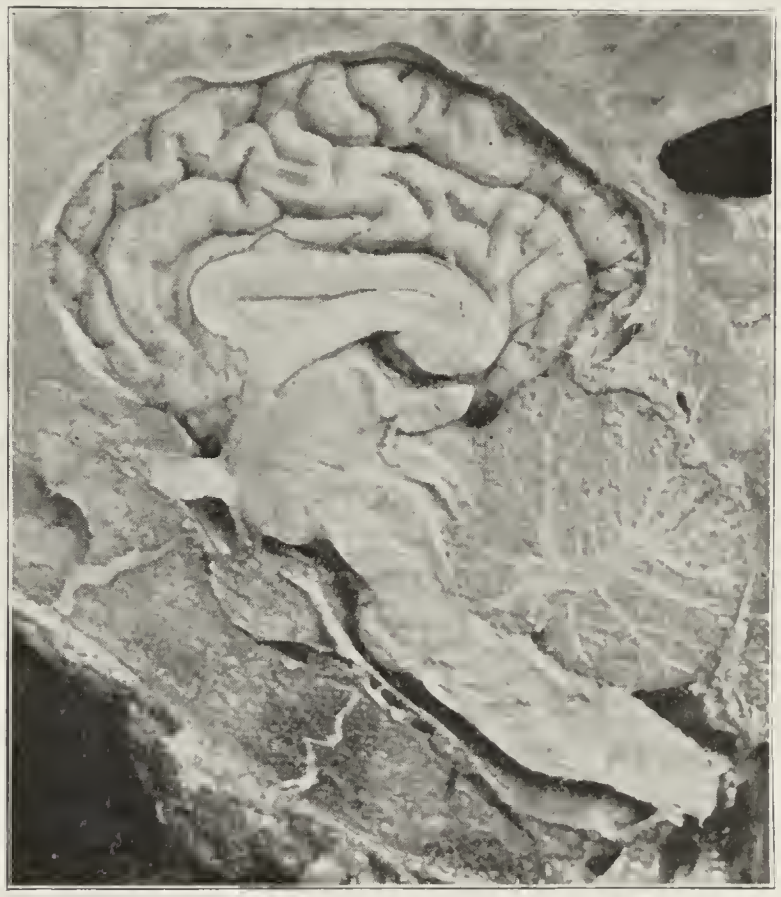

Fig. 1.—Position, relations and relative size of the pineal gland. Taken from beef 3 years of age.

TABLE 1.—RESULTS OF FEEDING PINEAL GLAND TO CHICKS

	Third Week, gm.	Sixth Week, gm.	Ninth Week, gm.	Twelfth Week, gm.
Pineal	219.5	557.7	895	925
Control	92.5	286.5	550	700
Difference	127.0	271.2	345	225

The striking disproportion in size and the marked skeletal overgrowth making the large chick very awkward in his movements, soon made these chicks a laboratory curiosity, but the small number and the different sex did not justify any inference as to the influence of the pineal feeding. The results, however, were so striking that at once work was instituted in a more extensive way.

A lot of fifty guinea-pigs in the second week of life was selected and divided into test and control groups. The test pigs were fed daily 10 mg. veal pineal tissue. The controls were fed a ½-grain milk-sugar tablet.

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3. Biedl: Innere Sekretion, 1910.
4. Dandy, cited by Cushing: Pituitary Gland and Its Disorders, p. 283.
5. Exner and Boese: Deutsch. Ztschr. f. Chir., 1910, cvii, 182.
6. Foa: Arch. Ital. de Biol., 1912, lvii, 233.
7. Sarteschi: Pathologia, 1913, p. 707.
8. Dana and Berkeley: Med. Rec., N. Y., 1913, lxxxiii, 835.

Other conditions for the two lots were identical. The results obtained are given in Table 2.

TABLE 2.—RESULTS OF FEEDING PINEAL GLAND TO YOUNG GUINEA-PIGS

Control, 25 Pigs Average Initial Weight, 201.2 gm. Age, 2 Weeks			Pineal, 25 Pigs Average Initial Weight, 204.3 gm. Age, 2 Weeks		
Weeks	Aver. Wt. gm.	Gain gm.	Weeks	Aver. Wt. gm.	Gain gm.
1	198.7	—2.5	1	213.2	8.9
2	220	21.3	2	236.8	23.6
3	226.8	6.8	3	247.6	10.8
4	251	24.2	4	273.2	25.6
5	265.3	14.3	5	299.9	26.7
6	265.7	0.4	6	311.1	11.2
7	292.2	26.5	7	338	26.9
8	306	13.8	8	361.4	23.4
9	316.3	10.8	9	365.5	4.1
10	356.5	40.3	10	410.8	45.3

	Control	Pineal
Average weight at end of tenth week	356.6 gm.	410.8 gm.
Average initial weight	201.2 gm.	204.3 gm.
Average gain	155.4 gm.	206.5 gm.
Gain, per cent	77.0	100.0

Excess gain of pineals over controls, 23 per cent.

This excess in weight of pineal-fed guinea-pigs over their controls is a symmetrical overgrowth. There is some increased adipose tissue, but this is generally distributed and not localized in any one region of the body. At no time has it been possible to continue this excessive growth above normal adult size. As the animals approach adult size the pineal feeding is less effective and after full maturity is attained is without effect. There has been no tendency to gigantism.

As a step toward determining the metabolic differences, quantitative urinalyses were made on twenty-four-hour composite samples of urine from the two groups.[9] With proper regard for the numerous other factors that might vitiate the results obtained from urinalyses, there is a suggestive difference in the two urines as may be seen in the summary given in Table 3.

TABLE 3.—SUMMARY OF ANALYSIS OF URINES

	Pineal	Control
Total volume collected (24 hours)	187 c.c.	160 c.c.
Specific gravity (15.5 C.)	1.016	1.019
	Per Cent.	Per Cent.
Total solids	2.51	3.02
Water	97.49	96.98
Total mineral matter	1.21	1.37
Total nitrogen	0.628	0.872
Total creatinin	0.018	0.025
Phosphoric acid (as P_2O_5)	0.065	0.043
Calcium	0.016	0.018
Magnesium	0.020	0.018
Alkalinity (as Na_2CO_3)	0.053	0.037

Chicks.—A lot of fourteen chicks was secured at the age of one week. At so early an age sex could not be determined and the lot was divided into test and control groups without knowledge as to grouping by sex. The test chicks were placed on veal pineal tissue for one week with a resultant greater growth than controls. For the next four weeks they were fed pineal tissue from old cattle, without gaining. On being placed on the original veal preparation the test chicks again grew in excess over controls.

Dogs.—The eighteen dogs employed represent four litters. Infection of these puppies with distemper interfered seriously with the weight charts of these animals. So long as infections could be kept out of the animal quarters, the test animals outgrew the controls, but the wasting from infections interfered seriously with average results over prolonged periods. It was in connection with puppies that some differences in intelligence were observed. No great import is attached to these observations, but it was noted that the pineal-fed dogs were about one month ahead of the others in their habits. They were the first to learn to lap milk, the first to respond to a call, the first to be able to find their way back to the kennel. When work on these animals was discontinued, only the pineal-fed animals were in demand as pets, and those choosing them did so without any knowledge as to differences in feeding. Of much more importance as regards increased intelligence are the favorable results reported by Berkeley,[10] who administered pineal tissue to mentally defective children and performed Binet tests as a criterion of mental advancement.

Precocious Sexual Development.—A group of forty-eight guinea-pigs was divided into test and control lots. There was an equal number of males and females in each lot, but the males and females were separated. The test pigs were fed veal pineal tissue in 10 mg. amounts daily. Feeding was begun when the animals were 2 weeks old and continued for nine weeks. The males and females of each group were then placed together in breeding-pens. As a measure of any difference in sexual development it was thought desirable to note the date of birth of young in the two lots. As the end of the approximate gestation period approached, these animals were observed as to the date of giving birth to young. All except two of the pineal-fed pigs gave birth to young before the first of the controls.† Fourteen days elapsed between the birth of young of the first pineal-fed pig and the first control pig. In all cases the young were normal and in no wise different from any other young pigs.

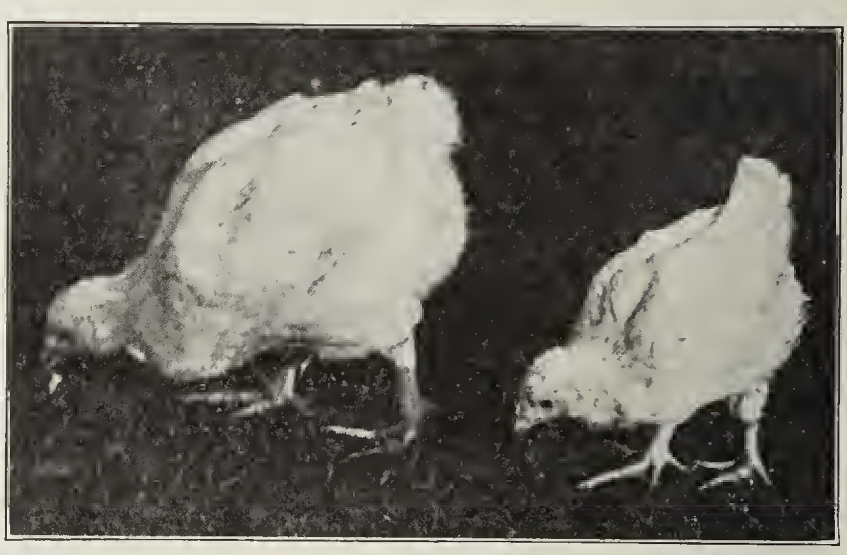

Fig. 2.—Effect on growth of feeding pineal-gland tissue to chicks. The larger chick was fed 10 mg. pineal tissue three times weekly.

COMMENT AND SUMMARY

In the foregoing records of experiments, it may be observed that some of the changes generally attributed to deficiency of pineal secretion may be produced by supplying an added amount of pineal substance. In an effort to reduce to rationality these identical findings derived from two opposing sources, the so-called destructive neoplasms of the pineal gland on the one hand, and the feeding of the gland on the other, there arise two possibilities: First, this syndrome may appear from disrupting the general endocrinous balance from either increasing or decreasing the amount of pineal secretion available for the body's use. These secondary changes in the other endocrinous glands are now in the course of investigation. Second, the cells of the neoplasms involving the pineal gland may retain some of the metabolic and other functional characteristics of the normal pineal cell from which they were derived, and the peculiar body, sexual and mental changes in patients with such tumors are all manifestations of increased rather than decreased pineal activity. One of the most frequently occurring lesions of the pineal is the adenoma, and there is abundant evidence that at times cells of adenoma functionate after the manner of the cells from which they arise. In adenoma of the liver in cases reported by Weber,[11] Rolleston,[12] Wheeler[13] and Ribbert,[14] distinct bile secretion by tumor-cells has been pointed out. Ribbert established that the bile present in such tumors was not the bile of icterus from necrotic liver-tissue by demonstrating that the scirrhous encapsulating tissue was free from bile-stain and that the bile was confined to the liver-like cells of the active tumor. In at least one case, a metastasis in the lung from the liver secreted bile. In this connection it is significant that the functionating glandular cells of typical thyroid structure have been found in thyroid metastases in bone-tissue. Furthermore, in myeloma of the bone-marrow the cytoplasm[15] of the tumor-cells contain the granules that characterize normal myelocytes, that is, the tumor to a certain extent assumes the function of the bone-marrow. All considered, it is perceived that functional activity of tumor-cells is *not* infrequent. Germane to the present contention is the statement by Hinds Howell[16] in describing the characteristics of the cells of the pineal tumors of his three cases. He says:

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[9] I am under obligations to Mr. Lewis Davis for these analyses.

[10] Berkeley: Med. Rec., New York, 1914, lxxxv, 85, 513.

† In a second series of fifty guinea-pigs observed as to sexual differences, the males and females have been kept together from birth. Some of the females to whom pineal gland tissue has been fed have already given birth to young and many others are within the last ten days of gestation. With the exception of one pig, the control animals evince no signs of pregnancy.

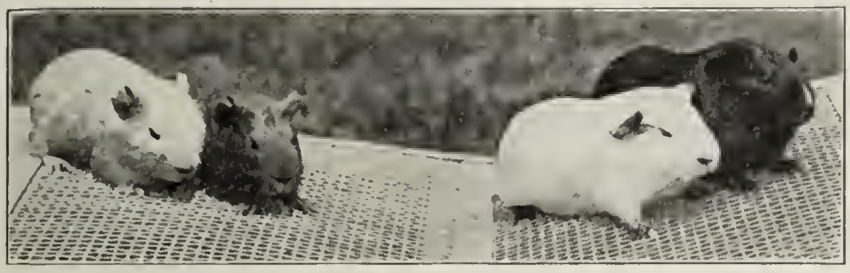

Fig. 3.—Effect on growth of guinea-pigs produced by feeding pineal-gland tissue. Control pigs to left, test pigs to right.

> A noteworthy feature is the similarity of these tumor-cells in many instances to those of the normal pineal gland.

The results of this work lead me to the conclusion that the administration of minute quantities of pineal tissue from young animals to young animals stimulates rapid growth of the body, but not beyond normal size. Also there are less well-established indications of precocity of mental and sexual development.

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[11] Weber: Proc. Roy. Soc. Med. (Path. Sec.), 1910, iii, 147.
[12] Rolleston: Diseases of the Liver, 1905.
[13] Wheeler: Guy's Hosp. Rep., 1909, lxiii, 225.
[14] Ribbert: Deutsch med. Wchnschr., 1909, xxxv, 1507.
[15] Weber and Ledingham: Proc. Roy. Soc. Med. (Path. Sec.), 1909, ii, 206.
[16] Howell, Hinds: Proc. Roy. Soc. Med. (Neurolog. Sec.), 1910, iii, 65.

EXPERIMENTS ON THE CURATIVE VALUE OF THE INTRASPINAL ADMINISTRATION OF TETANUS ANTITOXIN *

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AND
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While tetanus antitoxin has proved most efficacious in the prevention of tetanus, its employment as a curative agent has been much less successful. This failure to produce more uniformly good results is chiefly due to its too late administration. Insufficient dosage and the use of the subcutaneous method have also been important factors. While the subcutaneous use of antitoxin, which at first was the usual method employed, may prove of value in large doses given within the first few hours after the onset of symptoms, nevertheless it frequently fails because of slow absorption and the time required to reach the tissues of the central nervous system. In the light of our present knowledge, this method can be justified only by an inability of the physician, for one reason or another, to give an intraspinal or an intravenous injection. The latter method is being more and more recommended, and when employed before the disease has made too much headway has given much better results than the subcutaneous.

From time to time since 1903, single cases or small series of cases have been reported in which the antitoxin has been given intraspinally. Thus Neugebauer[1] in 1905 reported forty-three cases from Continental and American sources with a mortality of twenty-two, or 51 per cent., and also three patients treated by him of whom two recovered. Many of these patients received also intravenous or subcutaneous injections or both. The results seemed to some observers to be better than when other methods were used without intraspinal dosage, but on the whole, this method of treatment has not made much headway. Experimental proof of the greater value of the intraspinal method has not until very recently been at all convincing. Permin of Copenhagen, working on rabbits and dogs, showed that local tetanus could be prevented by the simultaneous injection of tetanus toxin intramuscularly and a dose of antitoxin given in the spine, whereas with the same dose of antitoxin given intravenously, local tetanus occurred. Four hours after the giving of the toxin neither method of preventing the occurrence of local tetanus was efficacious, and when nine hours were allowed to elapse between the giving of toxin and antitoxin, the animals could not be saved.

The following series of experiments was undertaken with the object of determining to what extent tetanus antitoxin given in the spine has greater curative power, when the disease is actually established, than when given in the circulation. The comparative ineffectiveness of subcutaneous injections of tetanus antitoxin in developed cases is incidentally brought out. The use of guinea-pigs for this purpose has not been recorded so far as we know. They possess, however, a marked susceptibility to tetanus together with comparative freedom from intercurrent diseases and a certain hardihood in caring for themselves, feeding, etc., even when disabled, not shown by rabbits and other laboratory animals. The one great disadvantage to their use is the extremely small caliber of the spinal canal, for which reason a good deal of experimentation was necessary in order to perfect a technic of intraspinal dosage. Before undertaking the use of antitoxin by this method it was demonstrated by one of us (Nicoll) on dead and living guinea-pigs, that from 0.25 to 0.5 c.c. of a solution of anilin dye introduced into the spinal canal in the lumbar region rapidly finds its way up along the cord and even into the ventricles of the brain. It was then necessary to fix the effective limits of antitoxin given in the circulation as regards both the time elapsed after the giving of toxin and the dosage of the latter, and then to determine whether these limits were equaled or exceeded by intraspinal injection. It is well to emphasize at this time the fact, both as regards experimentally produced tetanus and the human form of the disease, that a very short delay in an overwhelming infection or too long a delay in any case before beginning treatment renders the action of antitoxin, by whatever method given, valueless as a curative agent.

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* From the Research Laboratory, Department of Health, New York City.

[1] Neugebauer: Wiener klin Wchnschr., 1905, xviii, 450.

It was found that two minimal fatal doses for a 350-gm. guinea-pig of a solution of dried standard toxin and the institution of treatment after the lapse of from seventeen to twenty-four hours afforded a good opportunity to contrast the value of different methods of giving antitoxin in animals showing the symptoms of tetanus.

DETAILS OF EXPERIMENTS

Technic of Spinal Injection.—After the hair was clipped, a small transverse incision was made down to the spine at the level of the crest of the ilium. The spine was then sharply flexed by an assistant while the operator introduced a small hypodermic needle between two spinous processes in the middle line, the needle being directed from above downward and almost parallel with the spinal column. Injections were made slowly and the fluid warmed. It is not advisable to give a greater volume than 0.5 c.c. at one time. Paralysis occasionally follows the operation, but usually of a temporary character. Injections into the circulation were made into the heart. The latter operation after a little experience is easily performed and produces no ill effect on the animal.

Experiment 1.—December 1, two fatal doses of toxin for a 350-gm. pig were injected deeply into one hind leg, no allowance being made for body-weight. Twenty hours later all pigs showed more or less stiffness in the inoculated leg. Each was given 250 units of antitoxin by the methods designated in Table 1.

TABLE 1.—ADMINISTRATION AND RESULT OF ANTITOXIN IN EXPERIMENT 1 *

Number	Weight gm.	Method	Result
223	320	Control	D 4 days
956	290	Control	D 4 days
283	330	Subq.	D 4 days
263	330	Subq.	D 17 days
227	290	H.	Discharged
209	300	H.	D 7 days
251	305	H.	D 10 days
280	315	Sp.	Discharged
33	330	Sp.	Discharged
52	370	Sp.	Discharged
208	385	Sp.	D 4 days

* In this and the following tables, D = Dead number of days after receiving toxin; Subq. = Subcutaneously; H. = Intracardially; Sp. = Intraspinally; N = Intraneurally.

The death of Guinea-Pig 208 on the same day as the controls is in all probability to be accounted for by the faultiness of our early technic, the antitoxin probably not actually entering the spinal canal. The irregularity of the effect of the same dose of toxin on two pigs of the same weight is well shown in Guinea-Pigs 283 and 263. In the later experiments the degree of involvement of the inoculated leg at the time of giving antitoxin was carefully noted, as this factor was found to be of more importance in arriving at a prognosis than that of elapsed time alone.

Experiment 2.—January 26, two fatal doses of toxin for a 350-gm. pig were injected deeply into one hind leg, no allowance being made for body-weight. Nineteen hours later all pigs showed more or less stiffness in the inoculated leg, and were given antitoxin in the amounts and by the methods designated in Table 2.

TABLE 2.—ADMINISTRATION AND RESULT OF ANTITOXIN IN EXPERIMENT 2

Number	Weight gm.	Amount units	Method	Result
879	265	500	Subq.	D 3 days
198	305	500	Subq.	D 5 days
48	320	500	Subq.	D 3 days
664	405	500	Subq.	D 4 days
878	290	500	H.	D 8 days
211	315	500	H.	D 3 days
491	355	250	H.	D 7 days
876	410	250	H.	Discharged Feb. 20
616	310	250	Sp.	D 7 days
580	350	250	Sp.	Discharged Feb. 20
875	360	250	Sp.	Discharged Feb. 20
874	375	250	Sp.	Discharged Feb. 20

This brings out well not only the superiority of the intraspinal method, but also the great inferiority of the subcutaneous way. The one surviving intracardial case, Guinea-Pig 876, being over the standard weight, received rather less than two fatal doses of toxin.

Experiment 3.—March 12, seven pigs were injected deeply into one hind leg with two fatal doses of toxin. The amount was proportioned to body-weight of each. Nineteen hours later they were given antitoxin in the amounts and by the methods designated in Table 3, the inoculated leg being stiff in the degree noted at the time.

TABLE 3.—ADMINISTRATION AND RESULT OF ANTITOXIN IN EXPERIMENT 3

No.	Weight gm.	Cond. of Leg	Method	Amount units	Result
488	250	Stiff	Control	...	D 2 days
442	295	Slightly stiff	Control	...	D 3 days
499	350	Slightly stiff	Control	...	D 3 days
480	275	Slightly stiff	H.	100	D 13 days
498	275	Stiff	H.	200	Discharged April 10; drags leg
451	265	Fairly stiff	Sp.	10	Discharged well April 23; drags leg
479	270	Stiff	Sp.	50	Discharged well April 10; drags leg

It is to be noted that each pig received exactly two fatal doses of toxin and that the degree of tetanic spasm in the inoculated leg was carefully observed at the time of giving antitoxin. The one surviving intracardial case received twenty times the amount of antitoxin of one intraspinal case and four times the amount of the other.

Experiment 4.—March 24, eighteen pigs were injected into the hind leg with two minimal fatal doses of toxin proportioned to the body-weight of each. Twelve of these were given antitoxin in the amount and by the methods indicated, seventeen and one-half to eighteen hours later, the inoculated leg being stiff in the degree noted at the time. The remaining six were held for twenty-two and one-half to twenty-three hours after inoculation, as the stiffness was not marked until that time.

TABLE 4.—ADMINISTRATION AND RESULT OF ANTITOXIN IN EXPERIMENT 4

No.	Weight gm.	Cond. of Leg	Method	Amount units	Result
116	290	Fairly stiff	Control	...	D 3 days
42	310	Fairly stiff	Control	...	D 3 days
296	250	Slightly stiff	H.	100	D 8 days
227	275	Fairly stiff	H.	100	D 4 days
399	300	Fairly stiff	H.	100	D 5 days
316	255	Slightly stiff	N.	200	D 4 days
287	255	Fairly stiff	N.	200	D 3 days
289	280	Fairly stiff	N.	200	D 3 days
306	285	Slightly stiff	N.	200	D 3 days
59	255	Stiff	Sp.	10	Discharged April 23; normal
304	275	Fairly stiff	Sp.	10	Discharged April 23; drags leg
221	320	Fairly stiff	Sp.	10	Discharged April 23; drags leg
Six Given Antitoxin 22½ to 23 Hours after Inoculation					
102	300	Stiff	H.	100	D 5 days
10	325	Stiff	H.	200	D 4 days
272	350	Stiff	H.	200	D 4 days
263	285	Stiff	Sp.	50	Discharged April 23; drags leg
123	325	Stiff	Sp.	50	D 5 days
294	350	Stiff	Sp.	50	Discharged April 23; drags leg

This would seem absolutely conclusive of the superiority of the intraspinal method of giving antitoxin over the intravenous method. It will be noted that only those animals receiving the antitoxin in the spine were able to survive. This result is the more striking since the amount of antitoxin given them was only a fractional part of that given in the circulation. An attempt was made to give the antitoxin to four guinea-pigs intraneurally. Under an anesthetic the sciatic nerve of the affected limb was cut down on and freed from the surrounding tissues, as much antitoxin as could be introduced into the nerve sheath injected, and the remainder intramuscularly directly along the course of the nerve. Owing to the small caliber of the nerve, most of the antitoxin passed to the deep intramuscular tissues. The animals lived no longer than those receiving subcutaneous injections.

In all of these experiments no guinea-pigs were discharged from observation until there was absolutely satisfactory evidence that the disease had long ceased to make any progress. While a number of the animals, perhaps most, on being discharged exhibited more or less stiffness in the inoculated leg lasting for weeks or even months, they were nevertheless in the best of health in other respects. This condition appears to be identical with that seen in human tetanus, in which the stiffness in different groups of muscles is often very prolonged even when the patients are perfectly convalescent.

Since beginning this work, we have obtained records of four consecutive clinical cases of tetanus in which an intraspinal injection of antitoxin was given and all the patients recovered. Two of these occurred in private practice and two in hospitals. In all of them, in addition to the antitoxin used intraspinally, very much larger amounts were also given by other methods.

Case 1.—Girl, aged 10 years. Incubation of the disease, nine days or less. Cephalic type, of great severity, with many convulsions. Six hours after the locking of the jaws, 3,000 units of antitoxin were given in the spine and 10,000 in the vein. A facial paralysis had been present, however, on the side of the head on which the wound had been received for thirty-six hours previously. In all, 52,000 units were given, with the exception of the first dose, intravenously or subcutaneously. The blood showed four units of antitoxin to the cubic centimeter at the time of the last injection, about one week from the onset of the disease.

Case 2.—Adult, male. Incubation nine days. Not given treatment for twelve hours or more after stiffness of jaws was noted, and then 1,500 units of antitoxin were given in the tissues about the wound and intraneurally, 3,500 intravenously and 300 subcutaneously; the next day 13,000 intravenously, 8,000 intraneurally and 7,000 subcutaneously. On the third day, the patient continued to grow worse with increasing rigidity, and was given 9,000 units intravenously, 8,000 intraspinally and 7,000 units into the tissues of the wounded foot. Two days later, there was noted less rigidity and the patient was able to swallow and separate the jaws to a greater degree. On this day 7,500 units of antitoxin were given in the vein, and on the following day 5,000. The blood showed 6 units of antitoxin to the cubic centimeter at a time just previous to the final injection. The patient was discharged cured after an illness of extreme severity, twenty days after the onset of symptoms. The intraspinal injection having been given so late in the disease cannot logically receive the credit for the patient's recovery, and yet the first improvement in symptoms was noted the day following the dosage given in this way.

Case 3.—Boy, aged 9 years. Incubation not obtainable, but not over two weeks. Symptoms present for fully two days before treatment, when he received 5,000 units of antitoxin intraspinally, 3,000 subcutaneously and 10,000 intravenously, and on the next day 5,000 units in the spine. This case, while not so severe as the others, was well marked and typical of the disease.

Case 4.—Child, aged 6 years. Incubation ten days, 3,000 units of antitoxin in the spine in the afternoon of the day on which symptoms were noted. At the same time 1,300 units were given in the veins. All subsequent dosage was intramuscular. The case was of a severe type with many convulsions.

It may be added that during this time we have had a record of another case of great severity, incubation twelve days, in which recovery followed large doses of antitoxin given principally in the vein but also in the tissues. No intraspinal dosage was given.

While this series of four cases is entirely too small to justify the conclusions that the giving of antitoxin intraspinally was the factor which determined the favorable outcome of the disease, especially as a much greater amount of antitoxin was also administered by other methods, the results are, nevertheless, in marked contrast to the average of those obtained in a much greater number of cases after the use of antitoxin in large doses given other than intraspinally.

Permin,[2] after rendering the blood of rabbits and other animals strongly antitoxic by the intravenous injection of antitoxin, was able, nevertheless, by introducing tetanus toxin by way of the nerves, to produce a local form of the disease, from which he reasons conversely that tetanus toxin, having once reached the spinal centers, cannot be dislodged by antitoxin given by the route of the blood, and therefore, all methods of giving it for curative purposes except that of direct application to the spinal cord can have little or no effect. Now it may be conceded that when the toxin has become firmly bound to the central nervous system, dissociation by the use of antitoxin is not possible. Nevertheless, one can never know in a given case how firm this union has become, and the statement that intravenous or subcutaneous injection is useless seems to us of too sweeping a character, especially since it will be noted that in the foregoing experiments a number of guinea-pigs in which the symptoms, when treatment was given, showed every evidence of the toxin having reached the spinal nerve centers, nevertheless recovered after a large dose of antitoxin given in the blood. Furthermore, we have one case of recovery in a guinea-pig with marked symptoms of tetanus following a very large subcutaneous dose of antitoxin.

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[2] Permin, Carl: Mitt. a. d. Grenzgebiet. d. Med. und Chir., 1913, xxvii, 1.

On experimental and clinical grounds the following recommendation for the treatment of tetanus with antitoxin would seem to be amply justified: In every case strongly suspected of being tetanus, from three to five thousand units of tetanus antitoxin should be given at the first possible moment intraspinally, slowly by gravity, and always, if possible, under an anesthetic. In order to insure its thorough dissemination throughout the spinal meninges the antitoxin should be diluted if necessary, to a volume of from 3 to 10 c.c. or more, according to the patient's age. When fluid is drawn off previously to the giving of the antitoxin, an amount of the latter somewhat less than that of the fluid withdrawn should be given. A number of cases of "dry tap" have been observed in the disease by those so expert in spinal puncture as to leave no room for doubt that the canal was properly entered. In such cases only a small amount of tetanus antitoxin should be injected (from 3 to 5 c.c.). In brief, tetanus antitoxin should be used in precisely the same way as antimeningitis serum.

Unlike experimental tetanus it must be remembered that in the human type of the disease there is frequently a focus constantly pouring out more and more toxin, for which reason it is probably advisable to repeat the intraspinal injection in twenty-four hours. While unquestionably the blood will soon become antitoxic through this intraspinal use of antitoxin alone, yet in order to insure the quickest possible neutralization of all toxins in the tissue-fluids, it would seem advisable to give at the same time, a dose of 10,000 or 15,000 units of antitoxin in the vein. A similar dose given subcutaneously three or four days later will insure a continuance of the highly antitoxic condition during the next five days. We do not believe there is any advantage in giving larger amounts of antitoxin than those indicated.

The proper and thorough surgical treatment of the wound and the use of sedatives, stimulants, etc., are very essential factors in the treatment of the disease. Finally, intraneural injections of antitoxin seem to us to be an uncertain and roundabout way of reaching the diseased nerve-centers, which may be much more simply and thoroughly accomplished by the simpler procedure of intraspinal injections.

When for various reasons tetanus antitoxin cannot be given in the spinal canal, it is far better to inject it at the earliest possible moment intravenously than to lose time in seeking skilled advice in order to give it intraspinally, which, however, should be done later. If, which is hardly conceivable, a physician is unable to give it intravenously, he should give it subcutaneously. This, though far inferior than even the intravenous way, is still of some value in early and slowly developing cases.

Note.—We have at present (July 8) two additional patients under observation each of whom is convalescent from a severe attack of tetanus. The incubation of the disease could not be obtained in either case. The antitoxin was given by the exact method and in the amounts recommended above.

315 West Seventy-Sixth Street—124 East Sixtieth Street.

Publicity.—Publicity is educational; it is a safe policy; it inspires confidence; it is a public health right. If the town is a breeding place for malaria, let it be known. If the water supply is bad, publish it. The city authorities will get to work and the taxpayer will feel an immunity from disease.—O. Dowling in *Ohio State Med. Jour.*

VESICOVAGINAL FISTULA AND RECTOVAGINAL FISTULA *

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This article is necessarily in large degree a recapitulation of my surgical studies carried on during a series of years, reports of which have been published from time to time.

Soon after returning from my medical studies during 1869 and 1870 in the University of Berlin, it was my exceptional good fortune to become the student of J. Marion Sims of New York. Much of his operative success was dependent on his rare skill in the use of silver wire as a suture. Even to this day I suppose he is best known by its successful application as a suture in the cure of vesicovaginal fistula — a success attributed by himself to the great value of silver-wire sutures. Mere reference to the monumental labor of Dr. Sims for the cure of this distressing condition is sufficient here, since every surgeon is familiar with it.

The first cure effected by him was only after thirteen previous operations. These repeated experiments were made possible, first by his indefatigable persistence, and second, by the fact that a slave woman, who was rendered practically valueless by her affliction, and who had little to say as to the desirability of the operation, was his subject. The cure was effected only after four years of repeated failures.

Dr. Sims[1] reported this case in 1852. It was the beginning of a long series of most remarkable contributions to gynecic surgery. The study of this case led him to devise the Sims speculum, first improvised on occasion by using a large iron spoon, the handle of which was bent to a right angle with the bowl. I have always been at a loss which to admire most — the wonderful inventive genius, or the very uncommon surgical technic displayed by this most original surgeon. For a long period I endeavored only to imitate, never venturing to modify, or hoping to improve on any of his operative procedures. This contribution of Dr. Sims furnishes in itself little that is especially new or important.

Dr. Hayward[2] of Boston published an elaborate article in 1839, and so far as I have been able to learn, he was the first operator, at least in America, to report a cure. He said:

> I introduced a bougie from the urethra through the fistulous opening with the patient in a lithotomy position. I incised the whole of the cicatricial tissue about the orifice and dissected the membrane of the vagina about half an inch away from the wound. This was done, partly to present a large surface and partly to prevent carrying the needle through the bladder. Three interrupted sutures were tied tightly and each thread was left about 3 inches long.

In 1851 Dr. Hayward[3] reported that he had performed the operation twenty times, but it was done on nine patients only, one being operated on six times, another five, two twice and five once.

In 1847 Dr. Pancoast[4] of Philadelphia reported two successful cases. He attributed the cure largely to what he called a "tongue-and-groove" method of coaptation of the freshened surfaces. One side of the wound was split, separating its surfaces for about ¾ inch. The opposite side was pared to fit and the four raw surfaces were firmly held in apposition by sutures which were allowed to remain for two weeks. A catheter was retained in the bladder with frequent irrigation.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Sims, J. Marion: Am. Jour. Med. Sc., January, 1852.

[2] Hayward: Am. Jour. Med. Sc., August, 1839.

[3] Hayward: Boston Med. and Surg. Jour., April 16, 1851.

[4] Pancoast: Med. Examiner, May, 1847.

In 1847 Dr. John Peter Mattauer of Virginia published his method for the cure of vesicovaginal fistula, using lead for suture material. He advocated its advantages in three ways:

> First, the means which I use in exposing the vagina. Second, the introduction of a new suture which lies embedded in the tissue for an indefinite period without cutting its way out as do silk ligatures. Third, a self-retaining catheter. He reported six successful operations.

For an indefinite period of the past, metallic sutures have been used for a great variety of purposes. In my edition of Percival Pott — London, 1763 — the use of gold and lead wire is described in operations for the cure of hernia. Dr. Pott states that metallic sutures, both gold and lead, were used by Albucasis and others as early as the eleventh century.

It is hardly just to speak of Dr. Sims without simultaneous recognition of the admirable ability of his colaborer, Dr. Thomas E. Emmet. The specially curved scissors bearing the name of the latter were devised for the purpose of dissecting away the posterior protective layer of the vagina for the cure of rectocele and for the reconstruction of the perineal structures. The extraordinary skill of Dr. Emmet in the use of these scissors was noteworthy. He would dissect back and forth, denuding the whole posterior vaginal wall by the removal of a single unbroken strip, as the practiced housewife pares an apple.

Probably no subject pertaining to gynecic surgery has been written on by a larger number of contributors, expressing a greater variance of opinion, than the treatment of vesicovaginal fistula. The difference of judgment has been in large measure due to ignorance of the anatomy and physiology of the pelvic floor in woman.

Both Sims and Emmet considered the silver-wire suture the important factor contributing to cure in diseases of this region. This was doubtless owing to the fact that nearly all such wounds were in greater or less degree subject to septic infection.

My old friend, Dr. E. W. Jenks of Detroit, called my attention in 1880 to his modification of the Sims-Emmet denudation. As he then explained his method, it consisted of a preservation of the posterior mucous membrane of the vagina, holding it as a flap for the protection of the wound from uterine and vaginal secretions. In his article,[5] Dr. Jenks describes his operation as follows:

> I use neither tenaculum nor tissue-forceps, but with the part tense, snip a hole in the mucous membrane in the median line, close to the integument, and then inserting the scissors with a cutting motion into the hole made, I continue to dissect the mucous membrane away from adjacent tissues without removing the scissors, first going up the septum as far as desired and then laterally, first on one side and then on the other, without removing the scissors, or once bringing their points from beneath the mucous membrane. Then, with blunt scissors, I cut away the dissected flap.

In putting his technic into effect, I soon learned that he was doing better than he knew, in that he separated the thinned-out posterior vaginal muscle from its adjacent structures. Not only was this easy of accomplishment, but also ready access was given thereby to the ruptured, separated, transverse muscles, and to the greatly enlarged and weakened levator ani. The retention of the separated portion of the vaginal muscle made it possible to make and maintain an aseptic wound and to restore the sundered parts by buried, continuous, absorbable sutures.

As a natural sequence, this process greatly simplified and assured safety in the cure of rectovaginal fistula, by suturing the bowel wound and the vaginal opening separately. The operation for the restoration of the perineum was thus reduced to its simpler factors. In the publication of this operation in 1907, I described it as follows:

> In rectovaginal fistula, the perineal structures have usually been so greatly injured that it is better to divide at once what may remain of the sphincter ani. muscle. The separation of the vagina and the rectum must be widely made, devitalizing the structures as little as possible. The first step of the operation consists of refreshing the old cicatricial portion of the rectal wound. These edges must be coapted with especial care. I prefer the double shoemaker's stitch, with eye of the needle near the point, using a fine, carefully selected tendon. The suture is inserted a quarter of an inch above the upper angle of the wound, and the stitches are taken with extreme care to include the coats of the intestine, excepting of course the mucous membrane.
>
> This line of suture coapts and turns toward the bowel on either side a full quarter of an inch of the well-vitalized structure. The suture is continued externally to include a part of the sphincter muscle. The ends are left long temporarily, the better to secure control of the structures in the subsequent steps of the operation. The divided vaginal tissues are sutured in precisely the same manner. This having been completed, the final steps of the operation are the same as those for the restoration of the perineal tissues when uncomplicated by rectal fistula.

The admirable operations devised by Dr. Sims for cystocele left little room for improvement. I shall never forget his enthusiastic description of his procedure. He said:

> My primal purpose was to resect the lower segment of the protruding bladder [cystocele]. To my astonishment, on cutting away the greatly thickened structures, I found my wound was limited to the hypertrophied anterior vaginal wall, and that the bladder could be easily separated from it. I thought these structures of sufficient strength, by a careful coaptation, and by holding in place for a considerable time by silver-wire sutures, to effect a cure. You can judge of my delight when I found such restoration was usually permanent.

In the further study of cystocele in conjunction with my researches on the cause and cure of hernia, I found the cystocele not seldom dependent on injury to the floor of the pelvis, producing a hernia of the bladder. To effect its cure, I separated much more widely the anterior vaginal wall from the bladder, in order to gain free access for the restoration of the strong anterior pelvic fascia. The ease which the separation gave for a free manipulation of the bladder itself was a surprise.

An extended series of cases of wounds of the bladder within the pelvis, in which a careful closure with absorbable animal sutures enabled me to secure a perfect cure in every instance, led to the deduction that wounds of the bladder in the lower pelvic strait might be subject to similar easy cure. The technic is delicate, but had been equally well devised by the great masters already quoted, emphasis being laid invariably on the importance of never permitting the suture entirely to penetrate the viscus of the organ.

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[5] Jenks, E. W.: Am. Jour. Obst., 1879.

Here again, the buried absorbable suture proved indispensable. I soon learned that the fine properly chromatized kangaroo tendon was a very important factor of success. Applied with a fine needle, without cutting edges, the eye near the point, set in a handle, it is not difficult to coapt the wound accurately with a continuous suture and reinforce it with a second layer, daintily adjusting the external wall of the bladder over the first line of sutures. This effected, the anterior wall of the vagina is carefully sutured and a catheter retained for a certain period. I have had the remarkably good fortune to secure primary cure of vesicovaginal fistula at the first operation in every instance. I attribute it to the fact that the wide separation of the fundus of the bladder puts the parts at complete rest, as the contraction of the vaginal muscle can have no part in producing tension on the sutures. This conclusion is worthy of special emphasis, since I consider it of basic importance as the especial factor of cure. The through-and-through suturing of both the bladder wall and the vaginal muscle includes important parts having different functions, the contraction and expansion of which are necessarily on different planes. It was a great surprise to me at first that bladder wounds on the intraperitoneal portion have from time immemorial been the *bête noire* of the profession.

If my conclusion is correct, the operation above described claims the careful consideration of the profession. In a paper[6] on this subject before this Section of the American Medical Association in June, 1907, I wrote as follows:

> In the surgery of the bladder from within the abdomen, I was at once impressed by the ease and certainty of repair, giving in every instance a rapid cure. This led me to the conclusion that the pelvic portion of the bladder wall was difficult to repair only because of its close attachment to other structures having different functions. On this account the wound cannot remain at easy replacement and rest—essential factors of cure. I obviate this complication and reduce the problem to its simple factors by separating the bladder wall broadly from its attachments from below and close the wound of the bladder with a fine, double, continuous, buried tendon-suture, inverting and supporting the structures by a second layer. The vaginal wound is then closed by a continuous buried suture. A catheter is retained for some days in order that the structures may remain at rest. Of course, there are no stitches to be removed, and when the wound has been made and retained aseptic, cure is to be expected.

The aseptic coaptation of tissues, alike in structure and function, is of primary importance and should be accepted as a surgical maxim. Sims believed that the properly applied silver suture was the basic factor in the cure of vesicovaginal fistula. We recognize its value in infected wounds which must heal by granulation.

I consider that the primal factors to be accepted as fundamental in importance are the making and maintaining of an aseptic wound held in easy retention and rest by buried absorbable sutures.

180 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

Dr. J. Wesley Bovee, Washington: I am glad to hear that Dr. Marcy advocates the separation of the vagina from its attachments for the closure of these fistulas. This subject was brought prominently before the professional world by George Gray Ward a few years since, and while he may not have been the first to do it—as I presume many of us had done it before that time—it certainly is the only efficient method for treatment of especially large fistulas. Some of these tax us, especially those in which the urethra is destroyed as well as the base of the bladder. We often see marked failures from other methods. In one case coming under my care two months ago, the patient had had during the past eight years eight operations for vesicovaginal fistula, all unsuccessful. One was a transperitoneal transvesical operation by a general surgeon. The woman had not passed her urine through the urethra in eight years. She had had a hysterectomy performed and the injury of the bladder was the direct cause of the fistula. In this case I did an operation by this method with perfect success. The suturing is done by this method plus the use of the Pesser catheter for from eight to twelve days. This insures practical success in all cases of this type.

Dr. Henry O. Marcy, Boston: This operation has been elaborated by me, I think, originally, and it involves a good many years of work. The last publication I made on this subject was before this section in 1907. It is practically that which I have given you to-day. In all my operations since 1907 I have not had a single failure.

THE HECHT-WEINBERG REACTION AS A CONTROL OVER THE WASSERMANN REACTION

A STUDY BASED ON ONE THOUSAND PARALLEL TESTS WITH BOTH METHODS *

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ST. LOUIS

The massed statistics of Wassermann workers have shown clearly that this reaction, following the classic technic of Wassermann, using the most exact methods of titration of all the reagents, working with the most sensitive antigens whether cholesterinized or not, is *not* uniformly present in all cases of manifest syphilis from a clinical point of view. While we have proved its undefinable value as a diagnostic symptom in many cases of occult syphilis, still we must admit that at times it is consistently negative in many syphilitic conditions. There are times, too, when the reaction disappears entirely independent of treatment. At such times, the serologist is unable to assist the clinician in his efforts to arrive at a correct diagnosis or to check treatment. The disrepute into which the classic Wassermann has at times fallen in the estimation of some practitioners is not so much from the errors that have been so frequently made by incompetent serologists as it is from the *negativity* of the reaction in cases that display unquestionably syphilitic aspects, either cutaneous or visceral.

We have, therefore, been compelled to look to some other test to use, either as a substitute for the Wassermann, or, at least, as a sensitive control of the reaction in cases in which the Wassermann is absent. One of the main objections that has been raised against the test in some quarters is the fact that the straight Wassermann technic embodies the use of an amboceptor or hemolytic serum made by injecting sheep's blood into rabbits and using sheep's corpuscles as the basic material around which the remainder of the reaction is made to revolve. This objection has been well taken; for we know from actual investigation that nearly every individual carries in his blood-serum some quantity of antisheep amboceptor resultant from the ingestion of mutton. The number of people who have natural antisheep amboceptor is large. In this country my own figures show, from routine examinations, that 98 per cent. of the American people harbor greater or less quantities of this substance. Granting that this is true, we are forced to admit that a Wassermann reaction carried out in the case of an individual with a high amount of natural antisheep amboceptor and a low amount of syphilitic antibodies will usually result negatively even though the individual is syphilitic.

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[6] Marcy, Henry O.: Plastic Surgery of the Pelvic Structures, The Journal A. M. A., Nov. 30, 1907, p. 1831.

* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

My attention was first called to this fact some months ago by the admirable work of Leredde and Rubenstein in Paris, who convinced me by a review of their data that the failure to obtain a positive Wassermann reaction in many cases was due to the presence of an undue amount of natural antisheep amboceptor in human serums. Leredde and Rubenstein, reporting a parallel series of tests, using both the straight Wassermann technic and a method which utilized the natural amboceptor in unheated human serums (namely, the Hecht-Weinberg test), showed that the latter test developed a positive reaction in 10 per cent. more cases of syphilis than did the Wassermann. Again, it has been argued that the heating of serums to 56 C. (132.8 F.), such as is practiced in the Wassermann technic for the purpose of ridding the serums of natural complement, develops *complementoid* substances which naturally give a false conclusion. Again, it has been asserted that the heating of serums destroys a part of the syphilitic antibody on which the reaction depends. It is for these three reasons that Hecht and Weinberg developed a technic that utilized the amboceptor and complement present in practically all blood-serums and refrained from heating the serums by using "active" or unheated serums. The method of Margherita Stern is designed to utilize the natural complement of blood-serums but pays no attention to the natural amboceptor—a serious drawback to the most accurate information for the clinician.

The observations of Hecht and Weinberg, Leredde and Rubenstein and Levaditi convinced me of the advisability of following out the technic of Hecht and Weinberg for purposes of control. Leredde's figures are based on a parallel series of blood-tests in 1,636 serums. My own investigations are confined to 1,000 parallel observations. The technic of Hecht-Weinberg, which I have worked out, is the following:

Place in a rack fourteen small test-tubes. The first ten of these tubes are used to determine the hemolytic index of the suspected blood. By this we mean the exact amount of hemolytic amboceptor present in the given blood-serum. The last four tubes are used in the actual test. Add 0.1 c.c. of fresh unheated patient's blood-serum to each of the first ten tubes. Then add decreasing amounts of normal salt solution to these tubes, beginning with 1 c.c., then 0.9, 0.8, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2, 0.1 c.c. to the succeeding nine tubes. Next, add increasing amounts of fresh 5 per cent. suspension of sheep's blood starting with 0.1 c.c. and ending with 1 c.c. Place the rack in the water-bath for one-half hour. The tube which last shows complete hemolysis constitutes our "hemolytic index;" if it is Tube 4 our index is 4, because this tube had received 0.4 c.c. of sheep's corpuscles. The index determines the amount of sheep's corpuscles to be added to the last four tubes. The first three tubes (11, 12 and 13) constitute the tubes for the actual test, while the last tube in the rack (Tube 14) serves as our serum control tube. Tubes 11, 12 and 13 receive, therefore, the patient's serum, the proper amount of sheep's corpuscles (dependent on the hemolytic index) rising strengths of antigen, but no complement and no amboceptor. Tube 14 receives only sheep's corpuscles but no antigen. In our technic we use 0.1 c.c. of a diluted antigen determined by titration in Tube 11, 0.15 c.c. antigen in Tube 12 and 0.2 c.c. in Tube 13. In order to equalize the volume of fluid in all these tubes, we add 0.2 c.c. normal saline to Tube 11, 0.15 c.c. to Tube 12 and 0.1 c.c. to Tube 13, and 0.3 c.c. to Tube 14. The tubes are then agitated and placed in the water-bath for half an hour. These last four tubes are filled at the time we make the additions to the first ten and are left with them in the water-bath for one-half hour for fixation of complement, the rack is then taken out and the hemolytic index computed. If the index is low, say from 1 to 4, we add 0.1 c.c. of sheep's blood to the last four tubes. If the index is between 5 and 7 we use 0.15 c.c. sheep's blood and if it is between 7 and 10 we use 0.2 c.c. In our experience in this country we have never found an index above 10, although in France it is not uncommon to obtain an index of 15 or 17.

If the patient's serum has an index below 3, we regard the reaction as of doubtful value. If it is above 3, we regard it as absolute. The reaction is read off exactly as is the Wassermann, that is, inhibition or non-inhibition of hemolysis.

This method utilizes the natural complement present in nearly all human blood and the natural amboceptor present in at least 98 per cent. of blood-serums. If the amount of complement or natural antisheep amboceptor is very low, we can add the proper amount of guinea-pig's serum or rabbit's immune serum, ascertained by preliminary titration. The particular advantage of this test is the fact that we are dealing with unheated serums, avoiding the chance of the development of complementoid substances. I wish to state, in passing, that the Hecht-Weinberg test has never been found negative in any blood-serum which showed a positive Wassermann, but it has frequently been found positive in blood-serums that show a negative Wassermann. Thus, its advantage can readily be seen. We do not offer these conclusions for the purpose of eliminating the Wassermann, but we do most candidly confess that provided there is sufficient natural amboceptor present, it has superior advantages to the Wassermann. Our practice is to perform both tests, one serving as a check on the other.

The group of cases in which the amount of natural amboceptor in human serums seems to play a definite rôle in making a Wassermann appear negative and a Hecht-Weinberg positive, comprise the following:

1. Cases of ocular syphilis.
2. Cases of visceral syphilis, particularly of the liver and heart.
3. Cases of syphilis that have received intensive but inadequate treatment.

4. Provocative cases in which we are seeking to revive a Wassermann in suspected cases.

5. Cases of monosymptomatic tertiaries.

In general, in cases of what might be termed "limited" syphilis, this modification will be found of great use. With Leredde and Rubenstein, Latapie, and Hecht and Weinberg, I believe that the use of the Hecht-Weinberg test as a control over the Wassermann will bring to light many cases of occult syphilis about which the clinical diagnosis is often uncertain. Our rule is to do both tests, and as a result of this practice *we can offer a series of one thousand cases in which the Hecht-Weinberg was positive 15 per cent. more often than the Wassermann.* We regard this "dissociated reaction" as diagnostic of syphilis. The series studied represents every phase of true syphilis from the primary stage through secondary, tertiary and so-called metasyphilitic conditions. We regard the Hecht-Weinberg test as the best modification that has come forward to serve as a check on the classic method of Wassermann, Neisser and Bruck.

803 North Garrison Avenue.

UNUSUAL CASE OF FATAL POISONING FROM THE ADMINISTRATION OF MALE-FERN AS A VERMIFUGE

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On May 8, 1911, while in Colorado Springs on an investigation for the United States Bureau of Animal Industry, I had an opportunity to attend a necropsy on a man who had died from the effects of an overdose of the oleoresin of male-fern. Some of the features of the case are so unusual that it deserves greater publicity than was accorded it at the time it happened.

The victim of the poisoning, E. M. C., was a young man, 23 years old, who lived on a ranch near Woodland, Colo. He was always hungry and was feverish at night. He had taken two or three 8-ounce bottles of a remedy for "worms" prescribed by a so-called "Quaker doctor" of Joplin, Mo. The remedy was to be taken after missing three meals, one dose being taken at night and double the evening dose in the morning, followed by a dose of salts. This medicine had made him sick and kept him in bed for a day; but he had found something in the feces which he thought was a piece of tapeworm. This specimen was sent to the grandmother at Joplin, who took it to an "Indian doctor," who pronounced it the largest tapeworm he had ever seen and supplied either the medicine or a prescription for it, the evidence on this point being uncertain.

The treatment was administered Sunday, May 7, 1911, the patient going without supper Saturday night. At 6 a. m. Sunday he took half the medicine sent him and at 7 he took the remainder. The first dose nauseated him and he continued nauseated after the second dose. The medicine caused a considerable diarrhea. At 9 a. m., as directed, he took 1 or 2 ounces of castor oil and 20 drops of turpentine. The patient got worse constantly, but as he and his family had been informed that the medicine would make him very sick, they were slow in taking alarm. At last when the boy's eyes took on a staring appearance and he seemed about to go into convulsions, a doctor was summoned. At this time the patient seemed to be in great agony; he had a distressed and anxious look and the face was flushed. He was very thirsty, but was allowed only sips of water. Convulsions came on about 1 p. m.

Dr. Creighton of Manitou, who was first summoned, found the boy on the bed, unconscious, the eyes glassy and insensitive to the touch and the pupils dilated. He was writhing, but the body was rigid in tonic contraction. The jaws were set and he was unable to reply to questions. This was nearly 2 p. m. On the history and symptoms, Dr. Creighton diagnosed the case as poisoning and tried to wash out the stomach with a solution of Epsom salt through a stomach-tube, but the jaws were too rigid. He then sent for Dr. Beck of Manitou, who arrived in fifteen or twenty minutes, and they administered 25 grains of chloral and 30 grains of potassium bromid. No relaxation followed these, nor did a dose of apomorphine produce vomiting. Later, when the pulse was failing, the breathing becoming more labored and the patient cyanosed, they administered digitalis, strychnin and nitroglycerin but again with no response. The rectum was washed out with water and glycerin. Ten minutes before death they sent for Dr. Hanford of Colorado Springs, but while he was on his way the patient died, death taking place about 3:30 p. m. The rigidity of the patient increased up to the time of death and rigor mortis was pronounced at once.

The necropsy was conducted by the El Paso county physician, Dr. E. L. McKinnie of Colorado Springs, the necropsy work being done by Dr. Lewis H. McKinnie of Colorado Springs. The necropsy was the day after death and at this time the rigidity and cyanosis had disappeared. Both lungs were edematous, the right one intensely congested and the left one only slightly less so. The liver was enlarged, the spleen somewhat congested but not markedly enlarged. Both kidneys were congested, the right one being very large and having two ureters. The upper portion of the intestine for about 3 feet from the pylorus was hemorrhagic and intensely inflamed. There were other inflammatory areas lower in the intestine and the stomach was congested. The heart was of normal size, somewhat flabby and presenting evidence of mitral insufficiency.

An analysis of the stomach contents by Mr. G. C. Lake, the city chemist of Colorado Springs, showed the presence of a substance identical with the dregs left in the bottle containing the medicine furnished by the "Indian doctor." This substance, judging from its color and the characteristic odor, and from the purpose for which it was administered, was undoubtedly oleoresin of male-fern. According to the testimony of the city chemist, there is no adequate chemical test for this substance, but to one familiar with it the odor is unmistakable. Santonin was found absent. The substance left in the bottle had the characteristic color and odor of male-fern. Apparently male-fern was at least the principal ingredient and there was certainly an overdose, enough to cause death.

The stepfather and the mother had watched the evacuations of the patient after the administration of the medicine and while there was a sediment in the watery stool, there was nothing resembling a tapeworm. Slitting the intestines at the necropsy disclosed nothing of the sort. The description of the fragment of supposed tapeworm sent to Joplin suggests a spurious parasite bearing a superficial resemblance to a tapeworm. The fact that the "Indian doctor" identified it as a tapeworm is no evidence at all, especially in view of the fact that no worm was passed subsequent to the passage of the fragment, and nothing of the sort was found on necropsy. The fact that this doctor called himself an "Indian doctor," advertised in the papers, and guaranteed to remove tapeworms, according to the testimony, shows distinctly what status should be assigned to him. Even reputable doctors in ordinary practice are none too sure of their ground when dealing with fragments or supposed fragments of parasites. On one occasion a physician detained a patient from taking a steamer to Europe while he rushed a fragment of supposed parasite to the Bureau of Animal Industry at Washington for identification. The fragment indicated that the patient had been drinking lemonade, as it was the pulp vesicle of a lemon, and a telegram to this effect was sent the physician. Similar cases are by no means uncommon.

The coroner's jury found that the deceased in the present case came to his death from poisoning due to male-fern procured from a certain person known as the "Indian doctor" of Joplin, Mo. The striking features of the case are, first, that the patient probably had no tapeworm and so met his death partly as the result of stupidity of diagnosis, and second, that the "doctor" should send a poison as powerful as oleoresin of male-fern, evidently in amounts in excess of the usual dose, to be administered to a person in another state, and further to order that the male-fern be followed by castor oil, a procedure known to increase the absorption and toxicity of the drug, the patient's death in consequence being directly due to extraordinary stupidity in treatment. There is always the evident possibility that such persons as this "Indian doctor" will cause the death of the person who trusts their preparations; it is worth while to put concrete cases of the sort on record as an aid to those who would keep others out of danger.

SHOTGUN WOUND OF ABDOMEN, WITH RUPTURE OF PREGNANT UTERUS

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Patient.—F. F. (No. 193531), an Italian woman, aged 36, married, housewife, was brought to the Accident Department of the Massachusetts General Hospital, Jan. 25, 1914, at 7:45 p. m., by the police ambulance of a neighboring town. No history was obtainable from the patient on account of her unfamiliarity with the English language and her condition of shock. It was said that she had been shot with a shotgun at close range about thirty minutes before entrance.

Physical Examination.—A well-developed and well-nourished woman in considerable shock, moaning, but conscious. Skin somewhat clammy; mucous membrane pale; pupils equal, regular and reacting normally. Size and position of heart normal; sounds regular and of fair quality; no murmurs heard. Lungs clear and resonant throughout both fronts, backs not examined. Abdomen somewhat distended, with an irregular, lacerated wound in the lower half, the larger portion of which was in the right lower quadrant. The wound was very irregular in outline, with much laceration and shredding of the tissues of the abdominal wall; its longest diameter was transverse, and it was of a size to admit two fists into the abdominal cavity. Protruding from it were two or three coils of the small intestine, approximately about 3 or 4 feet in length. A portion of the bowel lay in contact with the table when the patient was first seen. Blood oozed freely from the wound. In the right groin, about 2 inches below Poupart's ligament, were two small punctured wounds about 2 mm. in diameter, with slightly irregular and infolded edges. No powder burns were seen. No wounds of exit could be recognized. Left leg and foot were moderately swollen, pitting on pressure and apparently associated with numerous varicosities of veins and venules in the lower leg and foot. A pelvic examination was not made. There was no bleeding from vulva. Knee-jerks were equal and active. Temperature 98.6. Pulse 63.

Sterile towels, wet with hot salt solution, were immediately applied to abdomen to cover intestines. Morphin sulphate, ¼ grain, and camphorated oil, 30 minims, were given intramuscularly and 1 pint of normal salt solution was injected under the right breast. Preparations were made for an immediate operation.

Operation.—Ether anesthesia. Moist sterile towels were placed over the protruding intestines, and the skin of the abdominal wall prepared with benzin, iodin and alcohol. Examination of protruding bowel revealed about forty small perforations scattered along from 2 to 3 feet of the bowel, and in some places shot could be palpated in the bowel wall. Gas and a slight amount of frothy fecal matter exuded from some of the perforations. The perforations were infolded with purse-string sutures of silk, several being included in one suture in many instances. At one point this infolding caused a marked constriction of the lumen of the intestine, but gas could be squeezed through. The intestines were carefully washed with warm salt solution and replaced. There was considerable hemorrhage in the abdominal cavity. Exploration showed an enlarged uterus with a rent in the anterior wall about 4 inches long. An umbilical cord protruding from the wound in the uterus led to a fetus, estimated at about four months, which was lying loose in the abdominal cavity. The placenta was removed from the uterus manually, and the uterine wall closed with No. 2 interrupted chromic catgut sutures. The patient was given one ampule of sterile ergot subcutaneously. No other intra-abdominal injury was found. The abdominal cavity was irrigated with warm saline solution. One cigaret-wick was placed to the right iliac fossa and one to the pelvis. The fascia, muscle and peritoneum of the abdominal wall were closed in a transverse direction in one layer with No. 2 interrupted chromic catgut, after the lacerated edges of fascia and skin had been trimmed away. The skin was loosely approximated with interrupted silkworm-gut, with two cigaret-drains to the subcutaneous tissue. Patient's pulse at the end of operation was 84. She was sent to the ward in surprisingly good condition and placed in Fowler's position, with rectal saline seepage.

Postoperative History.—The patient made a steady and uneventful convalescence. There was some sloughing of the edges of the wound with separation of the skin. This was later closed by secondary suture, with local anesthesia. A few stray shot were removed from the superficial layers of the abdominal wall and groin. These corresponded to about No. 7 bird-shot. March 10, 1914, the patient was discharged to the Convalescent Home in excellent general condition, with a very small granulating wound. Two weeks later she was discharged from the Convalescent Home, the wound being entirely healed and solid, without evidence of hernia. She was in excellent general health and was able to walk about and upstairs without difficulty. Bowels moved normally, and the uterus had undergone normal involution.

Remarks.—An interesting point in this case was that while the direction of the wound in the abdominal wall was distinctly transverse, the uterus was ruptured in a longitudinal direction and no marks or shot wounds of any kind could be found on the body of the fetus. It would seem that the rupture of the uterus was the result of a bursting strain rather than of actual perforation by the shot. The withstanding of a very considerable loss of blood without particular evidence of shock may be accounted for by the pregnant condition of the patient.

205 Beacon Street.

Salvarsanized Serotherapy.—Bériel and Durand emphasize that if the serum is drawn soon after the salvarsan has been given and is then injected into another person, this is not serotherapy but chemotherapy, as more or less of the drug is still in the serum and there has been time enough for the antibodies to be generated in response to the action of the drug. In their clinical work in this line they always allow two or three days to elapse before drawing the serum for therapeutic use on another patient. In their communication in the *Bulletins et mémoires de la Société medicale des hôpitaux de Paris,* they relate their experiences in this line with intraspinal injection of serum from persons who were just entering on the second stage of salvarsan two or three days before. They keep the serum for twenty or forty-eight hours, heat it to 56 C. (132.8 F.) and then make the intraspinal injection in cases of tabes or paresis. They report encouraging results to date.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JULY 18, 1914

THE PART PLAYED BY NUTRITION IN PREGNANCY AND DEVELOPMENT

In a recent discussion[1] of the relative parts played by heredity and food, respectively, in the development of the fetus, it was pointed out that, although the nutrition of the mother has a great influence on the offspring, the size does not appear to be materially modified by the liberal supply of any one element. In the case there referred to, although a high calcium ration, containing over five times as much lime as the standard ration used for comparison, was added in the food of the mother during the entire period of gestation, no evidence was gained that the skeleton of the fetus was increased in any dimension or in calcium content thereby.

It does not follow, however, that because an overabundant supply of any essential element fails to induce undue development of any parts in which it is specially concerned, an adequate administration of suitable nutrients is without any advantage. It is true that food cannot be regarded in any sense as the supreme cause of growth. Nutrition can only give the growth impulse free play. The old idea that protein is the determining factor in growth has been abandoned in the sense that it causes development. On the other hand, we must not forget that without protein or without any other necessary tissue constituents development is possible only so far as the requisite materials are produced anew by the maternal tissues, in the case of prenatal growth, or furnished by the sacrifice of the maternal store of them. Accordingly the food factor in development may begin to manifest itself not where the supply is both suitable and abundant or even excessive, but rather where it is scanty and inappropriate.

To what extent the ration fed to the pregnant mother may affect the general development of the fetus is interestingly shown in recent experiments at the Iowa Agricultural Station in Ames.[2] Comparisons were instituted between the young of swine fed in some cases on corn grain alone, in others on the same basal ration together with such additions as were suggested by the chemical nature of the foregoing food. Corn (maize) is markedly deficient in calcium and quite low in protein. The maize protein is, furthermore, deficient to a considerable extent in some of the essential amino-acids. This is especially true of the protein zein which comprises practically 58 per cent. of the corn proteins and does not yield tryptophan, lysin or glycocoll among its amino-acid derivatives. The marked preponderance of zein in corn greatly lessens the general efficiency of the protein *in toto*. To supplement the inferior protein of the corn and make the ration more complete from the amino-acid point of view, blood-protein was employed as an adjuvant to the basal ration by the Iowa investigators, and the mineral deficiency was remedied by administration of calcium carbonate. In the normal body there is just about two-thirds as much calcium as nitrogen, that fundamental element of protein on which the maximum emphasis is usually placed by feeding experts. Therefore, the requirement of calcium deserves most careful consideration among the mineral nutrients.

The Iowa experiments have given a significant answer. The addition of calcium salts to the fixed ration of corn and common salt for pregnant young sows resulted in new-born pigs having greater size, more vigor, bigger bone, increased coat-quality, better coat-color and higher condition. The addition of the blood-protein was effective in the same directions, its influence being more marked generally than that of the calcium addition alone.

The effect of qualitative adjustments in the character of the diet on postnatal growth has lately been demonstrated by Osborne and Mendel,[3] who have shown how the dietary inefficiency of zein hinges on the peculiarities of its amino-acid make-up. When zein serves as the sole source of nitrogen in the ration, nutritive failure inevitably follows sooner or later. This is not due simply to a failure to digest the protein or to absorb its cleavage products, that is, its amino-acids. When the missing amino-acid tryptophan (or a tryptophan-yielding protein) is added to zein, it may suffice for maintenance, since this amino-acid is indispensable and its absence from the diet cannot be made good within the organism itself. The missing amino-acid lysin will not replace tryptophan in making maintenance possible. On the other hand, inasmuch as new construction of tissue can proceed only when all of the necessary amino-acids are furnished, in the case of zein the missing lysin, as well as tryptophan, must be supplied before growth takes place.

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[1] Heredity versus Food in Development, editorial, The Journal A. M. A., June 6, 1914, p. 1813.

[2] Evvard, J. M.; Dox, A. W., and Guernsey, S. C.: The Effect of Calcium and Protein Fed Pregnant Swine upon the Size, Vigor, Bone, Coat and Condition of the Offspring, Am. Jour. Physiol., 1914, xxxiv, 312.

[3] Osborne, T. B., and Mendel, L. B.: Nutritive Properties of the Proteins of the Maize Kernel, Jour. Biol. Chem., 1914, xviii, 1.

It happens fortunately in human nutrition that the diet supplied to the pregnant mother and the growing young is not restricted to a single protein of the inadequate type represented by the principal protein of maize. Variety as well as liberality in the diet as a rule makes for safety and efficacy in respect to the suitability both of the protein and of the inorganic ingredients. These facts cannot be too vigorously emphasized at a time when calories furnish the text for most discussions on nutrition.

THE NUTRITION OF THE CARDIAC MUSCLE

It has been calculated that the heart obtains at least one-third of its energy from the oxidation of carbohydrate.[1] This experimentally established conclusion may serve as the basis for the discussion of a possible dietetic treatment of "heart-weakness," so far as this involves a functional inadequacy of the myocardium. As muscles work preferably by utilizing the available carbohydrate of the organism, and vigorous muscular performance is known to reduce considerably the quantity of the stored glycogen and the circulating sugar, it is quite logical to ask if the heart-muscle cannot be fortified in its activity by ensuring for it an abundant supply of carbohydrate.

From the fact that the level of the sugar-content of the blood tends to remain constant in health and under ordinary conditions of exercise, and, furthermore, that sugar is promptly eliminated when any excess above the usual level continues to circulate, it may be teleologically assumed that a supply of carbohydrate ample to maintain its needs is usually furnished to the heart. It by no means follows, however, that the nutrition of a weakened or overworked heart-musculature is equally adequate. Indeed, it is easily conceivable that the administration of an overabundance of sugar might act as a wholesome source of recuperation to a depleted organ. That is, it may be that blood of normal or undernormal composition with respect to sugar-content is not ideally adapted to supply most advantageously the needs of a diseased myocardium constantly taxed to its utmost by the physiologic demands of the circulation and frequently by the added stimulus of administered heart-drugs.

It is impossible by means of oral administration of carbohydrate to increase the sugar-content of the blood supplied by the systemic circulation to the heart except in a minor transitory degree. The liver stands between the alimentary tract and the general blood-stream as a clearing-house through the portals of which the sugar must pass and from which its distribution is regulated by the hepatic glycogenic functions. Although, judging from several clinical reports, sugar may be used successfully by way of the mouth to strengthen the heart-muscle, it is, nevertheless, probable that introduction by other channels than the digestive tract affords the surest means of supplying carbohydrate directly to the active musculature. By means of subcutaneous injections and intravenous infusions sugar can be made to enter the circulation promptly; and these, along with the action of drugs which induce a hyperglycemia, constitute the essential ways of testing the hypothesis of the interrelationship of the impaired myocardium and its carbohydrate supply.

Considerations like the foregoing induced Büdingen[2] to study the effect of direct sugar therapy on patients with suitable cardiac conditions. The administration of the sugar was carried out with isotonic (5.4 per cent.) solutions of glucose either by rectal introduction or intravenously. The clinical records of typical cases reported show an unexpectedly favorable outcome in many instances. It would be most premature to herald them as convincing proofs of the success of the procedure referred to, and for this reason we have not commented on the indications and the findings in detail. The well-known variability in the behavior of patients with heart-troubles, the unquestionable influence of the psychologic factors, the widely prevalent combination of drug treatment with physical and dietetic therapy — in other words, the large number of variables which must be taken into account in evaluating clinical evidences of improved cardiac conditions warn against generalizations. Every newly proposed method of treatment promptly finds interested advocates in the period of early enthusiasm for a new and promising idea. Time, criticism and accumulated experience usually serve to bring to light various shortcomings and limitations, complete failures or explanations which may quite upset the fundamental hypothesis.

The infusion of sugar solutions into the blood, quite aside from its possible usefulness, is by no means a simple procedure. It must be carried out with surgical precautions, with freshly distilled solvent and sterile materials; and even then it may be dangerous. A quart of an isotonic glucose solution furnishes at best no more than two ounces of sugar, from which not much can be expected with respect to contributed energy-supply. But emergency measures may be heroic; and the fact that suggestions like those just published by Büdingen seem far-fetched need not condemn the underlying ideas to oblivion so long as they can serve to arouse an interest in the underlying defects rather than the superficial symptoms of cardiac weakness. Pulse-records, roentgenograms and electrocardiograms are, after all, only incident to the fundamental pathologic problem.

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[1] Sugar in Cardiac Metabolism, editorial, The Journal A. M. A., June 13, 1914, p. 1895.

[2] Büdingen, T.: Ueber die Möglichkeit einer Ernährungsbehandlung des Herzmuskels durch Einbringen von Traubenzuckerlosungen in den grossen Kreislauf, Deutsch. Arch. f. klin. Med., 1914, cxiv, 534.

RABIES AND DOG-DAYS

The coming of the "dog-days," especially if the season happens to bring with it one or more prolonged heated periods, attracts the attention of the public generally much more to the danger from rabies than do definite reports of the spread of the disease at other seasons of the year, which ought to arouse solicitude. Boards of aldermen, city councils and town officials of other kinds wake up from the most absolute lethargy with regard to the disease at this time, and, especially in the smaller towns and country places, pass ordinances and revive regulations requiring dogs to be muzzled while on the streets. This is all the more amusing because the term "dog-days" has, as we have pointed out before, no reference to dogs, but is borrowed from the Romans, who called Sirius, the brightest of the fixed stars, the dog-star. At one time during the Roman epoch, the rising of this star coincided with the rising of the sun in the latter part of July. The twenty days preceding and twenty following this conjunction were for the Romans *dies canis,* the days of the dog — or the dog-star. Rome had its fiercest heats usually during this period; therefore, the time was dreaded and came to have the reputation of an unhealthy season, though not with any special reference to the dogs of Rome.

In accordance with that tendency which is often so marked to substitute some apparent etymology for the real significance of a term, in our day the popular meaning of the "dog-days" is that dogs are especially likely to go mad at this time. The consequence is that, while the animals are made uncomfortable by nose muzzling, their discomfort is greatly added to by the foolish dread which keeps people from giving them water or caring for them properly. A fact which is very well illustrated by a recent startling report from Seattle is that rabies may occur at any season of the year; the actual statistics show greater frequency of the disease during the winter than during the summer months. The affection is most common usually in the early spring, and March and April would be a much better time to select for "dog-days" in the popular sense than the weeks of July and August that have by misapprehension come to be looked on as the special period of danger.

The Seattle epidemic shows how much of real danger there is from this disease when it gains a foothold because of neglect of proper precautions. Surgeon Lloyd[1] of the Public Health Service recently reported that up to the beginning of June there had been 361 cases of canine rabies in the city of Seattle since the outbreak of the disease began in September, 1913. Up to this the disease had not been observed in Seattle. Indeed, some of the inhabitants of the Puget Sound region have been accustomed to emphasize the healthfulness of their climate and soil by calling attention to the absence of rabies. On the other hand, many who wished to minimize the value of laboratory experimentation on animals were quite ready to declare that the absence of rabies in these Puget Sound cities and towns was evidence that there was exaggeration, to say the least, in the report of the occurrence of the disease in other places, due to the overweening interest of laboratory workers. Nearly one hundred of the Seattle cases have been proved positive in the laboratory and the clinical course of the disease in a great many of the other cases has been so typical as to leave no room for doubt as to the genuineness of the affection under observation.

This is what may occur practically anywhere in this country if the infrequency of the disease begets overconfidence and neglect. Although we disapprove the infliction of unnecessary suffering on animals, the popular dread of dogs during the misunderstood dog-days affords to physicians an educational opportunity too good to be lost. This is the time when they may profitably emphasize the need for special precautions with regard to the spread of rabies. The problem of the control of rabies is mainly the care of stray animals and especially of those that have no proper owner, but live more or less on the bounty of the community. Careful registration of animals and the destruction of those for which no one would assume responsibility to the extent of paying a yearly license would greatly limit the disease. The problem is simpler in England, but the success in practically obliterating the disease for the last twenty years in that country shows what can be accomplished. We need intelligent, persistent scientific interest to prevent the spread of the disease and not the annual attack of hysteria that inflicts cruelty without accomplishing any good purpose.

BUTTER-FAT IN INFANT-FEEDING

The methods of the artificial feeding of infants vary from decade to decade in accord with new findings in the physiology and pathology of nutrition and with the theories that grow out of them. It is not long since "percentage feeding" had its vogue, and the food for the infant was prepared with strict regard to the proportions of the nutrients as they are believed to exist in human milk, and quite independent of qualitative considerations. The cereal preparations, early introduced into use in infant-feeding, lost their popularity in view of the apparent success of the newer schemes for modifying cow's milk with respect to the relative quantities of its components. Gradually, however, attention became directed to occasional untoward results after feeding modified milk that was often quite rich in fat. Among others the German pediatrist Czerny and his school laid the responsibility for many cases of malnutrition in infants on such diets to the presence of the milk-fats. Many an infant fed on a theoretically ideal modification of cow's milk showed symptoms which promptly subsided when the fat was omitted and carbohydrate-containing substitutes were offered. Buttermilk, skimmed milk, cereal preparations, malt products and the like found their way into use as the pendulum of opinion swung away from the conventional cream-containing dietaries.

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[1] Lloyd: Pub. Health Rep., June 19, 1914.

Dr. Niemann of the University Children's Clinic in Berlin has raised the question as to the wisdom of this trend of practice away from the use of milk-fats in the nutrition of the infant. A one-sided dietary rich in carbohydrates appears not infrequently to induce harmful consequences quite as serious as those that have been ascribed to fats. As Niemann points out,[1] the presence of an adequate reserve of fat is a characteristic of every healthy breast-fed infant. This fat deposit is surely not without import. It may act merely as an available store of energy to be drawn on in time of need; the fatty layer beneath the skin may serve an important purpose in the conservation of body heat and the maintenance of a normal temperature; or the fat may prevent the undue enrichment of the tissues in water. Whatever its function, however, it is evident that many of the current modes of artificial feeding fail to induce the typical accumulations of fat that one expects at this early age. The formation of a large fat reserve out of carbohydrates and proteins alone does not seem to follow with readiness in the infantile organism.

Wherein are the alleged dangers attributed in the past to the fat-content of the food to be sought? The fatty acids have been held responsible for them in great measure. The milk-fats of cattle yield more of the lower, volatile fatty acids than does human milk-fat. The detriment is conceived to lie in an acidosis in which these lower fatty acids are concerned; and we are reminded that various oils, notably cod-liver oil, which belong in a different category with respect to the point emphasized, are often excellently tolerated when milk-fat promptly occasions unfavorable symptoms exhibited in the form of high ammonia output, that is, acidosis.

Acting on the theory here propounded Niemann has proposed to eliminate the supposed objectionable features of cow's milk-fat by preparing a modified product from butter. The latter is thoroughly washed with water until all acid products are removed, and is then administered as an adjuvant to skimmed milk and cereal mixtures. The results of feeding this product thus fortified with "purified" butter-fat have been encouraging. It has been successful in cases of inability to utilize any considerable amount of fat as it naturally occurs in cow's milk; in cases in which various food mixtures poor in fat and rich in carbohydrate have failed to induce proper gains of weight; and in infants that were passing through the stage of recovery from losses incidental to malnutrition.

Only long-continued and extensive observations can finally determine the real efficiency of the feeding of refined butter-fat. It is of interest to note that the results obtained by Niemann in his preliminary investigation on children are quite in harmony with the unique findings of Osborne and Mendel in this country with respect to the factors influencing the growth of experimental animals.[2] These investigators have demonstrated that butter-fat furnishes some substance that exerts a marked influence on growth. They found, for example, that young rats fed on certain artificial mixtures of foodstuffs (the details of which need not be reviewed here) sooner or later ceased to grow and finally declined in body-weight. The fat in these food mixtures consisted of lard. When this was replaced in part by butter-fat, nutritive recovery and resumption of growth promptly ensued. Of similar significance is the fact, reported by Osborne and Mendel, that although rats have grown normally for more than a year on a food mixture containing dried whole milk, a comparable diet containing centrifugated (that is, fat-free) milk in every instance proved inadequate during a similar period. Again, they have found that another type of nutritive deficiency exemplified in a form of infectious eye-disease prevalent in animals that are inappropriately fed[3] is speedily alleviated by the introduction of butter-fat into the experimental ration.

It must be borne in mind that butter-fat, like other fats and oils, is not a simple chemical compound, but a highly complex mixture including glycerids and various other substances in part as yet unknown. The chemical character of the unique growth-promoting feature of butter-fat needs to be investigated in detail. Osborne and Mendel have already found that this agent is not present uniformly in all fats. Egg-fat contains it,[4] whereas some other oils have proved no more efficient than lard. Such considerations make it evident that the comparative value of the natural fats employed in nutrition must be determined, as well as the individual rôle of the different proteins, carbohydrates and mineral nutrients. Perhaps Niemann has unknowingly put into practice in infant-feeding the lessons to be derived from the extensive researches of the American investigators who have been mentioned above.

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[1] Niemann, A.: Ueber die Möglichkeit einer Fettanreicherung der Säuglingsnährung, Jahrb. f. Kinderh., 1914, lxxix, 274; abstr. in The Journal A. M. A., April 18, 1914, p. 1291.

[2] Osborne, T. B., and Mendel, L. B.: The Relation of Growth to the Chemical Constituents of the Diet, Jour. Biol. Chem., 1913, xv, 311; The Influence of Butter-Fat on Growth, ibid., 1913, xvi, 423.

[3] Compare Knapp: Experimenteller Beitrag zur Ernährung von Raten mit künstlicher Nahrung und zum Zusammenhang von Ernährungsstörungen mit Erkrankung der Conjunctiva, Ztschr. f. exper. Path. u. Therap., 1908, v, 147.

[4] This has also been pointed out by McCollum, E. V., and Davis, M.: The Necessity of Certain Lipins in the Diet during Growth, Jour. Biol. Chem., 1913, xv, 167.

THE RESISTANCE OF LIVING TISSUES TO DIGESTION

The question why the stomach does not digest itself is an ancient one. Enlarged to include the other portions of the alimentary tract this problem continues to elicit interest, to awaken discussion, and to provoke actual experimentation. A thoughtful student who has watched a shred of protein dissolve in a tube of gastric juice as demonstrated in every physiologic laboratory must have faced the same mystery. The literature of the subject is truly voluminous;[1] and every attempted explanation seems sooner or later to encounter insuperable objections. The problem, as connected with the possible etiology of ulcers of the digestive tube, has entered into the domain of pathology.

The most extreme view, which is still widely prevalent, assumes that under no circumstances can living tissues be dissolved by the natural digestive juices. In the light of recent experimental research, however, this can no longer be maintained.[2] It has now been demonstrated that the living mucosa of the urinary bladder, for example, of animals of any given species, cannot resist the proteolytic power of the natural, activated pancreatic juice of animals of the same species; and that it is even more readily attacked by the natural gastric juice. Even the living intestinal mucosa appears unable to remain intact under vigorous subjection to the gastric juice of the organism to which it belongs if food is not simultaneously administered to assist in some way in the protection of the tissue. The native protection which living tissues possess toward digestive agencies is thus limited at best. If the intestinal mucous membrane, almost continually exposed to the pancreatic juice, or the stomach mucosa, likewise bathed by an active gastric secretion, are not ordinarily disintegrated by these proteolytic agencies, we must assume that they possess the natural immunity to digestion during life in greater measure than do some of the other mucous membranes or epithelial structures of the organism.

We may as well admit that the mechanism of the undoubted specific protection of the gastric and intestinal mucosa still remains a mystery. The theory of the existence of antienzymes—antipepsin and antitrypsin—in suitable localities, has found wide acceptance, yet has not survived all the criticisms aimed at it.[2] The protective influence of the mucus secreted along the gastro-intestinal canal is an undoubted aid in the resistance of the wall to digestion, but it scarcely seems adequate to furnish the complete immunity that prevails year after year under most trying conditions of digestive danger.

Dr. Claudio Fermi of Sassari has kept numerous aquatic forms of life, such as protozoa, worms, crustacea, and insects, alive without harm in solutions of trypsin. During an entire month the tiny bit of almost naked protoplasm constituting an infusorian was unharmed by a solution of this enzyme which would speedily dissolve a large mass of coagulated protein. Shall we explain the immunity as due to antiferments, protective membranes, decreased permeability of the cells—or shall we uncover our ignorance and say, as did Hunter more than a century ago, that these living cells remain intact under such circumstances "because they are alive"?

Current Comment

BACILLUS-CARRIERS AMONG ANIMALS

The wide-spread attention which has in recent years been given to the existence of "bacillus-carriers" is beginning to serve a useful purpose in elucidating the diseases of animals as well as those of man. The careful studies of Rettger and others on the bacillary "white diarrhea" of young chicks have shown conclusively that infected ovaries constitute the real source of infection in this disease, the responsible organism, *Bacillus pullorum,* being retained in the egg and thus transmitted to the developing chick.[1] Among the more plausible explanations of the way in which the ovarian infection can be produced, it has been assumed, in the light of what is known regarding the carrier conditions in typhoid fever, that chicks which recover from an attack of white diarrhea may continue to harbor the specific organism for a long time, or perhaps permanently, without revealing any untoward symptoms of the disease. Following this point of view, when maturity is reached the hitherto latent infection may be assumed to become actively centered in the ovary, especially in consideration of the intense physiologic activity occurring there during egg production. An obvious alternative explanation of the presence of the organism in the ovaries lies in the possibility of infection after maturity, through the droppings of diseased chicks or through the agency of transmission by lice or mites. An important link in the chain of evidence needed to complete the cycle of infection has at length been obtained by Rettger, Kirkpatrick and Jones.[2] They have demonstrated experimentally that female chicks which are infected with *B. pullorum* when small may develop into permanent bacillus-carriers and be a constant source of danger to young and old stock. This carrier condition may be established in fully 25 per cent. of an infected flock. We have in these investigations, which are likely to furnish methods for averting losses which run into thousands of dollars in the animal industry, an excellent illustration of the far-reaching effect which fruitful methods of research and suggestions derived from scientific medicine may exert in the problems of commerce, just as we have repeatedly pointed out how much medicine has gained in many cases from the discoveries which have, in the first instance, been made in non-medical fields and particularly in the sciences underlying agriculture. The biologic sciences are so closely interrelated that every one of them or its applications is likely to profit by the successful pursuit of another.

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[1] Fermi, C.: Zentralbl. f. Bakteriol., 1910, lvi, 55; Arch. d. farm. sper., 1911, x, 449; Zentralbl. f. d. ges. Biol., 1912, xiii, No. 369. Oppenheimer, C.: Die Fermente, 1910, 270.

[2] Langenskiöld, F.: Ueber die Widerstandsfähigkeit einiger lebender Gewebe gegen die Einwirkung eiweissspaltender Enzyme, eine experimentelle Studie, Skandin. Arch. f. Physiol., 1914, xxxi, 1.

[1] See Storrs Agricultural Experiment Station, Bulls. 60, 68 and 74. Also Gage: Jour. Med. Research, 1911, xxiv, 491; Ann. Rep. New York State Vet. Coll., Ithaca, N. Y., 1910, p. 111, and 1910-1911, p. 69.

[2] Rettger, L. F.; Kirkpatrick, W. F., and Jones, R. E.: Bacillary White Diarrhea of Young Chicks, Storrs Agricultural Experiment Station, Bull. 77, 1914, p. 263.

BLUE MILK

Although blue milk is referred to in American scientific literature it seems to belong among the rarities in this country; whereas serious outbreaks of it have occurred in Europe, and there its appearance seems to have been of considerable practical importance. Blue milk is ordinarily understood to be due to the production of a colored pigment in the fluid as the result of the development of special micro-organisms therein. This unusual manifestation in milk was early observed and reported; but Steinhof, who was able in 1838 to cause its disappearance by the use of disinfectants, was apparently the first to recognize the presence of an infectious material. The well-known bacteriologist Hueppe was the first to obtain a blue-milk organism in pure culture, in 1884, so that evidently the investigation of the subject goes back to the early days of bacteriology when this modern science was still in the formative period. There is a possible ground for misunderstanding as to the nature of the phenomenon. According to some,[1] milk may have an abnormal blue appearance due to other causes than the growth of micro-organisms therein. We are told that milk which had been allowed to stand in iron dishes for several hours had a peculiar bluish-gray color, indicating the presence of iron in solution. A number of investigators have maintained that the consumption of certain plants by milk-producing animals may result in an abnormal blue color in the milk secreted, but the data along this line are more or less conflicting. There seems to be no doubt, however, that the abnormal appearance of a blue color in milk is, in the great majority of cases, caused by the growth of micro-organisms in the milk. The appearance of a few isolated samples of blue milk which recently reached one of our Western experiment stations has afforded an opportunity for a new investigation of this uncommon phenomenon.[2] The organism isolated from the milk and proved to be responsible for this "outbreak" was the *Bacillus cyanogenes*, the same organism that has been isolated in other instances of blue milk. The fact that in the Iowa manifestations the trouble occurred in only two households out of eighteen served from the same dairy, and that these two were quite closely associated, indicates that the infection of the milk took place in the household. This explanation is also suggested by the failure of the blue milk to appear at the dairy farm, except in a pan brought from the home of one of the customers having the trouble. As far as is known, this organism is entirely harmless, and milk which is turned blue by it is objectionable only on account of its color.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL

Two things have happened recently in the medical journal field that merit a passing notice because of what they may indicate for the future. This comment deals with one of them. Three weeks ago an item appeared in our News Department to the effect that a new journal had appeared in New Orleans and that it was to be the official organ of the Louisiana State Medical Society. The item might have stated also that it was to be the official organ of the Pan-American Medical and Surgical Association — a new society just organized in New Orleans. This is incidental. We are at this time concerned with a different factor connected with this new venture in medical journalism. In his address, at the last annual meeting, the president of the Louisiana State Medical Society presented certain specific objections to the *New Orleans Medical and Surgical Journal* as the official organ of the society. The first objection was:

> "The carrying of unethical advertisements, condemned by the Council of the A. M. A., which should have terminated the contract long since, as it reflects discredit on every ethical member of the organization."

Among the recommendations was this:

> "The Society should undertake the publication of its own journal. . . . The advertisements to be strictly ethical and in conformity with the recommendations of the Council of the A. M. A."

While this recommendation that the state society publish its own journal was not adopted, another was adopted, reading:

> "That if this latter be deemed inexpedient that a contract be entered into with any ethical, live medical journal . . . provided . . . that its advertising columns contain no matter condemned by the Council of the A. M. A."

There were objections to a continuation with the *New Orleans Medical and Surgical Journal* other than the one mentioned; still this was an important one, and probably had as much influence as any other in swaying the vote. Thus the new *Pan-American Surgical and Medical Journal* becomes the recognized organ and receives the endorsement of the Louisiana State Medical Society. The *New Orleans Medical and Surgical Journal* that is thus superseded is the second oldest medical journal in the United States. For eighty years it has stood for the better things in scientific medicine and in the medical profession — in its reading pages. Until recently it was easily the leading medical journal of the South and had few equals in the North. If its good name and prestige are to be regained and retained it will be when it recognizes that in modern medicine, and among an enlightened medical profession, the fraudulent nostrum has no place, and cannot be tolerated in the advertising pages of scientific publications.

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[1] Olson: Rusty Cans and Their Effect on Milk for Cheese-Making, University of Wisconsin Exper. Station, Bull. 162.

[2] Hammer, B. W.: A Bacteriological Study of Blue Milk, Iowa Agricultural Experiment Station; Research Bull. 15, 1914, pp. 467-481.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

The other incident referred to in the preceding comment occurred, not in the sunny South, but in conservative New England. The Massachusetts Medical Society has heretofore had neither a journal of its own, nor an official organ; it has issued its own publications in book or pamphlet form. For some time, however, the society, through its council and special committees, has considered the advisability of journalizing its transactions. These deliberations finally resulted in the adoption of a plan by which the *Boston Medical and Surgical Journal* becomes the official organ of the society. This is announced in the issue of the *Journal* for July 2, in which appears the annual address of the president, who discusses the question. He says:

> This project has been made possible by the generous and public-spirited attitude of the owners of the *Boston Medical and Surgical Journal*. . . . They agree that should this enterprise prove to be a source of income above the expense of maintenance, they will not derive any pecuniary benefit, but that all profit will be devoted to improving the quality and quantity of the journal.

Editorially we are told that "an advisory board of four from the Massachusetts Medical Society will later be appointed to act in conjunction with the three owners." Thus, though not actually owning the journal, the society will have a controlling voice in its management. Nothing has been published thus far regarding the question of advertising, but we understand that the new owners (who have only recently purchased the journal) have expressed themselves that the principles governing the advertising pages will be in accordance with those advocated by the great majority of our profession, and in consonance with scientific medicine. The *Boston Medical and Surgical Journal* is the oldest medical journal in the United States. Like its New Orleans namesake, it has a history to be proud of, and one of which the profession of New England is proud. From this new arrangement, and because of the new spirit that is to control the business side, we may be sure that the prestige of the past will be maintained; also, that no longer will its advertising pages be disgraced with nostrums that an enlightened profession can no longer tolerate. We heartily congratulate both the *Journal* and the Massachusetts Medical Society.

The State Society and Its Medical Journal.—The value of state society ownership of its medical journal is apparent in that the state has full control over the character of advertising and over the ethical question. Most of the state societies have a medical defense feature so that a state medical society becomes a business organization for the development of ethical and business problems which confront the profession. Men who have had a watchful eye on the evolution taking place in the practice of medicine, come to realize more and more the importance of studying economic problems relating to the profession. We take into account therefore protection against the tendency to malpractice suits due to the fact that the business world is now holding the doctor to a stricter accountability for his work. In addition to this is the development of industrial problems in which the doctor now finds himself to be an important factor, and perhaps the most helpless one on account of his inexperience in business matters and his willingness to become a secondary factor in our industrial evolution.—Editorial *Jour. Iowa State Med. Soc.*

Medical News

ALABAMA

Must Build New Prison.—Dr. William H. Oates, Montgomery, state prison inspector, after having exhausted all other means, has delivered to the board of revenues an ultimatum, that a new jail must be built for Jefferson County, failing which the prisoners will be removed to the state prison at Wetumpka. Dr. Oakes states that he has been vainly trying for the last two years to get Jefferson County to correct the situation which exists at the county jail.

University Items.—The annual address before the graduating class of the School of Medicine of the University of Alabama, Mobile, was delivered by Surgeon-General William C. Gorgas, U. S. Army.——Dr. J. Howard Agnew, formerly first assistant in the department of medicine of the University of Michigan, Ann Arbor, has accepted a full-time professorship at the University of Alabama.——Dr. William H. Clarke has been appointed a full-time professor in the department of anatomy.

CALIFORNIA

New Officers.—The Medical Symposium Society at Los Angeles, June 30: president, Dr. Edwin H. Wiley; secretary-treasurer, Dr. Michael S. Creamer. Dr. Van Noorden, Jr., of Vienna, delivered an address at this meeting.

One Day a Month at State Hospital.—Plans are being made by Superior Court Judges Grant Jackson and Willis I. Morrison to call a conference of southern California physicians to arrange for visits to the state hospital, Patton. The plan as formulated is to select a certain number of physicians, each of whom will devote one day each month to consultation with the hospital staff. At present there are five physicians and 2,100 patients in the hospital.

COLORADO

Health Department Endorsed.—The committee which the Pueblo County Medical Society appointed to make a thorough investigation of the health department of Pueblo, has reported as strongly endorsing the city commissioner and the City Health Department.

Personal.—Dr. Earl D. McGill, Wray, was shot and seriously wounded in an altercation, July 2.——Dr. Frank Smith, Longmont, who was operated on recently at the Longmont Hospital, is reported to be convalescent.——Dr. H. A. Hook, Loveland, was seriously injured in a runaway accident, June 30.

ILLINOIS

Personal.—Dr. E. Vincent Hale, Anna, announces his retirement from active practice.——Drs. William L. Gray, Champaign, and James S. Mason, Urbana, have sailed for Europe.——Dr. George H. Lee, Kankakee, is seriously ill with septicemia, due to an infected wound of the thumb.——Dr. Ralph B. McCleary, Monmouth, is reported to be seriously ill.

Health Center Established.—A health center for an entire township, including the towns of La Salle, Peru and Oglesby, has been established at La Salle with a high school and social center. This enterprise has been undertaken by a public-spirited citizen of La Salle. Physicians, school nurses and sanitary police will be provided, schoolchildren will be inspected, and the milk-supply of the three communities will be under control. The social settlement will include people's institutions with swimming-pools, libraries, reading-rooms, etc.

Chicago

Alienists and Neurologists Meet.—The national convention of alienists and neurologists was held under the auspices of the Chicago Medical Society this week. Institutional care, the teaching of sex hygiene and sterilization were put forward as the best means of remedying the increase of insanity in the United States.

Health Conditions in Chicago.—The *Bulletin* of the Chicago School of Sanitary Instruction for July exhorts the citizens to clean up and drive out the rats. This measure is prompted by the occurrence of five cases of bubonic plague in New Orleans. During June there were 67 cases of typhoid fever reported, of which number 14 were contracted outside of the city. Four were directly traced to contact with persons who had the disease. In 49 cases the sources of infection were not determined. The number of cases corresponds closely to that of 1913.

Fresh Air Stations for Sick Babies.—Fresh air stations for sick babies have been established by the Elizabeth McCormick Memorial Fund at the Northwestern University Settlement, Augusta and Robey streets, the Henry Booth House, 701 W. 14th Place, and at the House of Social Service, at 47th and Halsted streets. Dr. Frank W. Allin has charge of the medical staff of the tent system, and the nursing is under the charge of Mrs. M. Pearl Ringland of the Visiting Nurse Association. The tents are in close cooperation with the Health Department, Infant Welfare Society, Visiting Nurses, Tuberculosis Hospital and all forces working for the betterment of infant health in the city.

INDIANA

Hospital Dedicated.—The new St. Francis' Hospital, Indianapolis, was dedicated with appropriate ceremonies July 5, and was opened to receive patients July 10. The building is 197 by 48 feet, of fireproof construction, and will accommodate one hundred patients.

Personal.—Dr. Eugene B. Mumford, Indianapolis, has returned from six months' service as house surgeon in the Children's Hospital, Boston.——Dr. Robert Wagoner, Colburn, was stricken with cerebral hemorrhage, July 2.——The house of Dr. Richard B. Short, Bedford, was burned June 28.——Dr. Horace R. Allen, Indianapolis, who has been seriously ill with pneumonia, is reported to be out of danger.——Dr. James H. Taylor, Indianapolis, who has been seriously ill with pneumonia, is reported to be convalescent.

KANSAS

Health Officer for Every Schoolroom.—The State Board of Health proposes to follow the plans adopted in the Topeka schools, of having the children of each room elect a health officer weekly. The officers selected must look after the heating, ventilation and sanitation of the room. Beside the immediate good which will develop from this system, it is believed that it will interest the children in health problems, and as a consequence will arouse interest among their parents.

KENTUCKY

Personal.—The home of Dr. Amerida M. Gross, Hazard, was burned June 18, with a loss of $3,000. Dr. Taylor Hurst, an assistant of Dr. Gross, was severely burned in an endeavor to save children thought to be imperiled by the fire.——Dr. Benjamin W. Smock, Louisville, health officer of Jefferson County, has returned from Hot Springs after an absence of four months.

University Items.—On the recommendation of Dr. Henry Enos Tuley, dean of the medical department of the University of Louisville, President A. Y. Ford of the university has announced the following appointments: Dr. Leon L. Solomon, professor of medicine and clinical medicine; Dr. David C. Morton, professor of clinical medicine; Dr. Sidney J. Meyers, professor of medicine and medical economics; Dr. Frank W. Fleischhaker, professor of physical diagnosis; Dr. Gavin Fulton, adjunct professor of pediatrics; Dr. Siegel C. Frankel, adjunct professor of medicine; Dr. Irvin Lindenberger, adjunct professor of pediatrics; Dr. Charles Farmer, adjunct professor of abdominal surgery; Dr. Guy P. Grigsby, adjunct professor of gynecology; Dr. John W. Price, Jr., adjunct professor of surgery; Dr. Oscar W. Doyle, adjunct professor of therapeutics; and Dr. F. Stuart Graves, Boston, professor of pathology and bacteriology, vice Dr. Leon K. Baldauf, resigned.——Dr. James Bruce has been appointed resident physician of the City Hospital.——The medical library of the late Dr. J. B. Marvin, consisting of more than one thousand volumes, has been donated to the medical department of the university, and added to its library.——The hospital committee of the university has recommended the equipment of a modern pathologic laboratory, and the appointment of a resident pathologist.

LOUISIANA

Pan-American Society Meets.—The Pan-American Medical Society held a special meeting in New Orleans, July 17, to which the public was invited.

Cooperative Sanitarium Incorporated.—The Attakapas Cooperative Sanitarium has been incorporated at Lafayette, with a capital stock of $30,000 "to establish and maintain a sanatorium for the treatment of disease and the care of invalids."

New Officers.—Attakapas Medical Society at New Iberia, June 10: president, Dr. Isaac T. Rand, New Iberia; secretary, Dr. Lambert O. Clark, Lafayette.——Iberville Parish Medical Association at White Castle: president, Dr. Edward O. Trahan; secretary-treasurer, Dr. Guy A. Darcantel, both of White Castle.

Model Vital Statistics Bill.—The state legislature of Louisiana has passed the Model Vital Statistics Bill; also the so-called "Printers' Ink Bill" for the regulation of advertising. This bill which was endorsed by the House of Delegates of the American Medical Association at the Minneapolis session provides that any person or firm advertising any merchandise, securities or services to the public, who shall use any form of advertising which contains any untruth or misleading statement, shall be guilty of a misdemeanor. Louisiana is the eighteenth state to adopt such a law. It has also been adopted as a city ordinance by New York, Chicago and Los Angeles, and has been introduced into congress as a national measure.

MARYLAND

Health Department Moves.—The Baltimore Health Department has moved into its new quarters in the old Polytechnic Institute building on Cortland Street.

Asks for Rat-Catcher.—Health Commissioner Nathan R. Gorter, Baltimore, has applied to the Board of Estimates for permission to employ an official rat-catcher for the city, who will help the department in preventing any possible outbreak of the bubonic plague which has already manifested itself in New Orleans.

Personal.—Drs. Joseph C. Bloodgood and Alexander D. McConachie, Baltimore, have gone abroad.——Dr. George Y. Massenburg, who recently returned from Panama City, Panama, has offered to take charge of the "mosquito brigade" for Towson. While in Panama Dr. Massenburg had an opportunity to learn the methods used there to eliminate the mosquito and will use a similar treatment at Towson.——Dr. George H. Whipple has resigned as associate professor of pathology in Johns Hopkins Medical School, Baltimore, and has been appointed director of the Hooper Institute, San Francisco. Dr. Milton C. Winternitz has been appointed to succeed Dr. Whipple.——Dr. John C. Hemmeter, Baltimore, has been elected a foreign member of the Imperial German Academy of Sciences.

Twenty-Fifth Anniversary of Johns Hopkins Hospital.—Johns Hopkins Hospital is preparing to celebrate the twenty-fifth anniversary of its opening next October. Already plans for the event are well matured and a tentative program formulated. The celebration will begin on Monday afternoon, October 5, with a meeting at the Lyric, at which Dr. William H. Welch will preside and Sir William Osler of Oxford University will speak. Distinguished foreigners and Americans who received their medical training at Hopkins have been invited and the celebration will bring to Baltimore an imposing assemblage of noted scientists. Sir William Osler will conduct a clinic while here and Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, will also return and speak. One of the most important features will be the dedication of the new Brady Urological Institute, presented by James Buchanan Brady, through Dr. Hugh H. Young, the completion of which will add another to the remarkable group of new buildings. This dedication will take place October 7. Dr. Thomas Lewis, of the University College, London, the editor of *Heart*, will deliver the lectures under the Herter Foundation at the Johns Hopkins Medical School in connection with the celebration. An interesting affair of the week will be the dedication on October 6 of the medallion in memory of Dr. John Hewetson, a former member of the staff, who died of tuberculosis while traveling abroad about four years ago.

MINNESOTA

Asks Appropriation for Sanatorium.—The Ramsey county commissioners have been asked by the board of control for an appropriation of $14,000 for expenses of the Cuenca Tuberculosis Sanatorium, a municipal institution, for the coming year.

Personal.—Drs. John H. Rishmiller and Olaf J. Veline, Minneapolis, have sailed for Europe.——Dr. Rollo C. Dugan, Winona, has been appointed superintendent of the hospital recently established at Ottawa, Kan.——Dr. Hibbard W. Hill, St. Paul, executive secretary of the Minnesota Public Health Association, assumed his duties July 1.

Memorial to Dr. Stewart.—A memorial to the late Dr. J. C. Stewart was adopted by the Board of Administration of the College of Medicine and Surgery of the University of Minnesota at its last regular meeting, July 2. The memorial sets forth the dominant characteristics of Dr. Stewart, his absolute frankness of opinion and positiveness of action, his varied services to his Alma Mater, the grateful remembrance and uniform respect in which he is held by his fellow alumni, and the loss his colleagues and the university have sustained.

MISSOURI

Personal.—Dr. Willard C. Proud, Oregon, has sailed for Europe.——Dr. James L. Downing, Eagleville, announces that he will leave this fall for Brazil, again to take up his work as a medical missionary.

Property for Hospital Site Transferred.—A warranty deed conveying the title of the site of the prospective Noyes Hospital at 24th and Jones streets, St. Joseph, was filed June 24. Plans are now being prepared for the hospital and work will begin on the building before fall.

New Officers.—Northern Missouri Medical Association at Moberly, June 18: president, Dr. William H. Miller, Macon; corresponding secretary, Dr. Adrian L. Cambre, Atlanta; recording secretary, Dr. Walter D. Pipkin, Excello. The next meeting will be held in Macon.

St. Louis

Personal.—Dr. Ralph E. Kinsella has been appointed chief resident surgeon, and Dr. Benjamin W. Klippel resident surgeon to the city hospital.——Dr. and Mrs. Walter Fischel have returned from Europe.

Railway Establishes Emergency Hospital.—The Missouri Pacific-Iron Mountain System has fitted up an emergency hospital in its general offices in the Railway Exchange Building, to be operated during the heated term. Drs. Oliver B. Zeinert and William D. Petit are in charge of the hospital.

NEW YORK

New Officers.—Auburn City Medical Society, June 30: president, Dr. Alfred F. Hodgman, Auburn; secretary, Dr. George C. Sincerbeaux, Locke.

Personal.—Dr. Alice Baxter, Ogdensburg, a member of the staff of the St. Lawrence State Hospital, has resigned to accept the position of woman physician to the Pontiac (Mich.) State Hospital. Dr. Baxter was presented with a gold wrist watch by the employees of that institution.——Dr. Charles W. Mills, Loomis, and Dr. John B. Allen, Central Islip, L. I., have sailed for Europe.

Quarantine Against Jersey Horses.—At a recent conference in Jersey City, participated in by the deputy commissioner of agriculture, the mayors of Jersey City and New York, health officers and veterinarians, it was announced that a quarantine against horses suffering from glanders had been established in New York state and city, and that all the horses passing between the two states would have to be inoculated with the mallein serum, which is supplied by the government. It is stated that 6,000 horses pass back and forth daily between the two cities. All such horses must be inoculated before September 1.

New York City

New Officers.—Brooklyn Pathological Society, May 14: president, Dr. William Lintz; secretary, Dr. Robert F. Barber.

License Revoked.—The Board of Regents revoked the medical license of Abraham Glickstein, New York City, on complaint of the New York County Medical Society.

New York Rats Plague-Free.—Commissioner of Health Dr. Sigimund S. Goldwater, in taking precautions to prevent the introduction of plague into this city, has had hundreds of rodents trapped under the piers and along the water front. The result of laboratory examinations show that the search for the plague bacillus has given only negative results. The work of examining rats will continue as long as there is any danger of the plague being brought to this port.

Personal.—Drs. John W. Draper and Henry W. Frauenthal have sailed for Europe.——Dr. Isadore H. Goldberger has been appointed assistant director of educational hygiene for the public schools of the city of New York.——Dr. James H. Morris has been appointed superintendent of the New York Polyclinic Hospital.——Dr. C. Irving Fisher resigned, July 1, after twenty-three years of continuous service as superintendent of the Presbyterian Hospital.——Dr. James W. Shaul, specialist in diseases of the eye, ear, nose and throat, has moved to Los Angeles, Cal.

Faith Cure for Gain Unlawful.—In the Willis Vernon Cole's suit which has been before the courts for over two years, the Appellate Division handed down a decision on July 10 that "Faith cure as work for gain is unlawful." The suit was brought by the New York County Medical Society on evidence obtained by a detective employed by the society. The case will be appealed as it is held that if this ruling stands Christian Scientists throughout the state will have to close their offices. Cole acknowledged that he had never studied medicine and that he received about $6,000 per year, most of which was given him voluntarily.

New Management at the Polyclinic.—The Polyclinic Hospital is about to inaugurate a new mode of management. The board of trustees and the faculty will remain the same, with their functions unaltered, but the board of managers will be active in directing the affairs of the hospital. John Gunn who has been superintendent of the hospital for twenty years has resigned and Dr. James High Norris who has been assistant manager at the Rockefeller Institute is to be superintendent of the hospital. The board of managers is to be presided over by Dr. John A. Wyeth who is also president of the faculty.

Fewer Fourth of July Casualties.—The records for the Fourth of July in the greater city show that twenty-six persons, nearly all boys under 16 years of age were accidentally shot by revolvers and twenty-six were more or less seriously injured by fire-crackers, toy pistols, etc. No one was fatally injured and the injuries for the most part were not severe. On the Fourth of July prior to the inauguration of the Sane Fourth there were 559 persons injured and seven killed in the greater city. Each Fourth since then has seen the number decrease until in 1913 there were 65 injured and no deaths, and the present year has witnessed a further reduction of accidents of this kind.

OHIO

Change in Management.—Dr. W. Clyde Leeper has sold his interest in the Rocky Glen Sanatorium for Tuberculosis to Mrs. Adah Schafer, Cincinnati. Dr. Leeper will remain with the institution as superintendent.

Warns against Unwise Economy.—Dr. Charles A. L. Reed, Cincinnati, has issued a strenuous warning against cutting down the present force of the Cincinnati Health Department while so great a danger as that of the bubonic plague is within so short a distance from the city as New Orleans.

Personal.—Drs. William C. Herman, Cincinnati, Wilson M. McClellan, Ashland, and William W. Pennell, Mt. Vernon, have sailed for Europe.——Dr. Frank Dahinden, health officer of Canton, has resigned to take effect not later than August 1.——Dr. Charles B. Parker, Cleveland, has retired from active practice on account of illness due to overwork.——Dr. Luke V. Zartman has been appointed local surgeon for the Baltimore & Ohio system at Columbus, to succeed the late Dr. Sherman Leach.

Hospital Council Organized.—The organization of the Cleveland Hospital Council was perfected at a meeting held June 15. The council is composed of two representatives of each of the fifteen general hospitals of Cleveland, and its duty is to decide definite policies and lines of action as regards the economic and social services of its members. Arthur D. Baldwin, of the Babies' Dispensary and Hospital, was elected president; Dr. James E. Cogan, St. Alexis' Hospital, vice-president; Dr. Andrew R. Warner, Lakeside Hospital, secretary, and Dr. John Annisfield, Mt. Sinai Hospital, treasurer.

Trachoma in Children's Homes.—Dr. Thomas A. Copeland, a physician in Athens, whose practice is limited to diseases of the eye, ear, nose and throat, recently discovered twenty-four cases of trachoma among the eighty-one inmates in the Children's Home. These cases were all recent, and none of the usual complications had as yet occurred. An inspector of the State Board of Health confirmed the diagnosis and went before the trustees to instruct them as to the steps necessary to restrict the spread of the disease. Dr. Copeland was appointed to treat the cases, and a nurse was also appointed to oversee the general campaign in the home. Separate towels, wash basins, wash rags and other toilet utensils are being provided for the affected children and as much isolation as possible is being practiced.——Miss Greene, a representative of the Ohio Commission for the Blind, brought two cases of trachoma from the Pike County Children's Home at Waverly to the Children's Hospital at Columbus. One of the patients is suffering from entropion and the results of corneal ulcer. Dr. Schafer will operate on the patients at once. As a result of finding trachoma in these two county homes, the Division of Communicable Diseases of the State Board of Health proposes to make a survey of all county homes to determine the presence or absence of trachoma among the inmates.

PENNSYLVANIA

Pasteurization Rule to Be Strictly Enforced.—On July 1 Director Richard Harte announced that the Department of Health would rigidly enforce the new rules requiring that all milk sold in bottles in the city shall be pasteurized unless produced under approved sanitary conditions. On June 30 Judge Sulzberger refused to issue an order restraining the Board of Health from putting into effect the rule for the pasteurization of milk.

New Hospital Building.—On June 29 ground was broken for an addition to the American Oncologic Hospital, the only institution in the state which treats cancer in advanced stages. The new building, a two-story structure with basement, will cost $21,000. The first floor will be used as an operating room; the second floor to be known as the Banks Memorial Ward, will contain four rooms, for two female patients each, and the basement will be devoted to x-ray and radiographic work.

Physical Test for Child Workers.—After July 6, every child in this city under the age of 16 is required to pass a rigid medical examination before being granted a certificate to work. The examination will be conducted by physicians working under the auspices of the State Department of Labor. According to Henry J. Gideon, chief of the Bureau of Compulsory Education, authority for the regulation is provided by the Child Labor Act of 1909, which declares that only children who are "physically able" shall have labor certificates.

Personal.—Dr. Henry Osborne Beattie, Pittsburgh, and Malcolm Z. Gearhart, Reading, have sailed for Europe.——Dr. Henry B. Burns has been appointed head of the department of school hygiene of Pittsburgh.——Dr. Walter A. Yeakle, Norristown, has been appointed medical officer of the new cruiser recently built in Camden, N. J., for the Greek navy, and will accompany the cruiser on her maiden voyage.——Dr. Clyde R. McKinnis, resident physician of the male department of the Norristown Hospital for the Insane, has resigned to become medical director and superintendent of the Marchaise Hospital and Home, Pittsburgh.——Dr. Laverne D. Paige, Corry, was seriously hurt July 3, by the overturning of his automobile.——Drs. Edward Stieren and James D. Heard, Pittsburgh, have sailed for Europe.——Dr. Andrew Peter D'zumra, Braddock, has been appointed a fellow in internal medicine in the University of Pittsburgh.

Philadelphia

Personal. — The following physicians have sailed for Europe: Drs. Thomas E. Eldridge, William W. Sweet, William Zentmayer, Edward E. Montgomery, James M. Anders, William E. Hughes and T. Hewson Bradford.——Dr. J. Leo Donahue has been appointed assistant to the head of the insane department at Blockley.——Dr. William H. Walsh, for two years superintendent and medical officer of the Municipal Hospital, has been elected medical administrator of the new Children's Hospital. He will enter on his new duties October 1.——Dr. Philip H. Moore has been elected a member of the select council for the Forty-Fourth Ward.

WISCONSIN

Maternity Ward for Mount Sinai.—A maternity ward is being erected for Mount Sinai Hospital, Milwaukee. The building is five stories in height and will cost about $125,000, of which $100,000 has already been donated.

Sanatorium for Brown County.—A resolution was passed by the Brown County Board of Supervisors at its meeting, June 13, approving all contracts let by the sanatorium committee, and providing that the payment of $25,000, raised last year for the purpose of erecting a tuberculosis sanatorium be applied to this purpose as soon as the money is needed.

Personal.—Dr. Thomas W. Nuzum, Janesville, has sailed for Europe.——Dr. Carrie A. Frost, Chippewa Falls, has been appointed a trustee at the Lawrence College, Appleton.——Dr. Henry W. K. Abraham, Appleton, has been elected president, and Dr. John M. Beffel, Milwaukee, reelected secretary-treasurer of the State Board of Medical Examiners.——Dr. William C. Watkins, Oconto, has been appointed first lieutenant, M. C., N. G. Wis.——Dr. Walter W. Peck, Darlington, has been appointed local surgeon of the St. Paul System.——Dr. Alphons M. Kersten, De Pere, fell while making a professional call, July 4, dislocating his left ankle.

GENERAL

Meetings at Sioux Falls.—The Northwestern Oph-Lar-Rhin-Otic Society will hold its semi-annual meeting at Sioux Falls, S. Dak., July 23.——The annual meeting of the Sioux Valley Medical Society will be held at Sioux Falls, July 22-23.

Indian Service Physicians Confer.—A conference of the physicians of the U. S. Indian Service of the Northwest was held at the Fort Lapwai Indian Sanatorium, Fort Lapwai, Idaho, June 23-25, 1914. The conference was directly under the charge of Dr. Joseph A. Murphy, medical supervisor, U. S. Indian Service. The first days was devoted to tuberculosis, with Dr. John N. Alley, superintendent of the sanatorium as chairman; the second day to trachoma, with Dr. W. H. Harrison, ophthalmologist of the Indian Service as chairman, and the third day to oral hygiene and general infectious diseases, with Harry L. Hale, D.D.S., of the Indian Service, chairman. After a general discussion of all the medical problems of the Indian Service, the conference adjourned to meet in Denver, in 1915.

The Plague.—A telegram from New Orleans, July 14, states that the United States Public Health Service, with Assistant Surgeon-General William Colby Rucker in command, assumed control of the plague situation in New Orleans, July 8. The headquarters at 163 Dryades Street, are outfitted and opened. One hundred and sixty men, provided by the city for clean-up work, have been placed under the orders of the public health officials, and assigned to work in gangs of eight along the river front. Dr. Ruckers' staff is as follows: Surgeon Richard H. Creel, executive officer; Passed Assistant Surgeon Friench Simpson, in charge of field work; Assistant Surgeon Charles L. Williams, bacteriologist; Surgeon Gustave M. Corput, in charge of outgoing quarantine; Assistant Surgeon C. V. Akin, in charge of infected districts; Acting Assistant Surgeon Howard D. King, inspector of dead, and W. H. Keen, pharmacist. Surgeon-General Blue has ordered the United States Quarantine Steamship *Neptune* from Philadelphia to New Orleans, July 10. She is in command of Captain C. H. Bartlett and Passed Assistant Surgeon Norman Roberts, who will superintend the work of fumigation. This vessel is outfitted with the Harker carbonmonoxid apparatus for rapid deratization of ships. Since the last report, two cases of human plague have been reported, the fourth and fifth since the disease was discovered. Case number 4 is Leon Dejan, colored, male, 28 years of age, married, residing at 2227 Stann Street, employed in a wholesale produce house at 429 Poydras Street, who was taken ill July 5, and died in the Plague hospital, July 9. This case was one of right axillary bubo with secondary plague pneumonia. The fifth plague case was Elizabeth Domingo, a colored female, aged 35, married, living at 1902 Agricultural Avenue, corner of Allen Street, who had worked at 307 Lafayette Street, where sick and dead rats were seen July 10 and 12; sickened July 9, and was removed to the Isolation Hospital, July 12, with a left femoral bubo. In both cases the diagnosis was positively confirmed bacteriologically. Elizabeth Domingo received 120 c.c. of Yersin serum, and appears to be doing well. The second case of the series, Wilkinson, is convalescent. The total number of cases to date is five, with three deaths. Intensive rat trapping is being carried out in the area bounded on the north by Louisa Street, on the south by Napoleon Avenue, on the east by the water front, and on the west by Camp and Rampart streets. All trapped rats are being examined in the laboratory, but no positively plague-infected rodents have been reported. Precautions are also being taken to prevent the escape of rats to vessels, and the possibility of the spread of infection by river traffic. All vessels leaving New Orleans with certificates of the Public Health Service have been fended off 8 feet from the dock; 36-inch rat-guards applied effectively to hawsers; gangways continuously guarded, and the vessels fumigated with 4 per cent. sulphur-dioxid gas before loading. In other words, the federal quarantine regulations are being rigidly enforced. The campaign of education and publicity is going forward rapidly, and the newspapers are giving hearty cooperation. Meetings have already been held with the Civic Federation, Orleans Parish Medical Society, port commissioners, board of directors of cotton exchange, board of trade and in several negro churches. Four or five meetings will be held daily until the propaganda of education has reached the entire population. The Board of Health, on July 14, passed the rat-proofing, fending-off, chicken and garbage-can ordinances, prepared by the officers of the Public Health Service. The police department is cooperating in the enforcement of the garbage-can law. Inspection of all dead bodies prior to embalming has been instituted. This inspection is made from 6 a. m. to 9 p. m. by the inspectors of the dead, Acting Assistant Surgeon Howard D. King, U. S. P. H. S., and Dr. Sidney Dale Porter of the Louisiana State Board of Health. Reports of all cases and the progress of the work are forwarded promptly to the various consular officers in New Orleans. This action has had a beneficial effect in preventing quarantine by other countries. The New Orleans Civic Federation has appointed committees made up of representative women of the community on hotels, restaurants and markets to cooperate in the campaign.

CANADA

Cabinet Changes.—Of three members in the Ontario cabinet, the Hon. Dr. Robert A. Pyne, Minister of Education, and the Hon. Dr. Preston were reelected in the recent Ontario elections, while the Hon. Dr. Joseph O. Reaume, Windsor, Minister of Public Works, was defeated.

Provincial Association to Meet.—The annual meeting of the Saskatchewan Medical Association will be held in Saskatoon, August 18-20. Dr. George R. Peterson, Saskatoon, is president. Dr. Arthur Wilson, Regina, recently resigned as secretary and has been succeeded by Dr. J. T. McKay.

Infant-Welfare Work.—The Toronto Board of Health has appointed a medical director and thirty-one nurses in connection with infant-welfare work. Several baby clinics and milk depots have been established, and the Department of Health keeps in touch with birth registration. Literature is sent to and nurses visit the mothers.

Personal.—Dr. William P. Caven, Toronto, is in Europe. ——Dr. Albert E. Vipond, Montreal, has returned from conducting a series of experiments on pellagra at Columbia University.——Dr. Agatha Doherty, Toronto, has been appointed house surgeon at the new London Hospital for Women.——Dr. John W. McIntosh, Vancouver, B. C., has been appointed associate professor of chemistry and acting head of the department in the University of British Columbia.

Ontario Medical Council.—The Ontario Medical Council met in Toronto during the week ended July 11. The most important item of business transacted was the adoption of a resolution pledging the council to approach the Ontario legislature to secure legislation defining the phrase "the practice of medicine" in the province of Ontario. This will be presented to the government by the executive committee, legislation committee and representatives of the teaching body. Dr. James MacArthur, London, Ontario, was elected president, and Dr. John L. Bray, Toronto, was reelected registrar.

FOREIGN

Death of Duguet.—Dr. Nicolas Jean-Baptiste Duguet, vice-president of the Academy of Medicine of Paris, commander of the Legion of Honor, died in Paris, July 4, aged 77.

Chinese Physician Visits Hospitals.—Dr. Lew Chee, Peking, China, is making a tour of the United States, inspecting local hospitals to gain ideas to be used in the construction and management of a hospital to be built in Canton next year at a cost of $750,000.

LONDON LETTER

London, July 4, 1914.

Royal Commission on Venereal Diseases

At the forty-first meeting of the Royal Commission on Venereal Diseases, evidence was given by Mr. J. Smith Whitaker, medical member and deputy chairman of the National Health Insurance Commission. He explained the working of the panel system and said that an insured person suffering from venereal disease was entitled as part of his medical benefit to receive medical treatment exactly in the same way and to the same extent as other diseases. The position of the insured as regards the adequacy of the treatment when suffering from these diseases did not differ substantially from that of the ordinary population when under the care of general physicians, and in cases requiring treatment by specialists, the two sections of the population stood exactly on the same footing. With regard to sickness benefit—that is, periodical payments made to the insured person while rendered incapable of work by some specific disease—it was possible for an approved society to provide by its rules for the withholding of this benefit in cases in which the sickness was caused by the insured person's own misconduct, and this applied to many cases of persons suffering from venereal diseases. It was the usual practice, and had been for many years, for societies to class venereal diseases as a disease caused by misconduct. Mr. Whitaker thought that provision made for the treatment of particular diseases or particular groups of persons should be looked at not only from the point of view of those diseases of those persons but also from the broad point of view of the relation of that administration to the whole body of treatment of all kinds throughout the country. Any scheme of administration that might be devised, for example, for dealing with venereal diseases should be so framed that it would develop the abilities of physicians and make them more efficient for their general functions as the first line of defense of the country.

The Developments in the Medical Service of the Insurance Act

The British Medical Association is much concerned as to possible developments in the medical service under the insurance act, particularly the introduction of a whole-time medical service. This is advocated by socialistic politicians who use as one argument the excessive claims for sickness benefit which have been made in certain societies. For this physicians are blamed for being too complaisant in granting certificates. It is urged that if they were the servants of the state there would be no motive for gaining favor with patients in this way. It is also suggested that the different branches and specialties of medicine should be dealt with by whole-time specialists and that in this connection the state could take over the hospitals. If a whole-time medical service were established it is not conceivable that it would be limited to the insured alone; their dependents would certainly be included, and thus the whole population, excepting the wealthy, would be brought under the system. Such a development would certainly be unwelcome to the profession. It is not likely to occur in the near future, but one who studies political tendencies need not be a bold prophet to say that it is a perfectly certain goal. What the association is most concerned with now are certain minor developments which are all in this direction. The tendency is exemplified by (1) the appointment of whole-time tuberculosis officers—the first instalment of whole-time specialists; (2) tuberculosis dispensaries; (3) the appointment of whole-time referees to investigate cases of possible malingering, and (4) the appointment of specialists to consult with the panel physician when necessary.

The Clinical Congress of Surgeons of North America

Further preparations than those announced in my previous letter have been made for this congress, which will be run on lines new to this country and essentially American. Indeed, the American managers have expressed the view that while the American surgeons are coming here to see our hospital practice we shall be shown how a congress should be run and also taught how to put to better use the unrivaled hospital material of the metropolis of the world. According to the latest estimate about 1,200 American surgeons will attend. The membership will include not only British but also foreign surgeons. The registration fee is $5, which should be sent to the London office of the congress, Wimpole St. London, W. The Congress is divided into two parts comprising a preliminary clinical program and special demonstrations. The preliminary clinical program consists of visits to be made throughout the week to a group of London general and special hospitals, where on allotted days and hours members of the staff will be present to conduct surgical clinics. At the twelve great general hospitals to which a medical school is attached and eighteen special hospitals, members of the staff, who include most of the well-known London surgeons, will be present at the times indicated in an elaborate program. A member of the congress may make his selection of the clinics which he wants to attend. He should send a written request for reserved tickets to Mr. A. D. Ballou, general manager, 1 Wimpole Street, London, W., stating his wishes. The allotted tickets, which will provide numbered seats, will be retained at headquarters up to a certain fixed time (to be determined and announced later) in the name of the applicant, and will be assigned as nearly as possible in order of application. That the applicants may not be disappointed if the tickets for their first choice are exhausted, several selections should be made. Every person who desires to attend the clinics and evening sessions must register at headquarters and secure a membership card.

In the evenings addresses and discussions according to the program previously given in The Journal will take place at the two hotels which are the headquarters of the congress. The congress is thus a purely business one. Beyond the opening ceremony, at which addresses of welcome will be given by Sir Rickman J. Godlee, president of the Royal College of Surgeons, and the American Ambassador, Dr. Page, there will be no social functions of an official nature.

PARIS LETTER

Paris, June 26, 1914.

Latest Diminution in the French Birth-Rate

The birth-rate has continued to diminish during the last year: there are 745,539 living infants as contrasted with 750,651 in 1912. No lower total has ever been registered, with the exception of the year 1911, which was particularly deplorable. In recalling the steady fall in the French birth-rate, it will be enough to mention that the annual average of living births was 945,000 during the period from 1872 to 1875; that, since 1907 the annual number of births dropped below 800,000, and since 1911, below 750,000. This means that in less than forty years the French birth-rate has diminished by more than 200,000 a year. The proportion of living children to every ten thousand inhabitants was 188 in 1913, instead of 190 in 1912, 187 in 1911, 196 in 1910, and 205 in 1906. The decrease, therefore, is accentuated each year. It is true that the birth-rate is falling in all the large countries of Europe, but the proportion is much less than in France; and, moreover, the excess of births over deaths is proportionately five or six times greater than in our country. Thus, for the year 1912, the excess of births over deaths for each ten thousand inhabitants was only 15 in France; in the same year it was 158 in Holland; 140 in Italy; 130 in Hungary; 127 in Germany; 107 in Austria, and 105 in England.

The last year showed an excess of 41,901 births over deaths, or only 10 for each ten thousand. The excess in 1912 was 57,911, or 15 per ten thousand. There is, therefore, a diminution of one-third from one year to the next. This diminution is due to a deficit of 5,112 births and an increase of 10,989 deaths. An excess of births is recorded in 49 provinces, while in 1912 it was recorded in 56. The departments in which the birth-rate exceeds the death-rate are those of the North, Pas-de-Calais, Brittany, the frontier regions of the Northeast, Limousin and Corsica. On the other hand, the valley of the Garonne, Normandy, the plateau region of Langres and Dauphiny continue to lose ground.

The number of deaths (703,638) is greater by 11,000 than that of 1912, which was lower than any recorded number since the opening of the nineteenth century. The proportion of deaths to the population is 178:10,000, as against 172 in 1912, 196 in 1911, and 179 in 1910. The mortality has increased in 64 departments, and particularly in Bouches-du-Rhône, Dordogne, Var, Haute-Savoie, Corsica, Somme, Haute-Vienne, l'Aveyron and Tarn-et-Garonne.

In 1913, 298,760 marriages were recorded, or 13,169 less than in the preceding year. The proportion of the newly married for each ten thousand has dropped from 158 in 1912 to 151 in 1913. The number of divorces has, on the other hand, increased by about 500; 15,076 were recorded in place of 14,579 in 1912. The increase has therefore continued; in 1900 there were but 7,157 divorces; in thirteen years the number has more than doubled. The proportion of divorces in the statistics of the population has gone from 366 per million in 1900 to 736 in 1912 and 761 in 1913.

Personal

May 17, in the halls of the hôpital Saint-Sauveur, at Lille, exercises were held in honor of Dr. Lemoine, professor of clinical medicine at that place, on the occasion of the twenty-fifth anniversary of his teaching. In the name of all his former pupils, Professor Déléarde presented Dr. Lemoine with a picture of himself, painted by the artist Pharaon de Winter.

BERLIN LETTER

Berlin, June 26, 1914.

Prize Offered by the Robert Koch Foundation for the Tuberculosis Campaign

According to a resolution of the executive committee, adopted April 16, a prize of $750 (3,000 marks) is offered for the best article on the subject "The Importance of the Various Forms of Radiation (Sunlight, Roentgen Ray, Radium and Mesothorium) for the Diagnosis and Treatment of Tuberculosis." The articles, which must be in the German language and typewritten, must be in the hands of the secretary of the foundation, Privy Councilor Professor Schwalbe, (Berlin-Charlottenburg, Schlüterstr. 53), not later than July 1, 1915. Each article must be marked by a motto. The name of the author is to be placed in a sealed envelope and the motto inscribed on the envelope. The jury of awards consists of the president of the imperial health office Dr. Bumm of Berlin, Privy Councilor Gaffky of Hanover, Ministerial Director Kirchner of Berlin and Privy Councilor Löffler of Berlin. After the awarding of the prize, the essay passes into the possession of the Robert Koch Foundation. The publication will be made according to the conditions which are attached to all the articles published by the funds of the foundation. The article itself will appear in the *Transactions* of the Robert Koch Foundation, while a short abstract prepared by the author will be printed in the *Deutsche medizinische Wochenschrift.*

Reduction in Mortality from Tuberculosis

According to an article published in the Medical-Statistical News (*Medizinal-statistischen Nachrichten*), the number of deaths from tuberculosis in Prussia was again reduced in the year 1913, and the reduction was to a much greater extent than in the previous year. From this disease there died 56,583 persons as opposed to 59,911 in 1912 and 61,219 in 1911; that is to say, in 1912 there was only a reduction of 740 persons, or 1.2 per cent., but in 1913 the reduction was 2,328, or 5.4 per cent. The number of persons who died of tuberculosis in Prussia, as in other civilized countries where the campaign against this disease is being energetically prosecuted, has shown for many years a considerable reduction. In 1876 the number of deaths from this disease was 79,770, so that in the thirty-seven years since that time, a reduction of about 23,000 deaths has occurred. The reduction in this period of time has not been uniform; however, indeed, in some years an increase is recorded; but in general, the success of the measures which have been taken against this disease is unmistakable.

Still more important is the reduction when a comparison is made between the deaths from tuberculosis and the total population. In 1876 the relative number per ten thousand living was 30.95. In 1903, the number had already fallen to 19.70; in 1912 it was 14.59, but in 1913 only 13.58. The fact that the number who died from tuberculosis compared with the entire population has fallen more than one-half in the last thirty-five years is very satisfactory and encouraging to a further struggle against this disease.

It is noteworthy, however, that the reduction is confined exclusively to tuberculosis of the lungs, while the deaths from tuberculosis of other organs shows a tendency to rise. In the year from 1903 to 1912 (the data for 1913 are not yet at hand), the number of those who died from tuberculosis of the lungs fell from 64,310 to 52,766, that is from 18.09 to 12.85 per ten thousand inhabitants, while those who died from tuberculosis of the other organs rose from 5,739 to 7,145, or from 1.61 to 1.74 per ten thousand. It is to be assumed however, that this increase is only apparent, as it may be referred to a more exact diagnosis in determining the causes of death.

In connection herewith, it may be of interest to learn the present status of the imperial tuberculosis campaign. The German central committee for the campaign against tuberculosis comprised 1,458 members, Jan. 1, 1914. The income was $8,647 (34,590 marks) from membership dues; $16,250 (65,000 marks) from the imperial government, and $31,250 (125,000 marks) from a lottery. For the year 1914 $12,500 (50,000 marks) more have been included in the imperial budget.

The number of institutions in Germany amounts at present to 158, with 15,877 beds for adult consumptives. With an average of three months' treatment for each person, 63,500 patients can be given treatment each year. Children with pronounced pulmonary tuberculosis may be received in thirty-two children's sanatoriums with 2,092 beds. Scrofulous children and those threatened with tuberculosis are received in 120 institutions with 9,145 beds. There are 23 sanatoriums for bone and joint tuberculosis with 1,776 beds, of which 75 are for adults. The number of forest convalescent stations is 125 (occasionally night-camps are instituted). The number of open-air schools is 18. Thirty-four convalescent homes receive only cases of closed tuberculosis and only in small numbers. For the selection of patients for the sanatoriums, there are 41 observation stations. The number of stations for information and aid has risen from 1,400 to 1,900. While the tuberculosis mortality in general has been further reduced in Prussia from 13.59 per ten thousand living, as compared with 31.09 in 1875, no reduction is noted among children.

FROM THE FRONT

(From our Correspondent)

Vera Cruz, Mexico, July 3, 1914.

Dysentery among Our Troops

The health of the Army and Marine Corps is excellent, there being at the end of the week only eighty-five patients in the Army hospital and seventy-five in that of the Marines, most of them suffering from trivial complaints. The sick-rate here is rather less than the average rate for troops in the United States. During the first month, May, one death occurred from bacillary dysentery, and this case is the only fatality from disease since the occupation of the city. Two men were lost by drowning, one from a fall and one from an accidental pistol-shot.

During May and June, sixteen cases of dysentery occurred in the Army and approximately thirty among the Marines; three of the Army cases and four among the Marines were amebic, the remainder being bacillary of a rather severe type. The onset is abrupt, and in a day or two the patient is profoundly prostrated, having twenty or more evacuations daily; the face and hands are drawn and pinched and suggest Asiatic cholera. The prostration becomes extreme and the patients deeply toxic. The stools consist of blood, mucus, epithelial cells, both singly and in large sloughs, and are without a trace of fecal matter or bile. The duration of the disease seems to be from two to four weeks. A few cases were treated with antidysenteric serum, but without other result than the production of annoying urticarial eruptions. The first few patients received opium in various forms at some stage of the disease and did not do so well as the later patients who were treated by Buchanan's method, with small doses of salts at frequent intervals, until such time as the stools lose their dysenteric character. Because of either milder infections or improved treatment the later cases have been, on the average, much less severe.

The complications are frequent and involve the nervous system and the synovial membranes. One patient developed an irregular, temporary hemiplegia, with loss of the power of speech; one a peripheral neuritis; one showed convulsions and active, maniacal delirium, and two developed multiple arthritis, closely resembling acute articular rheumatism.

Amebic dysentery is less prevalent, only two recent infections having occurred in the Army and the same number among the Marines, although there have been three relapses among men originally infected in the Philippines. Thanks to the emetin treatment this disease is now readily controlled, the patients returning to normal health much more quickly than the Shiga dysenteries.

During June there were not more than one quarter as many intestinal diseases as in May, furnishing direct evidence of the efficacy of the general sanitary measures instituted by the chief surgeon.

Troops serving at outposts, at some distance from the city, have been practically free from dysentery although using the common water-supply, and there is little doubt that the diseases have been acquired exclusively by flies and contact with the natives. Dysentery, both amebic and bacillary, is called by the native physicians colitis hemorrhagica, and is a common disease among the Mexican population and constitutes one of the principal causes of death.

The Antimalarial Campaign

Malaria comes second after dysentery in its importance to the troops. To date in the Army there have been twenty cases and about the same number among the Marines; the greatest number of infections are tertian, yet both quartan and estivo-autumnal types have occurred. Cases began to appear after the middle of the first month and at first tended to increase until the results of improved sanitation began to manifest themselves; as a result there has been practically no increase during the month of June. The antimosquito campaign of the city health department is primarily for the protection of the Army and is financed entirely by the War Department, yet the municipality benefits to the same extent as the troops. The plan involves inspections both in and on the outskirts of the city, and to understand the situation a few words as to the topography of this locality are necessary. The city is shaped like a crescent, lying with its concavity to the sea, and is about 3 miles long and 1 mile broad. The central part of the city is well paved with hard asphalt, and storm sewers convey surface water by the shortest route to the harbor; at a distance from the business section the pavements are cobble-stone and there is an entire absence of storm sewers, the rain running over the surface until it reaches the business section. No pavements whatever exist in the outskirts; buildings are few and far between and there are many vacant lots and waste stretches with large and small depressions containing enough water to breed mosquitoes. For many miles along the coast the country is sandy, and Vera Cruz has long been celebrated for its gigantic sand-dunes, which lie to the westward of the town almost shutting it off from the back country. The largest of the sand-dunes, now used as outposts and observation points, cover an acre or more in area and reach a height of approximately 100 feet. Smaller dunes flank these, diminishing in size as the sea is approached. At one time the entire area now occupied by the city must have been made up of hummocks and depressions in an irregular checker-board arrangement. The rainy season begins in May and continues through October, rain falling on more than half the days in considerable quantity, averaging for the past five years 50 inches per annum. Were it not for the fact that the ground slopes gently from the base of the sand-dunes toward the sea, the difficulties of carrying off promptly this volume of water would be considerable; from the extreme end of the drianage area to the gulf there is a fall of 11 feet, and by careful grading the Health Department has already constructed or repaired a system of ditches aggregating 25 miles in extent. Many depressions and pools lying below the general level have been either filled or oiled. To construct this really complete and intricate system of surface drains, the department has employed from 200 to 400 men daily under the charge of Major Noble of the Medical Corps, and has expended approximately $5,000 during each of the past two months. Another gang of men, also under Major Noble's direction, have made frequent inspections of houses, cisterns, cesspools, courtyards, fountains, etc., and have taken measures to prevent mosquito-breeding whenever necessary.

The results have been well worth the trouble and expense since mosquitoes of all kinds have been practically absent from the city up to the present time. On the extreme limit of the military outposts, however, comes territory still in the hands of the Mexican federal troops and of course, our sanitarians are barred; as a result the men on guard, and in time that means almost every one, are badly bitten and a certain number have contracted malaria. The antimalarial campaign includes, besides the measures against mosquitoes, the daily prophylactic use of 3 grains of quinin by each man, the screening of buildings and the use of bed-nets. At present there seems to be no danger of contracting malaria unless one approaches the Mexican army lines.

Public Health and Sanitation

Responsibility for public health and sanitation in Vera Cruz passed from Mexican to American physicians when the port was occupied by the Navy, April 21. When, April 30, the sailors were withdrawn, the duties devolved on the Army. In addition to his military duties General Funston was compelled to reorganize the municipal government, using Mexican officials as far as possible. Of the various departments only those dealing with sanitation need be considered. The chief surgeon of the expeditionary forces, directly responsible to General Funston, is Colonel H. P. Birmingham, Medical Corps, U. S. A., who has arranged all public health matters into three distinct departments dealing with military, civil and quarantine matters. The military division is directed by the chief surgeon in person; the civil department of public health is in charge of Major Theodore C. Lyster, Medical Corps, while the head of the quarantine service is Dr. von Ezdorf of the United States Public Health Service. Before the arrival of Colonel Birmingham, May 13, the quarantine department was in charge of Dr. von Ezdorf, and for a short time, of Dr. Guiteras, both of the Public Health Service.

Vaccinating an Entire City

Among the Mexicans the principal diseases are tuberculosis, dysentery and other intestinal diseases, measles and particularly, small-pox. During May there were twenty-two cases of small-pox with seven deaths, and during June, twelve cases with four deaths, the last case being reported June 21. No cases whatever have occurred among the American troops. The Health Department began general vaccination May 18, with virus obtained from the United States, and up to June 30 had vaccinated 41,404 persons. Fifty per cent. of all vaccinations have been successful, and among children, the primary vaccination has succeeded in between 80 and 90 per cent.

Since the total population is less than 60,000, the vaccination of the entire city will soon be completed and small-pox will be a thing of the past. Already two weeks have passed since the development of the last case.

Marriages

Edward Joseph Gungle, M.D., Casa Grande, Ariz., to Miss Eleanore F. Hartmann of Philadelphia, at Casa Grande, June 25.

Alexander Livingstone Maclennan, M.D., Raymond, Wash., to Miss Exie Moore of Vancouver, Wash., June 30.

G. Earl Low, M.D., Klein, Mont., to Miss Ethel Mae Templeton of Spray, Ore., at Helena, Mont., June 29.

George Thomas Hegner, M.D., Appleton, Wis., to Miss Florence T. O'Brien of Fond du Lac, Wis., June 25.

Edward Francis Timmins, M.D., Boston, to Miss Mary Frances O'Meara of Roxbury, Boston, June 30.

Albert Ernest Perron, M.D., to Miss Helene Abigail Dubuque, both of Fall River, Mass., June 23.

Edward Rosseter Mugrage, M.D., Denver, to Miss Leah M. Troutman of Ft. Collins, Colo., June 24.

Guy Stanhope St. Amant, M.D., Gonzales, La., to Miss Hilda Laville of Riverview, La., June 30.

Walter Henry Parker, M.D., Boston, to Miss Etta H. Holmes of Wollaston, Mass., June 30.

Arthur Dolphie Knabb, M.D., to Miss Beulah Harlow, both of Springfield, Mo., June 26.

Edward Joseph Cotter, M.D., Boston, to Miss Mary C. Mack of Salem, Mass., June 30.

William Redfield Butt, M.D., to Miss Charlotte Fletcher, both of Philadelphia, June 30.

Gilford B. Gallemore, M.D., to Miss Lilla Maude Leslie, at Houston, Tex., June 30.

Harvey Shoemaker, M.D., to Mrs. Anne Comyns, both of Philadelphia, June 25.

Deaths

Joseph William Gleitsman, M.D. University of Wurzburg, Germany, 1865; a Fellow of the American Medical Association and New York Academy of Medicine; surgeon in the German army during the Schleswig-Holstein Campaign and the Franco-Prussian War; formerly president of the American Laryngological Society; emeritus professor of laryngology and rhinology in the New York Polyclinic Hospital, and laryngologist and otologist to the German Hospital and German Dispensary; died at his home in New York City, July 2, aged 73.

William Govans Ridout, M.D. College of Physicians and Surgeons in the City of New York, 1866; for several years a member of the board of governors and visitors of St. John's College, Annapolis, Md.; also a graduate in law; a veteran of the Civil War, in which he served in the United States Navy; once health officer of Annapolis; died at his home in that city, June 29, from the effects of a fall downstairs, in which he fractured his hip, aged 78.

Michael Joseph Brown, M.D. Jefferson Medical College, 1893; and five years later instructor in anatomy in his Alma Mater; LL.B. and LL.M. of Notre Dame University in 1897; professor of classics and science in Columbia University, Ore., in 1898; and professor of English and Law in Havana during 1909 and 1910; died at his home in Kensington, Philadelphia, June 27, from heart disease, aged 70.

Franklin Garcelon, M.D. Medical School of Maine, Brunswick, 1870; formerly a member of the American Medical Association; district surgeon to the San Pedro, Los Angeles, and Salt Lake Railroad, with headquarters at Pomona, Cal.; dean of the profession of Pomona Valley; died in the Pomona Valley Hospital, June 24, after a long illness, aged 66.

Hugh Wythe Davis, M.D. Medical College of Virginia, Richmond, 1861; a member of the Medical Society of Virginia; one of the most prominent practitioners of Richmond; assistant Surgeon General in the Confederate service during the Civil War; a trustee of Richmond College; died at his home in Richmond, Va., June 29, aged 73.

William T. Rinehart, M.D. Jefferson Medical College, 1886; a Fellow of the American Medical Association; and a pioneer practitioner of Ashland, Wis. where he established the Rinehart Hospital; once Health Commissioner of Ashland; died in Augustana Hospital, Chicago, July 1, aged 58.

Thomas Dade Palmer, M.D. Jefferson Medical College, 1871; a Fellow of the American Medical Association; surgeon to the Florence and Cripple Creek Railroad, and to the Colorado State Penitentiary, Canon City; formerly physician of Fremont County; died at his home in Canon City, Colo., June 5, aged 64.

Bailey P. Howard, M.D. University of Nashville, Tenn., 1861; Evansville, Ind., Medical College, 1877; one of the oldest practitioners of Owensboro, Ky.; surgeon of the Thirteenth Kentucky Cavalry, C. S. A. during the Civil War; died at his home in Owensboro, June 26, aged 78.

Harold Haines Steere, M.D. Hering Medical College, Chicago, 1903; College of Physicians and Surgeons, 1908; a member of the Illinois State Medical Society; was shot by a patient in his office in Chicago, July 13, and died a few hours later at St. Anthony's Hospital, aged 40.

Stella Blanche Nichols-Jones Nelson, M.D. Northwestern University Women's Medical College, Chicago, 1882; a Fellow of the American Medical Association; and formerly a medical missionary in China; died at her home in Oshkosh, Wis., June 25, from heart disease, aged 55.

William Holmes Yeakley, M.D. University College of Medicine, Richmond, Va., 1899; of Keyser, W. Va.; a member of the West Virginia State Medical Association; was drowned in Cow Pasture River, near Staunton, Va., June 25, after saving a woman from drowning.

James George Hunt, M.D. Eclectic Medical Institute, Cincinnati, 1849; and for a time professor in his Alma Mater, and for many a years a practitioner of Cincinnati; died at the home of his daughter in Westwood, Cincinnati, June 8, from senile debility, aged 90.

D. E. McEachern, M.D. Medical College of the State of South Carolina, Charleston, 1894, of Statesboro; a member of the Medical Association of Georgia; died suddenly, June 26, from heart disease, while making a professional call near Denmark, Ga., aged 40.

Ebenezer C. Thomas, M.D. Medical College of Ohio, Cincinnati, 1860; surgeon of the Third West Virginia Volunteer Infantry during the Civil War; died at his home in Moundsville, W. Va., June 29, from cerebral hemorrhage, aged 77.

John W. Johnson, M.D. College of Physicians and Surgeons, Baltimore, 1883; for several years township physician and director of public safety of Nelsonville, Ohio; died at his home in Nelsonville, July 1, from heart disease, aged 63.

Alonzo V. Thorpe, M.D. American Medical College, Eclectic, St. Louis, 1884; Beaumont Medical College, St. Louis, 1890; a Fellow of the American Medical Association of Jamestown, Mo.; died in California, Mo., May 18, aged 61.

Thomas William Embley, M.D. Hahnemann Medical College, Philadelphia, 1896; of New York City; one of the visiting staff of the Metropolitan Hospital; died suddenly in Plainfield, N. J., June 28, from heart disease, aged 40.

Henry Parkhurst Greeley, M.D. Chicago College of Medicine and Surgery, 1913; of Lee, Ill.; was instantly killed in a collision between the automobile in which he was riding, and a railroad train near Shabbona, Ill., July 5.

Howard King Edgerton, M.D. University of Nashville, Tenn., 1889; a member of the Tennessee State Medical Association; President of the Lebanon, Tenn., Woolen Mills; died at his home in Lebanon, July 1, aged 48.

Gordon Chittock, M.D. Rush Medical College, 1851; said to have been the oldest practitioner in Jackson, Mich.; died at his home, June 23, aged 87.

August H. Schwacke, M.D. Medical College of the State of South Carolina, Charleston, 1886; died at his home in Charleston, June 18, aged 50.

Harry George Wiest, M.D. Hahnemann Medical College, Philadelphia, 1876; died at his home in Schuylkill Haven, Pa., June 19, aged 64.

Benjamin Oliver Webb, M.D. Rush Medical College, 1878; of Los Angeles; died in that city, June 18, from general paresis, aged 60.

James H. Reilley, M.D. Albany, N. Y., Medical College, 1886; died at his home in Memphis, Tenn., June 17, aged 53.

Evelyn Briggs, M.D. Johns Hopkins University, Baltimore, 1900; died at his home in Sacramento, Cal., about May 4.

Taylor S. Mitchell, M.D. Jefferson Medical College, 1875; died at his home in Hockessin, Del., May 29, aged 61.

Frank C. Davie, M.D. Long Island College Hospital, 1876; died at his home in Angelica, N. Y., May 26.

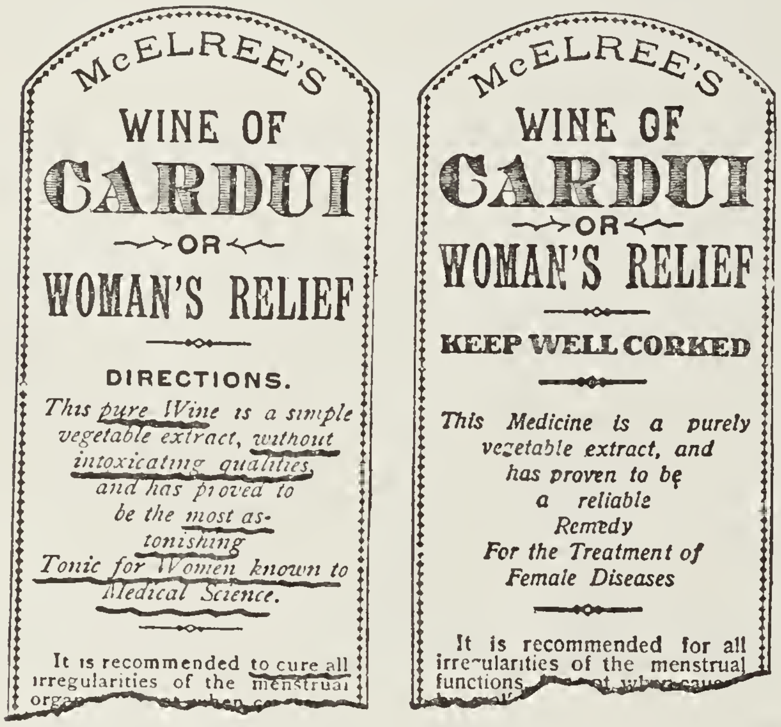
The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

WINE OF CARDUI

The Journal's Position Made Clear and "An Explanation" Explained

On April 11, The Journal published an article on "Wine of Cardui," a fraudulent "patent medicine" made and sold by the Chattanooga Medicine Company. Attention was called to the fact that the chief owner of this company is John A. Patten, one of the most prominent officials in the Methodist Episcopal Church. It was shown that Mr. Patten occupied what is probably the most influential position that can be held by any layman in the church, that of chairman of the "Book Committee." The book committee is, according to the Methodist Year Book "almost a general conference *ad interim*." It has the power of fixing the salaries of the bishops, church publication editors and publishing agents, and of removing from office the editor of any of the official publications. It also has general supervision of the publishing financial interests of the church.



McELREE'S
WINE OF
CARDUI
OR
WOMAN'S RELIEF

DIRECTIONS.

This pure Wine is a simple vegetable extract, without intoxicating qualities, and has proved to be the most astonishing Tonic for Women known to Medical Science.

It is recommended to cure all irregularities of the menstrual org

McELREE'S
WINE OF
CARDUI
OR
WOMAN'S RELIEF

KEEP WELL CORKED

This Medicine is a purely vegetable extract, and has proven to be a reliable Remedy For the Treatment of Female Diseases

It is recommended for all irregularities of the menstrual functions,

The labels on Wine of Cardui before the Pure Food Law went into effect declared that the stuff was a "pure Wine;" was "the most astonishing Tonic for Women known to Medical Science" and furthermore, that it was "without intoxicating qualities!" Compare the newer label (on right) with the old (on left). The company continued to publish falsehoods in advertisements which were not subject to the penalties of the Pure Food Law.

The chairmanship of this powerful committee is not the only gift of the church to Mr. Patten. He is one of the board of managers of the "Board of Education"; also, he is a member of the "Freedman's Aid Society," of the "Commission on Federation," of the "Executive Committee of the Laymen's Associations" and of the "Methodist Men's Convention"; in addition he represents General Conference District No. 6 in the "Methodist Brotherhood."

Mr. Patten's defense of the nostrum business when he spoke as the representative of the "patent medicine" men's organization (the Proprietary Association of America) was referred to in our former article. Mention was made, also, of the news item published in *Collier's* in 1912 regarding an alleged attempt on the part of the advertising counsel of the Chattanooga Medicine Company to influence public health legislation by telling newspaper men that "all advertising of proprietary medicines in New Mexico" would stop if a certain bill, that the "patent medicine" men opposed, became a law.

The older and newer claims for Wine of Cardui were compared and it was shown that while direct lies had been removed from the labels and cartons of Wine of Cardui—which would render the manufacturer liable under the Food and Drugs Act—the most outrageous falsehoods were still printed in booklets sent out to women who answered the company's advertisements. These booklets are not subject to the penalties of the "pure food law."

WINE OF CARDUI ANALYZED

The Association's chemists made a careful analysis of Wine of Cardui which we again give in order that our readers may know what was found. It should be added that since the appearance of the first article additional analyses have been made both in the Association's laboratory and elsewhere, and the findings of the chemists coincide essentially with the original findings, which read as follows:

CHEMIST'S REPORT

"The name Wine of Cardui would indicate that the preparation was made from blessed carduus (*Cnicus benedictus*) a plant variously known as blessed, cursed, spotted or bitter thistle. Wine of Cardui is a dark brownish liquid having a neutral reaction, a peculiar, valerian-like odor and a bitter, mawkish taste. The odor was not wine-like in any particular. The preparation is claimed to be purely vegetable and the presence of 20 per cent. of alcohol is declared. Arsenic, bromids, iodids, the potent alkaloids such as aconitin, morphin and strychnin, or the emodin-bearing drugs such as aloes, cascara and senna, were not found. Potassium bitartrate (cream of tartar) was absent, thus indicating the absence of wine from grapes. Alcohol was determined and 20.36 per cent. of absolute alcohol by volume was found. The volatile matter amounted to about 97 per cent. The nonvolatile residue appeared to consist of vegetable extractives. This had a bitter taste and gave very faint reactions for alkaloids. The quantity of alkaloid was too small to possess any appreciable medicinal effect, whatever its potency might be. Small quantities of a nitrate were present. Potassium nitrate is a constituent of a considerable number of plants, among which is blessed thistle. The presence of traces of this salt in Wine of Cardui does not, therefore, prove the presence of blessed thistle extractives in this preparation, although it is confirmatory evidence. A trace of combined ammonia also was present.

"It is probable that Wine of Cardui is a weak, hydroalcoholic extract of blessed thistle, containing a trace of valerian. Blessed thistle has been employed to some extent in domestic medicine as a simple bitter, but little attention is given to it by discriminating writers in materia medica. It seems probable that whatever medicinal effect Wine of Cardui may possess, is due principally to its alcohol content."

THE EFFECTS OF THE FIRST ARTICLE

Such then, in brief, was The Journal's original article on Wine of Cardui. In it two things were emphasized: One, the more important, the fact that Wine of Cardui is a vicious fraud; the other, that the preparation contains 20 per cent. alcohol, and, so far as the Association's chemists could discover, no other drugs in amount sufficient to give any medicinal effect.

The article brought many letters of commendation. The only protest came from the representatives of the Chattanooga Medicine Company. Two editors of official church publications called at The Journal offices and discussed the article. Both of them admitted that advertisements of Wine of Cardui were debarred from their magazines; but curiously enough both seemed much more concerned with that part of the article referring to the alcohol content of the nostrum than they did with the much graver charge of fraud. In fact, it seems that The Journal's statement to the effect that Wine of Cardui contains twice as much alcohol as is found in champagne has elicited more comment than the charge that the stuff is an outrageous fraud on the women of the country.

PATTEN OFFERS TO RESIGN

We have learned that after the article appeared, Mr. Patten offered to resign from the various positions he holds in the church. To quote from a statement sent out by Mr. Patten himself:

"His [Mr. Patten's] first thought was to tender his resignation and this he prepared, but five representative members of the [Book] Committee, who heard of his purpose, insisted that he should not resign, stating that they had always known what his business was, and they would not consent to his withdrawal in the face of such plainly malicious charges."

THE LIQUOR DEALERS' ATTORNEY TO THE RESCUE

Although THE JOURNAL learned from other sources that action was to be brought against it for the article, no notification was received by it or its attorneys of any suit. THE JOURNAL did, however, receive a visit from Mr. Warwick M. Hough, who came as a representative of Mr. Patten and the Chattanooga Medicine Company. Mr. Hough is an attorney who is exceedingly well known in certain circles. Mr. Samuel Hopkins Adams, in *Collier's*, May 11, 1912, in calling attention to Mr. Hough's activities in behalf of the "Swamp Root" fraud—another alcohol-containing nostrum—characterized the attorney as: "Warwick M. Hough, the legal prop and bulwark of the 'patent medicine' fakers and the food adulterators."

For years Mr. Hough was general counsel for the National Wholesale Liquor Dealers' Association of America, and served, it is said, the Eastern Blenders' Association and the Distillers' Association. In the spring of 1906 he appeared as attorney for the "blended whiskey" interests before the committee that was hearing arguments preparatory to drawing up what finally became the Federal Food and Drugs Act—the "Pure Food Law."

To quote from the official record:

"THE CHAIRMAN.—We will hear you briefly. What is your name, if you please?

"MR. HOUGH.—Warwick M. Hough, of the firm of Klein & Hough, attorneys at law, of St. Louis, Mo.

"THE CHAIRMAN.—Whom do you represent?

"MR. HOUGH.—I appear for the National Wholesale Liquor Dealers' Association of America, an organization which comprises the majority of the distillers, wholesale distillers, and rectifiers of the United States; and represents, it has been asserted, almost 90 per cent. of the volume of business, a business from which the Government gets one-fourth of its entire annual income . . ."

"THE CHAIRMAN.—Are you their regular attorney, employed annually?

"MR. HOUGH.—I have been for years . . ."

In addition to his employment by various liquor organizations, Warwick M. Hough has appeared in behalf of various nostrums—largely those of the alcoholic type. His activities in behalf of "Swamp Root" have already been referred to. He also appeared before the Board of Food and Drug Inspection at Washington in behalf of "Sure Thing Tonic," a fraudulent nostrum—"alcoholic strength 50 proof." In spite of Mr. Hough's pleadings, however, "Sure Thing Tonic" was declared misbranded under the Food and Drugs Act, and its manufacturers fined. Mr. Hough also appeared before the same board in behalf of "Holland Gin," sold by the Baird-Daniels Co.

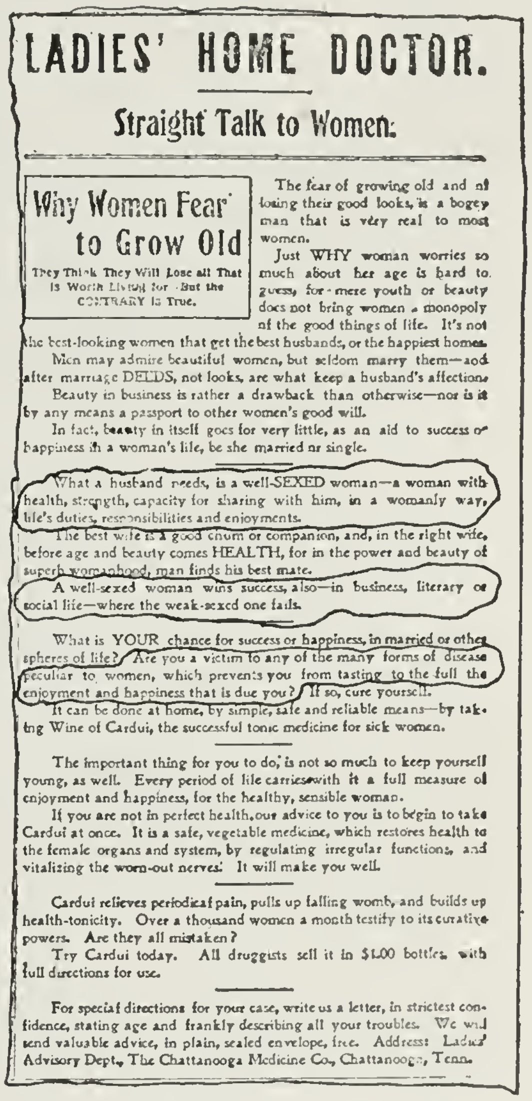
Right here let it be said that nothing THE JOURNAL may say regarding Mr. Hough should be interpreted as personal criticism. We found Mr. Hough a suave, pleasant gentleman. That he, as an attorney who has been closely identified with the liquor interests, should have accepted a commission given him by Mr. Patten and the Chattanooga Medicine Company, is not surprising; that Mr. Patten should have felt called on to employ the ex-general counsel of the liquor dealers' association may or may not be a matter for wonderment!

"AN EXPLANATION" EXPLAINED

Mr. Hough submitted that his clients protested against THE JOURNAL's inference that Wine of Cardui might be, and probably was, used as a "tipple." According to Mr. Hough the Chattanooga Medicine Company declared—although no proof was submitted—that Wine of Cardui could not be used in larger or more frequent doses than those recommended on the label, because the taste of the preparation and the alleged presence in it of an emetic principle would prevent it. These statements of the company, while not accepted as final by THE JOURNAL, were published in a brief note entitled "An Explanation" that appeared in the issue of June 6. THE JOURNAL there stated that if these allegations were true, then the term "tipple" as commonly understood, could not be applied to the preparation.

Why, it may be asked, did THE JOURNAL publish "An Explanation" if the company's statements regarding Wine of Cardui were not accepted as final? There were two reasons. The first lay in the interpretation given by Mr. Patten and his company to our use of the terms "booze" and "tipple." It was never THE JOURNAL's intention to convey the impression that Wine of Cardui is or was generally bought as whiskey is bought, that is, knowingly for its alcoholic effect; yet, according to Mr. Patten—through his spokesman the ex-general counsel for the National Wholesale Liquor Dealers' Association of America—THE JOURNAL's article was interpreted as having declared that the nostrum was so misused.

That there may be no misunderstanding as to THE JOURNAL's attitude on this question, let it be stated: We believe that the essential physiologic effect produced by Wine of Cardui is that due to the alcohol it contains. We believe further, that it is a justifiable assumption that women, unused to alcohol, taking this nostrum may, unconsciously, be led to the use of it in increasingly large doses or with increasing frequency. And this is what was meant when the inference was made that Wine of Cardui might be used as a "tipple."[1] If the alleged medicinal ingredients—other than alcohol—of Wine of Cardui were put up in tablet form Mr. Patten would never have amassed his present fortune!



LADIES' HOME DOCTOR.

Straight Talk to Women.

Why Women Fear to Grow Old

They Think They Will Lose all That Is Worth Living for—But the CONTRARY Is True.

The fear of growing old and of losing their good looks, is a bogey man that is very real to most women.

Just WHY woman worries so much about her age is hard to guess, for mere youth or beauty does not bring women a monopoly of the good things of life. It's not the best-looking women that get the best husbands, or the happiest homes.

Men may admire beautiful women, but seldom marry them—and after marriage DEEDS, not looks, are what keep a husband's affection.

Beauty in business is rather a drawback than otherwise—nor is it by any means a passport to other women's good will.

In fact, beauty in itself goes for very little, as an aid to success or happiness in a woman's life, be she married or single.

What a husband needs, is a well-SEXED woman—a woman with health, strength, capacity for sharing with him, in a womanly way, life's duties, responsibilities and enjoyments.

The best wife is a good chum or companion, and, in the right wife, before age and beauty comes HEALTH, for in the power and beauty of superb womanhood, man finds his best mate.

A well-sexed woman wins success, also—in business, literary or social life—where the weak-sexed one fails.

What is YOUR chance for success or happiness, in married or other spheres of life? Are you a victim to any of the many forms of disease peculiar to women, which prevents you from tasting to the full the enjoyment and happiness that is due you? If so, cure yourself.

It can be done at home, by simple, safe and reliable means—by taking Wine of Cardui, the successful tonic medicine for sick women.

The important thing for you to do, is not so much to keep yourself young, as well. Every period of life carries with it a full measure of enjoyment and happiness, for the healthy, sensible woman.

If you are not in perfect health, our advice to you is to begin to take Cardui at once. It is a safe, vegetable medicine, which restores health to the female organs and system, by regulating irregular functions, and vitalizing the worn-out nerves. It will make you well.

Cardui relieves periodical pain, pulls up falling womb, and builds up health-tonicity. Over a thousand women a month testify to its curative powers. Are they all mistaken?

Try Cardui today. All druggists sell it in $1.00 bottles, with full directions for use.

For special directions for your case, write us a letter, in strictest confidence, stating age and frankly describing all your troubles. We will send valuable advice, in plain, sealed envelope, free. Address: Ladies' Advisory Dept., The Chattanooga Medicine Co., Chattanooga, Tenn.

One of the advertisements of Wine of Cardui which were characterized by what Samuel Hopkins Adams described as "loathsome and gratuitous indecency."

The second reason for the publication of "An explanation," was that the matter might be put up squarely to the membership of the Methodist Episcopal Church, which has not only highly honored Mr. Patten but has also accepted from Mr. Patten, money derived from the sale of a vicious and fraudulent "patent medicine." Its readers know that THE JOURNAL is not in the habit of avoiding libel suits when such suits come as a result of its policy of exposing frauds in medicine. In the present instance, however, there were good reasons for believing that should Mr. Patten be given the slightest apparent justification for bringing an action against THE JOURNAL, prominent officials of the Methodist Episcopal Church would have taken refuge behind this suit as an excuse for not taking any definite action on Mr. Patten's status in the church. Soon after THE JOURNAL's first article appeared, a correspondent wrote us in this connection as follows:

"I am informed that the owner of this Wine of Cardui has brought suit against THE JOURNAL or the editor, I am not sure which, and that, pending the settlement of the suit no action is to be taken on his willingness to withdraw from the several important positions in the Methodist Episcopal Church."

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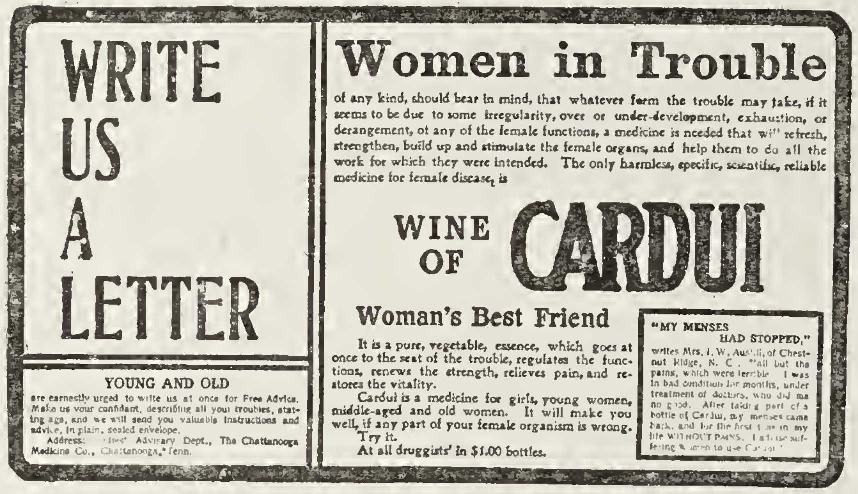
[1] "Tipple: To drink or sip, as alcoholic beverages, frequently or habitually, but not to the point of inebriation."—Standard Dictionary.

Nor was this all. When the Methodist ministers met in Chicago a few weeks ago, the papers stated that one of their number offered a resolution demanding that John A. Patten resign from his position as chairman of the book committee. The newspaper continued:

> "Action on the resolution was prevented by the Rev. Dr. John Thompson, district superintendent of the Chicago Western district. He said that Mr. Patten has instituted a suit against the publication for $250,000 damages and asked that no action be taken until the suit has been decided."

The Journal's experience with actions for libel brought by proprietary manufacturers forces it to question whether such suits are ever brought in good faith. When a certain fraud was exposed by The Journal a few years ago, suit was entered against the American Medical Association for the article. For three or four years the matter dragged in the courts, never coming to trial, and was finally thrown out. In the same way another suit, started five years ago, is still hanging in the courts and has never been brought to trial. Doubtless the same tactics would have been pursued had the Chattanooga Medicine Company been given an opportunity to bring suit against The Journal for the article on Wine of Cardui. The bringing of the suit would have been heralded widely, and the public would have been led to believe that Mr. Patten was a much maligned man. From every standpoint, therefore, it seemed inadvisable to give the slightest justification for opportunity of befogging what is a very definite issue. So much for the explanation of "An Explanation."



WRITE US A LETTER

YOUNG AND OLD

are earnestly urged to write us at once for Free Advice. Make us your confidant, describing all your troubles, stating age, and we will send you valuable instructions and advice, in plain, sealed envelope.

Address: [illegible] Advisory Dept., The Chattanooga Medicine Co., Chattanooga, Tenn.

Women in Trouble

of any kind, should bear in mind, that whatever form the trouble may take, if it seems to be due to some irregularity, over or under-development, exhaustion, or derangement, of any of the female functions, a medicine is needed that will refresh, strengthen, build up and stimulate the female organs, and help them to do all the work for which they were intended. The only harmless, specific, scientific, reliable medicine for female disease, is

WINE OF CARDUI

Woman's Best Friend

It is a pure, vegetable, essence, which goes at once to the seat of the trouble, regulates the functions, renews the strength, relieves pain, and restores the vitality.

Cardui is a medicine for girls, young women, middle-aged and old women. It will make you well, if any part of your female organism is wrong.

Try it.

At all druggists' in $1.00 bottles.

"MY MENSES HAD STOPPED," writes Mrs. I. W. Austin, of Chestnut Ridge, N. C., "all but the pains, which were terrible. I was in bad condition for months, under treatment of doctors, who did me no good. After taking part of a bottle of Cardui, my menses came back, and for the first time in my life WITHOUT PAINS. I advise suffering women to use Cardui."

A specimen of the Wine of Cardui advertisement appearing in November, 1905.

HAS WINE OF CARDUI AN EMETIC PRINCIPLE

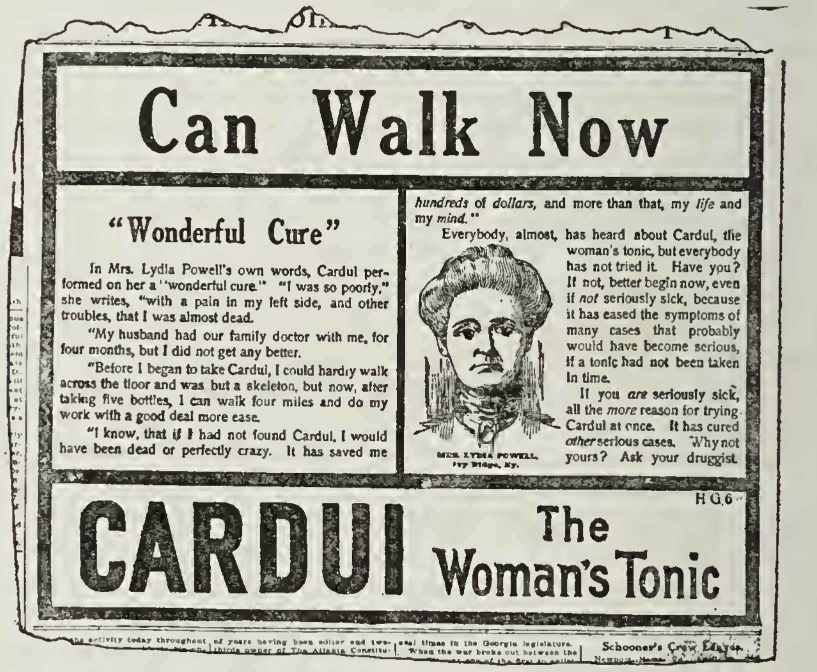
Now, to revert to the points put forward in the protest of Mr. Patten's company regarding the possible misuse of Wine of Cardui. The stuff contains 20 per cent. alcohol; this is admitted. So far as we have been able to discover by repeated careful analyses, Wine of Cardui contains no other drug having any therapeutic effect present in sufficient quantities to prevent the use of this stuff for its alcoholic effect. Since The Journal's original article appeared, tests have been made to determine this point.

SOME EXPERIMENTS

The dose of Wine of Cardui, according to the label, is one tablespoonful—half an ounce—to be taken three or four times a day. Each tablespoonful contains forty-eight drops of pure alcohol or the equivalent of about one hundred drops of whiskey. THE GIRL OR WOMAN WHO TAKES FOUR TABLESPOONFULS OF THIS NOSTRUM DAILY GETS THE SAME AMOUNT OF ALCOHOL THAT SHE WOULD OBTAIN IF SHE TOOK FOUR HUNDRED DROPS OF WHISKEY, OR, TO PUT IT ANOTHER WAY, THE SAME AMOUNT OF ALCOHOL THAT SHE WOULD GET FROM ONE-QUARTER OF A PINT OF CHAMPAGNE, OR ABOUT TWO-THIRDS OF A BOTTLE OF BEER. And this, bear in mind, is the dose recommended. It was stated that larger doses cannot be taken for two reasons: First, because the taste is alleged to be such as to prevent it, and second, because in larger doses it is alleged to act as an emetic. Here, then, are two definite assertions that are capable of proof or disproof.

So far as the taste of Wine of Cardui is concerned, while mawkish and bitter, there is nothing about it to prevent the use of the stuff either in larger or more frequent doses than that called for on the label. It is undoubtedly a fact that many persons who had never tasted ale or lager beer would declare these beverages just as unpleasant to the taste as "Wine of Cardui." It is probably true, too, that it is impossible to make preparations containing alcohol so unpleasant to the taste that they will not be misused by those who discover—innocently enough, perhaps—the exhilarating effects of the alcohol in such preparations. We may, therefore, dismiss at once the claim on the part of the manufacturers that the taste of Wine of Cardui will prevent its use in larger or more frequent doses than those recommended on the labels.

The question of an emetic principle presents a different problem. If there is such a principle in Wine of Cardui, then it should be possible to produce vomiting or at least nausea, by taking the preparation in doses larger than that called for. To test this point two and one-half ounces (five tablespoonfuls) of Wine of Cardui were taken and the alcohol removed by evaporation, leaving everything in the resulting product except the alcohol. This amount of material containing five times the regular dose of Wine of Cardui, was taken by each of three individuals to test its physiologic effect. No effect whatever was experienced! The experimenters might as well have taken so much water. To further test the point, three other persons each took five times the normal dose—that is, two and one-half ounces—of Wine of Cardui, alcohol and all. This is equivalent in alcohol-content, to about one ounce of whiskey and the persons who took these massive doses of the nostrum experienced no other effect than that to be expected from such an amount of whiskey. No vomiting or even nausea was experienced. So much for some of the experimental work that has been done to determine the question whether or not Wine of Cardui contains an emetic principle.



Can Walk Now

"Wonderful Cure"

In Mrs. Lydia Powell's own words, Cardui performed on her a "wonderful cure." "I was so poorly," she writes, "with a pain in my left side, and other troubles, that I was almost dead.

"My husband had our family doctor with me, for four months, but I did not get any better.

"Before I began to take Cardui, I could hardly walk across the floor and was but a skeleton, but now, after taking five bottles, I can walk four miles and do my work with a good deal more ease.

"I know, that if I had not found Cardui, I would have been dead or perfectly crazy. It has saved me *hundreds of dollars*, and more than that, my *life* and my *mind*."

MRS. LYDIA POWELL, Ivy Ridge, Ky.

Everybody, almost, has heard about Cardui, the woman's tonic, but everybody has not tried it. Have you? If not, better begin now, even if *not* seriously sick, because it has eased the symptoms of many cases that probably would have become serious, if a tonic had not been taken in time.

If you *are* seriously sick, all the *more* reason for trying Cardui at once. It has cured *other* serious cases. Why not yours? Ask your druggist.

H G 6

CARDUI The Woman's Tonic

Another Wine of Cardui advertisement. This appeared in April, 1910, some years after the "present managers" of Wine of Cardui took control. The wonderful cure of Mrs. Lydia Powell, described in this advertisement, prompted us to get some facts on the case. We learn from a physician, living in the same town as Mrs. Powell, that she died in 1910!

EVIDENCE FROM THE FIELD

If Wine of Cardui can be used as a stimulant—in other words a "tipple"—then, in all human probability, it is so used. Shortly after the publication of The Journal's brief note entitled "An Explanation," the following letter was received from a Tennessee physician.

> "*To the Editor:*—On page 1827 of The Journal for June 6, under the heading, 'An Explanation,' you refer in rather an apologetic manner to something that appeared April 11, concerning a nostrum much used in this country —'Wine of Cardui.'

"I did not read the issue of April 11, so I don't know how strong you made it, but it could not have been stronger than deserved. Sold in dollar bottles of sixteen doses, forty-eight minims of alcohol to the dose—enough to make any puny, nervous woman feel as good as a Scotch highball would the average man. Would go out of use at once if the medical properties it may contain were put up in a tablet or some other menstruum than dilute alcohol. Used sometimes by men a whole bottle at a time in this prohibition country, when short on more palatable 'booze.'

"For many years I have asked most all women I have treated for female diseases, if they had been benefited by using Wine of Cardui. About all had tried it more or less liberally. The answers were the same in substance: 'No, I can't say that it did. I thought I felt better when I first did, but as soon as I quit it, I could tell no difference.' Her husband and sons could say the same about their quart of sixteen-year-old Bourbon. Some women would say they could not take full doses, as it made their heads feel strange.

"No, Mr. Editor, you cannot hit too hard."

FURTHER TESTIMONY

This information made it seem worth while to write to physicians in Tennessee and the surrounding states asking for such light as they might be able to throw on the question. Here are excerpts from a few of the replies received:

From Sevier County, Tenn.—"I have known of cases in which Wine of Cardui was used in excess of the regular dose. I have seen men drink a half-bottle without taking bottle from mouth."

From Henderson County, Tenn.—"I saw a man who was drunk on it; he had drunk two and one-half bottles I was reliably informed."

From Scott County, Tenn.—"I have known a few women who seemed as though they could not get along without Cardui, and a few men to take it as a beverage."

From Walker County, Ga.—"I have known of two cases where Wine of Cardui was used in excessive doses and without complaint being made of nausea or other symptoms suggesting the presence of an emetic."

From Dickson County, Tenn.—"We have a great many supply stores through here and they all sell great quantities of the stuff [Wine of Cardui]. Two very large stores here, and one of the merchants told me four days ago that he sold as high as six bottles to one party at a time, so I judge from what he said they must be using it for its alcoholic effect."

From Smith County, Tenn.—"Some women here have been using it for a long time and think they could not live without it, who would think it awful to use common intoxicants."

From Chester County, Tenn.—"It is handed around by recommendation from one woman to another. I believe it is almost a public curse the way it is used."

From Colbert County, Ala.—"The druggist tells me there are fifty women, more or less, who buy regularly Wine of Cardui in excessive quantities. . . ."

From De Kalb County, Tenn.—"I once knew two men who bought Wine of Cardui and drank it as a beverage. At another time, some laboring men purchased several bottles at a country store, got drunk on it, one of them struck another on the head with a bottle, inflicting a severe scalp wound, necessitating my taking ten or twelve stitches to close the wound."

These represent merely some of the reports that come in from the districts in which Wine of Cardui has an extensive sale. They speak for themselves. As it has been said before, however, the alcohol-content of Wine of Cardui is but a minor indictment against the product; the basic objection to it is that the business has been built on deceit; that its sale is a wicked and vicious fraud perpetrated on ailing women.

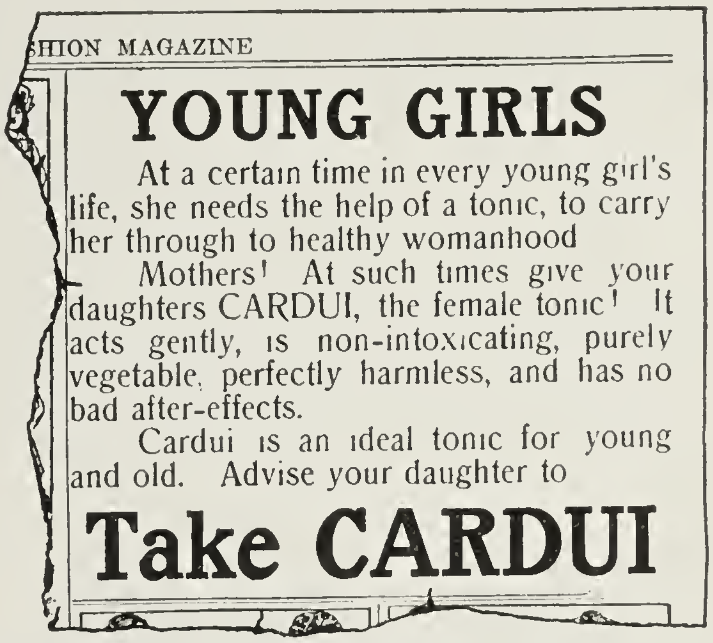
Before leaving the question of the composition of this nostrum, it is worth while to quote some paragraphs from a preliminary report on Wine of Cardui submitted by Dr. Henry Leffmann of the Department of Chemistry, Women's Medical College of Pennsylvannia:

"The preparation is in my opinion not a 'wine' either in the general or technical sense; it would be more correctly described as a 'tincture.' If the plant or plants from which this preparation purports to be named—to judge from its title—contain any principles of value along the line for which it is recommended, it would seem to be far better that they should be put on sale in the form of a concentrated extract which could be diluted with water as required. It seems wrong to sell a bottle containing one-fifth of its volume of alcohol for the sake of furnishing a few per cent. of bitter principles freely soluble in water alone. I recognize that it is stated that the alcohol is added to prevent spoiling but the necessary preservation could be reached in other ways.

"Considering all these points I am of the opinion that Wine of Cardui is a dangerous preparation as now manufactured and sold. Its inaccurate title may mislead persons into the belief that it is a preparation of real wine; its high percentage of alcohol may easily establish the alcohol habit without the consciousness of user until the condition has developed. Its nauseous taste and odor are not sufficient to prevent the development of a liking for it. The ease with which the tobacco and opium habits are established, although both are very nauseous drugs, show that under pressure of strong impulse a 'Wine of Cardui' habit may be established."

ARE THE CLAIMS EXTRAVAGANT?

Mr. Patten's concern also took exception to The Journal's criticisms of the advertised claims made for Wine of Cardui. The concern asserted—through Mr. Hough—that it is "their desire and intention" to avoid claims for Wine of Cardui "that might reasonably or generally be objected to as extravagant." Either this "desire and intention" has been born since the publication of The Journal's first article on Wine of Cardui, or, Mr. Patten has a curious conception of what constitutes extravagance of statement. The criticisms in The Journal's first article on Wine of Cardui were directed against the recent advertising. The older advertisements were merely referred to as a matter of historical interest. In every instance The Journal made plain whether old or recent advertising was being referred to.



SHION MAGAZINE

YOUNG GIRLS

At a certain time in every young girl's life, she needs the help of a tonic, to carry her through to healthy womanhood

Mothers! At such times give your daughters CARDUI, the female tonic! It acts gently, is non-intoxicating, purely vegetable, perfectly harmless, and has no bad after-effects.

Cardui is an ideal tonic for young and old. Advise your daughter to

Take CARDUI

Here is another advertisement published in 1910 in which Wine of Cardui is recommended for young girls and is declared to be "non-intoxicating" and "perfectly harmless." Both of these falsehoods were eliminated from the labels and cartons of Wine of Cardui when the Food and Drugs Act went into effect. Had they been retained the Chattanooga Medicine Company would have subjected itself to prosecution. In newspaper advertisements and circulars "patent medicine" venders can lie to their heart's content without fear of legal reprisal.

SOME RECENT CLAIMS

It is in the company's *recent* advertising that women are urged to take Cardui for "hanging breasts"; to take this alcoholic nostrum for gonorrheal infection of the vulva; to take Wine of Cardui for anteflexion, retroflexion, prolapse and inversion of the uterus; to take Wine of Cardui for suppressed menstruation and for "flooding"; to take Wine of Cardui for inflammation of the uterus, for inflammation of the ovaries and for inflammation of the fallopian tubes! It is the *recent* advertising that contains the villainous suggestion that "every girl should take Cardui at the time of puberty." Is it the *recent* advertising that tells the bride that "all newly married women should take Cardui." It is the *recent* advertising that plays on the fears of the expectant mother, and assures her that Wine of Cardui "will assist in making childbirth easier." It is the *recent* advertising that tells the lying-in woman that "Cardui should be taken two or three times a day." It is the *recent* advertising that tells the woman at the menopause "Cardui should be taken regularly on the first sign of the coming change and its use continued through the entire period." It is the *recent* advertising that tells the same woman that at this time "cancer is also greatly feared by many women" and plays on and capitalizes her fears thus:

> "There is no doubt that the womb, at this time, is less able to withstand disease, and if a patient is attacked, she is not unlikely to succumb to a local disease like cancer. But cancer is really a very rare disease, and other diseases, under proper treatment with Cardui, as a general tonic, will eventually disappear, so that, after the change has occurred, you will probably feel better than ever before."

All of these claims are in the *recent* advertising! And by the *recent* is meant that which was being sent out at the time of the appearance of The Journal's article a few weeks ago. Yet the Chattanooga Medicine Company piously pleads that its present desire "is to avoid . . . claims that might reasonably or generally be objected to as extravagant."

It is not necessary at this time to discuss the other preparations put out by the Chattanooga Medicine Company such as "Thedford's Black-Draught," a so-called "vegetable liver powder"; the vaginal douche preparation, "Cardoseptic"—formerly called "Cardui Wash"—nor the line of fountain syringes that the company sells as an accessory to its "injection" medicine.

SUMMARY

To summarize:

1. Wine of Cardui is a vicious fraud.
2. Each dose contains as much alcohol as is found in about 100 drops of whisky and, so far as careful chemical and physiologic experiments show, does not possess any other drugs in sufficient quantities to give any appreciable therapeutic effect.
3. The principal owner of the business is John A. Patten, who is probably the most influential layman in the Methodist Episcopal Church.
4. While the Methodist Episcopal Church accepts Mr. Patten's money, the official publications of the church will not, so far as we have learned, accept the advertisements of Wine of Cardui.
5. The claims made on the package were so false that, when the Food and Drugs Act went into effect, it became necessary to modify them.
6. The claims made in recent advertising sent out by the Chattanooga Medicine Company, but not subject to the supervision of the Food and Drugs Act, were still false, fraudulent and vicious.
7. Mr. Patten, and his company, resented the inference that Wine of Cardui might be used as a "tipple," and submitted their protest through an attorney whose activities in behalf of the liquor interests, have been notorious.

In closing, The Journal wishes to emphasize the fact that nothing that has been said about John A. Patten is actuated by malice. The Journal believes that the business in which Mr. Patten is engaged is a public menace; it believes that the exploitation of Wine of Cardui is vicious and fraudulent; it believes, further, that as a matter of duty, the public should be apprised of these facts. Guilt in such instances is personal. As an editorial writer in *Collier's* recently said, referring in this instance not to a "patent medicine" maker, but to a whisky manufacturer:

> "The law may better conditions in some respects, but whether it is bad 'booze' or poisonous patent medicines that are dispensed, the only way really to accomplish anything is to bring shame into partnership with the man who makes money out of it."

Correspondence

Surgical Charges

To the Editor:—There is no fixed rule governing the charge for surgical operations; but it is an accepted principle that it should depend on three factors, namely:

1. The social and financial standing of the patient.
2. The gravity of the operation, and sometimes its result.
3. The experience and skill of the surgeon.

There is a general rule, however, often adopted by the best operators of broad ethical ideas, that the maximum charge for a major operation should be about one month's gross income of the patient; that is, if the person for whom the service is performed has a salary of $12,000 a year, or an income from business, after paying actual expenses of the business, of a similar amount, the fee should be about $1,000. This does not take into consideration the patient's living-expenses. There are, however, many considerations that may reduce the charge and a very few that might reasonably allow of making it more. Good and fair-dealing surgeons, considering the three factors already mentioned, always endeavor "to do as they would be done by," and never to be oppressive in their charges.

It is better that an understanding be arrived at about the charge beforehand, the patient having given the surgeon a frank statement of his financial condition; but the foregoing principles should govern.

There are unfortunately some persons (black sheep) in the profession whose policy is to get all they can in every case, a "beg, borrow or steal" policy that is not countenanced by any right-minded physician. I. F. E.

[Comment.—The foregoing communication is from a surgeon who, in an accompanying letter, says: "This was written because so many reports come to my knowledge of exorbitant charges, usually by persons who have no claim to special skill, and because these things are bad for both patient and surgeon, as well as for the profession as a whole." The determination of equitable fees for surgical services is an important and complicated question. It has been asserted that modern surgery has injected into medical and surgical practice a spirit of commercialism not in harmony with the traditions of the profession. Not only the charging of exorbitant fees, but also the performing of unnecessary operations has been alleged. Undoubtedly, isolated instances of both practices occur, but are such incidents common and if so, what is the remedy?—Ed.]

PLANTAR WARTS

To the Editor:—About fifteen years ago I suffered for several months with this painful affliction. At the suggestion of a colleague, I applied directly to the warts a 5 per cent. aqueous solution of chromic acid, application being made every second day with a toothpick or match-end. A very few applications effected a permanent cure, the warts being destroyed, leaving deep pits which soon closed in. There has been no recurrence. In the only case which I have observed since then cure was promptly obtained by the same treatment. I do not know who originated this treatment, and cannot even recall who suggested it to me; it was some one on the staff of the Vanderbilt Clinic at that time. The results were most satisfactory. Probably a stronger solution could be used if necessary.

W. P. Millspaugh, M.D., Los Angeles.

[Comment.—Chromic acid has long been used as an application to warts, the strength being greater than in this communication. A solution containing 100 grains to the ounce is recommended. The British Pharmacopeia has a solution of 25 per cent. strength. It is applied in a 5 per cent. solution to prevent perspiration of the feet and to harden the skin. It seems, therefore, that the solution recommended by Dr. Millspaugh is much too weak for application to warts.—Ed.]

Pneumothorax Artificialis, an International Society

To the Editor:—In The Journal, July 4, 1914, p. 49, I noticed that Dr. H. Schwatt of Edgewater, Colo., proposes the formation of a pneumothorax association. The doctor and others may be interested to know that there exists already an international society of medical men interested in this therapeutic procedure; it is called "Pneumothorax Artificialis." The secretary and treasurer of the society is Prof. C. Saugman, Vejlefjord Sanatorium, Daugaard, Denmark. The annual dues are $1. To each member is sent semi-annually a list of all members with their addresses. The publication known as *Revista delle Publicazione sul Pneumothorace Terapeutica,* which is edited by Professor Forlanini, is sent gratuitously to every member. In it are reviewed all publications on artificial pneumothorax. The reviewer of the American publications is Dr. M. F. Sloan of the Hospital for Consumptives of Maryland. Any one wishing to join the association may write me or, if he choses, communicate directly with Dr. C. Saugman.

S. A. Knopf, M.D., 16 West Ninety-Fifth Street, New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BOUDREAU'S IODIN TREATMENT OF TUBERCULOSIS

To the Editor:—1. Where can I find reliable information about Dr. Boudreau's (of Bordeaux) iodin treatment of tuberculosis?

2. Is it true that 120, 200, 300 even 400 drops of tincture of iodin (French Pharmacopeia) may be given internally without any injury to the patient? Andreas Klövstad, M.D., Chicago.

Answer.—1. We find no reference to the treatment by Boudreau except in the *Journal de médecine de Bordeaux,* 1914, lxxxv, 116, which was abstracted in The Journal, Feb. 14, 1914, p. 577.

2. These doses are excessive. We have no evidence that they can be tolerated by ordinary patients except the statement of Boudreau which is cited in the abstract.

HECHT'S MODIFICATION OF WASSERMANN REACTION

To the Editor:—Please publish the technic of the Hecht-Weinberg reaction which I understand is used as a control for the Wassermann test. W. S. Pugh, M.D., Washington, D. C.

Answer.—The modification of the Wassermann reaction by Hecht is performed as follows: Alcoholic extract of heart is used. Each serum is tested in four tubes.

Tube 1 contains 0.02 c.c. serum and 0.08 c.c. salt solution.

Tube 2 contains 0.02 c.c. serum and 0.08 c.c. 1 : 50 dilution heart-extract.

Tube 3 contains 0.02 c.c. serum and 0.08 c.c. 1 : 100 dilution heart-extract.

Tube 4 contains 0.02. c.c. serum and 0.08 c.c. 1 :200 dilution heart-extract.

The tubes are put into the incubator for half an hour, or into a water-bath raised to the temperature of 38 C. (100.4 F.) for five or ten minutes. At the end of this period such an amount of a 5 or 10 per cent. emulsion of sheep-cells is added that the fluid in each tube contains 1 per cent. red blood-corpuscles. It is important to avoid the addition of an excess of sheep's blood.

Tube 1 must show complete hemolysis in five or six minutes. In the test of a strongly acting serum all the other tubes show no hemolysis, while a weakly acting serum shows lysis in all but Tube 2.

For recent work on this see Gradwohl's article, p. 240.

Reference may be made to the following article:

Hecht, H.: Eine Vereinfachung der Komplimentbindungsreaktion bei Syphilis, *Wien. klin. Wchnschr.,* 1909, xxii, 265.

SPANISH MEDICAL JOURNALS AND MANUALS

To the Editor:—I wish to subscribe for a medical journal published in Spanish. There are several listed in the Index of The Journal, some published in Cuba, one in Mexico, and one in Spain. I have no way of judging of their relative value; in fact, I want the journal more for the purpose of gaining a familiarity with medical terms in Spanish than for any other purpose, and I would appreciate it if you could suggest a journal and inform me where to write to get it.

I have also written several book companies asking for a practice of medicine in Spanish but have not been able to learn of any. Should you know of such a volume, information as to where I can get it will be appreciated.

F. H. Crail, M.D., East Las Vegas, N. Mex.

Answer.—The following are some representative medical journals published in Spanish:

Boletin de la Asociacion Medica of Porto Rico. Box 1306. San Juan, Porto Rico. Monthly. About $2.

Revista Clinica de Madrid, Ferraz 82, Madrid, Spain, semimonthly, 23 francs (about $4.60).

Revista de Medicina y Cirugia, Consulado 60, Havana, Cuba, semimonthly, $4.50.

Semana Medica, Junin 843, Buenos Aires, Argentina, weekly, $5.

Siglo Medico, Magdalena 34, Madrid, Spain, weekly, $4.

Cronica Medica, Apartado 629, Lima, Peru, semimonthly, $3.

A new Manual de Medicina Interna is in press at Madrid to which the different chapters have been contributed by various Spanish specialists It is under the editorial supervision of Drs. T. Hernando and G. Marañon. The publishers are Imprenta y Libreria Casa Vidal, Atocha 98, Madrid, Spain. The price has not yet been announced.

Prof. José Penna's course of lectures on infectious diseases is published by the press of *Semana Medica,* Junin 843, Buenos Aires, Argentina. Price about $2.50.

UNIT OF ANTITOXIN STRENGTH

To the Editor:—A unit of diphtheria is defined as that quantity which is capable of neutralizing 100 units of toxin, and a unit of toxin is designated as that quantity expressed in fractions of a cubic centimeter which is just sufficient to kill a guinea-pig weighing 250 gm., in the course of four or five days. Is this the unit employed by the manufacturers of diphtheria antitoxin when it was first put on the market? Is the same unit used now to denote the strength of the antitoxin as found in the shops at present?

At a recent meeting of the Daviess County Medical Society it was charged by some of the older members that the antitoxin used by them in their early experiences was four or five times the strength of that at present marketed by the so-called standard houses, as is shown by the results obtained in the treatment of diphtheria. Can it be possible that this remedy on which the lives of thousands depend has, like many other articles, been monopolized and commercialized so as to yield the largest possible profit to the dealers?

George W. Willeford, M.D., Washington, Ind.

Awnser.—Originally the unit of antitoxic strength was determined according to the method of Behring and was defined as ten times the least quantity of antitoxin serum that will protect a standard (300-gm.) guinea-pig against ten times the least certainly fatal dose of toxic bouillon. This method was unsatisfactory on account of variations in the toxic bouillon which were pointed out by Ehrlich, who showed that this toxin does not possess uniform combining affinity for the antitoxin. Ehrlich therefore devised a method by which a standard powder containing the toxin was produced.

In testing the antitoxic serum, the amount is determined which will protect a 250-gm. guinea-pig against 100 times a fatal dose of the toxin. The quantity of antitoxic serum that preserves life beyond the fourth day is itself the unit. To test the serum itself, guinea-pigs weighing exactly 250 gm. are given toxic bouillon, 0.1 c.c., plus varying quantities of the serum—1/200, 1/300, 1/400 c.c., etc. All live except those receiving less than 1/400 c.c., which die on or about the fourth day. The serum can then be assumed to have 400 units per cubic centimeter unless it is desired to test more closely.

At present the Hygienic Laboratory of the United States Public Health Service has legal control of the manufacture of therapeutic serums and kindred products in the United States, issuing licenses to those engaged in legitimate manufacture and furnishing a standard test serum similar to that of Ehrlich, to those entitled to receive it. The antitoxic strength of diphtheria antitoxin sold in the United States must be determined according to this standard test serum. Samples of the products from licensed manufacturers are bought on the open market and examined at frequent intervals in the Hygienic Laboratory of the Public Health Service. Inspection of the laboratories is repeated at least once a year, and if insanitary conditions are found, or if the products are not what they are asserted to be, the license is suspended.

It will thus be seen that the immunity unit for diphtheria antitoxin is fixed by law, and there is every reason to believe that all the diphtheria antitoxin furnished by licensed manufacturers conforms in strength to the requirements established by the United States government.

Medical Economics

This Department Embodies the Subjects of Postgraduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

THE SOCIALIZATION OF MEDICINE

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NEW YORK

Society demands a special class who shall study the problems of human health and to whom it may look for advice and help in these vital matters. It is aware that the possibilities for good inherent in the application of this special knowledge are very great. The conquest of disease is now recognized as one of the wonderful chapters in human history. This medical knowledge has been won through the sufferings of countless generations of men and women and children. Students of science, long since passed away, have contributed to it. The ancestors of all of us have died to give it to us. It is natural to think of it as social knowledge—the heritage of all—to be denied to none—its benefits to be accessible freely to the descendants of men, all of whom, in due time, must contribute their quota to it.

Turning from the consideration of these larger aspects of medicine and health, and looking on the activities of that class in the community which is possessed of the special knowledge concerning the human organism and the disease which it suffers, we encounter a social anachronism. The medical sciences have made great progress, especially in the last half century, and their power for good in the prevention and treatment of disease is incalculable; still the average individual, well or sick, receives but little of their benefits when the possibilities of what he might receive are considered.

Our modern social system compels the average doctor to be a business man, competing with his fellows for a livelihood. He must make so much money each year to support his family. This must be his primary concern. The more sickness there is, the longer patients are sick, the more operations he can do, just so much better does he seem to prosper in a commercialized society. The practitioner who is most skilful in the methods of the tradesman, who commercializes his manners as well as his knowledge, is apt to have the largest practice and be publicly acclaimed as the most successful; while it is well known, at least to the medical profession, that the doctor who has the most knowledge and the best preparation and ability for his work often languishes for patronage because he does not bring to bear on the public mind the spell which skilful advertising methods insure.

To the commercial character of the practice of medicine is added the distressing fact that the ability of clients to pay the doctor is very poor. The people cannot afford to employ the doctor to do the best he can for them. In the average case, he cannot afford the time that would be required to give his best thought and attention to diagnosis and treatment. In his rounds he meets case after case which calls for serious consideration. Careful inquiry into its history, the scientific methods of the laboratory, personal supervision of the details of treatment, might all be used to the incalculable advantage of the patient. Science may have much to offer. But neither the patient nor the doctor can afford, from a business point of view, to consider these things. A short-cut expedient to often must be adopted; the gambler's chance, that most ills are self-healing, is taken; and the doctor is off to the next case in his quest for a livelihood.

This is the pathos of medicine. Its possibilities are not realized. One of the saddest things I see in medical work is the young man with alert mind, who has been well trained to enter practice—fresh from college, laboratory and hospital—with the vision of life before him—enthusiastic with his knowledge of the possibilities for helpful human service in his profession; and then to witness this young man, thrown into the maelstrom of competition, with the necessity of commercializing the sacred art of conserving human life, degenerate into a humdrum thing of pills and potions, joining clubs or a church as an economic enterprise, and rushing hither and thither in a motor-car in a community which measures success largely by the standards of business.

We do not know whether the economic condition of the average physician is worse or better than it was fifty years ago. We have no figures. But we do know that a large proportion of the medical profession is finding it difficult to make a living. We do know that the relative number of physicians is growing less, especially in communities in which more, and not fewer, are needed. We do know that the dividing of fees, the performing of abortions, cheap and unscientific contract practice, and the resort to quackery are the expedients to which many a capable man of high-minded preferences is driven, against his will, as a matter of economic necessity.

Do we desire that these evil conditions, springing from the competitive system, should be carried into the future? Is the time not coming for the more rapid socialization of the agencies for the promotion of public health? Other public necessities are undergoing this change. The people in progressive communities no longer leave to commercial enterprise such matters as the supplying of water for the people, the disposal of sewage, the cleaning of the streets, the education of the children, the carrying of mails, and the extinguishing of fires; and every year sees forward-looking communities add to the things that are taken out of the profit-making class and administered directly for the specific purpose which gives them their value.

The modern and inevitable trend is in the direction of removing the physician and sanitarian from the field of private and competitive business, and bringing them closer to the needs of the people. In Europe, this is being effected by the government and by the agency of sickness and insurance societies. Socialized medical attention is being rapidly brought to the people. The towns in France are beginning to apply direct action; municipal councils have passed ordinances providing that any resident of the town may consult any licensed physician without charge. The municipality pays the doctor. The national insurance act in England is the most sweeping piece of legislation in the direction of the socialization of medicine that the world has seen. Besides medical attention, the act provides insurance against sickness and disability for all who have an income below a certain amount. At present, 14,000,000 in England are subject to this law. It is intended that in the near future the act shall be made to apply to the dependents of the insured persons, so that the service shall embrace four-fifths of the population of England.

In the United States, as in the European countries, there is an increasing demand for trained sanitarians. It is notable that even the smaller municipalities and counties in rural districts are appointing full-time health officers. The schools, the courts, insurance acts, the industries and many of the municipal departments are making official places for the physician and sanitarian. The modern trend is illustrated by the city of Detroit, which in 1901 had in its health department, twenty-four employees; it now has about 200 employees. Ten years ago it had milk inspectors; now it has dairy inspectors. The health commissioner has announced that meat inspection cannot be made effective until the city owns its own slaughter-house.

It is evident that two agencies are at work for the socialization of the forces making for the public health. One is the state, acting in response to the political demands of the people; the other is private enterprise on the part of groups of individuals, forming themselves into cooperative societies. The latter is the syndicalist principle.

Science and expert ability have so much to offer in serious diseases that their treatment can no longer be conducted by a single individual. Team-work is necessary. There are blood examinations, urinalysis, Roentgen-ray examinations, bacteriologic examinations and many other tests and methods requiring expert knowledge. This is best secured in the hospital. The rich can afford to have it brought to them. The poor secure it not at all or only in some of the better municipal hospitals. Middle-class people cannot afford this team-work either at their homes or in the hospital, and accordingly suffer for want of the best that science can offer.

It has long been recognized that contagious diseases are the concern of all the people, and they have been so treated. This is because of the possibilities of their spreading from the sick to the well. Society is now much concerned about mental diseases. It has taken cognizance of the insane because of their irresponsibility; and now, because of their relation to the problems of eugenics, it is concerned for all with transmissible mental defects.

In response to the same psychology, all other diseases are becoming matters of public concern, because, even though they may not spread from sick individuals, still they have their origin in food, housing, occupations or other conditions which are matters of public concern. Because of the closeness of our human relations and interdependability on one another, any condition which society harbors, which is capable of producing disease, is coming to be recognized as the concern of all. Therefore if society is concerned that it may suffer from contagious disease in an individual, it must also be concerned that it may suffer from disease in a cow, disorder in a railroad or steamboat, or defective sanitation in a mill or mine. "Injury to one is injury to all," is coming to have an ethical as well as economic significance.

As the manifold public activities, demanding physicians and sanitarians, increase, the proportion of physicians, engaged in competitive private practice, decreases.

The education of men and women for this work is now ready to pass into the hands of the people. Medical education in this country has gone through the first stage, that of private commercial enterprise, and is now well advanced in the second stage, that of regulation and control by the state. The third is that in which it becomes wholly a public function. Already we have many public medical schools in which the people are educating their own physicians.

This great question of the public health, we should bear in mind, is by no means a medical question. In its administration are needed, not only the physician, but also the sanitarian, nurse, chemist, engineer, statistician and social executive.

As I look into the future, I see communities divided into districts, each with a sanitarian responsible for its health. Each district should have not only a social center but also a sanitary center. Here should be a laboratory for diagnosis, equipped with all the appliances and facilities of modern science, with trained experts in every department. In connection with it should be a central hospital. An outpatient and an inpatient department should supplement one another. This should be a community center in which the problems of the prevention of disease should be worked out. Prevention should be the key-note of the sanitary and medical work, and should supplant the old idea of making treatment the aim of medical effort.

According to the needs of the people, specialists in all branches should be located at convenient intervals in dispensaries and hospitals. There should be a hospital in every community—country as well as town. The number of hospitals should be regulated by the population and geography. A single tuberculosis dispensary should be provided to cover a certain number of sanitary districts. Here the people should be taught how to prevent tuberculosis; and the tuberculous should receive advice and help. In England, the new insurance act provides a tuberculosis dispensary for every 150,000 inhabitants. It provides 200 sanitariums with accommodations at the rate of one bed for every 5,000 of population.

A Roentgen-ray equipment should be located in every community. Such special institutions should be complete; and, being as perfect as science could make them, they should prove more effective than the multitude of little inadequate equipments scattered about a city as we now find them. A similar plan with reference to surgical operations and other special work would naturally be most effective. A corps of surgeon, with central equipment, for a given population should be provided.

The people should have a wide range of choice in the selection of physicians. No physician should be called on to serve more than a certain number of patients, for the physician as well as the patient has rights to be respected. The special line of work into which a physician enters should be determined by his aptitude. Vocational selection should be employed. These public servants should receive compensation commensurate with their services and their needs, insurance and pensions, relieving them utterly from the fear of poverty.

What advantages may we expect from this inevitable socialization of the agencies making for public health? In the first place they will be accompanied by the socialization of other public necessities. It is all a part of one big human movement. Things are to be done *because they need to be done,* and not for the purpose of making money, with the human value of the work as a by-product. The primary function of the doctor will be to prevent disease and to relieve suffering. It will not be, as it now is, to make money by preventing disease and relieving suffering—so far as is consistent with making money, just as the primary function of the railroad industry will be to carry passengers and commodities safely and expeditiously. It will not be, as it now is, to make dividends and interest on stocks and bonds by carrying passengers and commodities—as safely and as expeditiously as is consistent with making dividends and interest on stocks and bonds. These two motives—the old and the new, the one addressed to property and the other addressed to human life—are utterly and incomparably different.

At the same time the free administration of justice, as well as of health agencies, should become a reality. Under such a régime the expert medical witness should be the agent of the people. His function should be to give impartial information. He should be in the service of all the people in the interest of truth and justice, just as the judge should be; and securing justice should not be a matter of barter and price any more than should the securing of medical help.

Among the important functions now undertaken by the people in but a desultory way are the inspection of sources of water-supply, the analysis of water, the economic and sanitary disposal of sewage and garbage, the regulation of buildings from a sanitary point of view, the sanitary control of schools, offices, public buildings, factories, bakeries and mines, and the protection of the health workers in the various trades. When the workers alone are the employers and owners of the industries, we may be sure that these things will receive better attention.

The same may be said of the food- and drug-supply. These may be expected to become socialized along with other agencies which have to do with health. The analysis and study of these things, and then their public control, must be a part of the same movement. Water, one of our most important foods, is now procured to the people as a public function; milk and bread must follow the course of the water, as surely as the day follows the night.

Under these ideal, or, I prefer to say, normal conditions, competition would be stimulated. There would be competition among the health officers to keep down morbidity in their respective districts, and to show the best results in treatment. There would be wholesome competition among physicians to attain to excellence in their work; for that would be the object toward which they might strive unhampered if the dollar were eliminated from the struggle. Experience shows this to be the case. The best results are being secured to-day where scientific men are carrying on their work unhampered by economic competition.

Individual initiative would be stimulated. In this era of money making, the public mind has fallen into the habit of judging success by the dollar standard. To take the agencies of health out of this category would place them where they might operate unrestrained by the pursuit of profits. It is a noteworthy fact that the great discoveries in science, the discoveries that have contributed the most to human life, have not been inspired by the reward of money. Moreover, most so-called discoveries represent but the accumulated knowledge of many generations, and belong to no man or set of men. They are a common heritage, and it is highly presumptive for any individual to add a final touch to an age-long chain of knowledge, and then lay personal claim to the whole. All the knowledge of the medical sciences is common knowledge—not to be denied to the humblest who needs it.

With such agencies as these at work, human life could be made sweeter. In the place of our commercialized organization, we should have a more equable and humane distribution of health forces. It is calculated by insurance actuaries that in the United States there are 600,000 deaths and in England 300,000 deaths annually, which are entirely preventable, and which could be prevented if the object of our medical effort were the saving of life.

Among the working people the infant mortality is horribly high because the babies of the working people cannot be provided with the attentions and the environment necessary to save their lives. These babies are just as precious as the babies of the rich. Tuberculosis and most other human ills have an economic significance. Among the wealthy there now is a surfeit of doctors; among the poor, too few. In Pennsylvania there are 100,000 births annually in rural places, with no hospital near, and very few, poorly prepared, underpaid and overworked doctors. I believe that the wives of coal-miners and iron-workers are as worthy of the best scientific attention and the tenderest care in the hours of their need as are the wives of the rich. I believe that they should have it, not as a charity or welfare enterprise, but as a matter of social justice. It is their right.

I am aware that this view is contrary to the conventional mortality of present-day society, which, with hypocrisy in its heart, prays for it one day in the week, but which votes against it, acts against it, and adjusts its affairs against it at all times. The workers, who create the wealth, some day will demand at least this for their women, unless the people as a whole anticipate it and do it for them.

Soldiers and policemen receive gratuitous medical attention. Is it not reasonable to ask, Is not the farm-worker as important as they? What of all those who perform useful service? And what of the women who, in the shadow of death, replenish the supply of worn-out workers—who feed the mills and mines their human grist? Are these not performing necessary public service?

Keeping people well is the most important employment for the medical profession. Society is going to demand the talents of the physician to this end. It is for this that society should bestow its rewards.

The socialization of medicine is coming. The time now is here for the medical profession to acknowledge that it is tired of the eternal struggle for advantage over one's neighbor. The value of cooperation in science is proved. Medical practice withholds itself from the field of science so long as it continues a competitive business. Its full possibilities will be realized only when its whole effort is expended in the conservation of human health and life.

Therapeutic Utilization of Anaphylactic Shock.—One of the features of anaphylaxis is that the blood seems to become thicker, and Dufour and Crow deliberately induced anaphylaxis recently in an effort to arrest severe hemorrhagic purpura following the first menstruation. The uterus and gums had bled almost constantly for thirteen days. The girl had been treated with antitoxin during diphtheria at 18 months, and now besides the ordinary measures, small amounts of antitoxin were injected and after each injection the blood coagulated in much less time than before and the hemorrhages were arrested. In their communication (*Bull. de la Soc. des Hôp.*, 1914, xxx, 979). Dufour and Crow say that it might be possible to induce passive anaphylaxis for the purpose, injecting first the serum of an animal in a state of anaphylaxis and then the "unchaining" dose of the antitoxin.

Medical Education and State Boards of Registration

Minnesota April Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral and written examination held at Minneapolis, April 7-9, 1914. The number of subjects examined in was 11; total number of questions, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1913)	85
Northwestern University	(1913)	87
Rush Medical College	(1913)	79
University and Bellevue Hospital Medical College	(1913)	87
Milwaukee Medical College	(1908)	76

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	(1896) Wisconsin; (1905)	Wisconsin
Rush Medical College	(1905) Illinois; (1912)	Illinois
University of Illinois	(1912)	Illinois
Marquette University (1913) Wisconsin; (1913) Wisconsin;	(1913)	Wisconsin.

Colorado April Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the oral and written examination held at Denver, April 7, 1914. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 7, of whom 6 passed and 1 failed. Fourteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Colorado	(1912)	81.9, 83.3
Northwestern University	(1913)	88.9
Rush Medical College	(1913)	88.6
Starling-Ohio Medical College	(1913)	88.1
Royal College of Physicians and Surgeons, Ireland	(1913)	84.8

FAILED

Non-graduate		52.9

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
California Eclectic Medical College	(1904)	California
College of Physicians and Surgeons, Chicago	(1908)	Wisconsin
Rush Medical College	(1877)	Illinois
Indiana University	(1910)	Indiana
Hospital College of Medicine, Louisville	(1906)	Kentucky
Eclectic Medical University, Kansas City	(1900)	Missouri
Kansas City Medical College	(1886)	Missouri
Marion-Sims College of Medicine	(1899)	Missouri
St. Louis College of Physicians and Surgeons	(1908)	Tennessee
John A. Creighton Medical College	(1913)	Nebraska
New York University, Med. College	(1889)	Ohio
Hahnemann Medical Coll. and Hosp., Philadelphia	(1907)	Ohio
University of Nashville	(1903)	Tennessee
Medical College of Virginia	(1904)	Virginia

ANATOMY

1. Describe the lower half of the humerus. 2. Describe the knee-joint. 3. Give complete anatomy of the pectoralis major and minor muscles. 4. State how the abdomen is divided superficially into regions. Name the regions so formed. 5. Give the course and branches of the axillary artery. 6. Describe carefully the parotid gland and its duct. 7. Give a full description of the duodenum. 8. Give anatomy and surgical anatomy of the crural canal. 9. Describe the prostate gland. 10. Give the extracranial course and distribution of the vagus (tenth cranial nerve).

PHYSIOLOGY

1. Discuss the physiology of respiration. 2. Describe the salivary glands (*a*) as to their histologic structure, (*b*) their secretion, (*c*) their innervation, and (*d*) the influence of their secretion on normal digestion. 3. Trace a morsel of proteid food through the process of its digestion and elimination. 4. Describe the physiologic action of the cardiac nerves. 5. What physical factors are concerned in the production of blood-pressure and blood velocity? 6. Define dialysis and osmosis in the body; give example. 7. Name three organs of secretion and two of excretion. Mention the physiologic constituents of the product of each organ named. 8. Describe the structure and function

of the spinal cord. 9. Name the organs of special sense, and describe in detail the physiology of one. 10. Mention four factors essential to impregnation.

CHEMISTRY

1. What is chemical affinity? 2. What are the laws of definite and multiple proportions? 3. Define valence. 4. What is atomic weight and how determined? 5. What are the properties of bases? 6. Define salts, acid salts, basic salts and double salts. 7. Complete the chemical equation $Na_2SO_3+CaCl_2=?$ 8. Give physical and chemical properties of oxygen. 9. What is the difference between a mixture and a chemical compound? 10. Give some examples of univalent, bivalent, trivalent and quadrivalent elements.

PATHOLOGY

1. Give the pathology of hemorrhage of the brain. 2. Name the tumors of the mammary gland. 3. Give the pathology of tabes dorsalis. 4. Explain the pathology of angina pectoris. 5. Give the pathology associated with jaundice. 6. Give the morbid anatomy associated with fluid in the abdominal cavity. 7. Explain sarcoma, carcinoma, endothelioma, epithelioma, embolism, thrombosis. 8. Give the pathology associated with hemorrhage from the urinary tract. 9. Explain pathology of suppurative arthritis. 10. Give the pathology of typhoid fever.

SYMPTOMATOLOGY

1. State your plan of percussing the chest, and give the results of percussion of the chest in a normal case. 2. Describe bronchial, vesicular and bronchovesicular breathing and tell where each is normally found. 3. Tell how the spleen is examined and the possible significance of its enlargement. 4. Give the normal location of the apex-beat of the heart and the causes of its displacement. 5. Discuss the pathologic variations in character of the apex-beat. 6. Describe and give the significance of murmurs arising from the mitral valve. 7. What are the symptoms of leukemia? How is it to be distinguished from pseudoleukemia or Hodgkin's disease? 8. What are the causes and symptoms of exophthalmic goiter? 9. Give the causes and symptoms of chronic interstitial nephritis. 10. Give the symptoms, diagnosis, prognosis and complications of diabetes mellitus.

TOXICOLOGY

1. What are the symptoms of acetanilid poisoning? 2. Give treatment of same. 3. What poisons produce neuritis? 4. Give symptoms of chronic lead-poisoning. 5. Give symptoms of one poisoned by morphin. 6. Give treatment. 7. Give post-mortem appearance. 8. Give symptoms of one poisoned with phosphorus. 9. Give treatment of one poisoned with phosphorus. 10. Give post-mortem appearance.

SURGERY

1. (*a*) Describe the usual course of metastasis following carcinoma of the breast. (*b*) Describe the lymphatic drainage of the lower lip, and explain its surgical significance. 2. Describe the usual deformity accompanying fracture of the neck of the femur. 3. Give the causes and symptoms of coxa vara. 4. Describe the usual resultant deformity in untreated cases of Pott's fracture. 5. What are the dangers accompanying excision of a goiter? 6. Give the treatment of a simple oblique fracture of the femoral shaft. 7. What are the effects of removal of the spleen? 8. What are the symptoms of traumatic rupture of the kidney? 9. Name some of the more important localizing symptoms which may accompany fracture of the vault of the skull. 10. Give the differential diagnosis between acute appendicitis and acute cholecystitis.

OBSTETRICS

1. Discuss your treatment of a case of normal labor. 2. What instructions would you give to a primipara (normal) who comes in the third month of pregnancy to engage your services? 3. Discuss the causes and treatment of post-partum hemorrhage. 4. Discuss the pathogenesis of puerperal infection caused by the streptococcus group of organisms. 5. Discuss the care of the breasts during pregnancy and during the puerperium. 6. Classify the indications for low forceps. 7. Give four normal diameters of the pelvic inlet. 8. Discuss the early diagnosis of eclampsia and briefly outline the treatment. 9. What will you carry in your obstetric bag? 10. Name the pathologic conditions that may result from puerperal sepsis.

Book Notices

Influenza: Its History, Nature, Cause and Treatment. By Arthur F. Hopkirk, M.D. Cloth. Price, $1.25. Pp. 209. New York: Charles Scribner's Sons, 1914.

This is not, as might be supposed, a careful medical monograph on influenza; indeed, the author expressly disclaims the purpose of writing an exhaustive work on the subject. He does not state to what class of readers his book is addressed. The treatment seems slightly technical for ordinary laymen, whereas the directions and glossary seem to be intended for nurses. Almost half of the volume is occupied with historical matter. The etiology of the disease is regarded as settled, being attributed without hesitancy, in spite of the insufficiency of the evidence, to the *Bacillus influenzae*. In the discussion of the prevention and treatment of the disease, evidence that the book is intended for the lay public becomes obvious and the idea persists that certain proprietary foods and nostrums are being favored with a write-up. Along with a goodly amount of such advice as is common to books on personal hygiene and a modicum of purely medical advice there are numerous directions for the use of nostrums. The prevention of influenza is dismissed with the recommendation to take a daily dose of quinin and suck Formamint lozenges when actually exposed to the danger of infection. Antiphlogistine is the author's standard application for inflammation and pain. Malto-Yerbine he uses for cough, and Regulin is recommended as a cathartic. This to be sure, seems a limited list, but in the diet rules the restriction becomes marked. The proprietary foods recommended may be said to have a cosmopolitan reputation, although it is rare that writers of books insist on them with such persistency as Hopkirk. Not even the noted European clinicians who have exploited cottage cheese and glycerophosphates in original articles have equaled the following: "Breakfast, which should be taken at about 8:30 a. m., is one of the meals at which Sanatogen must always be administered." and so on for eight pages. Carnine-Lèfrancq, and Benger's food are occasionally mentioned, but always, except once, the author returns to his first love and insists on the fraudulently exploited Sanatogen. Foreign physicians, especially British, may find such a book tolerable and perhaps instructive, but for Americans the ordinary text-books will probably furnish an equal quantity of useful information without induction of nausea by the persistent recommendation of nostrums. The astonishing thing is that Scribner's would allow their imprint on such a book.

Scrofulosis. By Prof. Dr. G. Cornet. Translated from the Second German Edition by J. E. Bullock, M.D., Assistant Medical Officer, Eversfield Chest Hospital, St. Leonards-on-Sea. Cloth. Price, $5 net. Pp. 515. New York: William Wood & Co., 1914.

The idea may be somewhat startling that a book of five hundred pages should be devoted to the discussion of a condition to which at most a page or so is given in our textbooks. The meaning of the terms "lymphatism" and "exudative diathesis" which replace in modern thought the old idea of scrofula are discussed at great length, but the final conclusion is that accepted by most authors that scrofula is merely external tuberculosis. The author rejects the view that has been recently gaining ground that tuberculosis infection is predominantly frequent in childhood and that adult tuberculosis is a mere revivification of an infection latent since childhood. The book forms a valuable treatise on the local and external tuberculosis of childhood.

Tropical Medicine and Hygiene. By C. W. Daniels, M.B., F.R.C.P., Lecturer on Tropical Diseases, London Hospital. Second Edition. In Three Parts—Part 1: Diseases Due to Protozoa. Cloth. Price, $3 net. Pp. 277, with 73 illustrations. New York: William Wood & Co., 1913.

This work is divided into parts corresponding with the classification of the micro-organism causing the disease. The present volume includes diseases caused by protozoa. In the preface the author states that this arrangement has been justified. About half the volume is devoted to malaria and blackwater fever. The connection of the latter disease with malaria is not established and its etiology is unknown. The other diseases considered in this volume are yellow fever, African relapsing fever, kala-azar, yaws and some minor affections. An appendix gives some valuable data in the form of dates, measurements, etc. The book is well illustrated and forms a handy manual on these important diseases.

Anatomy and Physiology. A Text-Book for Nurses. By John Forsyth Little, M.D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. Cloth. Price, $1.75 net. Pp. 483, with 153 illustrations. Philadelphia: Lea & Febiger, 1914.

In this work there is, of course, nothing original, but it is an excellent compilation of the most important facts in anatomy and physiology necessary to nurses. The illustrations are taken chiefly from well-known text-books. A very good glossary completes the book.

Medicolegal

Statements Made to and by Attending Surgeons Employed by Railroad Company

(Chicago & Erie Railroad Co. vs. Shenkel (Ind.), 104 N. E. R. 50)

The Appellate Court of Indiana, Division No. 1, says that, in this personal injury case, brought by Shenkel, the railroad company offered in evidence a statement identified as signed by the plaintiff and certified by his attending surgeons, who were employees of the company. The statement related to the time, place and manner in which the injury was received. Objection was made on the ground that it was shown that the statement which was taken by the attending physician in the sick-room was a confidential communication under the statute, and that the offer was an attempt to prove by indirection what could not be proved directly. The objection was rightly sustained. The excluded statement was not only a "communication to" the attending physicians "in the course of their professional business," but also a statement of the physicians themselves. After the plaintiff's signature the instruction contained the following: "If operation was performed, did the injured person consent? Ans. None at this writing. Give date of operation, names of operating surgeons, witnesses to operation. Ans. None at this writing." Then followed the certificate and signatures of the "attending physicians." This was clearly an attempt to get before the jury by this indirect method a confidential communication of the plaintiff, and also the statement of the physicians made at the same time and under the same circumstances. Statements made to or by physicians employed by a railroad company while attending the injured party shortly after his injury should be closely scrutinized because of the situation and condition of the injured party and the natural bias and influence of physicians so situated. When, as in this case, it clearly appears that the physicians were rendering the patient medical and surgical attention when the communication was made, and that he was depending on them for such services, and also that the instrument is a statement of both patient and physicians, made under like circumstances, some latitude must necessarily be given the trial court in determining whether the evidence offered does or does not come within the prohibition of the statute as to privileged communications. The offered evidence in this case was so clearly within the spirit and meaning of the statute that to admit it on the ground that it was only a signed statement of the plaintiff made out of court, tending to contradict his testimony, would be a surrender to technical form in violation of the spirit, if not of the letter, of the statute.

Privilege Extends to Physician Invited to Assist in Diagnosing Case

(Mutual Life Insurance Company of New York vs. Owen (Ark.), 164 S. W. R. 720)

The Supreme Court of Arkansas says that a Dr. Brown invited a guest of his named Dr. Smith to go with him to see his patients, and that Dr. Smith accompanied him and was present when he examined and prescribed for the insured in this case. It was true that Dr. Smith did not visit the insured for the purpose of personally treating him, but to examine the patient as a physician, at the request of Dr. Brown, to assist him in diagnosing the case. It was the intention of Dr. Brown to use any knowledge that he might acquire of the patient's condition as the result of the joint examination by himself and Dr. Smith. Hence it might be said that Dr. Smith went, not only as a matter of courtesy to Dr. Brown, but also for the purpose of assisting him in diagnosing the disease and treating the patient. This clearly brought him within the spirit of the statute and prohibited him from disclosing any knowledge of the patient's condition thus acquired, without the consent of the insured's representatives in this suit.

Society Proceedings

CONNECTICUT STATE MEDICAL SOCIETY

One Hundred and Twenty-Second Annual Meeting, held at New Haven, May 20 and 21, 1914

(Concluded from page 191)

Subacute Hyperthyroidism

Dr. J. M. Flint, New Haven: A woman, aged 38, had a perfectly typical clinical picture of subacute hyperthyroidism in exophthalmic goiter. The onset commenced last fall, without any factor with which she can make association. She began to get nervous; her eyes began to be a trifle prominent, and the swelling in the neck appeared. The physical examination showed few ocular symptoms. There was no mononucleosis, which is usually associated with the more serious cases. This patient has a relatively small goiter; the right lobe is chiefly involved. It is soft, and has no palpable thrill; but there is a very distinct bruit heard on both sides. We do the simple operation in the toxic cases; that is, ligation of the superior thyroids on one or both sides. There is no evidence here of thymus persistence, which is one of the interesting chapters in the recent discussion of exophthalmic goiter.

Fractures of the Clavicle

Dr. W. E. Hartshorn, New Haven: We had quite a problem presented to us in the treatment of fractures of the clavicle at the dispensary. We found that with the ordinary plaster dressings, it was impossible to reduce the deformity. We did employ the ordinary Sayre dressing. At the end of the second week, in the treatment of these cases, or of the third in adults, the arm was restricted, and the forearm placed in a sling. Sayre's dressing is not very satisfactory, because it is extremely uncomfortable for the patient, and with enough strain put on the adhesive bands really to secure reduction, the dressing is so tight that the patient cannot wear it. We next attempted to obtain adjustment by means of the Collins method; but the same problem was offered as before, and the method did not stand up well. We then adopted the Bellamy dressing. It is better than the others, but was also very uncomfortable to wear. Last, we tried the Peckham dressing, and it works very well in children. It reduces the deformity, is comfortable to wear, and can be put on over the clothing.

Apparatus for Aspiration and Irrigation of Joints

Dr. J. W. Churchman, New Haven, Conn.: The apparatus which we use consists of a series of tubes which connect, through common openings, with the tube inserted into the joint and with the tube leading from the pump, which can provide a force or suction power. The apparatus can be taken apart and cleaned, and can be autoclaved just as it stands. It is necessary to get the joint clean, the walls of which are lined and covered with little chunks of fibrin that must first be washed clean. We collect the pus for purposes of culture, forcing it into a bottle. When the joint is clean we fill the bottle with what we want to use, and then force that into the joint. After the joint is full of the irrigating fluid, we draw it back again, and we may even repeat that operation with another fluid. I have used this method in two cases of arthritis and the results have been very satisfactory; in fact the second patient was completely cured.

Influence of Gentian Violet on Tissue-Cultures

Dr. J. W. Churchman, New Haven: We have found that a marked bactericidal action is possessed by gentian violet dye. Gram-positive organisms were killed by it. It cannot be injected into the body, because if it is injected into the ear of a rabbit in doses sufficient to kill the germs, the animal changes the stain within two hours and renders it harmless to the organisms. That fact, however, may turn out to be of value, because if the stain can be made to reach the organisms and stay unchanged long enough to kill them, and the body will then change the stain and get rid of it, we shall have a very valuable antiseptic. We have some cultures of tissues growing in gentian violet, absolutely unimpaired.

Stitch Ulcers After Gastro-Enterostomy

Dr. J. M. Flint, New Haven: The end-results of our investigations make us believe that stitch ulcers of the jejunum following gastro-enterostomy are due either to sloughing out of the stitch or to changes in the circulation that the stitch has produced.

Case of Facial Hemiatrophy

Dr. Max Mailhouse, New Haven: My patient at the age of 18 had some discolored spots (from ½ to 2 inches in diameter), and gradually atrophy set in, with some twitching of the muscles and some pain in them; the atrophy involved skin, subcutaneous cellular tissue, muscles and bone. His family history is entirely negative, and there is nothing specific in the case. There is no beard growing on the right side of the face, but there is a beard on the left side. The patient's mouth has been drawn to the right; he can move his jaw to the left, but not to the right. There is marked atrophy of the right side of the tongue and also of the soft palate, but the patient has no difficulty in swallowing. His right hand is much larger than his left.

Non-Protein Nitrogen in Urea

Dr. Wilder Tileston, New Haven: A number of ingenious methods have been devised for the accurate estimation of various substances in the blood. Among the most important are: the methods for the estimation of cholesterin in the blood; the estimation of sugar in diabetes; the estimation of uric acid, and lastly, the estimation of the non-protein nitrogen in the urea. I shall deal largely with the last-named. In health, the method has but little effect, the chief interest centering around nephritis and other kidney diseases. We have examined a considerable number of such cases. A uremic case showed the effect of diet on the total nitrogen. There were 56 mg. of non-protein nitrogen. After a few days of low-protein diet, it sank to 24 mg. In nephritis we have found all figures, from normal to ten times the normal. In no case of uremia which showed high figures did the patient live more than a few weeks. This estimation also promises to be of value in hypertrophy of the prostate when operation is considered; but any patient showing as high as 75 mg. would be a doubtful case for operation. In all cases of lead-poisoning we found increased nitrogen—the lowest being 30 mg. This shows how injurious the influence of lead is on the kidneys. Acute intestinal obstruction was the only disease not of the kidney that showed a marked increase. Acute infectious diseases showed only a moderate increase. In syphilis we found a marked increase in about half the cases, indicating that the kidneys are more often affected than has hitherto been supposed. The value of this method from the point of view of diagnosis and prognosis is very apparent.

Pericarditis

Dr. George Blumer, New Haven: I will speak of some points that have come up in our experience with pericarditis, especially with effusion. This disease is often almost without pain. One patient with effusion came to the hospital complaining of pain, one made no complaint, and the other two complained of discomfort in the region of the heart. Pericarditis is often recognized only on the necropsy table, and is frequently found unexpectedly in routine examinations. We have had two or three cases in which the effusion was undoubtedly proved and in which the apex impulse did not disappear. The presence of pericardial friction sound does not rule out pericarditis with effusion. One is apt to mistake extensive effusion with consolidation, for pleurisy with effusion. In fact, the pericardium has been tapped by mistake for the pleura. The Roentgen ray is valuable, not only in diagnosis, but also as an indication of where to tap the patient. We had one case in which we tapped and the dulness persisted. Then we tapped the pleura, and found that there was pleurisy.

THE AMERICAN THERAPEUTIC SOCIETY

Fifteenth Annual Meeting, held at Albany, N. Y., May 29 and 30, 1914

The President, Dr. Howard Van Rensslaer, Albany, in the Chair

Officers

The following officers were elected for the ensuing year: president, Dr. Francis M. Pottenger, Monrovia, Cal.; vice-presidents, Dr. Robert T. Morris, New York; Dr. Spencer L. Dawes, Albany; Dr. J. Madison Taylor, Philadelphia; secretary, Dr. Lewis H. Taylor, Washington, D. C. (reelected); treasurer, Dr. A. Ernest Gallant, New York. (reelected).

President's Address: A Study of the Therapeutic Effects of Thermopenetration in the Treatment of Phthisis Pulmonalis

Dr. Howard Van Rensselaer, Albany, N. Y.: By theoretical reasoning it would seem that when there is an abnormal amount of blood in the lungs, tubercle bacilli are more readily destroyed, or at least prevented from multiplying as they do in the anemic condition of run-down persons. Theoretically also, what is needed is something which will directly heat up the lung as a whole, or any special part of it, without producing a general congestion over a large area of the body. The employment of the high-frequency current has given the best results of any special treatment we have ever tried. The patients were divided impartially into three classes for treatment: (1) those given the high-frequency current; (2) those given tuberculin, and (3) those given no special treatment, which we called the control cases. The benefits so far obtained from high-frequency current, in comparison with the other methods, are: (1) the ability to keep the patients longer in the hospital; (2) the greater increase in weight (five times greater), and the larger percentage of those who increased, and (3) apparent cure or arrest of 69 per cent. of the cases in the discharged patients, against 15.5 per cent. as the best of the other methods.

The Acquisition of Tuberculosis

Dr. William H. Porter, New York: It is established, so far as bacteriologic research has advanced our knowledge, that tuberculosis is not, and cannot be, transmitted from the mother to the offspring *in utero*, and, consequently, the disease is never inherited. The most that can be inherited is a definite chemicophysiologic activity, and this likewise occurs much less frequently than is generally supposed. As the weeks and years advance, the nutritive vitality of the organism progressively deteriorates, local inflammations are excited, the proper soil is developed, finally the non-tuberculous system is successfully inoculated with tubercle bacilli, and the lesions characteristic of true tuberculosis are developed. These anatomic changes have never been found in the human organism until after the fourth week of extra-uterine life, and the frequency with which they are found increases yearly from 5 per cent. up to the fifteenth year, when the maximum of 30 per cent. is reached. While it is impossible to exterminate tuberculosis as completely as theory would indicate might be possible, it is still within the range of probability to prevent the development of hundreds of thousands of cases every year. Its accomplishment, however, is to be effected along the line of the prevention of a soil suitable to the growth of the tubercle bacilli, rather than by overstrenuous efforts to prevent inoculation.

Volatile Substances Isolated from Tubercle Bacilli Cultures, and Their Effects on Experimental Tuberculosis

Dr. Ernest Zueblin, Baltimore: I have made a series of experiments on guinea-pigs from which it may be concluded that in tubercle bacilli there is contained a volatile substance of a lipoid nature chemically which possesses a much more strongly penetrating odor than the original bacilli culture. In literature we find a few reports of acute intoxication resulting from the emulsification or evaporation intoxication of tubercle bacilli cultures. According to my interpretation, underlying the manifestations noted there is not a simple intoxication, but combined with it there is probably a hypersensitiveness, since the symptoms appear to be more pronounced in individuals giving a marked tuberculin reaction.

DISCUSSION

Dr. Francis M. Pottenger, Monrovia, Cal.: In a tuberculin the protein or the lipoid element may predominate, and the same is true of the antibodies against the two groups. I cannot accept the position of Dr. Porter that tuberculosis is never transmitted to the offspring *in utero*; I believe that in certain instances such transmission does occur. In advanced cases of the disease tubercle bacilli are constantly escaping into the blood; it would therefore seem easy for them to pass through the placenta. It is a fact, however, that in the great majority of instances the infection is contracted after birth.

The Tuberculosis Home Hospital Experiment

Dr. P. Brynberg Porter, New York: In the "East River Homes," built by philanthropic persons and placed at the disposal of the New York association for Improving the Condition of the Poor, twenty-seven families, seventy-nine members of which were tuberculous, lived in sanitary homes, had ample sunshine, fresh air, good and abundant nourishment, freedom from undue work and worry, reasonable segregation, skilful medical attendance, and constant nursing supervision. The results observed in the tuberculous patients compare very favorably with those at the best sanatoriums, while the expense was less than that of institutional treatment. No new cases of the disease developed in any of the families. At the time of admission the average income of the six families which were discharged as rehabilitated was only $6.42 a week, while when they were discharged their average income amounted to $15 a week.

DISCUSSION

Dr. Linsly R. Williams, Albany, N. Y.: It seemed to the projectors of the East River Homes that if some combination for the benefit of the whole family could be worked out, it would be a great gain. The question of the complete control of the tuberculous patient was the marked characteristic of the experiment, and one important point was to see that he was not overworked. Altogether, this is a very hopeful scheme, and one which I think might be adopted with advantage by other cities.

Digitalis in Chronic Diseases of the Heart: the Advisability of Its Continuous Administration

Dr. Louis F. Bishop, New York: Fibrillation of the auricle and very serious valvular disease are the conditions most often benefited by the use of digitalis over periods of months and years. The amount required is largely a matter of experiment. In auricular fibrillation it is a good rule to keep the pulse about 90, while in valvular disease it is well to keep the tonicity of the heart-muscle at such a point as to insure a minimum amount of shortness of breath. A third type of disease in which the continuous use of digitalis is often indicated is presented by the later stage of arteriosclerosis; when there is a tendency for the high blood-pressure to change to a pressure falling below the line of compensation. The use of so powerful an agent requires constant supervision, and every heart-patient should be seen at least once a month. There are many persons whose lives depend on this continuous use of digitalis, and the drug may eventually bring about a true strengthening of the heart. There is no such condition as a digitalis habit.

DISCUSSION

Dr. A. D. Blackader, Montreal: I prefer to give digitalis in courses, and this plan is combined with rest—at least partial rest—of the heart. Any one employing digitalis is to a certain extent using a two-edged sword. He should therefore have a clear idea of the action and of the side-effects of the drug.

Dr. T. E. Satterthwaite, New York: In cardiac deficiency digitalis is our sheet-anchor. Whether or not its administration is to be continued uninterruptedly must depend on the conditions present. By employing digitalis we avoid the disagreeable gastric effects of the crude drug, and for years I have relied almost exclusively on this, only occasionally giving a little strophanthus and nitroglycerin.

Dr. R. D. Rudolf, Toronto: Mackenzie is accustomed to wait for the breaking down of compensation before resorting to the use of digitalis, but I think it is a much better plan to begin the digitalis as soon as possible after the discovery of evidences of threatened decompensation. In this way the more serious condition may often be averted.

Some Problems in Genetics

Dr. Thomas E. Satterthwaite, New York: While human eugenics is still imperfectly understood, there are certain principles bearing on the transmission of traits by propagation which are tolerably well established. These principles should be popularized, so that the adult portion of society will realize the importance of fit and the dangers of unfit matings. With an aroused public appreciation of these matters, appropriate legislation would sooner or later follow, and be made effective. Uniform laws as to the regulation of marriage, as well as laws to prevent the transmission of diseases by diseased persons, should be urged in every state. Legislators should advocate only such laws as will accomplish satisfactory results without an unreasonable curtailment of personal liberty. There is urgent need of further researches in the field of eugenics, in order to clear up misapprehensions and so allay criticism as to its civic value; but, as this work would necessarily involve the services of special medical experts, the expenditure of large sums of money, and unusual facilities, it should be relegated to the states or the general government, which could provide the men, money and opportunities and accomplish the most at the least expense. Reports from such sources would serve admirably for the bases for the framing of appropriate laws, or for the amendment of those which have proved unsatisfactory.

DISCUSSION

Dr. Edward D. Fisher, New York: I question the correctness of the mendelian theory, and we do not know enough to pass intelligently on many of the legal measures which have been proposed; while if such laws were enacted it would not be possible to carry them out as would be desired. We could not get sterilization applied in New York. Practically, it would be very difficult to decide who should and who should not be sterilized. In this question of genetics there will always be two parties, the believers in heredity and the believers in environment.

Dr. C. E. Woodruff, New York: I believe that environment, not heredity, is the principal element to be considered. If the criminal had been subjected to good influences, he would have been an orderly member of society. I have an idea that it is the "good" families which are sending the most persons to prison. As to the sterilization of those who are known to be liable to transmit imbecility, etc., I am convinced that it is a social necessity.

Dr. R. W. Wilcox, New York: There is one class of persons, the feeble-minded, which has not been fairly treated. It is rightly held that these unfortunates ought to receive the same care as the insane and the imbecile; yet it is a fact that in New York State only 4,000 out of the 19,000 in the state, are now under custodial care.

Diagnosis and Treatment of Disease of the Cecum

Dr. G. Reese Satterlee, New York: Many cases of dilated residual cecum and intestinal stasis give symptoms resembling ulcer or adhesions of the duodenum, ulcer of the stomach, pyloric stenosis and gall stones. Pain from lesions in the region of the cecum is often referred to the stomach, and vice versa. This close relationship is illustrated by the frequency of stasis in the stomach with dilated residual cecum, without any gastric, duodenal or gall-bladder disease. Careful investigation will often show the typical signs of cecal disease, a ballooned, tender cecum with thickened walls, and evidences of intestinal stasis. A thorough roentgenoscopy is necessary in every case. Roentgenograms with bismuth injection of the colon should be employed to prove apparent lesions in the cecum or colon. Constant tenderness over a large area to the left, with persistent constipation, indicates cecal disease, rather than appendicitis, which is usually characterized by distinct attacks of pain, nausea and vomiting. The medical treatment of the ptosed, dilated and sluggish cecum consists in the use of abdominal supports, elevation of the foot of the bed, and massage and vibration, with diet and hygiene and occasional colonic irrigations and castor oil. Russian mineral oil, taken regularly, has given excellent results. The free drinking of water is encouraged, and milk fermented by lactic acid bacilli is a valuable aid. Autogenous colon vaccines will relieve the autotoxemia and sometimes move the bowels. Among surgical procedures which may be used is suspension of the transverse colon, which elevates the cecum. In conditions apparently leading to obstruction, short-circuiting, colostomy or even ileostomy or colectomy may be indicated. Plication of the cecum, with suspension of the cecum and, when indicated, of the sigmoid, has been successfully employed. Diverticula and malignant or tuberculous growth should, of course, be removed.

The Medical Treatment of Intestinal Stasis

Dr. R. W. Wilcox, New York: From the point of view of the physician the causes of this condition, which can be remedied, against which he must direct his efforts, resolve themselves into four categories: (1) insufficient peristaltic action of the intestinal wall; (2) errors in diet; (3) dryness of the intestinal contents resulting from deficient secretion of the intestinal fluids, especially bile, and (4) weakness of the abdominal muscles due to overstretching from various causes. Partial stenosis of the bowel caused from within or without by the pressure of displaced organs, abdominal effusions and peritoneal bands or adhesions interfering with the normal passage of fecal matter belong, undoubtedly, to the surgeon.

DISCUSSION

Dr. O. T. Osborne, New Haven, Conn.: Among the students at Yale I see an increasingly large number of patients suffering from the early stages of appendicitis or of inflammation in the region of the appendix. I have wondered whether these cases were due to athletics or to conditions incident to the students' being obliged to be in chapel every morning at 8:10. Their hasty breakfasts usually consist largely of oatmeal, eaten with sugar and cream or milk, and they have no time to go to stool afterward. Chronic constipation develops, and this, no doubt, is the cause of the attacks which I have observed.

Dr. E. Zueblin, Baltimore: In chronic constipation, simple medical treatment is often not sufficient, and I have found that vaccines may be of great service.

Dr. W. W. Babcock, Philadelphia: It is a fact that many of these cases which cannot be relieved by mechanical support, internal treatment, etc., may be favorably affected by vaccines. There are cases of old colon affections in which recovery occurs when treatment with antityphoid vaccine is given.

Dr. C. E. Woodruff, New York: Dr. Satterlee's paper has shown the admirable results accomplished by vaccines. At the same time, we should bear in mind that they may do much harm. During the past two years my attention has been drawn to quite a number of cases of tuberculosis and other serious disease following antityphoid vaccination. At the same time I would not discourage the judicious use of vaccines, for the good results from them are sometimes wonderful.

Dr. G. R. Satterlee, New York: I believe that Lane is right in attributing ulcer and cancer largely to intestinal stasis, and that if we could eliminate intestinal conditions we would have a much smaller number of these affections to deal with. These stasis cases may be divided into two classes: those with enteroptosis and those without, and the Roentgen ray is a very valuable aid to diagnosis.

Dr. A. E. Gallant, New York: If a person uses bran regularly as an article of diet, he will not have any trouble from Lane's kink. For the best results it is necessary to employ an absolutely pure brand, one sterilized by a temperature sufficiently high to destroy any fungi.

Dr. T. F. Reilly, New York: There is a bread to be had which is composed largely of flaxseed and crushed cereals and which has the same effect as bran.

Dr. L. F. Bishop, New York: It seems to me that in all the discussions on intestinal stasis I have heard too much stress laid on the mechanical factors; as though the intestinal tract were an inanimate tube. The intestine, by its peristaltic action, passes over the material in the tube, and what we are dealing with in this condition is often not so much a physical obstruction as a matter of mobility.

Dr. R. T. Morris, New York: These patients are mostly neurotics. I have cured an extremely severe case of asthma by means of short-circuiting.

The Use of Horse-Serum for the Prevention of Hemorrhage in Nose and Throat Operations

Dr. C. F. Thiesen, Albany: The serum was used before operating, when it was expected that there would be an unusual loss of blood. The injections were given when, from a history of cases of severe hemorrhage in the patient's family, or of severe spontaneous hemorrhage in the patient himself, such a result was to be anticipated. In the eight cases of my series the average coagulation time before injection of the serum was 5.18 minutes, and after injection, 4.12 minutes, making an average decrease in coagulation time of 1.06 minutes. The much talked-of danger of anaphylaxis is practically nil when, as in my cases, only one injection of serum has to be made.

DISCUSSION

Dr. O. T. Osborne, New Haven, Conn.: Before using diphtheria antitoxin we should try to find out whether or not the patient is susceptible to horse emanations and the like.

Dr. R. D. Rudolf, Toronto: I have tried a great many agents for controlling hemorrhage, and I believe that Nature's coagulation is brought about more effectively by Nature's hemorrhage than by anything else. During the past winter I have had two cases illustrating this. One was of thoracic aneurysm, and the other of abdominal aneurysm, and in the latter instance the patient was bled three times for the control of successive hemorrhages.

The Action of Pituitary Extract on Acute Heart Failure and Uncompensated Heart Lesions

Dr. E. Zueblin, New York: Impressed by the marked physiologic action of pituitary extract on muscular fibers, striated and unstriated, and by the valuable results from it in obstetric and gynecologic practice, I undertook a clinical study, especially in cases in which, with a failing heart, immediate action became necessary. From my observation in a series of six cases it would seem (although two of them terminated fatally) that pituitary extract is applicable in desperate cases.

DISCUSSION

Dr. R. D. Rudolf, Toronto: I am convinced that pituitary extract and epinephrin exhaust the reserve power of the heart. In acute conditions there is plenty of reserve to draw on, but such is not the case in terminal conditions, and such agents may kill very promptly. Therefore, I believe that they should be used only in emergencies and when there is an abundance of reserve power.

Dr. O. T. Osborne, New Haven, Conn.: I have used pituitary extract frequently in the past two years, and have found it a very valuable agent. I have never seen it do any harm.

Auricular Fibrillation: Its Diagnosis and Treatment

Dr. William Kirk, Troy, N. Y.: The question has been raised as to whether or not the ventricular form of venous pulse can be recognized by the unaided senses. I believe that it can in the majority of instances. In early and compensated cases, however, the pulsation can rarely be recognized, and it is necessary to resort to the graphic method. The general practitioner, unfamiliar with the instruments of precision used in the graphic method, may recognize the presence of auricular fibrillation, ordinarily, from a persistent irregular pulse, the rate of which is at or above 120 (which will be almost positive evidence for the diagnosis), and the occurrence of a deficit between the rate of the apex and the radical pulse—a characteristic encountered in practically every untreated case. In the treatment the first consideration is the removal of the exciting cause, such as overwork or digestive trouble. Digitalis acts as a specific in a very large proportion of cases. The choice of a preparation is largely a matter of taste, provided that the one used is known to be effective. I have been accustomed to employ a standardized tincture or fluid extract, or the fresh infusion of the green leaves. When the pulse has been reduced to 60 or 70, and the apex-beat coincides with the radical pulse, it is wise to discontinue the digitalis for a time and then begin again with smaller doses, or else to continue with smaller doses.

DISCUSSION

Dr. G. R. Satterthwaite, New York: Auricular fibrillation is not an uncommon condition. I agree that generally it can be recognized. The graphic method shows it absolutely. This method has restored the sphygmograph to use, as it shows the difference between the cardiac and the radical pulse. As to the prognosis, the patient is kept in just the position in which the physician holds him. Patients are apt to get tired of the treatment. They intermit their medicine, and then they go off suddenly.

Dr. L. F. Bishop, New York: As regards polygraphic tracings, the curve has nothing to do with a mathematical curve; whatever its particular shape, it serves for diagnosis. It is simply a record of something which is taking place, and the essential part of it is the beginning of the up-stroke. Taking careful note of this, we may disregard the respiratory curve, the shape of the curve, and everything else.

Dr. W. R. Wilcox, New York: The preparation of digitalis which best shows the action of the drug, as originally described by Withering, is the infusion. The chemistry of digitalis is extremely obscure. I have made over 20,000 tracings with the sphygmograph. I have also made a special study of the six drugs of the digitalis group. There is in digitalis a substance which is centrally emetic, though its glucosids cause less gastric irritation than the infusion. A practitioner, I think, will obtain the best results from the preparation of digitalis about which he knows the most.

Dr. Stewart: In digitalis there are at least four glucosids, as well as some other principles concerning which at present we know nothing. I think that the glucosid digitalin ought to be standardized.

Dr. T. F. Reilly, New York: Sometimes digitalis seems to fail, and we have another drug, apocynum, which may then prove of service. The eclectics call it the "cardiac trocar." It is very irritative to the stomach, but does not act satisfactorily when given by the rectum.

Dr. W. Kirk, Troy, N. Y.: Ordinarily I have used the tincture and also the infusion of digitalis. As to the glucosids not causing gastric disturbance, it has been shown that some emetic effect must be produced by every preparation of digitalis representing its pharmacologic properties, by reason of the central action of the drug. I believe that the fat-free preparations will produce more or less gastric irritation on account of their central effects. I have employed apocynum with very good results when the patient has not had emesis.

Dr. R. W. Wilcox, New York: It certainly has been conclusively shown that digitalis and its preparations have a central emetic action. The amount of the gastric irritation caused is a matter of degree, and less nausea results from the free-fat preparations than from the others.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Philadelphia

April, XI, No. 4, pp. 541-735

1 Congenital Luxation of Hip. P. Le Damany, France.
2 Causes and Treatment of Scoliosis. Z. B. Adams, Boston.
3 Treatment of Scoliosis. A. Schanz, Dresden.
4 *Club-Foot. A. Ehrenfried, Boston.
5 *Pseudoarthrosis Produced by Interposing Sheet Silk and Bayberry Wax. R. O. Meisenbach, Buffalo.
6 Diagnosis of Traumatic Periostitis of Lumbosacral Spine. C. E. Coon, Syracuse, N. Y.
7 Spontaneous Luxation of Hip-Joint as Sequel of Typhoid. Report of Three Cases. C. M. Jacobs, Chicago.

4. **Club-Foot.**—Checking up cases Ehrenfried found that equinovarus occurs three times as often as all other types of club-foot. The next most common form is potential calcaneovalgus. Other types are rare. Males are affected two to three times as often as females; the percentage of males is higher in equinovarus than in other forms. More than half the cases are double; the percentage is lower in equinovarus than in the other forms. Of the single cases, more than half are right sided. Five per cent. of all cases show heredity; of these all are equinovarus, usually double. Club-foot occurs three times as often in twins as in single pregnancies. More than a third of all cases occur in first born; the percentage is lower in equinovarus than in the other forms. Labor is difficult in approximately one-fourth of all cases. Three per cent. are premature. Three per cent. are known to be illegitimate. Other congenital deformities occur in about one-fifth of all cases.

5. Abstracted in The Journal, June 7, p. 1817

American Journal of Physiology, Boston

June, XXXIV, No. 3, pp. 263-351

8 *Parathyroid Deficiency and Sympathetic Irritability. R. G. Hoskins and H. Wheelon, Chicago.
9 Content of Sugar in Blood under Common Laboratory Conditions. E. L. Scott, New York.
10 Effect of Calcium and Protein Fed Pregnant Swine on Size, Vigor, Bone, Coat and Condition of Offspring. J. M. Evvard, A. W. Dox and S. C. Guernsey, Iowa City, Ia.
11 *Influence of Epinephrin on Respiration. L. B. Nice, J. L. Rock, and R. O. Courtright, Oklahoma, Okla.
12 *Factors Affecting Coagulation Time of Blood. V. Effects of Hemorrhage Before and After Exclusion of Abdominal Circulation, Adrenals or Intestines. H. Gray and L. K. Lunt, Boston.

8. **Parathyroid Deficiency and Sympathetic Irritability.**—Hoskins and Wheelon found that parathyroid destruction in dogs results in a marked increase of vasomotor irritability as shown by the reactions to nicotin, epinephrin and pituitrin. All components of the vasomotor mechanism, sympathetic cells, myoneural junctions and musculature, seem to be affected. The effects are of varying degree in different cases. There was observed no strict parallelism between the external symptoms of parathyroid deficiency and the degree of vasomotor irritability. Inconclusive evidence indicates that calcium injections in some measure restore vasomotor irritability toward normal. The sympathetic system offers no exception to the general increase of irritability that results from parathyroid extirpation.

11. **Influence of Epinephrin on Respiration.**—The effect of epinephrin on respiration it was found occurs synchronously with that on the circulartory system. Doses of epinephrin which cause a fall in blood-pressure elicit an increase in the depth of respiration. This increase may or may not be preceded by a shallowness. Within limits, doses of epinephrin which produce a rise in blood-pressure cause an increase in the depth of respiration. This increase, again, may or may not be preceded by a shallowness. The increase is proportional to the rise in blood-pressure and to the amount of epinephrin given. Excessive doses produce a marked shallowness in breathing. Within limits, the shallowness is proportional to the effects on blood-pressure and to the amount of epinephrin given.

12. **Factors Affecting Coagulation Time of Blood.**—Gray and Lunt summarize their results as follows: Hemorrhage decreases clotting time, especially if moderately severe, 13 per cent. The most important coagulating factors may be localized in the abdomen, because: (1) exclusion of the abdominal circulation increases clotting time, and (2) hemorrhage after exclusion no longer stimulates a decrease of clotting time. The adrenal glands probably favor by their secretion rapid clotting after hemorrhage, but after adrenalectomy hemorrhage still decreases the clotting time. Exclusion of the intestines usually increases clotting time, but after this exclusion hemorrhage can still decrease the clotting time. The important rôle which the liver has been proved to play in coagulation indicates that it provides, perhaps in cooperation with the intestines and the adrenal glands, the necessary elements to hasten clotting after extensive bleeding.

Annals of Otology, Rhinology and Laryngology, St. Louis

March, XXIII, No. 1, pp. 1-272

13 Acute Thyroiditis as Complication of Acute Tonsillitis. C. F. Theisen, Albany, N. Y.
14 Diagnosis of Endocranial Complications of Suppurative Labyrinthitis. A. Braun and I. Friesner, New York.
15 Results of Seven Cases Operated on by Mr. Heath. E. M. Plummer, H. P. Mosher, Boston.
16 Bronchoscopic Treatment of Spasmodic Asthma. G. F. Keiper, Lafayette, Ind.
17 Vacuum Diseases of Maxillary Sinus. R. C. Lynch, New Orleans.
18 Indication for Labyrinth Operation, Report of Eight Operations and Six Cases in Which No Operation was Performed. C. F. Welty, San Francisco.
19 When Radical Mastoid Is Imperative. J. C. Sharp, New York.
20 New Esophagoscope. R. Lewisohn, New York.
21 Case of Cerebellar Abscess with Atypical Symptoms—Recovery. A. Dighton, Liverpool.
22 Bronchial Asthma and Relation of Nasal Conditions to It. W. J. Abbott, Cleveland.
23 Case of Recurring Laryngeal Polypi with Tetany. R. B. Canfield, Ann Arbor, Mich.
24 Adenocarcinoma of Nose: Chronologic Review and Case Report. L. D. Alexander, New York.
25 Semicircular Canals and Function of Equilibrium. G. E. Shambaugh, Chicago.
26 Syphilis of Ear. O. J. Stein, Chicago.
27 Esophagoscopy. S. A. Friedberg, Chicago.
28 Epipharynx in Children. E. M. Holmes, Boston.
29 Fistula Symptom in Non-Suppurative Diseases of Ear. O. Beck, Vienna.
30 Case of Probable Injury to Jugular Bulb Following Myringotomy in an Infant Ten Months Old. J. R. Page, New York.
31 Countercoup Fracture of Skull. T. R. Chambers, Jersey City.
32 Cancer of Larynx with Special Reference to Radium Therapy. J. C. Beck, Chicago.
33 Etiology of Nasal Hydrorrhea. Case Reports. H. Kahn, Chicago.

Archives of Internal Medicine, Chicago

June, XIII, No. 6, pp. 841-988

34 *Value of Hexamethylenamin as an Internal Antiseptic in Other Fluids of Body than Urine. F. Hinman, Baltimore.
35 *Hexamethylenamin. H. McGuigan and C. L. v. Hess, Chicago.
36 *Relations of Brain and of Olfactory Apparatus to Processes of Immunity. H. Sewall, Denver.
37 *Metabolism in Dementia Praecox. E. L. Ross, Hospital.
38 Titration of Wassermann Reagents. L. Thompson, Little Rock, Ark.
39 *Attempts to Produce Scarlatina in Monkeys. C. Krumwiede, Jr., M. Nicoll, Jr., and J. S. Pratt, New York.
40 *German Measles (Rubella); An Experimental Study. A. F. Hess, New York.
41 Differential Diagnosis of Intestinal Entamebas of Man. C. F. Craig, Fort Leavenworth, Kan.
42 Immediate Effect of Repeated Doses of Theobromin Sodium Salicylate and Theocin on Renal Function in Acute Experimental Nephritis. R. Fitz, Boston.
43 *Three Cases of Adams-Stokes Syndrome with Histologic Findings. A. Oppenheimer and B. S. Oppenheimer, New York.
44 *Intrameningeal Treatment of Tabes and Cerebrospinal Syphilis. T. R. Boggs and R. R. Snowden, Baltimore.
45 *Twenty-Three Cases of Pneumonia Treated with Antipneumococcus Serum. W. R. Williams, New York.

34. **Value of Hexamethylenamin as an Internal Antiseptic.**—Hexamethylenamin is dependent on the liberation of formaldehyd for its antiseptic value. It is not converted into formaldehyd in any of the normal alkaline fluids of the body; therefore, Hinmann claims it can be of no prophylactic value in any of these fluids. After some infections of these fluids there may be under certain conditions a change in reaction sufficient to produce slight liberation of formaldehyd, but it was not possible to show that there would be enough to give antisepsis. In localized infections of pronounced acidity, hexamethylenamin is not taken into them from the circulation in amounts to furnish formaldehyd in antiseptic strength (the gall-bladder, possibly, excepted). The therapeutic use of hexamethylenamin as an internal antiseptic is justified, experimentally, for urinary conditions alone, and then only when it is excreted into an acid urine.

35. **Hexamethylenamin.**—Since, after the administration of hexamethylenamin, free formaldehyd appears only in the gastric juice and acid urine, and not in other secretions or in the blood, even with dialyzing tests, the authors hold that the liberation results from the acid reaction only and not from cell action. Even if it were liberated in other locations it would probably exert no beneficial action because of its reconversion or rapid oxidation into injurious products. Combined formaldehyd as hexamethylenamin, does not decompose readily until an acid medium is reached, when the action is that of weak formaldehyd. The only apparent indication for the internal administration of the drug, therefore, is in infections of the urinary tract.

36. **Relations of Brain and Olfactory Apparatus to Immunity.**—Summarized, Sewall's conclusions are the following: Guinea-pigs sensitized to horse-serum may be desensitized by residence in a horse-stable. It is probable that this reaction may be rapidly achieved through the olfactory sense or more slowly by absorption through the respiratory mucous membrane. The period of antianaphylaxis is of less than two days' duration. The converse of this, sensitization of normal guinea-pigs in stable air, Sewall has not been able to achieve. Removal of part of the brain of a sensitized guinea-pig produces much more severe shock than the same amount of injury in a normal animal. This shock is apt to be followed by a period of antianaphylaxis of short duration. Section of the olfactory nerves within the cranial cavity preceding the brain operation by a day or more abolishes the tendency to shock. Such nerve section in the normal animal also seems to reduce the shock arising from definite brain injury. Depression of the olfactory sense may be produced through cocain and the symptoms of poisoning with this drug resemble those of anaphylaxis. The body as a whole may be sensitized through the peripheral application of horse-serum after a definite latent period. The time required to sensitize the peripheral epithelium has not been found to be materially altered by previous general sensitization. A normal animal sensitized by local treatment may resist large intravenous injections of serum repeated at intervals of two weeks. Sensitization of one area of the respiratory epithelium involves sensitization of the rest, though the local signs of expression are different. The evidence indicates that local anaphylaxis, induced through the periphery, precedes the development of general sensitization. Tuberculous guinea-pigs were made worse when treated by instillations or sprays of old tuberculin.

37. **Metabolism in Dementia Praecox.**—Five cases of dementia praecox, three of them in a chronic and two in subsiding acute phase of the disease, were used by Ross in the metabolism tests. Over a period of from four to eight days the exact income and outgo of total nitrogen, different forms of nitrogen, total sulphur, different forms of sulphur, phosphorus, calcium and magnesium were determined. The metabolism of total nitrogen was found to be within the limits of normal with the possible exception of one case. The urea nitrogen of the urine was variable but remained normal. The ammonia nitrogen of the urine varied within the limits found in normal cases. In the acute cases a tendency was exhibited to excrete more of this form of nitrogen than in the other class of patients.

The amounts of creatinin and uric acid nitrogen obained in these cases of dementia praecox coincide with the normal. The metabolism of total sulphur is considered normal, with the acute cases showing a greater sulphur excretion, both in urine and feces, than the other class of patients. The total sulphate-sulphur output, according to the data on normal cases cited by authorities, was below normal. The inorganic sulphate-sulphur of the urine, according to data on normal subjects, was below normal in absolute quantities in both classes of patients, and lowest in the case of the acute class. The amounts of this form of sulphur expressed in percentage of the total urinary sulphur, were about normal for the chronic class but below normal for the acute group. The urinary neutral sulphur was practically normal for the chronic cases, but much above normal in the subsiding acute cases. The ethereal sulphate findings were negative.

As to the meaning of these positive findings on the sulphur metabolism there is little question in Ross' mind. In the chronic cases there was normal total sulphur, practically normal neutral sulphur, below normal total sulphate and possibly below normal inorganic sulphate. In the acute cases there is a normal, but a maximum normal, excretion of total sulphur, subnormal total sulphate, subnormal inorganic sulphate and supernormal neutral sulphur. Therefore it must be concluded from the sulphur data that in the acute cases the patients had lost to a certain degree their normal powers of oxidation. Also this is suggested in the patients in the chronic class by the subnormal sulphate output. The findings with regard to phosphorus, calcium and magnesium were negative.

39. **Attempts to Produce Scarlatina in Monkeys.**—The attempt to produce scarlet fever in monkeys and baboons by the faucial inoculation of streptococcus cultures or unfiltered exudates and discharges from scarlet-fever cases, as well as the intraperitoneal injections of filtrates of such exudates and discharges and of large quantities of blood, gave negative results.

40. **German Measles.**—Hess' investigation included a bacteriologic study of the blood, inoculations of blood into monkeys with the object of producing the disease, and a cellular examination of the blood during the period of incubation of the disease. In four instances the blood was obtained for bacteriologic examination. In three of the cases the rash had been present for less than twenty-four hours, and in the fourth for about thirty-six hours; in two the temperature of the child was above the average, between 102 and 103 F. Four *Macacus rhesus* monkeys were inoculated with blood obtained from four different cases. In no case did the rash develop. In only one instance was there a rise in temperature, following a considerable period of incubation. In the others there was no such rise.

Blood examination showed that in almost all cases there was a definite increase in the lymphocytes even preceding the appearance of the exanthem. It would seem to Hess that this premonitory lymphocytosis might be of value to institutions in heralding the fact that infection has taken place, and in facilitating the segregation of infected from non-infected children, and thus, perhaps, in limiting the spread of an epidemic. That there is a lymphocytosis at the time of the appearance of the rash may also serve to differentiate rubella from scarlet fever, a disease with which it is sometime confounded, but which is associated with an increase of polynuclear cells in its early stage.

43. **Adams-Stokes Syndrome.**—The hearts of three patients with Adams-Stokes syndrome examined by the Oppenheimers presented, the first a calcific mass in the region of the auriculoventricular bundle, the second no gross lesion across the conducting system to account for the symptoms, the third infarction of the ventricular septum. The first patient is reported to have denied a syphilitic history, in the second case the past history is not given, and the third patient is said to have had no lues. All three were well along in years with some sclerosis of the vessels and some increase of cells in the interstitial tissues. The most noteworthy lesions in each case were: in the first, an absolute break in the course of the stem of the auriculoventricular system; in the second, the slight auriculonodal junction and a sclerosis of the sinuauricular node; in the third, an infected infarct of the ordinary ventricular musculature near the junctional tissue. The possibility of insufficient circulation and of a lesion in the ordinary ventricular musculature as agents in the production of heart-block, are suggested.

44. **Intrameningeal Treatment of Tabes and Syphilis.**—From the report of 8 cases by Boggs and Snowden it is evident that the intraspinal method is a step forward in the treatment of tabes and cerebrospinal syphilis. The patients were uniformly relieved from pain, and as far as locomotion is concerned there was a slow but definite improvement, in some instances amounting almost to restitution to normal. The psychic effect of the treatment was also marked. The patients became encouraged by the quick relief of pain and the first improvements in the control of motion and were faithful in their efforts to use the legs and practice walking, stair climbing, etc. The nutrition also rapidly improved under these stimuli. The effect of the treatment on the cerebrospinal fluid was very striking. The cell-count first fell to normal, the Wassermann reaction becoming negative some time after the cells were reduced.

45. **Pneumonia Treated with Antipneumococcus Serum.**—The serum used by Williams was taken from a horse immunized against many strains of pneumococci. Usually it was injected directly into a vein of the arm at a temperature about that of the patient. This rule was departed from and the serum was given subcutaneously to two children on account of the difficulty of entering the vein with the needle, and also when second and later doses were given to four adult patients who had received the initial dose intravenously. The first doses for adults in the earlier cases was 100 c.c. This was increased later until, in one instance, an initial dose of 300 c.c. was given. Many of the patients received more than one dose so that the total amount of serum that an individual received ranged from 50 to 750 c.c. This maximal quantity was given in six doses spread over a period of five days.

A complete demonstration of the nature of the infecting organism was not essayed. Blood-cultures, however, were made in eleven cases. Only one of them showed the pneumococcus, the others being negative. The series included twenty-three cases with sixteen recoveries and seven deaths, a mortality of 30.5 per cent. Of the seven patients who died, three were alcoholics, one of whom had suffered from two previous attacks of pneumonia, and all were very actively delirious. A fourth death was that of a baby, who, in addition to pneumonia, had multiple abscesses of the scalp, double purulent otitis media, and empyema followed by pneumothorax. The remaining three deaths seemed to have been due to the frank intensity of the pneumonia. Of the sixteen patients who recovered, eight had defervescence by crisis and eight by lysis. Five patients had complications. The series offered an opportunity to observe the effects of the administration of large and frequent doses of horse-serum that had not been refined in any manner and that contained no preservative except a trace of chloroform. Usually no immediate effects could be detected and the injection of the serum was tolerated surprisingly well. In five patients, however, symptoms appeared. The effect of the serum on the leukocytes was determined by frequent blood-counts before and after the injections. No constant effects on the white cells could be made out. Late symptoms due to the serum were noticed in eight patients. The symptoms were not usually severe.

Boston Medical and Surgical Journal

July 2, CLXXI, No. 1, pp. 1-48

46 Present Status of Treatment of Laryngeal Tuberculosis in Massachusetts State Sanatoria. A. C. Getschell, Worcester.
47 Frequency of Laryngeal Tuberculosis in Massachusetts. J. B. Hawes, 2d, Boston.
48 Two Hundred and Forty-One Cases of Laryngeal Tuberculosis Treated at Rutland State Sanatorium. J. A. Lyon, Rutland.
49 *Significance of Absence of Trypsin in Stomach in Presence of Icterus. A. E. Austin, Boston.
50 Chorio-Epithelioma. F. W. Johnson, Boston.

49. **Absence of Trypsin in Stomach in Presence of Icterus.**—The absence of trypsin in the presence of icterus according to Austin may mean conjoint cholangitis and pancreatitis,

cholangitis with mere pressure on the outlet of the pancreatic duct, pressure of the enlarged head (carcinomatous) of the pancreas on the common duct, or mere pressure of a growth originating in the ducts on the pylorus. When in conjunction with this fact there is considerable residue in the fasting stomach, it is safe to conclude that there is pyloric narrowing due probably to outside pressure, and when the rare instance of bile without trypsin is found the inference to be drawn is that pancreatitis is primary and icterus secondary, due to pressure on the choledochus.

Iowa State Medical Society Journal, Washington

June, III, No. 12, pp. 801-917

51 Education of Specialist. L. W. Dean, Iowa City.
52 Anaphylaxis. J. Auer, New York.
53 Cancer and Sarcoma of Breast. A. M. Swale, Mason City.
54 Unilateral Tuberculosis of Kidney. E. A. Jenkinson, Sioux City.
55 Osteomyelitis. S. A. Spilman, Ottumwa.
56 Fat-Constipation in Artificially Fed Infant. S. G. Hands, Davenport.
57 Arthritis Deformans. A. Oshana, Mason City.
58 Chorio-Epithelioma. Report of Case. M. Childress, Oskaloosa.
59 Anesthesia from Standpoint of Country Practitioner. J. F. Auner, Waverly.
60 Tuberculin in Treatment of Genito-Urinary Tuberculosis. L. W. Bremerman, Chicago.
61 Some Borderland Neuroses. G. Kessel, Cresco.

Kentucky Medical Journal, Bowling Green

May 15, XII, No. 10, pp. 293-328

62 Tobacco, Its Effect on Longevity. E. S. Frey, Louisville.
63 History of Typhoid Vaccination. P. S. Ganz, Louisville.
64 Surgical Treatment of Certain Acute and Chronic Diseases of Palpebral and Ocular Conjunctiva. M. F. Coomes, Louisville.
65 Acute Rheumatism. A. W. Nickell, Louisville.
66 Periosteal Sarcoma. Report of Case. G. P. Grigsby, Louisville.
67 Abscess of Liver. Report of Case. S. T. Yeatts, Louisville.
68 An Unusual Case of Pregnancy. C. E. Frey, Louisville.
69 Case of Scleroderma Circumscripta. M. L. Ravitch, Louisville.

June 1, No. 11, pp. 329-364

70 Current Medical Events. J. T. Reddick, Paducah.
71 Laboratory Methods General Practitioner Should Use. R. L. Schroeder, Owensboro.
72 Recent Methods in Hospital Anesthesia. C. N. Chipman, Washington, D. C.
73 True Physician. E. E. Bickers, Port Royal.
74 Duties of Anesthetist. E. F. Horine, Louisville.
75 Foreign Body (Steel) in Eye Ball—Method of Removal. J. H. Hester, Louisville.
76 Bronchitis. C. E. Vidt, Russell.
77 Medical Treatment of Appendicitis. A. P. Dowden, Eminence.
78 Incipient Pulmonary Tuberculosis. A. J. Bryson, Fullerton.

Lancet-Clinic, Cincinnati

June 20, CXI, No. 25, pp. 711-736

79 Sex Problems. I. O. Allen, Metamora, Ind.
80 Management of Puerperium; Chapter in Preventive Medicine. G. Gellhorn, St. Louis.
81 Present Status of Goiter. J. Y. Welborn, Evansville, Ind.

June 27, CXI, No. 26, pp. 737-764

82 Sex Problems. I. O. Allen, Metamora, Ind.
83 Puerperal Eclampsia, with Special Reference to Prevention. W. D. Porter, Cincinnati.
84 Cerebellar Surgery. S. P. Kramer, Cincinnati.

Medical Record, New York

July 4, LXXXVI, No. 1, pp. 1-48

85 Laboratory Aids in Diagnosis of Acute Mastoid Disease Due to Acute Purulent Otitis Media. G. Bacon, New York.
86 Sources of Error in Diagnosis of Pulmonary Tuberculosis. M. M. Fishberg, New York.
87 Psychologic Aspects of Relation to Divorce, Accidents, Crime, etc., Mental Defects. S. Block, Brooklyn.
88 *Cause and Prevention of Pyorrhea Alveolaris and Furunculosis. F. Tweddell, Summit, N. J.
89 Arterial Hypertension: Its Relation to Arteriosclerosis and Bright's Disease. W. C. K. Berlin, Denver.
90 Wound Healing with Aid of Vaccines. J. Gardiner, Toledo, O.

88. **Prevention of Pyorrhea Alveolaris and Furunculosis.**—Using from 30 to 60 drops of sulphuric acid, diluted in 2 to 3 ounces of water, three or four times a day, the mouth to be well rinsed immediately after, Tweddell found that the effect on boils and carbuncles in every case was astonishing, the astringent action being wonderful. Within twenty-four hours marked changes for the better were noted. Small doses are of no use, and if there is no improvement after forty-eight hours, the dose should be increased. Improvement is so rapid that it is seldom necessary to continue treatment for more than eight or ten days, usually less. The patient in most cases can himself decide when to discontinue treatment. No gastric or other symptoms were ever noticed as a result of taking this drug.

Modern Hospital, St. Louis

June, II, No. 6, pp. 331-392

91 Robert W. Long Hospital of Indianapolis. C. P. Emerson, Indianapolis.
92 Woman's Auxiliary as an Aid to Hospital Service. D. W. Graham, Chicago.
93 School at Massillon State Hospital. M. Z. Linden, Massillon, O.
94 Purchase, Preparation, and Distribution of Drugs and Medical Supplies. R. Norton, Baltimore.
95 United States Hospital Ship for Deep-Sea Fisherman. T. W. Salmon, New York.
96 Special Building for Domestic Employces. W. L. Babcock, Detroit, Mich.
97 Purchasing and Dispensing of Hospital Supplies and Drugs. E. A. Greener, Muskegon, Mich.
98 First Aid Hospitals for Industrial Plants. P. R. MacNeille, New York.
99 Items in Hospital Efficiency—Physical Therapy. J. A. Hornsby, Chicago.

New York Medical Journal

July 4, C, No. 1, pp. 1-60

100 *Treatment of Obesity. J. M. Anders, Philadelphia.
101 Treatment of Amebic Dysentery with Emetin. J. Friedenwald and L. J. Rosenthal, Baltimore.
102 Radium in Middle Ear Deafness Caused by Chonic Suppuration. W. S. Bryant, New York.
103 *Cardiac Hypochondriacs. R. H. Babcock, Chicago.
104 Control of Pulmonary Tuberculosis. T. J. Mays, Philadelphia.
105 *Sensible Diet for Average Man and Woman. E. L. Fisk, New York.
106 Cutanea Lues Insolita. W. P. Cunningham, New York.
107 Effects of Narcotic Drug Addiction. F. Kennedy, New York.
108 Commissioned Veterinary Corps for Army. G. Steele, Chicago.
109 Circumtonsillar Abscess. D. Nathan, Norristown, Pa.

100. **Treatment of Obesity.**—In the majority of cases. Anders states, obesity may be regarded as a symptom rather than a pathologic entity, being dependent on a variety of underlying affections, as previously shown, and successful treatment demands the removal of these causative states. The problem of determining the cause in special cases is an intricate one, sometimes impossible of solution because there is no sure method of getting at the facts, but in such instances time, combined with patient and painstaking observation, may reveal the dominant etiologic factors. Prophylactic measures in persons predisposed to corpulency are to be advised and encouraged. If a hereditary disposition to corpulency exists, the fat-forming (farinaceous) substances must be restricted in the dietary during childhood and adolescence. The normal amount of fat and protein, however, may be allowed in young persons who take an average amount of muscular exercise. If anemia is present, a suitable form of iron should be prescribed. During middle life a tendency toward corpulency is frequently observed, when prophylaxis must have reference to the causative factors presented by individual cases. If imprudences in eating and drinking are the besetting sins, these must be corrected. If the occupation is a sedentary one or if the individual is indolent, loving rest, and phlegmatic, then an effort to overcome physical torpor by means of suitable forms of muscular activity must be made. If a gouty or rheumatic disposition obtains, measures preventive of these conditions must be instituted.

103. **Cardiac Hypochondriacs.** — However neurotic or impressionable the cardiac hypochondriac may be, Babcock claims, the foundation of his fear was laid, not in the primary attack of palpitation or precordial pain *per se*, but in the behavior of the physician or friend who suggested the likelihood of a serious heart disorder. The doctor on being hurriedly summoned finds the individual perchance pale, with cold hands and feet, a rapid, feeble pulse and without pausing to examine the heart or ascertain the previous history, at once hastens to administer a hypodermic injection of strychnin, nitroglycerin, or morphin. He very likely shows by his face or even by some indiscret remark, that he thinks the patient in collapse and therefore in grave danger. This attitude on the part of the physician is due to the fact that he is domi-

nated by the sufferer's symptoms without stopping to consider their pathologic significance. He has been called to afford relief from what is regarded by the patient or family as a dangerous condition, and he does right to administer a hypodermic injection of morphin or strychnin at once. Nevertheless he should be on his guard not to betray by look or act any apprehension on his part as to the outcome.

In a majority of cases the subcutaneous injection of an eighth of a grain of morphin together with a two hundredth of atropin will promptly arrest the attack and reassure the patient; but an injudicious exclamation or expression as to the danger of the patient, may not only tend to counteract the effect of the remedy, but is likely to fix in the patient's mind the idea that a subsequent attack may prove fatal before help can be obtained. A reassuring word and manner often will of themselves do much to calm the individual and mitigate the severity of the symptoms. At all events it can do no good for the doctor to manifest apprehension, and besides it is likely to impair his judgment.

Very many physicians seem to view all cases of disordered heart action purely from the standpoint of the organ itself, without considering the extraneous factors serving to disturb the cardiac function. In this respect they are like those inexperienced practitioners who prescribe digitalis or some allied remedy whenever they detect a heart murmur, without pausing to consider whether or not the symptoms complained of are due to decompensation. It is this injudicious procedure on the part of the practitioner that is often responsible for the fact that many a victim of organic heart disease becomes a veritable hypochondriac in attributing to his cardiac lesion every sort of sensation or preversion of function of other organs.

It is just this unwise or overzealous behavior on the part of the general practitioner that strengthens the hands of the so-called Christian Scientist. The cardiac hypochondriac, whether having only a functional disturbance of circulation or a veritable cardiopathy is likely to be benefited by the consoling ministrations of the Christian Science healer, and Babcock states, practitioners of medicine would do well to imitate the example of these non-medical healers.

105. **Sensible Diet.**—To keep warm and give energy for work, Fisk advises to eat energy or fuel foods, potatoes, bread, cereals, corn bread, syrup and other sugars. To keep muscles and organs in repair, eat a limited and fixed amount of repair foods, meat, eggs, cheese, nuts, flesh foods, peas, beans and lentils. Do not increase the repair foods with increase in work or exposure to cold; increase the fuel foods for further energy.

Eat fruit every day. Canned fruits are good. Cooked fruit is often better than dubious fresh fruit, but some fresh fruit is essential. Eat fresh, green vegetables whenever you can get them. Thoroughly wash all raw foods. Eat some bulky vegetables of low food value, like carrots, parsnips, spinach, turnip, squash and cabbage to stimulate the bowels, and give flavor to the diet and prevent overnourishment. Eat slowly and taste your food well and it will slide down at the proper time. Do not nibble your food timorously; eat it boldly and confidently. A glass or two of water at meals is not harmful if you do not wash your food down with it. Do not let anyone bring a grouch to the dinner table; it will upset all the food values.

First, last and all the time, be moderate; avoid overnourishment and overweight. Restrict your fuel foods and burn up your own fat if you are tending toward stoutness.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

June, XVIII, No. 6, pp. 281-339

110 Types and Symptoms of Goiter and Hyperthyroidism. A. G. Brenizer, Charlotte, N. C.
111 Meniere's Disease. J. M. Hutcheson, Richmond.
112 *Simple Method of Bladder Drainage. E. B. Claybrook, Cumberland, Md.

112. **Method of Bladder Drainage.**—Instead of tapping it is much simpler as far as relief goes, and safer as well, Claybrook says, to use a good trocar instead of the usual needle, and as soon as the stylet is withdrawn, feed a soft-rubber catheter through the sleeve into the bladder, and leave it in place, withdrawing the sleeve carefully over the catheter. A strip of adhesive is then given a turn around the catheter and the two free ends fastened down to the skin. There is absolutely no leakage around the catheter and when it is removed, the sinus heals in two or three days if the urethra is freely open.

Pennsylvania Medical Journal, Athens

June, XVII, No. 9, pp. 687-770

113 Surgical Treatment of Exophthalmic Goiter. D. Guthrie, Sayre.
114 *Fracture of Surgical Neck of Humerus. G. G. Ross, Philadelphia.
115 Gliosarcoma of Retina with Recurrence in Antrum of Highmore. E. Stieren, Pittsburgh.
116 *Modern Diagnosis of Tuberculosis of Kidney. B. A. Thomas, Philadelphia.
117 *Diagnostic Methods Applicable to Renal and Ureteral Lesions. G. M. Laws, Philadelphia.
118 *Results of Joint Tuberculosis in Series of Two Hundred Cases Which Have Been under Observation for Five or More Years. F. D. Dickson and D. P. Willard, Philadelphia.
119 Brill's Disease. Comparison of Four Cases with Cases of Typhus Fever Treated by Author. A. E. Roussel, Philadelphia.
120 Present Status of Insanity Problem. J. H. W. Rhein, Philadelphia.
121 Investigation of One Hundred Cases of Chorea. A. Newlin, Philadelphia.
122 Unusual Instances of Value of Serum and Vaccine Therapy. J. H. McKee, Philadelphia.

114, 116 and 117. Abstracted in The Journal, Oct. 18, 1913, p. 1484.

118. Abstracted in The Journal, Oct. 25, 1913, p. 1564.

Public Health Journal, Toronto

May, No. 5, pp. 285-358

123 Effect of Water Filtration—Biologic and Chemical. H. W. Cowan, Toronto.
124 Isolation Hospital Planning and Management. T. H. Whitelaw, Alberta.
125 Public Health in Saskatchewan. M. M. Seymour, Regina.
126 War Against Infantile Mortality. J. A. Baudouin. Lachine.
127 Problem of Alcohol. F. B. Gurd, Montreal.
128 Tuberculosis Business Proposition. A. P. Reid, Middleton.
129 Chronicles "En Route." F. Withrow.

June, No. 6, pp. 361-436

130 Transmission of Typhoid. H. W. Hill, London.
131 Sunlight in Cities. T. Brockmann, Regina.
132 Housing Problem. E. W. J. Hague, Winnipeg.
133 Economic and Racial Waste Through Insanitary Homes and Workshops. T. M. Molloy.
134 Town Planning and Its Influence on Public Health. A. L. Favell, North Battleford, Sask.
135 Veterinary Hygiene and Public Health. C. H. Higgins, Ottawa.
136 Chronicles "En Route." F. Withrow.

Surgery, Gynecology and Obstetrics, Chicago

June, XVIII, No. 6, pp. 661-784

137 *Diagnosis and Surgical Technic to Be Employed in Handling Acute Abdominal Conditions. J. Y. Brown, St. Louis.
138 *Calculous Anuria. Report of Two Cases. L. Davis, Boston.
139 Final Results (After Five Years) in One Hundred and Ninety-Two Patients Operated on for Ectopic Pregnancy. R. R. Smith, Grand Rapids, Mich.
140 *Excision of Clavicle and First Rib for Malignant Disease. R. E. Fort, Nashville, Tenn.
141 Original Surgical Uses of Bone-Graft. F. H. Albee, New York.
142 Composite or Fibro-Epithelial Tumors of Lips. W. Martin, New York.
143 *Improved Gilliam Operation for Uterine Displacements. W. Cuthbertson, Chicago.
144 *Educational Value of Cancer Statistics to Insurance Companies, Public and Medical Profession. F. L. Hoffman, Newark, N. J.
145 Death of Full-Term Fetus Due to Constriction of Umbilical Cord by Amniotic Bands; Rupture of Amnion; Hydramnois. E. Cary, Chicago.
146 *Clinical and Experimental Results of Streptococcic Infections with Special Reference to Arthritis and Its Treatment. F. G. Dyas, Chicago.
147 Roentgen Findings in Gastric and Duodenal Ulcer. J. T. Case, Battle Creek, Mich.
148 Treatment of Fractures by Medullary Bone Splints. Report of Two Cases. C. Davison, Chicago.
149 *New Self-Retaining Abdominal Retractor and Wound Protector. U. C. Bates, Seattle, Wash.
150 Present Status of Joint Diseases and Best Method of Treatment. E. G. Beck, Chicago.
151 Roentgen Findings in Normal Stomach. A. Hartung, Chicago.
152 Varicocele Operations. W. Van Hook, Chicago.
153 Clamp Intended to Facilitate Suture Anastomosis of Hollow Viscera. W. Bartlett, St. Louis.

154 Amniotic Membrane for Prevention of Postoperative Peritoneal Adhesions. C. B. Lyman and W. H. Bergtold, Denver.
155 Electric Drill, Saw, Reamer and Trephine in Bone Surgery. C. Geiger, St. Joseph, Mo.
156 Anesthesia in Surgical Research. B. F. McGrath, Rochester, Minn.
157 Pituitrin in Intestinal Paresis Following Abdominal Operations. O. H. Stanley, Concord, N. H.

137. Abstracted in The Journal, Jan. 31, p. 404.

138. **Calculous Anuria.**—Analysis by Davis of cases of calculous anuria recorded in the literature shows that at least in 90 per cent. either only one actively functionating organ existed, which was blocked, or that there was blocking of both kidneys. The few cases reported as examples of reflex inhibition of an unobstructed but more or less diseased kidney, as the result of calculous obstruction of its fellow, Davis states, are to be explained more rationally as the functional failure of an overloaded unsound organ. Convincing post-mortem and histologic evidence of reflex inhibition of a sound kidney, as the result of calculous obstruction of its fellow, is lacking. Convincing clinical and experimental evidence is likewise lacking. From a practical point of view, Davis would consider and treat calculous anuria as a purely mechanical problem. The therapeutic employment of the ureteral catheter he would restrict to a tentative use in mild cases only. He says operation should be resorted to at once in all urgent cases, the indication being to relieve obstruction, pyelotomy when practicable to be preferred to nephrotomy. Removal of the stone is an ideal to be attained whenever possible without undue prolongation of the operation. Bilateral operation is indicated whenever the kidney first cut down on seems inadequate by itself to sustain the work of elimination of the body. It naturally follows from this that the bilateral operation should be performed whenever the kidney first cut down on is apparently found unobstructed.

140. **Excision of Clavicle and First Rib for Malignant Disease.**—Fort is of the opinion that partial excision of the clavicle or first rib should not be practiced for malignant disease. The danger of local or general metastases is very great, and as division of the bone increases this hazard, excision should be made with the bone intact. Because of the favorable results obtained in the few cases of sarcomata of the clavicle and the larger number of sarcomata of the long bones, Fort states, it is advisable to use the mixed toxins of erysipelas and *Bacillus prodigiosus* for two or three months after operation. Under modern aseptic conditions the mortality for excision of the clavicle and excision of the first rib should be comparatively small, and, considering the fate of the patients who are denied surgery, the opportunity of relief by surgery is mandatory.

143. **Modified Gilliam Operation for Uterine Displacements.**—The first step of Cuthbertson's method after the usual preparation of the patient is to make a Pfannenstiel incision from one internal ring to the other, and after loosening the skin upward and downward from the subjacent fascia the abdomen is opened in the median line by as small an incision as possible through which necessary manipulations can be made. All uterine adhesions are broken up, the resulting bare spots are covered over by peritoneum, the uterus replaced in normal position, and the round ligaments on either side caught up by rubber-protected intestinal forceps. After the round ligaments are isolated, a point is selected far enough from the uterus which when the ligament is shortened will hold the uterus in its normal position. In selecting this point the size of the ligaments will have to be taken into consideration—the smaller the ligament, the nearer the uterus is the point to be selected. Through this point a catgut guy suture is passed and the round ligaments drawn through the anterior abdominal wall as in the Gilliam operation. The next step is adapted from the operation of L. L. McArthur where he uses a live aponeurotic suture in the radical cure of hernia. The aponeurosis of the external oblique is seized with a snub-nosed forceps and with a scalpel, a strip of the aponeurosis is peeled up from just above Poupart's ligament to a point about 2 cm. above where the round ligament emerges from the muscle. Next, a sharp-pointed pair of Kocher's forceps is pushed through between the two arms of the ligament and, catching the aponeurotic strip, it is drawn down into place again and stitched there with a continuous catgut suture. Interrupted catgut sutures are placed through the round ligament and fascia to hold the ligament in its new position until the strip of aponeurosis shall have grown into place. By this means the round ligament is permanently prevented from slipping or being pulled back into the abdominal cavity, and the uterus is absolutely held in its normal position. Cuthbertson has found this operation to be exceedingly valuable in case of a cystocele accompanied by uterine prolapse. After an anterior colporrhaphy is done and the uterus is well drawn up and fixed, the cystccele does not recur.

144. Abstracted in The Journal, Dec. 6, 1913, p. 12099.

146. **Streptococcic Infections with Reference to Arthritis.**—Dyas was able to produce multiple suppurative arthritis in animals in from twenty-four to seventy-two hours, depending on the amount of strepococci injected, and this occurred regardless of whether attempts had been made to protect certain joints by injections of different solutions, or to protect the entire animal by intravenous injections of sodium salicylate. Swelling and stiffness of the larger joints were noticed after twenty-four to forty-eight hours in all cases. Post mortem, thick purulent material was found in the joints which could be scraped away leaving the synovial membrane dull and lusterless. Destruction of articular surfaces of bones, ligaments and cartilages may occur when the animals do not succumb too early to streptococcic septicemia. Cultures from the heart's blood and from the pus from joints in the animals used gave pure cultures of streptococci. The greatest pathologic changes occurred in those joints in which attempts had been made to protect them by injections of formalin or iodoform. Dyas found that intravenous or intra-articular injections of sodium salicylate in solutions as strong as 25 per cent. have no permanent effect on streptococcic arthritis; neither do intra-articular injections of solutions of formalin in glycerin or iodoform emulsion protect the joints so treated. Aspiration of the pus and injection of antiseptic solutions after infection of a joint had taken place did not give favorable results in the animals injected intravenously with streptococci.

149. **Self-Retaining Abdominal Retractor.**—This retractor consists of an oval frame 8 inches wide and 9 inches long. To this are fitted four retractor blades that work through slots in the frame. These are held in any degree of retraction desired by a ratchet device which may be released by pressing a button on each blade. These blades work through a funnel-shaped piece of rubber so that when the retractor is in place the margins of the incision, as well as the field of the abdomen covered by the rubber, are completely protected from septic material from within or without. This also obviates the use of towels applied to the margin of the skin incision.

Texas State Journal of Medicine, Fort Worth

June, X, No. 2, pp. 45-108

158 Spirit of Modern Medicine. M. L. Graves, Galveston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

June, XI, No. 126, pp. 241-288

1 Paroxysmal Tachycardia in Child Three Years of Age. R. Hutchison and J. Parkinson.
2 Food Value Required by Growing Girls, Aged Four to Fifteen. J. G. Sharp.
3 *Acute Bacillus Coli Infection of Urinary Tract in Children. D. G. Gordon.
4 Congenital Diffuse Non-Inflammatory Corneal Opacity in Two Sisters. F. Moxon.
5 Care of Cyst of Cecum in Child, Aged Three Months, Causing Intestinal Obstruction. W. G. Ball.

3. **Acute Bacillus Coli Infection.**—Examination of a series of cases treated at Paddington Green Children's Hospital, and also of those published in the recent literature on the subject, Gordon states, showed that they could be arranged in five groups according as they presented: 1. Symptoms of general feverish disorders, without any indication that one special system was affected. 2. Cerebral symptoms. 3. Pulmonary symptoms. 4. Abdominal symptoms. 5. Urinary symptoms.

British Medical Journal, London

June 20, I, No. 2790, pp. 1337-1392

6 *Murmurs of Dilated Hearts and Their Explanations. S. West.
7 Common Errors in Diagnosis and Treatment of Cardiac Diseases. F. W. Price.
8 Tincture of Digitalis (B. P.); Its Activity and Stability. W. L. Symes.
9 *Case of Acute Rheumatic Heart-Block. A. H. Gosse.
10 Influence of Total Fuel Value of Dietary on Quantity of Vitamine Required to Prevent Beriberi. W. L. Braddon and E. A. Cooper.
11 Case of Hypothyroidism in Male. I. G. Cobb.
12 Cerebral Cyst without Localizing Symptoms. A. Turnbull.
13 Case of Contraction of Upper and Lower Limbs after Still's Disease. J. C. Renton.

6. **Murmurs in Dilated Hearts.**—It is claimed by West that the ventricular dilatation murmurs are not regurgitant, but are due to eddies set up within the dilated cavities; in other words, that they are not valvular but intraventricular. They are connected with defective muscular action, but only so far as this leads to dilatation.

9. **Acute Rheumatic Heart-Block.**—The block in Gosse's cases lasted for eighteen days. Except for pyrexia there were no symptoms referable to the block, and without polygraphic records myocardial involvement could not have been diagnosed until the dropped beats occurred. Though the case was one of rheumatic heart-block, it developed apart from an attack of acute articular rheumatism. The evidence of rheumatic infection was the presence of numerous rheumatic nodules, and incidentally an attack of tonsillitis. By analogy with similar cases, acute and chronic, which have been examined histologically, it is assumed that the pathology in this case was a round-celled infiltration in the bundle of His caused by the rheumatic infection.

Glasgow Medical Journal

June, LXXXI, No. 6, pp. 401-475

14 Surgical Diagnosis in Acute Abdominal Conditions. D. Duff.
15 Pyorrhea Alveolaris and Auto-Intoxication. D. Glen.
16 Auto-Intoxication from Point of View of General Practitioner. H. A. McLean.

Journal of Laryngology, Rhinology and Otology, London

June, XXIX, No. 6, pp. 281-336

17 Acute Suppurative Otitis Media, Purulent Labyrinthitis and Leptomeningitis without Rupture of Tympanic Membrane. J. S. Fraser.
18 Rhinogenic and Otogenic Lesions of Third, Fourth, Fifth and Sixth Cranial Nerves. L. Onodi.

Journal of Pathology and Bacteriology, London

April, XVIII, No. 4, pp. 445-683

19 Bacteriology and Control of Acute Infections in Laboratory Animals. N. S. Ferry.
20 *Investigation Concerning Döhle's Leukocytic "Inclusion Bodies" in Scarlet Fever and Other Diseases. W. MacEwen.
21 *Causes of Non-Coagulability of Normal Menstrual Blood and of Pathologic Clotting. W. B. Bell.
22 Case of Puerperal Fever Associated with Enterococcus. R. Donaldson.
23 Addendum to Arsenious Jelly Method of Mounting Pathologic Specimens. S. Delépine.
24 Tumor of Pelvis Dating from Roman Times (250 A. D.) Found in Egypt. M. A. Ruffer and J. G. Willmore.
25 *Action of Asbestos Fiber on Components of Simple Hemolytic System. S. Wyard.
26 *Simple Method for Preparation of Lecithin. H. MacLean.
27 Transplantable Sarcoma Arising in Uterus of Rat. C. Singer.
28 Regulation of Blood Volume in Normal and Nephritic Animals. A. E. Boycott.
29 *Status Lymphaticus. E. Emrys-Roberts.
30 Intestinal Flora of Infants and Young Children. W. R. Logan.
31 Regulation of Blood Volume in Experimental Nephritis. R. A. Chisolm.
32 *Immunity Conferred on Mice by Radium Irradiated Mouse Carcinoma. B. H. Wedd, A. C. Morson and S. Russ.
33 Description of Heat-Compensated Conductivity Salinometer. M. Coplans.
34 Continuous Type of Centrifugal Separator with Automatic Self-Cleansing Mechanism. M. Coplans.
35 Gel Filtration of Ultramicroscopic and Other Particles: Action of Asbestos. M. Coplans.
36 *Further Investigations on Strains of Tubercle Bacilli Isolated from Cases of Lupus. A. S. Griffith.

20. **Döhle's Inclusion Bodies in Scarlet Fever.**—A careful investigation of many cases and animal experiments have convinced MacEwen that the inclusion bodies are to be found in practically every case of scarlet fever during the first week of the fever. After that time they tend to disappear. MacEwen does not regard them as being of etiologic importance in scarlet fever. In scarlet fever the inclusions are large and plentiful, and are accompanied by a marked leukocytosis. The so-called *Spirochaeta scarlatina,* the author states, is not peculiar to scarlet fever, being found in other diseases, and therefore it has no claim to its title. MacEwen doubts that these thin thread-like structures are spirochetes. They are separate and distinct from inclusion bodies. Inclusions are to be found occasionally in measles, but are usually small in size and few in number. Further, the blood-picture differs markedly from that of scarlet fever, there being a leukopenia and not a leukocytosis. In diphtheria, inclusions may be present during the acute stage of the disease, but tend to disappear as the throat condition clears up and the temperature falls. In serum rashes, inclusion bodies may be present, although small in size and few in number.

Inclusions were found to be absent in 39 cases of German measles examined. This fact, coupled with the absence of leukocytosis in this condition, is a valuable aid in differentiating between German measles and scarlet fever. In typhus, erysipelas and septic conditions generally, inclusions are large in size and plentiful in number. In these conditions a marked leukocytosis was found, the general blood-picture most closely resembling that of scarlet fever. Inclusion bodies can be found in phthisis, but when present are small in size and few in number. The presence of sepsis, especially of streptococcal origin, plays an important part in the origin of inclusions. MacEwen concludes that inclusion bodies, taken along with the general blood-picture, are an aid to differential diagnosis if judiciously used, always remembering that definite sepsis will produce inclusions in the polymorph cells.

21. **Non-Coagulability of Normal Menstrual Blood.**—The investigation of the cases presented by Bell proved that the cause of the normal non-coagulability of menstrual blood is the absence of fibrin ferment, and that pathologic lesions can exist without interference with the normal function. Indeed, it seemed probable that actual lesions in the endometrium are essential for the production of the state of affairs which is responsible for the escape of fibrin ferment or its precursors in the menstrual discharge.

25. **Action of Asbestos Fiber on Hemolytic System.**—Wyard found that various kinds of asbestos fiber placed in contact with amboceptor remove it at different rates, the action of the untreated mineral fiber being most rapid. The untreated mineral removes amboceptor and complement at the same rate and with extreme rapidity, but the treated fiber removes complement at a greater rate than it removes amboceptor. Wyard concludes that asbestos fiber is a hemolytic agent. Its power is diminished by being steeped in normal saline solution, but can be restored by drying.

26. **Method for Preparation of Lecithin.**—A method is described by MacLean by which lecithin may be prepared easily and rapidly. The essential part of the method consists in the purification of the crude lecithin obtained by alcohol extraction. This is carried out by emulsification with water and treatment with acetone.

29. **Status Lymphaticus.**—Analysis of the ten cases recorded by Emrys-Roberts demonstrates—with the exception of one case, when life was cut short by fractured base following an accident—the coexistence of sudden and unexpected death from apparently trivial causes with an enlargement of the

thymus, and frequently of the systemic lymph-nodes and lymphoid follicles of the alimentary canal. Out of ten four were males and six females; their ages ranged from 6 months to 22 years. Three died while under an anesthetic; in two cases the anesthetic used was chloroform; in the third case A. C. E. mixture. In all, with the exception above noted, death was accompanied by respiratory failure. In all, with the exception of a boy suffering from Addison's disease, and to a certain extent a girl suffering from myasthenia gravis, the general condition was excellent and above the average.

32. **Immunity by Radium Irradiated Carcinoma.**—The authors confirm that mice are made immune to inoculation of carcinoma (Twort) by means of irradiated tumor cells. Prolonged irradiation of the cells abolishes this immunity-conferring power, but does not prevent an initial proliferation on their part. Some evidence is brought to show that the frequency of recurrence of this tumor after operation is diminished if the mice are reinoculated with irradiated tumor.

36. **Strains of Tubercle Bacilli from Lupus.**—With regard to the question as to whether or not tubercle bacilli become attenuated during residence in the skin tissues, it is pointed out by Griffith that in the division of bovine viruses there is no relation between the degree of attenuation and the duration of the disease. In the division of human viruses, on the other hand, there does appear to be some relation, two of three standard viruses having been obtained from cases of short duration, and the three most attenuated from cases of the longest duration; but the relation is not constant.

Lancet, London

June 20, I, No. 4738, pp. 1731-1798

37 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shufflebotham.
38 *Calculi in Common Bile-Duct Transduodenal and Retroduodenal Choledochotomy. H. B. Robinson.
39 Two Cases of Veronal Poisoning. M. H. Fraser.
40 Boots and Shoes from Historical and Surgical Points of View. E. M. Little.
41 Three Cases of Malignant Growth at Base of Bladder Treated by Diathermy. C. E. Iredell and R. Thompson.
42 Case of Angeioma in Cerebellar Peduncle: Fatal Intracranial Hemorrhage. C. W. Wirgman.
43 Case of Septicemic Purpura. A. W. Brodribb.
44 Three Cases of Advanced Extra-Uterine Pregnancy. R. Seheult.
45 Case of Non-Parasitic Cyst of Liver. J. Everidge.
46 Transport of Wounded in War. A. J. Hull.

38. **Calculi in Common Bile-Duct.**—In the first case described by Robinson a transduodenal opening was made and the stone removed from the ampulla of Vater by incising the mucous membrane (McBurney's operation). This is the method Robinson has used in several cases previously recorded, and, as in the later ones of the series, the duodenum was opened by a transverse incision at the level of the normal opening of the duct. In the other two cases the retroduodenal part of the duct was opened after mobilizing the duodenum. In the first of these, after making a supraduodenal opening in the ordinary way, a stone was felt fixed in the duct behind the duodenum and the scoop could not dislodge it; after mobilizing the duodenum and turning it over, the stone was easily felt in the duct, from which it was cut out from behind without any difficulty. In the second the lower part of the duct was packed with them, but a difficulty arose from the fact that there was very little interval between the junction of the hepatic and cystic ducts and the duodenum, too short a length in which to make an opening in the common duct conveniently.. Accordingly, freeing the duodenum was resorted to, the bowel was pushed downward and to the left, and an opening was made in the retroduodenal part of the duct through which the stones were easily removed.

Medical Chronicle, London

June, XXVII, No. 3, pp. 145-220

47 *Anterior Lobe of Pituitary Gland. C. P. White and R. H. Titcombe.
48 Some Early Printed and Rare Books in Library of Manchester Medical Society. A. F. C. Davey.

47. **Anterior Lobe of Pituitary Gland.**—Extract of the anterior lobe of the pituitary gland, and of the dried anterior lobe itself were fed by White and Titcombe to rabbits and mice. The treatment had some effect (1) in arresting the normal increase in the proportion of fat as the animals grow; (2) in transferring some of the phosphorus from the inorganic condition to the organic (chiefly nucleoprotein); (3) in increasing the proportion of calcium salts other than calcium phosphate (presumably carbonate). In two of the treated mice the ratio of calcium to inorganic phosphorus is higher than the ratio in $Ca_3(PO_4)_2$, which is 1.93. In none of the animals, mice or rabbits is this ratio attained. In the control rabbits increase in weight was associated with an increased proportion of non-phosphorized fats and lipoids, an increased proportion of organic substances soluble in acid, and a diminution of the residue, especially of the nucleoprotein portion. The ratio of inorganic phosphorus to organic increased. In the rabbits the differences between the treated and control animals were not so marked as in the mice. The chief differences were in the proportion of acid extract and residue to the dry weight and in the proportion of phosphorus and calcium to the acid extract and the ash.

Practitioner, London

June, XCII, No. 6, pp. 745-896

49 Symptoms and Complications of Sinusitis. S. Thomson.
50 Blood-Clot Method as Applied to Mastoid Operation. A. Dighton.
51 Use of Nasopharyngoscope in Otorhinology. J. W. Wood.
52 Relation of Throat and Nose to Some Diseases Met with in General Practice. W. Wilson.
53 *Painful Affections of Shoulder. C. W. Buckley.
54 Difficulties with Which Anesthetist Has to Contend. R. W. Hornabrook.
55 *Intensive Nascent Iodin Treatment of Tuberculosis. J. F. H. Dally.
56 *Treatment of Early Tuberculosis by Intensive Nascent Iodin Administration. E. G. Reeve.
57 Work in Urinary Surgery. J. W. T. Walker.
58 Dental Work. J. G. Turner.
59 Neuroelectricity. J. H. Wilson.
60 Field for High-Frequency Treatment. T. D. Luke.
61 Treatment by General Rhythmic Faradization. I. G. Cobb.
62 Neuritis Treated by Electricity. N. Davies.
63 General Practice Treatment of Chronic Constipation by Electric Massage. H. G. Greaves.

53. **Painful Affections of Shoulder.**—The most frequent cause of pain and stiffness in the shoulder, Buckley says, is inflammation of the subacromial bursa. The characteristic feature is pain, associated with limitation of movement of a definite and peculiar type, namely, inability to abduct the arm beyond the level of the shoulder or to rotate it except to a very slight extent. The patient cannot put his hand to the back of his head nor yet to the back of his waist, and if the scapula be firmly held in position, he can only raise the arm from the side to the extent of about 10 degrees. This peculiar limitation of movement is due to the muscles, whose tendons lie in the floor of the bursa, namely, the supra- and infraspinatus, and to a less degree the teres minor. These muscles all take part in movements of rotation, while abduction is generally commenced by the supraspinatus, the deltoid coming into play after the movement has been begun. If the bursa is inflamed, any movement of these tendons will be extremely painful and will be prevented by spasm. Flexion and extension of the arm—that is, movement forward and inward, or backward and outward—will be little if at all interfered with, since the muscles performing this movement do not come into relation with the bursa.

The pain is variable in degree. In slight or chronic cases, it may be perceived when movement is attempted; while in the more severe forms, in which there is much effusion into the bursa or the surrounding structures are implicated in the inflammatory process, it may be intense even at rest, and sometimes require morphin for its relief. It is felt chiefly around the point of the shoulder, and radiates down the arm to the insertion of the deltoid, in which it is sometimes more severe than at the shoulder, and often accompanied by hyperesthesia. In severe cases it may even shoot down to the fingers and closely simulate neuritis. It is also commonly referred to the vertebral end of the supraspinous fossa, in which hyperesthesia is sometimes found. The muscles round the shoulder-joint may be much wasted, either from disuse or from a reflex trophic effect, analogous to that seen in acute synovitis of the knee. There may in severe cases also be wasting of other muscles of the arm and edema of the hand; in such cases the diagnosis from brachial neuritis is very difficult.

In the treatment rest is of the utmost importance in the acute stages, and on the completeness of the rest the length of disability will materially depend. In severe cases the patient should be kept in bed until the more acute symptoms have subsided. The usual methods should be adopted to further the subsidence of the inflammation. When the patient gets about the arm must be supported in a sling carefully adjusted so as to take all weight off the shoulder, until all sign of inflammation, whether of bursa or nerve trunks, has disappeared and only adhesions remain to be dealt with. The arm from the beginning should be moved passively once or twice a day through the whole range of movement possible in the acute stage, and as the condition becomes more chronic the patient should be instructed to abduct the arm by placing it against a wall and gradually pushing it up to the highest point he can reach. The patient must be warned against perpetually fidgeting with the arm in what should be intervals of rest.

55. **Nascent Iodin Treatment of Tuberculosis.**—Dally's experience with the treatment of pulmonary tuberculosis by means of intensive nascent iodin leads him to the belief that, for the stratum of society from which out-patient practice is drawn, this method is of far greater and of more definite value than the common one of giving cod-liver oil and tonics, with occasional spasmodic bursts of sanatorium régime, too short, owing to the exigencies of the situation, to be of any permanent benefit except in a very limited number of cases. The fact that, in the majority of instances, the sputum rapidly shows absence of tubercle bacilli, proves of itself that on these nascent iodin has had a definite bactericidal influence. Glandular tuberculosis yields readily to this remedy. In some cases of asthma it is worth a trial, for it has the effect of causing notable diminution in the respiratory distress, as well as of preventing the paroxysmal attacks. The fetor of bronchiectasis and of chronic cavities is lessened. It is beneficial in the acute specific infections, particularly those of pneumonic and bronchopneumonic type; in skin disease, notably acne vulgaris, and in various pathologic processes.

Finally, nascent iodin has a wide scope in the amelioration of states in which the arterial blood-pressure is continuously raised. In the treatment of arteriosclerosis, Dally has found it of great service in progressively lowering the already too high maximal and minimal pressures to more normal levels, and thus in checking the further development of these insidious and harmful conditions. The special reducing agent used in this treatment in order to liberate nascent iodin from the iodid in the blood and tissues consists of chlorin in carefully prepared aqueous solution, the constituents being chlorin and some of its oxids, together with potassium chlorid. Just as iodin is held in stable solution by the iodid present in solution, so is chlorin held in like manner by the chlorid and prevented from vaporizing in excess. Through the agency of chlorin, nascent iodin is set free intensively from the iodid in the blood in proportion to the amounts of chlorin solution successively administered.

56. **Treatment of Tuberculosis by Nascent Iodin.**—Reeve has treated nearly all patients with a morning dose of 20 grains of potassium iodid, instead of 30 grains as before, and, he says, children down to 3 years of age stand this dose very well. The chlorin water has been given regularly in three doses of 1 ounce each at the ordinary times. As to the progress of cases which have apparently been cured, he has heard from two patients who stopped treatment just a year ago, both saying that they had been at work and remained quite well. From his results, Reeve thinks one is justified in giving a good prognosis in all early cases of pulmonary tuberculosis, and can expect great and lasting improvement in the advanced cases.

Annales de Médecine et Chirurgie Infantiles, Paris

June 1, No. 11, pp. 359-392

64 *Sunlight Therapy at the Seashore. E. Gaujoux.
65 Diagnosis and Puncture in Treatment of Pericarditis with Effusion. Guinon and Malarte.

64. **Heliotherapy at the Seashore.**—Gaujoux summarizes the work of the recent international congress for thalassotherapy (*thalassa,* the sea), which met in May at Cannes and devoted its sessions exclusively to the one subject, heliotherapy (*helios,* the sun). Heliotherapy has apparently definitely established the importance of conservative treatment for surgical tuberculosis, but all the work must not be left to the sun. Its action must be aided and supplemented by immobilization where needed and by opening up deep lesions so as to render them more accessible to the healing sunshine. Nearly all the specialists in heliotherapy advocated exposures of the entire body to the sunlight, whether there was merely a local lesion or not. Children seem to display a special tolerance for exposure to sunshine, but it has not yet been decided whether the conclusions based on experiences with heliotherapy of children can be applied to adults or not.

Where strict individualization is not possible, the general rule is to begin with five- or ten-minute exposures, increasing the length by a few minutes each day. The limbs are first exposed, gradually enlarging the exposure to include the chest and abdomen. The course of solar treatment should be suspended, resumed or intensified proportional to the individual response. It was said to give excellent results generally with superficial torpid lesions, in bone affections and in painful gynecologic affections. It seems to be dangerous in the hectic period and in all acute forms of pleuropulmonary tuberculosis. It is also futile when there is rapid destruction of tissue in pulmonary tuberculosis, but when the disease is in a torpid, non-febrile stage, sunlight treatment gives a very large percentage of cures. It often benefits tuberculous nephritis in an early stage and albuminuria, orthostatic or tuberculous, and thus may ward off impending disease of the kidney, of which this was the first sign. Cystitis and prostatitis also are often amenable to heliotherapy.

Archives générales de Chirurgie, Paris

May, VIII, No. 5, pp. 513-640

66 Operation on Femoral Hernia by Inguinal Route. Vautrin.
67 Interpretation of Roentgenoscopy of Head of Femur. (Radiographie des cols fémoraux normaux et pathologiques.) P. Mauclaire and Niel.

Archives des Maladies du Cœur, etc., Paris

June, VII, No. 6, pp. 369-432

68 Deformity of Aorta Causing Symptoms of Stricture. (Pseudo-rétrécissement aortique par anomalie d'origine des troncs sus-aortiques.) L. Bard.
69 Latent Aneurysm of Arch of Aorta. M. Carrieu and S. N. Oeconomos.
70 *Syphilis, Tobacco and Alcohol as Factors in Intermittent Claudication. (Syphilis et artérite oblitérante des membres inférieurs.) M. Dehon and J. Heitz.

70. **Intermittent Claudication.**—Dehon and Heitz give the details of fourteen cases of angiosclerotic dysbasia or intermittent claudication, and call attention to the fact that syphilis was known in half of them. This large percentage suggests the importance of at least tentative treatment for syphilis in all cases of obliterating arteritis in the legs. One of their patients improved remarkably under specific treatment and the Wassermann reaction became negative. Some with known syphilis had a negative reaction. In some of the known syphilitics the intermittent claudication was not benefited in the least by the specific treatment. Tobacco and alcohol were contributing factors in some of the patients, possibly outweighing in importance the syphilis in these cases. They declare that any sign of tabes or leukoplasia should call at once for specific treatment in every case of intermittent claudication, even if there is nothing else to suggest syphilis and the Wassermann proves negative at the first test.

Bulletin de l'Académie de Médecine, Paris

June 9, LXXVIII, No. 23, pp. 755-804

71 Bed for Advanced Heart Disease. P. Marie, Nachmann and P. Reynier.
72 Connective Tissue Living Twenty-Eight Months Outside of the Organism. A. Carrel and S. Pozzi.
73 Urine Tests for Cancer Unreliable. (Recherches sur les troubles des échanges chez des cancéreux. L'azote ammoniacal et l'amino-acidurie.) A. Robin.
74 Astigmatism and Military Service. F. Lagrange.
75 *Paralytic Myasthenia versus Asthenia from Adrenal Insufficiency. H. Claude.
76 *Attraction of Microbes in Air by Chilled Surfaces. (Principes d'une méthode destinée à diminuer la contagion des maladies transmissibles par l'air dans les salles de malades ou les lieux habités.) T. Trillat.

75. **Myasthenia.**—Claude emphasizes the necessity for distinguishing between asthenia of the type known as Erb's paralytic myasthenia and that resulting from defective functioning of the adrenals. The former requires organotherapy plus strychnin and phosphorus; this may yield very satisfactory results, even in severe forms of the Erb syndrome. In the adrenal insufficiency cases, he says that adrenal treatment and heart stimulants are generally all that is necessary.

76. **Microbes in the Air Attracted to Chilled Surfaces.**—Trillat has found that microbes can propagate in droplets and infect virgin droplets and increase to an actual swarm, and that these swarms or clouds of germ-containing droplets are not swept along in currents of air or drop by gravity as their sole movements. Additional to these movements they are attracted toward and cling to a chilled surface. We have to contend with microbes not only in dry dust but in the humidity in the air, and these clouds of invisible germ-laden vapor become condensed on a chilled surface. This fact might be utilized in preventing escape of germs or in protecting against them.

Journal d'Urologie, Paris

June, V, No. 6, pp. 681-839

77 *Urea Content of Blood as Basis for Prognosis in Chronic Nephritis. (Recherches sur la constante uréo-sécrétoire d'Ambard.) F. Widal, A. Weill and P. V. Radot.
78 *Traumatic Nephritis. A. Pousson.
79 *High-Frequency Current in Treatment of Bleeding Bladder Tumors. (Valeur hémostatique de l'électro-coagulation des tumeurs vésicales.) E. Desnos.
80 Movability of the Kidney in Connection with Diagnosis of Renal Calculi. Rafin and Arcelin.
81 Nephropexy. G. Marion.
82 *Tuberculosis of the Bladder. (La cystoscopie dans la tuberculose vésicale.) M. Heitz-Boyer.
83 Seventeen Prostatectomies under Exclusively Local Anesthesia. F. Legueu.

77. Practically the same article was reviewed on page 66, abstract 54.

78. **Traumatic Nephritis.**—Pousson summarizes from the literature twelve cases of nephritis developing after a trauma and adds the details of one from his own experience. In a number there was no preceding infection known or alcoholism, but there was hematuria in all but three cases, although in some it did not develop until several days after the accident. Fever may come on at once or not until several days or weeks later, after getting chilled or with an infectious sore throat. Edema may develop at once or not until months or even years later, but it is liable to affect the side corresponding to the injured kidney. In one of the cases the left arm swelled in the month after the accident to twice its size and the whole left side became dropsical. The symptoms and course of traumatic nephritis closely resemble those of Bright's disease, and the necropsy findings seem to be identical. The inflamed kidney has a pathologic action in time on its sound mate, not only by the reno-renal reflex and the injury from irritation of the nervous system of the kidneys but also by absorption of cell-toxins from the diseased kidney, and these cytotoxins seem to act first and foremost on the cells of the other kidney.

79. **Electro-Coagulation of Bladder-Tumors.**—Desnos qualifies Beer's method as a precious therapeutic resource, especially to arrest bleeding from a tumor in the bladder. The high frequency current both coagulates and cauterizes, and the hemorrhages were arrested at once in two cases he reports in which hematuria was the only symptom, and also in a third case with chronic cystitis.

82. **Cystoscopy with Vesical Tuberculosis.**—Heitz-Boyer's discussion of tuberculosis of the bladder is accompanied by twelve colored views of the typical cystoscope findings, each with a descriptive title in five languages.

Lyon Médical

May 24, XLVI, No. 21, pp. 1133-1200

84 Advantages of Treating Tumors of the Bladder by the High-Frequency, Low-Tension Current. Arcelin and Giuliani.

Presse Médicale, Paris

XXII, Nos. 46-48, pp. 437-464

85 Acidity of Urine in the Tuberculous. H. Labbé and G. Vitry.
86 Operative Transformation of Deep into Superficial Lesions as Aid to Heliotherapy in Surgical Tuberculosis. E. Grinda.
87 *To Make Scarlet Fever and Measles Mild and Non-Contagious. (Traitement préventif et curatif de la scarlatine et la rougeole par la méthode du Dr. Robert Milne.) M. N. Wilbouchewitch.
88 *Etiology of Scarlet Fever. H. Roger.
89 *Periodically Recurring Asthenia. J. Dejerine and E. Gauckler.

87. **To Render Scarlet Fever and Measles Mild and Non-Contagious.**—Wilbouchewitch remarks that Milne's method of treating these diseases ignores the official British regulations in regard to isolation and disinfection. At the first sign of trouble the child is put to bed, the throat treated with a disinfectant and the skin with eucalyptus oil, rubbed in all over the body morning and evening for four days and then once a day till the tenth day of the disease. The eucalyptus oil is not irritating, and it is not necessary to cut girls' hair. The throat is swabbed as high up and as low down as possible with 10 per cent. phenol in oil, every two hours for the first twenty-four. This need not be continued longer in scarlet fever, but in measles he repeats the swabbing three times a day for several days. To protect the environment against contagion, he suspends over the head and chest of the patient a large hoop over which is thrown a sheet of transparent cheese-cloth which falls on the bed all around and is sprinkled now and then with the eucalyptus oil.

Milne is physician to the Dr. Barnardo Homes for Boys, and by this treatment he has reduced the morbidity from acute infections to the minimum. The disease runs an exceptionally mild course, without complications on the part of nose, ears, bronchi or kidneys, and the children are well and can go back to school in ten days. The disease does not spread to those in close contact, not even to a child sleeping with the patient. The exposed are kept in an atmosphere of eucalyptus; it is sprinkled on their pillows, and ten or fifteen drops on their linen. They are kept in the house for a day or so. The scarlet-fever patient after this treatment has been applied does not contaminate his books, clothing, dishes, etc., but those he was using just before the treatment was applied must be sterilized, that is, sprinkled with eucalyptus oil and exposed to the sun for a few hours. The main point is to begin early, checking the development of the disease into a virulent type.

88. **Etiology of Scarlet Fever.**—Roger emphasizes the necessity for remembering always that the germs of scarlet fever inhabit the mouth from the very first and are extremely contagious, resistant and long lived. Desquamation spreads the disease only as the germs from the mouth get on the desquamating scales; those from the lips and hands are thus most dangerous.

He says that the disease is essentially a septicemia with a specific sore throat. The eruption is secondary and inconstant. He found a history of known contagion in only 16.8 per cent. of 2,213 cases in adults. This suggests that incomplete abortive cases in the supposedly healthy must often be responsible for the spread of the contagion. It also suggests the possibility of contagion from other beings besides man. Scarlet fever seems to be rare and mild in Japan, while frequent and grave in England. This renders the more significant the results achieved by Milne—mentioned in the preceding abstract—among the thousands of waifs in the Barnardo homes.

89. **Intermittent Physical Weakness.**—Dejerine and Gauckler are convinced that there is a melancholia of the body as well as of the psyche. Periods return in which the slightest effort may cause fatigue or extreme asthenia. Such patients are generally classed as neurasthenics, but they are not necessarily always neurasthenic. Their recurring physical depression corresponds in general medicine to cyclic insanity in psychiatry. It is accompanied by disturbances indicating an upset in the ductless gland system, and the success of treatment aiming to remedy this confirms the correctness of this assumption as to the true nature of this intermittent asthenia. Rest and thyroid treatment proved effectual in some cases; in others hypophysis extract or both combined succeeded better. By this means he cured two patients who for years had had these attacks of asthenia which lasted two or three months, and returned two or three times a year. In five cases no benefit was apparent from the organotherapy.

Revue de Médecine, Paris

May, XXXIV, No. 5, pp. 321-392

90 Spa Treatment of Gall-Stone Colic. A. Therre.
91 Landouzy's Typhobacillosis. A. Krokiewicz.

Semaine Médicale, Paris

June 17, XXXIV, No. 24, pp. 277-288

92 Fracture of Lower End of the Radius in Children. H. Vulliet.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXXI, No. 1, pp. 1-139. Last indexed June 13, p. 1932

93 Intracellular Position of Tubercle Bacilli in the Sputum of No Import for Prognosis. (Bedeutung der intrazellulären Lage der Tuberkelbazillen im Auswurf.) M. Cohn.
94 Technic for Artificial Pneumothorax. A. Hofvendahl.
95 *Development and Number of Tubercle Bacilli in the Sputum in Connection with the Clinical Course. A. Kirchenstein.
96 Tubercle Bacilli in Blood in Guinea-Pigs. (Vorkommen von Tuberkelbazillen im strömenden Blute beim tuberkulösen und tuberkulinisierten Meerschweinchen.) Hage.
97 Skin Tuberculin Test in Prophylaxis of Tuberculosis. (Von Pirquets Probe in der praktischen Vorbeugung der Tuberkulose.) K. Isager.
98 Percutaneous Tuberculin Treatment of Tuberculosis. (Spezifische Tuberkulose-Bekämpfung im grösseren Stil.) C. Spengler and J. Petruschky.
99 *Acute Tuberculous Peritonitis; Two Cases. A. Troell.

95. **Biology of the Tubercle Bacilli.**—This communication from Spengler's private laboratory at Davos is accompanied by five large charts to illustrate the connection between the various forms of the tuberculosis virus, the resting, sporoid form, Spengler's *Splitter* and Much's granula. All the forms which take stains well are of the progressive type; the others are regressive. When the tuberculous organism becomes chilled or there is superposed infection, or it suffers in any other way, the resting sporoid forms start increased proliferation. Hence, the more stable the numbers of the resting sporoid forms, the higher the immunity. It is thus possible by charting the bacteriologic picture, especially the changes in the different forms and numbers of the bacteria, to estimate the present status and the outlook of the disease.

99. **Acute Tuberculous Peritonitis.**—Troell reports two cases of an acute peritonitis developing with a chill and other symptoms suggesting appendicitis, but the laparotomy revealed the appendix sound with acute diffuse, suppurative peritonitis, the pus quite thin and in great abundance. Tuberculosis was evident from both the microscopic findings in the first case, and was more than probable in the second as gonorrhea and pneumococcus infection could be almost positively excluded. Both patients were young men of 18, a clerk and a tailor; the former had always been healthy before; the tailor had had chronic diarrhea for a long time seven years before.

Beiträge zur klinischen Chirurgie, Tübingen

XC, No. 3, pp. 515-742. F. Trendelenburg Number

100 Congenital Megacolon. (Ueber Hirschsprung'sche Krankheit und abdomino-anale Colonresektion mittelst der Invaginationsmethode.) G. Perthes.
101 *Surgical Affections Caused by Ascarides. Schloessmann.
102 Roentgenoscopy in Surgical Stomach Disease. W. Hartert.
103 Fibrous Ostitis. H. Kolaczek.
104 Cystic Cancer of the Neck. (Branchiogenes Cystencarcinom.) H. Kolaczek.
105 Laryngocele. (Echte Kehlsackbilding.) A. Reich.
106 Snapping Shoulder. (Die schnellende Schulter.) A. Reich.
107 Rupture of Tendon of Long Head of Biceps. E. Borchers.
108 *Pseudarthrosis in Children. O. Jüngling.

101. **Surgical Affections from Ascarides.**—Schloessmann has encountered 11 cases in the last two years in which an operation was required for evil done by helminths. In 6 cases the ascarides were in the open abdominal cavity; in 3 there was ileus from obstruction by them; they had perforated the intestine in one case and in another they had caused adhesions and volvulus. In one case as the abdomen was opened the appendix was suddenly stretched out to nearly twice its length by an ascaris within. Schloessmann warns that it is safer to make no attempt to remove the helminths at the laparotomy. Repugnant as it is to leave them alive, the successful outcome in his cases confirms the wisdom of doing so and trusting to santonin to expel them later; 117 were thus voided in one of his cases and 489 in another.

108. **Pseudarthrosis in Children.**—Jüngling tabulates 139 cases and compares conditions with those in adults. His figures show that while fractures of the leg form only 8.8 per cent. of all the fractures of children, pseudarthrosis of the leg forms 76.3 per cent. of all the varieties of pseudarthrosis, and he discusses the reasons for this. The prognosis seems to be very bad as in time the atrophic ends of the fragments lose the power of regeneration. Congenital pseudarthrosis has naturally the gravest prognosis.

Berliner klinische Wochenschrift

June 15, LI, No. 24, pp. 1109-1156

109 Differentiation of Effusions and Transudate by Albumin Content. (Zur Kenntnis der durch verdünnte Essigsäure fällbaren Eiweisssubstanz in serösem Erguss.) K. Ujihara.
110 *Severe Disturbances in Vision after Atoxyl. (Sehstörungen nach Atoxyl.) R. Steinebach.
111 Vaccine Therapy of Acute Gonorrhea. (Zur Immunotherapie der akuten Blennorrhagien.) P. v. Szily.
112 The Cosmetic Field in Medicine. (Kosmetik und Anatomie.) E. Saalfeld.

110. **Blindness from Atoxyl.**—In the case reported by Steinebach a woman of 36, moderately addicted to alcohol, with an itching skin affection for five years and in the last few months increasing pallor and weakness, was given a course of atoxyl on account of her secondary anemia. She was given twelve small subcutaneous injections in the course of twenty-six days and her general condition was materially improved but she noticed that vision was somewhat impaired for nine or ten months. Then it grew rapidly worse and by the eleventh month she was almost totally blind. The findings in the eyes point unmistakably to injury from the atoxyl although only a total of 1.2 gm. had been given. The light and convergence pupil reactions are well preserved although fifteen months now have elapsed since the first signs of visual trouble were apparent. Diarrhea developed and has persisted. The smallest total dosage of atoxyl followed by blindness heretofore was 3.4 gm. in the cases on record. A predisposition seems to have been present in all the cases, cachexia from cancer or old age, auto-intoxication, chronic infections or intoxications, and especially chronic alcoholism —any of which should strictly contra-indicate the use of atoxyl.

Deutsches Archiv für Klinische Medizin, Leipzig

CXIV, Nos. 5-6, pp. 433-630. Last indexed June 6, p. 1851

113 Pain in Joints from Irritation of Spinal-Cord Segments by Visceral Disease. (Zur Frage der als Begleiterscheinung bei Leiden der Visceralorgane auftretenden Knie- und Hüftgelenkerkrankungen.) M. Lapinsky.
114 Measuring the Force of the Pulse. (Wort und Sache in der dynamischen Pulsdiagnostik.) T. Christen.
115 The Innervation of the Adrenals. O. Renner.
116 The Venous Pulse and Tricuspid Insufficiency. J. Neumann.
117 Tests of Kidney Functioning. (Das "Konzentrationsverhältnis" von Stickstoff und Chlor bei gesunden und kranken Nieren.) J. Hefter and R. Siebeck.
118 Possibility of Nourishing the Heart Muscle by Injecting Sugar Solution into the Greater Circulation. T. Büdingen.
119 Perpetual Arhythmia. B. Romeis.
120 Respiratory Quotient in Chronic Anemic Conditions. F. Rolly.

Medizinische Klinik, Berlin

June 14, X, No. 24, pp. 1003-1044

121 *Calcium Salts in Therapeutics. (Kalksalze.) F. Göppert.
122 Indications for Tonsillectomy. (Ausschälung der Gaumenmandel.) E. Glas.
123 Roentgenologic Basis for Classification of Intractable Constipation. F. M. Groedel.
124 The Handwriting in Chorea. G. Lomer.
125 Treatment of Habitual Dislocation of the Patella. H. Luxembourg.
126 *Alkali in Treatment of Diabetes. G. G. Wilenko.
127 Diagnosis of Lung Tumors. D. Rothschild.
128 Diathermia. W. Laqueur.
129 The Aorta Curve. (Methode, die Pulskurve der Aorta zu bekommen.) K. Mayer.
130 Respiration Reaction to Heart Action. (Atmungsreaktionen bei gesunden und kranken Herzen.) A. Pongs.

121. **Calcium Salts in Therapeutics.**—Göppert has never witnessed any benefit from the calcium salts in acute coryza or pleurisy with effusion. Prolonged mild calcium medication seems to reduce the tendency to hay-fever; increasing the dosage during an attack has often proved effectual. Patients generally find it most convenient in the form of calcium citrate, 4 or 5 gm. a day, kept up for months. Some forms of urticaria—especially in the pregnant—are favorably influenced, but he has seen urticaria first come on while large doses of calcium were being taken. Eczema in infants was never cured with calcium in his experience and only once was marked transient improvement observed.

A tendency to asthma is often favorably influenced by calcium salts taken over a long period, as also epilepsy in connection with tetany in adults. Both theoretically and practically, calcium is indicated in latent tetany in children, the so-called spasmophilia. Fifty children in this category were thus treated with fine results; every two or three hours from 1.5 to 2 gm. of calcium chlorid (crystallisatum) is given up to a total of 8 to 14 gm. in the twenty-four hours, lengthening the intervals later until only 4 gm. is being taken; this is kept up systematically. By this means the brain is saved from the effect of the convulsions while the feeding of the child is not interfered with and it can receive adequate nourishment without bringing on the convulsions anew.

(The above doses are twice as large as the corresponding doses of the official calcium chlorid, U. S. P.)

126. **Treatment of Diabetes.**—Wilenko presents new evidence to show that glycolysis in blood and organs is hampered when the blood becomes even a trifle less alkaline than normal. Glycolysis in the test-tube is totally arrested by an increase in acidity of the medium from 1/1,000,000 to 0.2/1,000,000. The already impaired glycolysis in the diabetic suffers particularly from any change in the physiologic reaction, and recent tests of the carbon dioxid tension of the blood have confirmed the acidification of the organism in diabetes, and emphasize the necessity for restoring the balance by administration of an alkali without waiting for coma to develop. This is especially necessary on account of the acidity-promoting influence of the measures we enforce on diabetics, the preponderance of meat and the elimination of carbohydrates from the diet, all tending to increase acidity. Even when there are no signs of acetonuria, an alkali should be given when the carbon dioxid tension in the blood shows abnormal acidity. An alkali, he further insists, should be given systematically when we have to regulate the diet to exclude carbohydrates and include much meat. When this is done, acetonuria is warded off. There is nothing to show that the alkali acts on the cause of the diabetes; its effect is merely symptomatic, but as such it wards off or neutralizes acidosis with all its evil consequences. He gives no advice as to the preferable alkali or dosage.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

May, XXXIX, No. 5, pp. 597-750

131 *Significance and Treatment of Retained Pieces of Placenta. G. Winter.
132 Air Embolism with Criminal Abortion. (Luftembolie bei krimineller Abtreibung.) M. Richter.
133 Excessive Rotation of the Back as Result of Prolapse of the Arm. (Innere Ueberdrehung des Rückens infolge Armvorfalls.) E. Sachs.
134 Continuous Röntgenization for Deep Radiotherapy. (Die kontinuierliche Röntgenisation, eine neue Methode der Tiefenbestrahlung.) J. Müller.
135 *Auto-Infection in Gynecology. (Bakteriologische Untersuchungen bei gynäkologischen Erkrankungen.) W. Benthin.

131. **Retention of Scraps of Placenta.**—Winter holds that the retention of pieces of placenta never causes puerperal fever. It generally leads merely to a local metritis with destruction of the remnant of placenta. The severe cases of puerperal fever following retention are often due to the examinations for the retained fragment. Such examinations should not be made, he insists, and the uterus should not be curetted for the removal of such fragments. This is particularly dangerous when hemolytic streptococci are present. The spontaneous expulsion of the retained fragment occurs without danger. When the retention of a piece of placenta is recognized during delivery, it should be removed at once. If it is discovered during the puerperium, it should be removed at once if there is no fever or if there is severe hemorrhage even in febrile cases. If hemolytic streptococci are present, no curetting should be done until they disappear. If the peritoneum, parametrium or adnexa are diseased, conservative treatment should be the rule. Curetting should be done whenever possible with the finger and never with a sharp instrument.

135. **Auto-Infection in Gynecology.**—Benthin's conclusions are based on 500 gynecologic cases, 1910 to 1913, with operative treatment in 440. There was a mortality of 29.4 per cent. in cases where hemolytic streptococci were found in the vaginal secretion, and of only 4.2 per cent. in the cases where they were not found. By auto-infection he means simply that the infection was with germs previously present in the vagina. He believes this high mortality must be overcome by clearing the vagina from bacteria before operating, rather than by any precautions during the operation or treatment after. More attention should be devoted to the vaginal secretion than heretofore. There is no certain means of sterilizing the vagina, but he found Schweitzer's method of irrigating with 0.5 per cent. lactic acid, effective in many cases, but it failed in the two cases of carcinoma in which it was tried.

Monatsschrift für Kinderheilkunde, Leipzig

XII, No. 12, pp. 687-758

136 *Alcoholic Extracts of Vegetables in Treatment of Scorbutus. E. Freise.
137 *Spontaneous Recovery from Scrofuloderma. K. Bahr.
138 Coagulability of the Blood in the Early Weeks of Life. E. Flusser.
139 Fate of Infants with Spasm of the Pylorus and Habitual Vomiting. E. Liefmann.
140 Increased Permeability of Infant's Intestine to Foreign Albumin and Disaccharids in Digestive Disturbances. Hayashi.

136. **Alcoholic Extracts of Vegetables in the Treatment of Scorbutus.**—Freise gives the history of a severe case of Barlow's disease in a child 11 months old which was clinically cured within seven weeks by the administration of a total of 13.79 gm. of an alcoholic extract of the common beet. The extract was given in the form of an emulsion in water, 2 c.c. of the extract in 100 c.c. of water per day with a few drops of normal hydrochloric acid added. Roentgen examinations repeated periodically showed extensive repair going on in the affected bones.

137. **Spontaneous Recovery from Scrofuloderma.**—Bahr describes five cases in children under 2 years of age. In only one of these was specific treatment with tuberculin given. The others recovered spontaneously and have been free from recurrence during the year since with no signs of any other tuberculous affections. In all except one of the cases either father or mother had tuberculosis. Even though scrofuloderma is the benign form of tuberculosis, it must be disseminated from some internal focus, which has shown the same tendency to spontaneous healing as the tendency to spontaneous healing of the skin affection. This shows that scrofuloderma and probably other forms of tuberculosis during the first two years of life display a tendency to

spontaneous recovery and that their disappearance does not prove the success of any specific treatment that is being given for the tuberculosis.

Münchener medizinische Wochenschrift

June 16, LXI, No. 24, pp. 1321-1376

141 Technic for Induced Pneumothorax. F. Moritz.
142 *New Technic for Salt Solution. (Methode der schnellsten Darstellung absolut steriler Kochsalzlösungen für Injektionszwecke, speziell für Salvarsaninjektionen.) K. Taege.
143 Peptolytic Ferments Appear in Urine during Destruction of Cells on Large Scale. (Ausscheidung eines peptolytischen Fermentes im Harn bei verschiedenen Formen der Eiweisszerfallstoxikosen —Verbrühung und Hämolysinwirkung.) H. Pfeiffer. (Nachweis spezifischer peptolytischer Fermente im Harn.) W. Sagel.
144 Turbidity and Opalescence in Serum of the Pregnant and the New Born. D. Hellin.
145 Oxidase in Melanotic Large Intestine. F. Niklas.
146 *Abderhalden Reaction in Chlorosis. (Störungen der inneren Sekretion bei Chlorose.) A. Schmitt.
147 Epinephrin plus Hypophysis Extract Effectual in Tiding Sick Children through Acute Infectious Heart Weakness. P. Rohmer.
148 Salvarsan Aborts Incipient Anthrax. (Salvarsanbehandlung des Milzbrandkarbunkels.) L. Buberl.
149 *Pyelocystitis in Infants. (Infektiöse Erkrankungen der Harnorgane im Säuglingsalter.) H. L. Kowitz.
150 Present Status of Psychotherapy. v. Stauffenberg. Commenced in No. 23.
151 *Friedmann's Remedy for Tuberculosis. (Das Friedmannsche Tuberkuloseheilmittel.) Editorial.

142. **Absolutely Sterile Salt Solution from Hydrant Water.**—Taege's method is to add hydrochloric acid to ordinary hydrant water and thus sterilize it absolutely. Then he adds sodium hydroxid in the proper proportion to produce sodium chlorid in the desired percentage.

146. **Disturbances in Internal Secretions in Chlorosis.**—Schmitt regards it as significant that the serum from eighteen girls with chlorosis regularly digested ovary and uterus tissue when the dialysis test was applied and did not digest other tissues. He thinks that this establishes that there must be perverted functioning on the part of these organs, leading to the production of protective ferments. This opens a new field for research, especially with hysteria, etc.

149. **Pyelocystitis in Infants.**—Kowitz has had 17 boy babies and 23 girl babies present pyelocystitis, and in every case there was some preceding acute alimentary disturbance, and the cases nearly all developed during the heated term. This suggests that the affection is of blood-borne origin. He found the colon bacillus in pure cultures in the urine in 34 cases, associated with other bacteria in the others. Three of the infants had furunculosis or eczema, and staphylococci were found in these. No benefit was apparent from any drugs; the main reliance must be on copious intake of water, especially given by the drop method in the rectum or by subcutaneous infusion.

151. **Friedmann's Remedy for Tuberculosis.**—This editorial states that never in the history of medicine has there been such a unanimous verdict of repudiation of an alleged curative measure as is the case with Friedmann's remedy. The matter seems to have been definitely settled for the present by the open discussion through four meetings of the Berliner med. Gesellschaft and at the discussion in the Vienna K. K. Gesellschaft der Aerzte. The general verdict is that on account of the lack of any pronounced curative action from it and of the dangers connected with it, its use is warned against. The editorial concludes with the statement that as the matter seems now definitely settled, no more space will be devoted to it in future.

Therapeutische Monatshefte, Berlin

June, XXVIII, No. 6, pp. 389-468

152 *Drug Treatment of Blood-Diseases. (Fortschritte der medikamentösen Therapie bei Blutkrankheiten.) P. Morawitz.
153 Radiotherapy in Internal Medicine. (Die radioaktiven Methoden in der inneren Therapie.) E. Freund.
154 *Constitutional Factors to be Considered in Treating Tabes. (Konstitutionelle individualisierende Tabestherapie.) R. Stern.
155 *Puncture in Pericarditis with Effusion. (Zur Punktion grosser Herzbeutelergüsse.) O. Moog.
156 Personal Experiences with Small-Pox. Volland.
157 Whey-Albumin-Milk for Infants. (Quarkfettmilch—ein weiterer Ersatz der Eiweissmilch.) E. Aschenheim.
158 *The Flooding of the Drug Stores with Proprietaries. (Die Ueberfüllung der Apotheke mit Spezialitäten.) W. Heubner.
159 *The German Council on Pharmacy and Chemistry. (In eigener Sache.) W. Heubner.

152. **Drug Treatment of Blood-Diseases.** — Morawitz remarks in the course of this review of recent progress, that iron is useless as a rule in pernicious anemia. There is always abundance of iron on hand from the destruction of reds going on. It is also futile to give iron to young girls whose pallor suggests anemia but is in fact the result of nervous influences. He says of benzol that no permanent cure has yet been recorded from its use, yet it gives us another weapon against leukemia. But it must not be forgotten that it is a two-edged sword, more so, perhaps, than Roentgen treatment. The symptoms of acute leukemia subsided under thorium in a case in his own experience. The discovery that calcium renders the walls of the vessels less permeable suggests its use in hemorrhagic conditions secondary to infections, leukemia and severe anemia, but he has seen no benefit from it in tuberculous hemoptysis.

154. **Constitutional Predisposition to Tabes.**—Stern remarks that some of the symptoms in tabetics which are credited to the tabes are in reality due to constitutional inferiority in some line, and this is also the cause of the apparently casual involvement of the optic nerve, the bladder or the motor functioning in different cases. He found evidences of constitutional asthenia in nearly 50 per cent. of all his cases of tabes. These asthenic factors should be regarded in treatment, building up the patient just as we build up those with incipient tuberculosis so they can throw off the disease. Otherwise they display an ominous tendency to anemia, emaciation and wasting away. The syphilitic basis of the tabes is combated in treatment and nothing is done, as a rule, to combat the constitutional inferiority. Stern adds that a further 35 per cent. of his tabetic patients were abnormally stocky, and the elderly were inclined to obesity, the trunk uncommonly hairy—a type corresponding to deficient functioning of the thyroid. This degenerate stocky type is found more frequently among patients with general paralysis than among tabetics. It suggests a hint for treatment. He warns that iodin should not be given to this class of *breitwüchsige* tabetics or paralytics. His record of 85 per cent. of either the asthenic or emphysematous type of patients in his cases of tabes has convinced him that tabes should be designated "spinal syphilis with constitutional inferiority, predominantly of the asthenic type."

155. **Puncture of Large Pericarditic Effusions.**—Moog adds another to the four cases on record (Curschmann) in which very large effusions were tapped from the rear. Moog punctured the pericardium through the fifth left interspace in front and evacuated 130 c.c. of hemorrhagic fluid; two days later 90 c.c. was evacuated in the same day. The symptoms from compression of the lung soon returned but two punctures at different points brought no fluid. Then he introduced the needle from the rear, puncturing the eighth interspace, and released 600 c.c. of the effusion and the same amount the next day, and 400 c.c. five days later. Air got in during the later maneuvers and a pneumothorax developed with some effusion in the pleura, but this gradually subsided and with it all the other symptoms to complete clinical recovery. The possibility of pneumothorax should always be borne in mind and the effect on the other lung.

158. **The Flooding of the Drug Stores with Proprietaries.**—This is the title of an article by a pharmacist, published in the *Pharm. Ztg.*, 1914, p. 306, deploring the present overproduction of pharmaceuticals, and the claims made for them in the advertising. He states that "fully 50 per cent. of the preparations advertised have no excuse for existence, and certainly not the foreign ones, but no paper or periodical can be taken up without seeing their advertisements. And the press, even every sheet of paper on which anything is printed, is looked up to by the average public as an oracle." He adds "not only in the interests of pharmacists but for the welfare of honest business, laws should be enacted to put an end to the abuses in the advertising columns of the daily papers at

least." Heubner comments on this that not merely 50 per cent. but 90 or 95 per cent. of the existing proprietaries have no justification for existence—"if thirty to fifty new ones came out every year this would amply satisfy the requirements of therapeutic progress, but now we groan under ten or twenty times this burden."

159. **The German Propaganda for Reform.**—See Propaganda Department in The Journal, June 13, 1914, p. 1910.

Wiener klinische Wochenschrift, Vienna

June 4, XXVII, No. 23, pp. 785-832

160 Experimental Syphilis in the Rabbit. L. Arzt and W. Kerl.
161 *Tendency to Hemorrhage in the Tuberculous. H. Faschingbauer.
162 *Percutaneous Tuberculin Treatment. (Tuberkulineinreibungen.) A. Kutschera.
163 Vaccine Therapy of Mixed Infection in Tuberculosis. O. Frankfurter.
164 *The Abderhalden Reaction in Differential Diagnosis. (Zur diagnostischen Verwertbarkeit des Dialysierverfahrens.) K. Csepai.

161. **Hemorrhagic Tendency in Tuberculosis.**—Faschingbauer states that among 1,261 cases of tuberculosis in the course of five years he encountered six in which there was an unmistakable hemorrhagic diathesis. He describes them in detail and bids others heed the warning that purpura for which no other cause can be discovered may be the first or among the first manifestations of latent tuberculosis. It may appear at any stage of tuberculosis and recur; it seems to accompany an acute form of tuberculosis or an acute exacerbation. It is probably due to the flooding of the organism with the toxins of the tubercle bacillus.

162. **Percutaneous Tuberculin Treatment.**—Kutschera has the patient drop the tuberculin on his skin and rub it in with his thumb until it has all disappeared. This method has proved particularly practical and effectual in some convents in his charge where 600 nuns have been taking this tuberculin treatment. It has demonstrated its usefulness in protecting against the flaring up of latent tuberculosis, but he advocates the more potent subcutaneous technic when the disease is already manifest. The percutaneous method is especially adapted for members of families exposed to tuberculosis, for large institutions, etc., as it is so simple and inexpensive that it can be applied on a wholesale scale. He begins with one drop of a 1:25 dilution of the tuberculin once a week. The dose is increased by one drop each for four weeks. When the four-drop dose has been reached he changes to a 1:5 dilution and so on, finally using one drop of pure tuberculin up to four drops. The treatment must be kept up for two years after the last manifestations have subsided. The inunction is made at a different point each time. Once a month or three months is generally often enough for medical supervision.

164. **Serodiagnosis of Pregnancy and Internal Disease.**—Csepai reports that the organs of animals elicited equally specific responses as human organs in his research on Abderhalden's ninhydrin reaction. Thymus tissue seems to be digested in nearly all affections; hence this has no diagnostic import in exophthalmic goiter, etc.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXVI, No. 1, pp. 1-320. Last indexed May 2, p. 1443

165 *Tetanoid Symptoms in the Pregnant. P. Kreiss.
166 *Loss of Blood at Gynecologic Operations, and Its Importance for Prognosis. P. Kreiss.
167 Contagious Pemphigus Neonatorum. E. Reinhardt.
168 Papilloma on Ovary. O. Hahn.
169 Bacterial Content of Urine in Pregnancy. (Keimgehalt des Urins Schwangerer.) K. Kurihara.
170 Changes in Metabolism during Pregnancy. (Eiweiss- und Mineralstoffwechseluntersuchungen bei der schwangeren Frau nebst Tierversuchen mit bes. Berücksichtigung der Funktion endokriner Drüsen.) E. Landsberg.
171 The Blood in Obstetric and Gynecologic Patients. (Eisengehalt, Hämoglobin und Blutkörperchenvolumen.) M. Maier.
172 Lipoids in Genital Organs. (Vorkommen doppeltbrechender Lipoide in menschlichen Ovarien und Uteris.) S. Adachi.
173 Calcium Content of Blood. (Kalkgehalt des menschlichen Blutes bes. beim Weibe.) N. Voorhoeve.
174 *Treatment of Third Stage of Labor. (Nachgeburtsbehandlung und manuelle Placentalösung.) F. Ahlfeld.
175 *Fixation Abscess in Treatment of Puerperal Infection. E. Santi.
176 Closing up of Botalli's Duct after Birth. G. Linzenmeier.
177 *Formation of Vagina out of Rectum. (Ersatz der fehlenden Scheide durch Implantatio recti.) P. Strassmann.

165. **Tetanoid Symptoms in the Pregnant.**—Kreiss states that he found the Chvostek sign positive and also the facial nerve abnormally irritable in 80 per cent. of 75 parturients and in 60 per cent. of 50 pregnant women. He thinks that this indicates insufficiency on the part of the parathyroid glands.

166. **Loss of Blood at Gynecologic Operations, and Its Importance for Prognosis.**—Kreiss has been impressed with the importance for the ultimate outcome of the amount of blood lost during an operation. One patient succumbed to this alone he is convinced. He now makes a point of operating on women only between two menstrual periods, ligating the vessels with scrupulous care, and being particularly cautious in drawing the bladder aside. When there has been considerable loss of blood he makes a subcutaneous injection of a grape-sugar solution to twice the amount of blood lost. He estimates the amount by Rübsamen's method and tabulates the findings, with the outcome, in forty-three abdominal and eighteen vaginal operations.

174. **Treatment of Third Stage of Labor.**—Ahlfeld compares the published statistics from a number of European maternities with the experiences at the Marburg maternity in his charge and declares that everything testifies to the advantages of expectant treatment. He reiterates that after delivery the first fifteen minutes belong to the woman alone; during the next fifteen both mother and child can be supervised. After this the mother must be inspected every five minutes and fresh linen placed under the vulva each time. The less the uterus is manipulated after expulsion of the child, the sooner and the more completely the placenta becomes detached and expelled with moderate bleeding in the true physiologic manner. Not until after an hour and a half or two hours should any attempt be made to remove the placenta which by that time should be lying low down in the vagina. Then slight pressure from without readily expels it and does no harm. With inspection every five minutes it is practically impossible for serious hemorrhage to surprise one.

175. **Fixation Abscess in Treatment of Puerperal Infection.**—Santi reports 12 cases of very severe puerperal infection in which he injected turpentine to induce aseptic suppuration and ascribes the favorable outcome in all but 2 cases to this measure. He injected from 1 to 5 c.c. and did not hesitate to repeat the injections up to three or five times. In a previous series of 18 cases he did not venture to go above 1 c.c. or repeat the injection, and he lost 6 of the patients. The reaction to the injection indicates the resisting powers of the organism and thus throws light on the prognosis. Even if it does not help, it never does harm and there are no contra-indications to the turpentine even in desperate cases, with the kidneys very pathologic; benefit follows even if it is only temporary.

177. **Formation of Vagina out of Rectum.**—This article is published in the society proceedings but it is illustrated with six colored plates showing the technic as applied in one clinical case with complete success. It is commended as exceptionally simple and easy. The abdomen is not opened, and the rectum seems to be much better suited for the purpose than any other part of the bowel. The segment of rectum resected for the new vagina starts 3 cm. above the anus. This end is sutured to the vulva. Then the upper end of the segment is cut and sutured to make the vaginal culdesac. The upper stump of the rectum is then mobilized and sutured to the anal stump and the simple operation is complete.

Zentralblatt für Chirurgie, Leipsic

June 13, XLI, No. 24, pp. 1017-1064

178 To Make New Outlet for Parotid Gland. (Ueber die Möglichkeit, der Parotis durch interglanduläre Anastomose der Parotis- und Submaxillardrüse einen kollateralen Exkretionsweg zu schaffen.) G. Ferrarini.
179 Folding Splints for the Battle Field. (Dreigeteilte Extremitaten-Transportschienen für den Krieg.) P. L. Friedrich.

Zentralblatt für Gynäkologie, Leipsic

June 13, XXXVIII, No. 24, pp. 865-896

180 The Hemolysis of Streptococci May Be a Pregnancy Reaction. (Die Hämolyse der Streptokokken eine Schwangerschaftsreaktion?) W. Benthin.
181 Cure of a Pregnancy Toxic Dermatosis by Injection of Ringer's Solution. S. F. Roos.
182 Hypophysis Extract and Atony of the Uterus. H. Oppenheimer.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 69-72, pp. 729-768

183 Echinococcus Disease of the Lungs; Five Cases. A. Chelini.
184 Traumatic Appendicitis. G. Rosica.

Riforma Medica, Naples

June 6, XXX, No. 23, pp. 617-644

185 Leukocytosis from Cold. (Sulla leucocitosi da freddo. Considerazioni e indagini sperimentali.) A. Rovighi and R. Secchi.
186 *Primary Gastric Sarcoma. G. Forni.

186. **Primary Gastric Sarcoma.**—Forni compares a case personally observed with 190 he has found on record. The majority of cases were in persons between 40 and 60 but some of the patients were over 90 and 2 were only 3. The course was longer than with gastric carcinoma. In 17 cases the tumor developed outside the stomach and 12 of the patients were cured by resection of the growth while only 3 were cured among the 20 with endogastric sarcoma given operative treatment. Among the cured cases were 10 of spindle-cell structure and 5 of round cell.

Brazil-Medico, Rio de Janeiro

May 15, XXVIII, No. 19, pp. 183-192

187 Helminth Found in Stomach of Cattle in Brazil. (Trichostrongylinae brazileiras. Hoemonchus similis, n. sp.) L. Travassos.

St. Petersburger medizinische Zeitschrift

XXXIX, No. 9, pp. 111-121

188 Myoma and Corpus Carcinoma in Same Uterus. H. Jansen.
189 Double Monsters and United Twins. (Ueber Doppelmissbildungen, nebst Mitteilung über eine menschliche Doppelbildung aus der dritten Embryonalwoche.) B. Ottow.

Russky Vrach, St. Petersburg

XIII, No. 8, pp. 253-288

190 *Surgery of the Spleen. (O chirurgie selezenki.) B. K. Finkelstein.
191 Supernumerary Spleen. (O polisplenie.) A. T. Brandt.
192 *Fusiform Bacilli in Scarlet Fever. V. N. Klimenko.
193 Successful Cultivation of Tissue Cells outside the Body. M. A. Sheremetzinskaia.
194 *Azotemia in Nephritis. V. V. Ovsiannikova. Commenced in No. 1.
195 Pathogenesis of Diabetes Mellitus. A. T. Ekkert.

190. **Surgery of the Spleen.**—Finkelstein relates that he has operated on the spleen in 66 cases. The mortality with stab-wound, cancer and echinococcus cysts was 20 per cent. and with gunshot wounds 50 per cent. About 20 per cent. of his patients succumbed to their injury. A ruptured spleen must be removed without fail. Abscess of the spleen gives a good prognosis if the operation is done early, and he found the best method to be through the pleura. Operative correction of a movable spleen gave constantly good results. The outcome of splenectomy was favorable in Banti's disease, splenic anemia and in certain stages of malaria. The operation may not be advisable, however, in case of extensive adhesions and severe changes in parenchymatous organs. He adds an extensive bibliography classified according to the reasons for operative treatment.

192. **Fusiform Bacillus in Scarlet Fever.**—Klimenko found fusiform bacilli in the spleen and liver in five out of seven cadavers of children who had died from scarlet fever. In all these five patients there was a necrotic angina. The cultures were made with Schereschewsky's medium, plus half-coagulated horse-serum, kept at 37 C. for forty-eight hours; one part of serum and two parts of agar also may be used. Systematic bacteriologic examination of the throats of scarlatinal patients invariably showed the presence of fusiform bacilli, usually with other microbes, and microscopic sections from the gangrenous places also showed the fusiform bacilli and streptococci. Klimenko comes to the conclusion that gangrenous scarlatinal angina is caused by invasion of fusiform bacilli, and also by streptococci which through the lymphatic spaces and vessels penetrate into the general circulation and are the probable causes of the fatal hemorrhages occurring in scarlet fever, and of gangrene of the esophagus, otitis, abscesses and mastoiditis. The best remedy in this dangerous form seems to be neosalvarsan which he successfully used in 3 cases of scarlet fever with necrotic angina and severe general infection. The beneficial effect of neosalvarsan also speaks in favor of the rôle played by fusiform bacilli in the etiology of scarlatinal necrotic angina. The neosalvarsan was given intravenously, 0.15 c.c. to each 10 kg. of the patient's weight; three doses in five days, a total of 0.892 gm. in the one case described in detail.

194. **Azotemia in Nephritis.**—Ovsiannikova determined the nitrogen content in the blood of 57 patients with chronic nephritis during attacks of uremia or during the free intervals, but always before meals. The normal standard for residual nitrogen in the blood was assumed to be 0.33 per thousand; for urea, 0.48 to 0.5 per thousand. The patients are classed in four groups. The first group with normal rate of urea (0.5 per thousand) comprised 11 patients and 18 per cent. of them died. The second group (with 0.5 to 1 per thousand), 27 cases and 18 per cent. died. Of the 12 patients in the third group (with 1 to 2 per thousand urea), 58 per cent. died. In the fourth group of 7 patients (with from 2 to 5 per thousand urea), the mortality was 85 per cent. Thus the higher the blood content in nitrogen (urea) the graver the prognosis, 2 per cent. already indicating a severe anatomic kidney lesion. In acute nephritis, however, large quantities of urea in the blood do not have this significance and may prove innocuous.

Hospitalstidende, Copenhagen

June 10, LVII, No. 23, pp. 737-768

196 No Benefit Observed from Serum of Thyroidectomized Animals in Treatment of Exophthalmic Goiter; Eighty Cases. (Har Antithyreoidin specifik Virkning overfor Mb. Basedowii?) C. Sonne. Commenced in No. 22.
197 Dyspepsia with Chronic Alcoholism. I. F. Vogelius.

Ugeskrift for Læger, Copenhagen

May 28, LXXVI, No. 22, pp. 997-1040

198 *Connection between Alcoholism and Morbidity. (Om Forholdet mellem Alkoholisme og Sygelighed.) P. Heiberg.

198. **Connection between Alcoholism and Morbidity.**—Heiberg presents an array of tabulated statistics which demonstrate anew the waste of health and time—not to mention money—which results from drinking habits. The conditions in the large cities, small towns and in rural districts are compared especially as regards men between 35 and 55. The morbidity in this class in the cities is twice that of the rural districts, and the figures are the same as for women of the same age. Heiberg thinks that alcohol is responsible for most of this excess male morbidity in the cities. The number of days of disability on account of disease was found 50 to 100 per cent. more for the men in the cities. This he computes to represent a loss of 600,000 working days, and he presents figures to show that for one-third of this at least alcohol is responsible. It does not enter appreciably into the morbidity from acute infectious diseases, and here there is little proportional difference between the figures for the cities and the rural districts.

Upsala Läkareförenings Förhandlingar

XIX, Supplement, pp. 1-408. Last indexed May 2, p. 1444

199 *The Proportion of Lymphoid Tissue at Various Ages: Research on Rabbits. (Den lymfoida väfnadens normala mängd hos kanin olika postfetala åldrar. Bidrag till konstitutionsfrågan.) J. Hellman.

199. **The Lymphoid Tissue at Different Ages.**—This bulky number is devoted entirely to Hellman's monograph, with accompanying ten tables, a detailed summary in German, and a review of the literature on the lymphoid tissue from 1600 to date.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 4 Chicago, Illinois July 25, 1914

THE CEREBROSPINAL FLUID AS A PROBLEM IN INTRACRANIAL SURGERY *

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The rapid strides that have been made in the evolution of modern civilization are almost past man's understanding. To the casual observer, the progress of recent times is attributed hastily to the material contributions of the master minds of the industrial world; but a more careful analysis will lead the seeker after truth out of the turmoil and the noise and bustle of the busy centers of population into the seclusion of the laboratory, where, in the quiet of their academic atmosphere, the chemist and the physicist, the geologist and the agriculturist, the psychologist and the pedagogue, the bacteriologist and the physiologist are working out the problems which make it possible for the human race — men, women and children — to live where conditions compel them to work, and not be mowed down by the cruel operation of the law of the survival of the fittest.

Would it ever have been possible to combat this law of Nature were it not for the accomplishments of the scientist? Could the spirit of the philanthropist embodied in the social worker have made the congested districts inhabitable, had it not been for the science of preventive medicine? The application of scientific principles to agriculture will alone make it possible to feed the ever increasing population from the products of the soil. Was it the builder or contractor, or a disciple of the Taylor system of scientific efficiency that revolutionized the bricklaying industry, which had changed not one iota in all the centuries that have elapsed since the building of the pyramids until the present decade? Who would have dreamt at the time of the Spanish-American War that the dreadful sacrifice of countless lives might have been avoided by vaccination, or that the mortality of the infested zone of the Isthmus of Panama could be reduced below that of the wholesome surroundings of the rural districts of more northern climes?

Scientific discovery, the product of research, is the guiding-star in our modern civilization in matters of health and happiness, in conservation and productivity, in social welfare and social uplift. And what is true of all these is true, also, of the progress of surgery. It is not so long ago that the practical surgeon so-called looked with pity, if not with scorn, at the surgeon who endeavored to work out problems in the laboratory and not in the clinic. But who is there among you to-day that does not look with admiration and appreciation on the addition to knowledge that has been derived from the laboratories of Halsted, of Matas, of Crile, of Cushing, of Carrel and of Sweet? Through blundering errors and at the cost of human life the clinician may hit on truths which might have been solved at less cost in the experimental laboratory. Surgery has won its place as a scientific branch of medicine, and the hidden truths, on which will depend the progress of surgery as of all other human attainment, will be the product of the surgeon in his rôle of trained investigator.

The subject taken for the topic of this address is the cerebrospinal fluid as a factor in the problem of intracranial surgery. This topic is one of absorbing interest, as well as of great practical moment. It is one with which the surgeon must reckon in the diagnosis, the prognosis and the treatment of most intracranial lesions, and cannot be disregarded in any operative procedure. I shall present facts gleaned in part from literature, but in large measure from personal observations in the clinic and experimental laboratory.

Meningitis.—Illustrative of the part played by the cerebrospinal fluid in intracranial lesions, let us cite, for example, meningitis: its pathologic factors and its clinical syndrome. In meningitis there are two pathogenic factors: first, infection through the invading micro-organism, and, second, the increased intracranial tension. The increased tension in its clinical expression is analogous to the increased tension of sources other than infectious, as in cases of intracranial trauma and tumors. Whatever may be the nature of the infection or its effect on the meninges and cortex, there does exist a resulting increased tension in the cerebrospinal fluid and ultimately disturbance in its circulation and absorption. In their series of experiments, Kopetzky and Haynes demonstrated the analogy of experimentally induced increased intracranial tension and that due to infection of the meninges by pathogenic micro-organisms. While it is true that the fatal outcome of many cases of meningitis is due to the metabolic action of the particular micro-organism on the meninges and cortex with the production of certain toxins and ptomains, it is also true that in cases of otitic meningitis the progress of the disease has been arrested after drainage by ventricular puncture or lumbar puncture when the examination of the fluid failed to demonstrate the existence of micro-organisms.

In meningitis, then, there is an increase in cerebrospinal fluid and edema of the brain. There results an increase in pressure which so interferes with the blood-supply that the function of the vasomotor, respiratory and cardiac centers is disturbed, and the alarming picture of intracranial pressure asserts itself. It is significant that this increased pressure is the determining factor, as often perhaps as the specific action of the bacteria. The part played by the cerebrospinal fluid in meningitis is, therefore, a major one and the treatment of meningitis should comprehend some means of controlling the intracranial pressure as well as the microbic activity.

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* Chairman's address, read before the Section on Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

Hydrocephalus.—The study of the physiology of the cerebrospinal fluid in relation to congenital hydrocephalus offers another fruitful field for study. In the two thousand years which have elapsed since Hippocrates first tapped the ventricles, not a substantial contribution has been made to the etiology of hydrocephalus. The question whether or not hydrocephalus is due to a lesion of the absorptive mechanism is, even to-day, absolutely in the domain of speculation. We are told that it may be due to traumatic or psychic disturbances during pregnancy, to toxic or infectious disease of the parent, such as alcoholism, tuberculosis or syphilis, or that there may be a degenerative process of the capillaries in the ventricular wall (Weber) ; but there has never yet been revealed by necropsy or otherwise a constant pathologic factor which gives us a clue as to the etiology, prevention or treatment. Despite the seriousness with which the originator of some new method of treating hydrocephalus takes himself, we feel almost like apologizing for the multiplicity and variety of surgical procedures that have from time to time been recommended, so many have been the disappointments, so many the failures.

Brain Tumors.—Again, the relation of cerebrospinal fluid to brain tumors is an absorbing topic. We attribute to the new growth those symptoms of brain tumor which are the result of increased intracranial tension, but, as a matter of fact, in most instances the increased intracranial tension is the result of the excessive accumulation of cerebrospinal fluid in the ventricles, in the basal cysternae, or throughout the subarachnoid space. Evidence of intracranial tension is absent when there is no excessive accumulation of fluid in the distended ventricles or the basal cysternae. I supported this statement with numerous illustrations from my clinic in a paper presented to the Philadelphia Neurological Society.[1] This general rule holds good whether the tumor be a glioma or an endothelioma; whether it be cortical, subcortical or basal. What is true of pretentorial lesions is true also of subtentorial lesions. The truth of this statement is readily demonstrated on the operating-table. If, with pretentorial tumors, there is excessive tension, the tension will subside when the cerebrospinal fluid is withdrawn by tapping directly the ventricles, or by lumbar puncture. Similarly, in posterior fossa tumors, the evacuation of fluid from the basal cysternae is invariably followed by the immediate decrease of tension.

The extraordinary rapidity with which the cerebrospinal fluid reaccumulates after evacuation is worthy of mention. I had an opportunity in a case of tumor to tap the ventricles through an opening in the skull on several occasions when I withdrew from 60 to 150 c.c. of cerebrospinal fluid, from two to five times the normal content of the ventricles, only to find the fluid replaced within the space of twenty minutes. Palliative treatment in the case of brain tumors becomes then a problem of dealing with the excessive accumulation of cerebrospinal fluid, and the important question at once arises: Shall temporal decompression as a palliative procedure be altogether supplanted by the Anton puncture of the ventricle through the corpus callosum? This method at once strikes at the root of the trouble and offers an outlet and an area of absorption for the fluid in the distended ventricles. In this manner, tension is relieved and a definite method adopted to prevent its immediate recurrence.

The cerebrospinal fluid was mentioned first by Coligno in 1764, who thought it present only after death, and later Haller found it in the spinal cord, but without realizing that there was any relation between the fluid in the cord and that in the ventricles. It was not until 1840 that the connection between the ventricles and the subarachnoid spaces was revealed by Magendie through his description of the foramen which bears his name.

Well known as are the physical characteristics of cerebrospinal fluid in health and their variation in disease, we are still in the dark as to its function, and as to the manner in which the secretory and absorptive balance is maintained in health, and is disturbed in disease. The cerebrospinal fluid has no analogy in the body; it is wholly different on the one hand from lymph and on the other from the liquid found in serous cavities, as of the pleura and peritoneum. Because of the communication between the perivascular sheaths and the pericellular and perineural spaces, there are some who believe that the cerebrospinal fluid plays a part in the nutrition of the brain cells.[2] Some regard it as a means whereby the delicate balance of intracranial pressure is preserved; others, again, as Dixon and Halliburton, believe that it affords the central nervous system an additional mechanism for eliminating carbon dioxid from the brain: as urea increases the renal flow, so carbon dioxid increases the cerebrospinal secretion. While we know that the cerebrospinal fluid is a secretion, we have at the same time found from repeated examination of fluid discharged in large quantities that the solids in the fluid diminish materially in quantity, so that there is reason for suspecting that under abnormal conditions the fluid may be of the nature of a transudation.

The cerebrospinal fluid fills all the space of the cranial cavity not occupied by the vessels and nerve-tissues; and, by equalizing pressure, adjusts the mechanism of the circulation of the nerve cells. Under normal conditions, we find the pressure registers 100 mm. of water, or with the mercury manometer, which I prefer, about 6 mm. Natural variations from the normal occur during inspiration and expiration, the former lowering, the latter raising it, as the blood is dammed back from the right auricle and vena cava into the cerebral sinuses. The pressure is believed by some to be equal to or a little greater than that of the venous pressure. This relation of cerebral venous pressure to the pressure of the cerebrospinal fluid, we have been able to demonstrate a number of times in our experiments. On clamping one internal jugular vein, there is no change in pressure, but when both veins are clamped, the pressure rises 20 mm. in five seconds. When both internal jugular veins are closed, and first one external jugular and then the other is clamped, the pressure rises 10 mm. and 40 mm., respectively, within ten seconds. This bald statement on the relation of the venous to the cerebrospinal pressure is of considerable import when taken in relation with the problems of absorption and confirms the observations which have been and are being made to prove that the greater part of the fluid is taken up by the venous, rather than by the lymph, channels.

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[1] Frazier, C. H.: New York Med. Jour., June 27, 1914.

[2] This is still open to question, as His, Sicard and others believe that the true lymph channels of the brain are separate from the perivascular sheaths. (Ferrier: Lancet, London, Oct. 18, 1913.)

THE PRODUCTION AND ABSORPTION OF THE FLUID

Every pathologic state of the cerebrospinal fluid implies an increase in quantity. So far as we know, there are no pathologic conditions in which the symptoms are the result of a diminution in quantity of cerebrospinal fluid, whereas, as we have already shown, there are many diseases in which the increase in fluid is a dominant factor. Any increase in fluid above the normal implies a disturbance of balance between absorption and secretion, so that an understanding of these two processes is essential before it will be possible to adjust the disturbed balance.

By the injection of various dyes into the subarachnoid space, we have been able to demonstrate positively that the lymphatic system plays a very insignificant part in the problem of absorption of the cerebrospinal fluid. One may trace the avenue of absorption through the nerve-sheaths, chiefly of the olfactory and optic nerves, thence to the posterior part of the eyeball, and to the mucous membrane of the turbinates and septum, to the posterior lymph-nodes of the nasopharynx, to the parotid and deeper cervical chain and thence to the thoracic duct. Usually, it took twelve hours for the stain to reach the lower glands. While, therefore, absorption does take place by the lymphatics, the course is roundabout and the process relatively slow.

A better method of studying absorption, we found in the use of phenolsulphonephthalein (an observation confirmed by the work of Dandy and Blackfan) which, when injected into the ventricles, appears in the torcular herophili in two minutes and in the veins in five minutes. As it takes almost twelve hours for the stained fluid to reach the cervical lymph-nodes and only five minutes for phenolsulphonephthalein to reach the veins, one sees that the cerebrospinal fluid is absorbed chiefly by the blood-channels.

Our studies of the process of absorption and secretion have been greatly facilitated through our producing an artificial hydrocephalus by blocking the fourth ventricle. If phenolsulphonephthalein is injected into a blocked ventricle, absorption is practically inhibited; even after two hours there appears only the slightest trace and this is not constant, whereas in the unobstructed ventricle the drug is recovered from the veins in five minutes. Furthermore, we have shown that from 50 to 60 per cent. of the amount of phenolsulphonephthalein injected may be recovered from the veins in two hours. Hence it is fair to assume that an equal quantity of cerebrospinal fluid may be absorbed in the same time.

While, therefore, it is an established fact that the cerebrospinal fluid escapes chiefly through the venous channels, one is still in doubt which of the veins or sinuses play the most important part. Key and Retzius asserted that the pacchionian bodies acted as filters, and, while this theory is not generally accepted because these bodies do not exist in very young children, the fact that hydrocephalus is more prevalent in infancy is at least suggestive to me that the pacchionian bodies play some part, be it large or small, in the absorptive process. Hill believes that the cerebrospinal fluid makes its escape from the veins opening into the longitudinal sinus between which and the subarachnoid space Adamkwiez claims there is a free communication. In relation to the part played by the longitudinal sinus, we found experimentally that when fluid was introduced under pressure into the cisterna magna of the posterior fossa, none of the fluid reached the cerebral cortex, and we attributed this phenomenon to the blocking of the isthmus of the tentorium cerebelli when the midbrain was forced upward by the artificial pressure. In this phenomenon, I take it, is an explanation of the greater frequency with which we find signs of increased intracranial tension in tumors of the posterior rather than of the anterior fossa. It is not of necessity the obstruction of the ventricles that causes their distention (for frequently the outlet to the ventricles is not blocked); but the distention is due to the interference with absorption that follows when the passage of the cerebrospinal fluid from the posterior fossa to the cerebral cortex is obstructed because the isthmus of the tentorium is blocked. Furthermore, the improvement which follows puncture of the corpus callosum, permitting the escape of cerebrospinal fluid directly from the dilated ventricle to the cerebral cortex, may be due to the greater facility with which the fluid may reach the longitudinal sinus.

The control of the production of cerebrospinal fluid is pregnant with possibilities, and the study of the formation of cerebrospinal fluid offers a fascinating problem for experimental research. Up to the present all therapeutic efforts have been directed toward finding an artificial outlet for the excessive fluid which accumulates in such diseases as serous meningitis, brain tumors and hydrocephalus. The meager results we know. I believe that the future may bring forth remedies which will deal with the problem of cerebrospinal fluid at its source, and control its output.

It is no longer a matter of speculation that the cerebrospinal fluid is the output of the cubical cells of the choroid plexus and is found within the ventricles, lateral, third and fourth. That it is a secretion has been proved by the histological evidence of Cavazzani, Mott and others, and is confirmed by the experimental data which I shall present.

Is it not true, then, that the choroid plexus must be looked on as a gland subject to a variety of influences like other glandular structures, some now well known, others to be revealed by continued research? The choroid has been described by Mott as a gland with an external secretion but with an internal destination—a mixed type of gland intermediate between a ductless gland and a gland with a duct; its formation being affected in an inverse manner, epithelial invagination for a gland with an excretory duct, ependymal invagination for the choroid plexus.

The suggestion of Stiles that ligation of the common carotid is an effective way of dealing with hydrocephalus implied that the activity of the choroid plexus or choroid *gland*, as I shall now call it, is diminished by limiting its blood-supply. If an analogy can be drawn between the thyroid and the choroid gland, Stiles' suggestion is not wholly illogical, since the control of hyperthyroidism by ligation of two thyroidal vessels is an undisputed fact. Unfortunately, however, this analogy of the two glands is not borne out by either our laboratory or our clinical experience. We have been able to obtain readings of the normal flow of cerebrospinal fluid by a suitable apparatus, attached to a cannula introduced into the subarachnoid space through the occipito-atlantal ligaments, and with these as controls, observed the effect of various circulatory disturbances, clamping first one, then both common carotids, one and both internal jugular veins. Curiously enough this interference with the larger vessels of the cerebral circulation had absolutely no retarding influence on the rate of secretion. This experimental evidence alone would seem sufficient to prove that the function of the choroid gland cannot be controlled by ligation as is that of the thyroid gland. But, as further evidence, I may refer to a clinical experience in the case of inoperable brain tumor with enormously distended ventricles. Decompression had failed to compensate for the tremendous increase in tension due to the distended ventricles, and an attempt was made prior to our laboratory investigation to influence the accumulation of fluid by gradual interruption of the carotid circulation. The ventricle was tapped before each ligation, and the time required for it to fill was noted. These observations were repeated after ligation, and the results were practically negative, in that after the withdrawal of from 100 to 150 c.c. of fluid before ligation and after ligation, the time required for the ventricle to refill was practically unchanged.

Further, continuing our search into the factors influencing the secretory activity of the choroid gland, we investigated the physiologic action of the saline extracts of certain glands, including the pancreas, spleen, kidney, testes, ovary, thymus, adrenals, liver and brain. Nearly all these, especially the spleen, liver, kidney and pancreas caused a greater or less fall in blood-pressure, and, coincident with this, a marked increase in the rate of flow of cerebrospinal fluid in proportion to the quantity of extract injected. Amyl nitrite produced a similar fall and a similar increase in the outflow of cerebrospinal fluid. Frequently, after this temporary increase, the rate of flow became slower or ceased altogether. This increase in the secretory output must be the result either of direct stimulation of the choroid gland or of the disturbance in blood-pressure. The fall of arterial pressure causes an increase in pressure and dilatation of the cerebral sinuses, which in turn forces the cerebrospinal fluid out of the ventricles. Further observations tended to confirm the latter theory rather than the theory of hypersecretion.

Some interesting facts have been brought out recently by Dixon and Halliburton,[3] who, with us, have been studying the effect of various substances on the cerebrospinal secretion. They found, for example, that pilocarpin caused a genuine increase in secretion, although they were doubtful whether it acted directly on the choroidal epithelium or its nervous mechanism. A slight increase followed the injection of brain extracts, but the most interesting of their observations was on the effect of an extract of the choroid gland. This caused a uniform increase in the cerebrospinal secretion. This increase is not due to altered vascular or respiratory conditions, but rather to the specific action of some substance on the secretory cells of the choroid gland. The precise nature of this substance is still undetermined, although, as Dixon and Halliburton suggest, it may be due to a hormone product of brain metabolism.

In beginning our experiments, we hoped to find a tissue or an extract which, when injected into the circulation, might have a retarding influence on the activity of the choroid gland. But, until recently, with all the substances investigated, the effect was a hypersecretion rather than a hyposecretion. It was not until we began to study the effects of the thyroid gland extract that we discovered a substance which had a specific inhibitory action on the choroid gland. When injected in sufficient quantities, the thyroid extract caused a temporary fall in blood-pressure, with the usual transitory increase in outflow of cerebrospinal fluid; but the significant and altogether unique effect was the prolonged period of decreased outflow which followed, for three or four hours, that is, to the end of the experiment. Even when such small doses as to cause little, if any, change in blood-pressure are injected, the diminution in the rate of choroid secretion is marked, so that we are led to the conclusion that the thyroid gland extract, when injected intravenously, has a specific inhibitory action on the choroid gland. We will continue these studies on the thyroid gland to determine which of its constituents is the responsible factor.

The cerebrospinal fluid, then, has an absorbing interest for the clinician. Not only must he reckon with it in the diagnosis of many intracranial diseases, but also he cannot ignore it when his constructive ingenuity may be taxed to devise measures of relief for such diseases. Of equal interest, however, are the problems of research for those who would reveal the secrets of the function of this fluid in which our brain cells are forever bathed.

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THE TREATMENT OF PLACENTA PRAEVIA *

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In the advance which the science of obstetrics has made in the last fifteen years, this serious condition with others of like importance, has received new consideration, and some changes have been suggested in its treatment.

At present we recognize that septic infection is quite as important in causing the death of the mother as hemorrhage or shock. It has also been repeatedly demonstrated that placenta praevia causes such a vascular condition of the cervix and lower uterine segment that forcible dilatation or vaginal cesarean section exposes the patient to great danger from hemorrhage and infection. Furthermore, so grave a complication as placenta praevia demands hospital facilities and the skill of experienced hospital operators.

My experience leads me to agree with the conclusions just stated, and I desire, in addition, to present this subject to you from the following point of view: Logically, placenta praevia is a variety of ectopic gestation. The normal location of attachment of the impregnated ovum during its greatest period of devel-

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[3] Dixon and Halliburton: Jour. Physiol., 1913-1914, xlvii, 213.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

opment is the wall of the upper expulsive segment of the uterus near the orifice of the fallopian tube from which it emerged. When the impregnated ovum remains in the graafian follicle, the fallopian tube or the upper wall of the uterus, its growth inevitably causes rupture and hemorrhage. The danger of septic infection, however, is primarily inconsiderable. When the impregnated ovum attaches itself below its usual site of development, hemorrhage is likewise inevitable because pregnancy must be terminated with dilatation of the cervix, and dilatation inevitably produces separation and bleeding. The danger of infection is equally great because pathogenic bacteria are frequently present in the vagina, and repeated examinations and manipulation must convey them to the placental site. Hence there are some conditions in favor of the patient with the upper variety of ectopic gestation as against the patient who has the low variety, or placenta praevia. From this point of view, that method of treatment will be most successful which controls hemorrhage with the minimum risk of infection.

Again, cases of placenta praevia may be, for purposes of treatment, divided into those in which hospital facilities are promptly obtained and those which are treated outside of hospital. In hospital cases, operations which the general practitioner cannot safely attempt may be undertaken with a fair chance of success. If ectopic pregnancy of the upper variety is of sufficient gravity to demand the services of a skilful operator, with hospital facilities if possible, ectopic gestation of the lower variety, or placenta praevia, is equally grave.

Let us consider first those cases which come under the care of the general practitioner of medicine and which cannot be conveyed to hospital.

Two important factors must be kept in mind under these circumstances:

1. Any vaginal hemorrhage in a pregnant woman is a symptom of danger and must not be neglected. Because hemorrhage from placenta praevia is accompanied by no pain, it is frequently neglected by patients.

2. In dealing with these cases the danger of infection must be kept prominently in view. Vaginal examinations and manipulation must be as infrequent as possible, and the use of the tampon should be avoided.

Without minute classification, placenta praevia may be divided into those cases in which the os is not entirely covered by placenta and in which the membranes can be reached, and those cases in which the membranes cannot be reached. In the hands of the general practitioner and in private houses, the best treatment in the first class of cases is to rupture the membranes as extensively as possible, when dilatation permits this maneuver. Tonic doses of strychnin are then given and the patient is allowed to deliver herself, or, at least, is made to force the presenting part down to the vulva before artificial delivery is undertaken. In this way hemorrhage and infection will be reduced to a minimum, and although the risk to the child is great the mother's safety should be first considered.

In complete placenta praevia, in the hands of the general practitioner in a private house, the Braxton-Hicks method of bringing down the leg and breech of the child as a plug should give the mother the best chance. To accomplish this, anesthesia, partial or complete, may be required. The placenta must be perforated by one or two fingers, combined version performed, and the leg seized and drawn through the placenta. Only sufficient traction should be made to bring the breech firmly into the pelvic cavity and against the cervix and placenta. Under no circumstances should forcible and immediate extraction be practiced. The life of the child should be disregarded in the interests of the mother. If a constant tension on the child is desired, a noose of bandage should be slipped about the child's ankle and a moderate weight attached. The mother may then be stimulated as required, care being taken to avoid the use of ergot and pituitary extract. Strychnin, atropin and digitalin hypodermatically, with salt solution injected into a vein or connective tissue, will be found especially useful. The mother demands constant observation until labor finally develops, and the fetus, if possible, is expelled spontaneously. In placenta praevia the practitioner must expect and be forewarned against post partum bleeding. The delivery of the child should be followed by the delivery of the placenta, irrigation of the uterus with a hot 1 per cent. dilution of liquor cresolis compositus or normal salt solution, and firm packing of the uterus, cervix and vagina with 10 per cent. iodoform gauze. If undue traction is avoided and spontaneous expulsion of the fetus secured, there will be no dangerous laceration of the cervix; but if undue violence has been employed the cervix may be severely torn, and severe or fatal hemorrhage may follow. Under these circumstances immediate suture of the cervix may be necessary.

In hospital practice, with the mother in good condition and the membranes available for rupture, the escape of the amniotic liquid may be followed by the introduction of a dilating bag through the rent in the membranes into the cavity of the amnion. This should be gradually distended to its fullest extent securing dilatation of the cervix with pressure on the placenta. When dilatation is sufficiently advanced the child may be delivered by forceps, in many cases advantageously, with a minimum risk to the mother and with a great reduction in fetal mortality.

When the membranes are not available for rupture, and when the cervix is resisting, because in a primipara it is poorly developed, or in a multipara has been altered by scar tissue from previous confinement, mother and child will obtain the best result by prompt resort to abdominal cesarean section. If the child is premature or dying or dead, from long-continued maternal hemorrhage, the placenta may be perforated by the fingers and combined version practiced and the child's body used as a plug to check maternal bleeding. Spontaneous delivery and uterine contraction must be secured in the manner already described.

If the child be living and in good condition, the cervix soft and dilatable, and the head presenting, with the patient in hospital, the obstetrician may elect to pierce the placenta and insert a dilating bag through it within the cavity of the amnion. This bag may be distended with antiseptic fluid, hemorrhage checked by pressure, and gradual dilatation of the cervix thus secured. With good dilatation the use of the forceps will sometimes secure a living child. In hospital practice, however, where the child is fully viable, mother and child will obtain the best results by abdominal cesarean section. At full term in hospital cases, whether the child be living or dead, the mother will obtain her best chance for recovery by the same method. Our experience in abdominal cesarean section for placenta praevia comprises seventeen cases. In these the membranes were not available and the placenta practically covered the entire internal os. In some of these patients the child was dead or dying and the mother exsanguinated. All were at or near term.

The method of operation consisted in opening the abdomen, turning out the uterus, incising it and immediately removing its contents. It was interesting to observe how completely hemorrhage ceased when the uterus was emptied. The uterine cavity was then thoroughly irrigated with hot sterile salt solution and packed firmly with 10 per cent. iodoform gauze carried through the cervix into the vagina. The uterus and abdomen were closed in the usual manner. The vagina was sponged out with mercuric chlorid solution and firmly tamponed with sterile or mercuric chlorid gauze. During the operation the patient received intravenous saline transfusion, and strychnin, digitalin and atropin were given hypodermatically. In exsanguinated cases the patient was kept in the Trendelenburg posture until reaction occurred, and external heat, rectal injection of stimulants and oxygen inhalation were used with success.

Of the seventeen patients three were especially exsanguinated through severe and repeated hemorrhages. All the mothers recovered. The maternal mortality was nil; the fetal mortality 40 per cent. There was no maternal morbidity except slow recovery incident to severe anemia. Infection did not develop.

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HYSTEROTOMY *

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Since 1912, when my paper on hysterotomy was read before this Section, I have had twenty-five cases in addition to the fourteen then reported in which I have done this operation. Thus far there has been no mortality and no complication, either immediate or remote, as far as I am able to determine. This experience has strengthened my conviction that an active surgeon engaged in pelvic work not infrequently encounters cases in which this operation is a distinct addition to his diagnostic and therapeutic resources; that its dangers and disadvantages are theoretical rather than real, and therefore that condemnation of the operation by those who have had no experience with it is but another instance of that false conservatism and adherence to tradition which has blocked the early adoption of many salutary measures.

The general indications for hysterotomy may be stated as (1) to establish a prompt and certain diagnosis when a reasonable suspicion exists of malignant disease of the interior of the uterus; (2) for the prompt termination of pregnancy in cases in which life is acutely endangered by the continuance of that condition.

Of the twenty-five operations during the past two years, fifteen were performed for indications of the first class and ten for indications of the second class. In other words, 60 per cent. of the operations were undertaken with the well-defined idea that some early neoplastic process was present in the interior of the uterus, and 40 per cent. because of danger to life by reason of complications of pregnancy. The following is a brief summary of the findings. In two cases a single myoma was found in a pregnant uterus. I could not determine to my own satisfaction whether or not the enlargement of the uterus was due to pregnancy or to a submucous fibroid. A hysterotomy revealed pregnancy which was then terminated. It demonstrated however, that the uterus was normal except for a single myoma, which was enucleated and the woman thus was saved from the more mutilating and dangerous operation of hysterectomy, not to mention the preservation of her sexual functions. In two cases incision of the enlarged symmetrical uterus showed a single submucous myoma, which was enucleated and the uterus after repair left *in situ*.

In one case of symmetrically enlarged uterus, incision showed multiple intramural fibroids and a hyperplastic state of the endometrium. This was sufficient indication for removal of the uterus. The microscope showed a chronic interstitial metritis in addition to the gross changes.

In six cases of irregular bleeding leading to a suspicion of malignant disease the incision showed in three degenerated products of conception, and in three partial separation of the placenta.

I am willing to debit these cases against the operation, for I would not by design open the uterus intra-abdominally for these conditions. Unfortunately, however, I cannot always tell a pregnant uterus when I have it in my hands, much less diagnose the condition by signs and symptoms in the very early months. If there is any one in the world who has this phenomenal ability let him cast the first stone.

In two cases of premature separation of the placenta there was good reason to suspect placenta praevia, which I consider an absolute indication for hysterotomy.

One case of chorio-epithelioma in very early stage was revealed by this incision. A brief history may be of interest.

A woman 32 years of age was taken ill six months before admission with pain in the left iliac region radiating to chest and back. At intervals she has had return of this pain, which for the past two months has become much more severe. A leukorrheal discharge, frequently blood-stained, was constantly present. The hemoglobin was 70 per cent. The uterus reached 4 cm. above the pubis. At operation the uterus presented no external abnormality. By hysterotomy the products of conception were removed and a friable ulcerated area seen on the posterior wall. The uterus was removed. Microscopic examination showed chorio-epithelioma.

In one case a very early carcinoma was detected in the extreme left cornu. The patient was a woman aged 54, who had been bleeding irregularly for two years. During the past three months the flow had become much more profuse. There was no pain. Examination was negative. At operation the uterus was small and the appendages appeared normal. Hysterotomy was done. In the left cornu a friable ulcerated area was apparent. Malignancy was suspected and the uterus removed. The microscopic examination revealed an early adenocarcinoma at the suspected area.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In ten cases hysterotomy was done for the urgent necessity of terminating pregnancy. In one case of contracted pelvis with the fetus at term the classical cesarean section was employed, both mother and child being saved. Concerning this type of hysterotomy fortunately there is now no noteworthy difference of opinion. The simplicity and safety of the operation, however, are still not thoroughly appreciated, owing to the fact that there is a considerable statistical mortality. When it is realized that this mortality is almost wholly due to depletion of the patient's powers by unavailing attempts at delivery by other means, together with the subsequent infection that attacks a large percentage of women so mistreated, the operation will be more often performed as a primary procedure and the maternal mortality will approach the vanishing-point while many more children will be saved and disabling birth injuries avoided.

In one case of toxemia of pregnancy with eclampsia at six months delivery was effected by hysterotomy. The child was not viable, but the mother, who was only 20 years old, recovered promptly. This operation was done in February, 1913. The patient is now in the eighth month of a second pregnancy, the course of which is proceeding uneventfully without signs or symptoms of toxemia.

Hysterotomy is not advised for all cases of toxemia of pregnancy. There are few serious conditions the onset of which can be detected so readily as this. Undoubtedly palliative treatment should be instituted at the outset on the first indication of nephritis, increased blood-pressure, digestive or visual disturbances. If toxemia increases in spite of treatment it is, in my opinion, an absolute indication for the termination of pregnancy. If the condition has been detected early there is ample time for the induction of premature labor. In neglected cases, however, and particularly in the event of eclampsia, the quickest, safest and surest method of dealing with the condition is by hysterotomy. It matters not for this discussion what is the nature and cause of the toxemia, for it is clear enough that pregnancy is at bottom responsible for it. The sooner pregnancy is interrupted the more quickly does the cause cease to operate. Moreover, hysterotomy is a rapid and safe means of delivery, making but little demand on the vital powers of the patient, which can by no means be said of *accouchement forcé* or of the methods of induction of premature labor. Naturally, in the late cases there will be a mortality under any method of treatment, owing to irreparable damage to the essential organs, but that procedure which at once relieves the underlying condition and makes least demand on the vital powers of the patient should certainly be the method of choice.

In three cases of placenta praevia delivery was by hysterotomy. The duration of pregnancy was three, five and six months, respectively. In two cases the attachment of the placenta was marginal and in one central. In all I have performed hysterotomy in eight cases of placenta praevia without maternal mortality. The absolute command of hemorrhage which the surgeon has during the operation of hysterotomy is sharply contrasted with the danger from bleeding under the more common procedures of operative obstetrics. Shock is less and the liability to infection is certainly not greater. Under proper circumstances for laparotomy there can be little excuse for flirting with death by the uncertain methods so largely in vogue.

In five cases I emptied the uterus by hysterotomy because of a severe renal infection amounting to sepsis. Simple pyelitis is not an indication for hysterotomy. Palliative measures or local treatment will in most instances effect a cure. When, however, the general condition is alarming, this operation will give the most rapid and happy results. In one case, actuated by conservatism, I refused to empty the uterus, a decision which later I regretted, as the unfortunate woman in her debilitated condition contracted a severe puerperal infection from the effects of which she died. When a septic focus exists in the body with consequent infection of the blood-stream, there is grave danger of auto-infection of the uterus after childbirth. The circumstances of the patient must be considered among the indications for the termination of pregnancy under these conditions. When the patient is able to command good treatment and hygienic surroundings, every effort should be made to carry her through to term. A patient of the poorer classes, however, who has to look forward to some months of advancing pregnancy in a septic state that does not yield to such treatment as can be carried out and maintained, is entitled to have her life considered the paramount issue.

Let us now examine the net results in the twenty-five cases treated. There was no mortality. The morbidity was only that of an ordinary laparotomy. There was but one complication, a wound infection, not properly chargeable to the hysterotomy, as the uterus itself was uninfected. Only three uteri were sacrificed, one each for carcinoma, chorio-epithelioma and myoma of the uterus associated with chronic metritis and endometritis. One eclamptic patient was cured and is again normally pregnant. In one case of contracted pelvis treatment was successful for mother and child. Five patients with partial separation of the placenta were relieved and three patients with placenta praevia were snatched from imminent danger. In the remaining cases, while the operation was not life-saving, yet in its results it challenges any other form of treatment yet devised.

That the operation is not in itself dangerous is shown by the absence of mortality in this series and corroborated by the experience of Russell of Johns Hopkins, who, in 1905, reported thirty-two cases without death. Dickinson in an excellent article on diagnostic hysterotomy with a summary of twenty-seven cases expressed great satisfaction with the operation, but did not state definitely whether he had had any mortality. Howard Kelly, in a personal communication, states that he has performed hysterotomy in about sixty cases without mortality from the operation. From memory he speaks of a case similar to some of my own, which gave him particular satisfaction. This was an instance of single submucous myoma, not palpable but productive of excessive flow, pain and ill health. The patient had been condemned to a radical operation, but by hysterotomy and removal of the submucous myoma the size of a hickory-nut she was cured and has remained so for ten years. A considerable number of sporadic cases exist in the literature and were encountered in the preparation of this article. While no attempt at completeness was made, it was noteworthy that not a death was reported as following the operation. To Russell's opinion that "suprapubic hysterotomy is of conspicuous service in cases of persistent uterine hemorrhage which is not controlled by any form of treatment and in which bimanual palpation of the pelvic organs has given an absolutely negative diagnosis" I can give hearty assent. I believe, however, that its use may be extended with benefit, as in the cases here cited, and that the term may be advantageously employed to cover the incision of the uterus in the interest of the mother in the early months of pregnancy, the child not being viable.

Hysterotomy is destined to be of great service in the early diagnosis of cancer of the fundus of the uterus. There are many who maintain that surgery has reached its limit in the treatment of cancer of the uterus and that we must mark time until an improvement is brought about in diagnosis. In my opinion, surgery has not reached its limit until it has assisted in every possible way in the early diagnosis. I hear a great noise of many voices saying that we are now in possession of such a method in the curet and microscopic section. If I did not know the difficulties of thorough curettage, of the gathering and preparation of all the scrapings and the subsequent chance of failure to section the malignant area, I might be tempted to agree; but the mortifying experiences which I have had and which I have known the most competent and thorough men to have in attempting to scrape out the contents of a uterus, lead me to distrust the curet, which I fully believe is the most abused and over-rated instrument in the gynecologists' armamentarium. Four weeks ago a woman, aged 24, consulted me in regard to vaginal bleeding. Six months previously she had miscarried at three months. Following this she bled and came under the care of one of the most competent gynecologists in Philadelphia. She was curetted at operation, but not enough was obtained, in the judgment of the operator, to account for the hemorrhage. The abdomen was accordingly opened. The uterus appeared normal and therefore the abdomen was closed. When she came to me she had hemorrhagic fungating masses on the anterior and posterior walls of the vagina, probably chorioepithelioma. Here the curet failed; and moreover, if it was justifiable to open the abdomen why not the uterus, the seat of the diseased condition? This simple and proved innocuous procedure might have made the difference between cure and a hopeless outlook three months later.

Vaginal incision of the anterior wall of the uterus has been advanced as a satisfactory substitute and a safer operation than suprapubic hysterotomy. Technically, it is somewhat more tedious and difficult, though that in itself would be no bar to its acceptance did it possess any real advantages. On the contrary, it fails of its object in exposing the entire fundus. The anterior wall of the uterus can be incised only as far as the peritoneal reflexion of the bladder. The field is small and difficult to keep clear of blood, and the cornua cannot be seen. In addition to this, there is a real danger of injury to the bladder and urethra, as has actually occurred. The carcinoma of the cornu here reported could not have been seen by this method. It should be understood that the hysterotomy incision is for the purpose of seeing and that palpation will not suffice for the diagnosis of early cancer of the uterus. The uterus itself is hard and its consistency is not noticeably increased by the implantation of cancer. We must depend on a ragged, friable, easily bleeding and possibly ulcerated surface, characteristics appreciable only to the eye.

Not only can we detect a percentage of early cancers by hysterotomy, but in a more considerable percentage of cases in which cancer is reasonably believed to exist will the incision reveal the true cause of the bleeding in hyperplastic endometritis, polyps of the endometrium or small submucous myomas. These conditions may necessitate only local treatment which can be made thorough and complete under the guidance of the eye. The impossibility of thorough removal of a hyperplastic polypoid endometrium by blind scraping can be appreciated only when such a uterus is freely opened and the actual condition seen. To those who are able to delude themselves into the belief that they can accomplish the impossible, the operation of hysterotomy will not appeal.

The operation itself is simple. The abdomen is opened by the usual paramedian incision. The uterus is grasped in volsellum forceps and carefully packed off by moist gauze pads. The anterior surface is then incised down to the peritoneal reflexion of the bladder, which may be carried forward if necessary. With small retractors the interior may be completely exposed to view. If the uterus is to be allowed to remain the incision is closed by buried layers of chromicized catgut sutures extending down to, but not through, the endometrium. Accurate apposition is essential. A running seromuscular stitch of linen placed close to the edge and invaginating the serosa completes the closure.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DAVIS AND DEAVER

Dr. Richard C. Norris, Philadelphia: The important advances in recent obstetrics have been surgical, and yet, it is my conviction that surgery applied to obstetrics should come, not from the general surgeon, but from the trained surgical obstetrician. The problem is not, what surgery can do, but rather what it must do. I believe that cesarean section is an operation in the obstetrician's armamentarium that will be resorted to more and more frequently. The problem is not to find out how often we can do it, but how often we must do it. Hysterotomy for routine diagnosis is "going some." The curet has helped us, as also has intra-uterine exploration with the intelligent finger, and our laboratory methods combined with the clinical history. When these means of diagnosis fail us, which is very seldom, there are a few cases which bring the patient to the surgeon's knife. The abdomen is opened and what happens? Time and again you will take the uterus out after you have cut it open. Your diagnosis is pretty well made beforehand or you would not operate. There are a few cases in which we are perplexed; but, let it not go forth from this Section, that if you don't know what is wrong inside a woman's uterus, you should cut it open to find out. Such a doctrine is pernicious and all the more so when taught by a distinguished surgeon.

In the treatment of placenta praevia an analysis of statistics will show that the mortality lies with the infected patient. Preliminary care of the patient is necessary. We see cases of placenta praevia in which the patients are so exsanguinated and so surely infected that it would be an obstetrical folly, and a surgical crime, to do a cesarean section. There are cases recognized promptly, and early brought to the obstetrical surgeon, in which cesarean section is the ideal procedure—and the well-trained obstetrician recognizes that. You can reduce the mortality of placenta praevia by training the profession to treat cases early, in the proper way, far more than by advocating cesarean section for every case. It is a campaign of education of the rank and file that is the real burden of the efficient obstetrician and surgeon. The time is at hand when modern surgery applied to obstetrics will add to her laurels and increase her triumphs.

Dr. George M. Boyd, Philadelphia: Prophylaxis, I believe, is the keynote of the whole situation. On the one hand, we have numerous danger signs in the toxemia of pregnancy leading to eclampsia which if heeded will prevent this condition. This is not so markedly the case in placenta praevia. Here the patient is seemingly well and in 75 per cent. of cases she will go nearly to the end of gestation without a danger sign. She then begins to bleed and it is in the early recognition of the magnitude of this hemorrhage that safety lies. We must teach the student to look with great gravity on this hemorrhage in the last months of pregnancy. He must look on such a patient as one suffering from arterial hemorrhage and must make an accurate diagnosis. If to do this requires anesthetization and the patient refuses he had better turn the case over to some one else to treat. It is then, in the early recognition of placenta praevia that we can do effective work. The treatment of placenta praevia formed the subject of the opening discussion in the seventeenth meeting of the International Congress in London. As a result of that discussion I reached the conclusion that, in the majority of cases, the patient is best treated by bipolar version. The patients die of infection and also of hemorrhage. A few cases will probably be better treated by ciliohysterotomy. In 1901 I presented, as part of a symposium on placenta praevia in our county medical society, a paper on cesarean section in placenta praevia and it was pretty sharply criticised. Since that time I have followed two or three of the maternities in our city. I advocated it at that time in the restricted sense in the primipara with a central implantation of the placenta. I still feel that it has a field of usefulness although limited. In only two cases have I felt that cesarean section was indicated. In both cases the patients flatly refused operation. I believe both would have been better served by cesarean section. I would emphasize the necessity of early recognition of placenta praevia and its immediate and radical treatment. In the majority of cases in the hands of the general practitioner I believe we serve our patients best by performing bipolar version.

Dr. Damon B. Pfeiffer, Philadelphia: Any one who has had my opportunity of seeing numerous uteri removed by various able and conscientious surgeons, must have received the impression that gynecologic diagnosis lacks something in that precision which is necessary in fitting the operation to the case. We may be horrified at the prospect of incising uteri unnecessarily. Are we not horrified at the prospect of removing uteri unnecessarily? I believe that very many uteri are removed every year for conditions which would not warrant hysterectomy. This movement toward diagnostic incision is the result of a demand for better diagnosis on which to base our most radical procedures. Mistakes occur usually in connection with bleeding, a symptom which demands recognition of its cause in order to determine the treatment which is adapted to the particular underlying pathologic condition. We admit, of course, that many uteri must be removed for bleeding, the cause of which is at the present time inexplicable. It is a different matter when you remove a uterus with a small submucous myoma, a small isolated polyp or a hyperplastic endometritis. In all these cases diagnosis could have been made earlier, I think by hysterotomy than by curettage.

Dr. John O. Osborn Polak, Brooklyn: I do not think that we should decide against or in favor of hysterotomy without taking some of the considerations for and against. It is a pitiable condition if we cannot make a diagnosis without opening the abdomen for diagnosis. Hysterotomy has a definite place. Why any man should do hysterotomy on early placenta praevia or for diagnosis in the early months of pregnancy I cannot see. Day after day we do hysterotomy in questionable bleeding of the uterus by the vagina. We come to exactly the same conclusion that has been so admirably expressed here: Feel and see what is inside the uterus and the cornu, and I don't think there is any difficulty in doing it. In some 500 cases of vaginal operations that we have done I have injured the bladder just once, and I did it only last week, showing a man how easy it was to do it. Dr. Deaver's statement that abdominal hysterotomy should be used as a diagnostic method, is admirable in Dr. Deaver's hospital, in Dr. Deaver's hands, but it is a most dangerous statement to take out of this Section. Again in the early toxemias of pregnancy why should we do abdominal hysterotomy when we could empty the uterus by vaginal hysterotomy with no morbidity? There I am absolutely assured.

Dr. John M. Fisher, Philadelphia: It is not necessary to have the eye on everything within the uterus in order to make a proper diagnosis. Dr. Deaver has spoken of curetting as being almost the only method we have of determining the condition of the interior of the uterus, save that of hysterotomy. We all know that it is possible to dilate the uterus so that the finger can be introduced and that by the educated finger a diagnosis can be made of the presence of abnormal conditions within the uterine cavity. I recall a case in particular of a woman in the Philadelphia Hospital who had found her way into the surgical department of the institution, referred to us as having cancer of the body of the uterus requiring hysterectomy. Dilatation of the os and digital exploration of the uterus demonstrated retention of fetal bones. These had been there almost four years and had become imbedded in the substance of the body of the uterus. The history of an offensive discharge covering four years should have sufficiently demonstrated to the surgeons that the case was not one of cancer. For another case a piece of gauze was found introduced by a man who had curetted some months previously. In this, likewise, a diagnosis had been made of cancer of the uterus. After dilating the cavity of the uterus a proper diagnosis was readily made. I saw a case of persistent bleeding recently in which curetting had been done twice, and the woman was still bleeding. As the curetting had been done by general surgeons, not by a gynecologist, we thought that possibly something had been missed. The patient had had an abortion several months previously. By the introduction of the finger through the previously dilated cervix the cause of the bleeding was easily determined to be a small mass attached to one cornu of the uterus. The mass was removed and the bleeding ceased. So with other cases. Hysterotomy for the diagnosis of submucous fibroids is rarely necessary. Dilatation of the uterus can be effected with the finger, bougies, metranoiter or lamina tents (properly sterilized), so that a satisfactory digital exploration can be made. The man who does hysterotomy for diagnosing submucous fibroids in all cases is making a serious mistake because it is absolutely unnecessary. So in many cases of cancer of the body of the uterus, early diagnosis can be frequently made by the finger. The gynecologist develops a sense of touch for determining things that the general surgeon has to see.

Dr. A. J. Rongy, New York: As long as we are going to relegate the placenta praevias to the general practitioner, so long will these cases be more injurious than a perforated gastric ulcer. No general practitioner undertakes to treat this condition. The secret of the successful treatment of placenta praevia lies in early diagnosis. In early placenta praevia, as Dr. Davis has said, or in ectopic pregnancy, we have taught the general practitioner that he must presuppose the possibility of eclampsia. So with a woman who is pregnant and begins to bleed in the seventh or eighth month, the practitioner must presuppose placenta praevia, no matter what other diagnosis he may have in mind. As soon as the condition of placenta praevia is diagnosticated the woman must be taken to a well-trained surgeon or to a hospital. She has no chance at home. We have practiced all sorts of medical obstetrics heretofore, the results of which are known. My personal results with cesarean section in placenta praevia are not as good as I would like them to be. I have operated in cases probably too late. The best chance for saving the life of the patient and of the child in placenta praevia is by abdominal cesarean section.

Dr. Joseph B. DeLee, Chicago: I have performed cesarean section for placenta praevia eight times. At the same time and during this period I have treated sixty-eight other cases of placenta praevia myself and the mortality of the cesarean cases has been nil. The mortality in the sixty-eight other cases has been three. Of these cases two patients died of hemorrhage, one of whom I believe would have lived had I done cesarean section. At the same time the obstetrician is the one and the only one capable of saying which case is proper for cesarean section. A large majority of placenta praevia cases can be successfully treated from below without "flirting with death." It is my conviction that the placenta praevia case is the case for the specialist obstetrician. A general practitioner, with a large amount of obstetric experience cannot accumulate sufficient technical skill to handle these grave complications. The curet has certainly been damned too much because it has not been used correctly. It has deserved a great deal of this condemnation. I use the curet for diagnosis, and by a systematic going over of the anterior, posterior and lateral surfaces find we do much with properly shaped instruments and the uterus steadied in its position by the outside hand. The fingers within the vagina guide the curet in the uterus and the operation will give a great deal of positive and definite though not final information. Emphasis was placed on the education of the doctors regarding the first hemorrhage in pregnancy. We should educate not alone the doctors, but the public, and we can educate the public to educate the doctors. The public should demand high obstetric skill and this demand can be brought through the women's clubs. In Chicago we organized a little club, "The Mother's Aid Society," which has rapidly grown to over 700 members. Its slogan is "High Standards of Obstetric Practice," and you would marvel at the formerly neglected obstetric conditions which are now referred to the doctors. This, done by a few women, well shows what can be done by the large federated clubs of women.

Dr. Swithin Chandler, Philadelphia: I am sure Dr. Deaver doesn't mean that every time a patient with pelvic disturbances comes to him he is going to do a hysterotomy, but that he is going to use his best judgment; that when he has a case indicating a serious pelvic condition, he is just as able as any one whether a gynecologist or not, to determine that by the ordinary means. To attack this operation of Dr. Deaver's we must consider two things: Either the operation itself must be dangerous or else the use of it in making a diagnosis is unwarranted. We certainly cannot attack the operation on the ground that it is dangerous. I do not agree with the men who state that the finger can always tell the condition present, nor can this be done always with the eye. If I have a case in which there has been a curettage and in which I cannot tell the condition by the finger, history of the case, etc., I shall do Dr. Deaver's operation. The man who does not, under such conditions is, in my opinion, just as guilty as the man who neglects a case until it is too late for operation. I would depend on Dr. Deaver to use his judgment in the individual case.

Dr. Edward P. Davis, Philadelphia: What is the status of the widest experience in the world to-day concerning placenta praevia? A recent investigation in one of the principal provinces of Germany, a country under the best medical conditions, shows that of all women dying in the perils of childbirth, 10 per cent. die from placenta praevia. What are the results of the treatment of placenta praevia in private houses by men trained in the universities of Continental Europe, and who have had hospital experience? Will 820 cases give you an idea? Probably a correct one or fairly so. They give a maternal mortality of 10.9 per cent.; a fetal mortality of from 40 to 60 per cent. Now let us take our cases of placenta praevia in hospitals; in the Congress in Berlin in the summer of 1912, was given the interesting report of Couvelaire in the Tarnier clinic at Paris, of 162 placenta praevias of serious nature without cesarean section, using the dilating bag and the rupture of the membranes, with a maternal mortality of 6.7 per cent., fetal, from 44 to 66 per cent. If we go to the Leipsic Clinic of Zweifel, than whom there is no more able obstetrician and gynecologist to-day, we find him getting, in placenta praevia, by combined version under strict asepsis, a maternal mortality of 3.3 per cent.; a fetal mortality of 68.8 per cent.; and by using the bag as described in my paper, we find him reducing the maternal mortality to 2.6 per cent. and bringing down the fetal mortality to 26.8 per cent. This must be taken as the acme of hospital treatment by skilled men without abdominal cesarean section. In the Freiburg clinic, a series of thirty-eight cases treated by abdominal cesarean section by Pankow gave a maternal mortality of 2.5 per cent.; a fetal mortality of 2.9 per cent. the lowest rate for mother and child yet reported. The question of abdominal cesarean section depends for its solution on whether the parturient woman in her complications is deserving of the care which a woman with appendicitis or ovarian cyst receives, or whether she shall have the older and less efficient methods. I hold it a gross injustice to the general practitioner of medicine that he be asked to undertake such responsibility under disadvantages, as he has been called on to do in the past, in obstetric practice. He has borne this responsibility alone and unaided, at any hour of the day or night, and he has done things from which the boldest surgeon would shrink; his results were extraordinary, and I yield to no one in his honor. The present trend of medicine gives to the general practitioner a field in which his opportunities are unsurpassed and for which the training of the medical schools to-day amply fits him namely, the field of diagnosis. The medical student to-day, so far as I have to do with him, is taught obstetric diagnosis first, and then what not to do, quite as much as what to do, and when to summon the competent obstetrician.

Dr. John B. Deaver, Philadelphia: I can answer the protest against opening the uterus if a diagnosis can't be made otherwise only by protesting against leaving the uterus unopened when a diagnosis cannot otherwise be made. Dr. Norris agrees that there are indications for this operation. As sane a man as Dr. Norris could not look at it from any other point of view. There is a type of disease of the uterus which no man can diagnose without resorting to the procedure I have recommended. What is the attitude of the surgeon to-day in upper abdominal disease? Is it possible to diagnose every upper abdominal condition before the abdomen has been opened? What does the exploratory operation reveal?—the true pathologic condition. Is it not a more honest, just, conscientious course to pursue than to deceive your patient by looking wise, getting a consultation fee and making them think that you know it all? Those who assume this position are dangerous doctors and capable of doing much harm in their community. We are no further along in the treatment of cancer than we were many years ago. We must operate in the precancerous stage, and those who are not doing as I and others advise in this respect will continue to write certificates of death, the result of latent cancer. Any one who uses laminaria tents to dilate the uterus invites infection. Any one who knows anything knows he cannot dilate the normal uterus with the finger for thorough exploration; this is an unanatomic, unphysiologic, illogical and unsound statement. The surgeon, I grant, who possesses the tactus eruditus is more fortunate than his brother who has never acquired it. Dr. DeLee sounded a note as to the laity educating the doctors. From what I have heard this afternoon I think it is high time that the laity educated the gynecologists.

Antityphoid Vaccination.—No amount of theoretical proof or disproof of the value of typhoid vaccine can affect the practical accomplishment of antityphoid vaccination. Previous to vaccination in the United States Army the best sanitary measures were only able to reduce the death-rate to 19 per 100,000. In southwest Germany perfect sanitary organization and military discipline have only been able to reduce the typhoid death-rate to 4 per 100,000, while the case-rate for the United States Army in 1913 was only 3 per 100,000. Vaccination is as successful in preventing typhoid as in preventing small-pox. The death-rate from typhoid in the registration area for 1913 was 16.5 per 100,000. There are no valid reasons why everybody outside the Army and Navy also should not be vaccinated. Vaccination against typhoid does not prevent other water- or milk-borne diseases, so that sanitary improvements are as necessary after as before vaccination.—Will Shimer, *Jour. Ind. State Med. Assn.*

THE NECESSITY FOR THE ESTABLISHMENT OF A NATIONAL LEPROSARIUM *

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The problem of the control of leprosy in the United States presents many contradictions and perplexities. Here is a disease, one of the oldest of which we have knowledge, and about which we know relatively little. We witness its effects and believe we have discovered its causal organism, yet we have garnered only a very small sheaf of facts regarding its epidemiology. The route of entry of the bacillus is not definitely known; the organism is cultivated with the greatest difficulty and exists in many strains which present marked differences; it is not pathogenic for the lower animals and we do not know the length of its incubation period in the body of man. The rôle of rodents and insects in its transmission has been suspected, but here again we must admit our ignorance. There exists no positive means for its diagnosis in its earliest stages; no wholly satisfactory method of treatment has been devised; the period of its greatest infectivity is unknown, yet we believe that the disease is mildly contagious. We do know that there is no racial immunity to leprosy, that it exists in all portions of the globe and that segregation and personal cleanliness are our only weapons against it. Add to the foregoing the facts that the individual and community fear of the disease is so great as to amount to a veritable leprophobia, that there are several well-established foci in the United States, that the disease is slowly but surely on the increase, that there are probably many more cases unreported than there are reported, that there exists no federal institution for the exclusive care and reception of lepers on the continental United States, and the statement of the problem is complete.

Out of such a mass of contradictory evidence, there are only two facts on which we may lay hold for the purpose of controlling the disease. These are segregation and cleanliness. We know that the disease exists among those who are careless in their personal hygiene and that when these persons are removed from intimate contact with society, the disease dies out. The disease has been made notifiable in most of the states, in three of which leprosaria have been established. Each of these treats a small number of lepers, but the per capita cost of such treatment is excessive because the overhead charges are divided by such a small number. This, in part, has contributed to the very general desire for the establishment of a federal institution in which all the lepers in the continental United States may be segregated.

Another factor in bringing about the feeling among thinking men that we should have a national leprosarium is the inhuman treatment to which lepers are subjected in this country. Let a man be marked as a leper and he becomes a pariah, an outcast from society, to be hounded from place to place, to be locked up in a lonely, often filthy, building, there to be viewed at a distance by the more intrepid as some wild and dangerous animal. The unwelcome visitor disturbs trade, and he is hurried by night over the state line, there to be subjected to further indignities and to become a thorn in the side of another community, by reason of the economic losses which his presence produces. Verily the lot of the leper in this Christian country of ours is sad and troubled.

From time to time, intelligent legislators have introduced bills into Congress looking to the establishment of an institution in which the unfortunate leper may be protected from society and society protected against him. No one doubted the wisdom of such a measure, but the leprophobia of the general public is such that none of these bills have ever been allowed to come to a vote, because every community feared that it might be selected as the site for the leprosarium. It was useless to say that the disease is only mildly contagious because that at once destroyed the raison d'etre for a place of segregation, and the public as a whole has not yet learned the simple lesson that cleanliness in all things is our greatest bulwark against disease.

None of the proposed measures have considered the mechanism of an official diagnosis, nor have they taken into account the fact that if society is to be permanently protected, the leper must be legally committed to the place of segregation. Once so committed, he must be deterred from reentry into close, prolonged or intimate contact with society, and the weak-mindedly sentimental must be prevented from aiding in such reentry.

Our immigration laws require the deportation of lepers who are found to have the disease within three years after landing, provided it be shown that the disease existed prior to their arrival in America. This law takes no account of the long period of incubation of the disease and the great difficulty of its recognition in its early stages. The frank case of leprosy is remanded at quarantine, but the immigrant in the incubative stage of the disease is not deportable after three years have elapsed, or if he can by legal quibble defeat the attempt to prove the existence of the disease prior to debarkation.

Many of the countries of the world have leprosaria. Many of the countries which support such leprosaria are far less wealthy than the United States. We know that the number of cases in the United States is relatively small, and that if the disease is fearlessly attacked now its control will be relatively easy. It is true that leprosy is a disease which spreads very slowly, but where it has once spread it never recedes unless active measures are taken.

In order to meet the foregoing conditions, I have made a rough draft of what seems to me to be appropriate legislation on the subject. This represents only my personal opinions, and has no official sanction whatever. The following is the text of the proposed act:

An ACT for the prevention of the interstate spread of leprosy. Be it enacted by the Senate and House of Representatives of the United States in Congress assembled, That the Surgeon-General of the United States Public Health Service shall, on the request of any state or territorial board of health, appoint a board for the purpose of examining and making a diagnosis in the case of persons suspected of having leprosy, said board to consist of not less than three commissioned medical officers of the United States Public Health Service who shall be skilled in the clinical and bacteriological diagnosis of leprosy, and the findings of said board shall be final.

2. That when any state or territorial board of health shall desire a diagnosis in the case of any person suspected of suffering from leprosy, it shall request the Surgeon-General of the United States Public Health Service to appoint and convene a board as aforesaid, and said state or territorial board

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

of health shall present the person to be examined to the said board.

3. That there is hereby appropriated out of any funds remaining unappropriated in the treasury of the United States the sum of five hundred thousand dollars for the purpose of erecting and maintaining a National Hospital for Lepers, and the secretary of the treasury is hereby directed to acquire a suitable site for the erection and maintenance of a National Hospital for Lepers, said site to be so located as to prevent the inmates in said hospital from conveying the contagion of leprosy to neighboring communities, and the secretary of the treasury is authorized to utilize for this purpose any of the unallotted lands of the United States which in his opinion are suitable for a site for the erection of said hospital, provided, that if in the opinion of the secretary of the treasury none of the unallotted lands of the United States are suitable for said purpose, he may acquire by purchase or otherwise said suitable site, and the secretary of the treasury is hereby directed to cause to be erected and maintained on said site suitable buildings and equipment for the care of persons suffering from the contagion of leprosy, and for the study and investigation of the disease.

4. That when any person in the United States shall have been examined by a board as aforesaid and found to be suffering from leprosy, the said leper shall be taken before a United States District Court and the judge thereof shall commit said person to the National Hospital for Lepers, and when said leper shall have been so committed he shall not leave the said National Hospital for Lepers without the express permission in writing of the Surgeon-General of the United States Public Health Service, and there may be received into said hospital commissioned officers and enlisted men of the United States Army, Navy and Revenue Cutter Service, who shall have been examined by a board appointed as aforesaid and committed by proper military court, and there may also be received into said hospital any of the beneficiaries of the United States Public Health Service who shall have been examined by a board and committed by the United States District Court, as aforesaid, provided, that any alien immigrant who shall develop leprosy within seven years after his landing in the United States shall be remanded to the country whence he came, and provided further, that when any person or persons shall give bond in amount not less than five thousand dollars to a United States District Court for the safe keeping of a leper according to rules and regulations made by the Surgeon-General of the United States Public Health Service and in such manner as in no wise to endanger the public health, said leper shall not be committed to the National Hospital for Lepers, and provided further, that when on the evidence of a board appointed as aforesaid it shall be made to appear to the satisfaction of a United States District Court that said person has been cured of leprosy, said person shall be discharged from the National Hospital for Lepers.

5. That it shall be a misdemeanor for any person committed to the National Hospital for Lepers to leave said institution except in the manner aforesaid and any person or corporation aiding, assisting or abetting in the escape of any leper from said institution shall be guilty of a misdemeanor, and any common carrier transporting said escaping leper shall be guilty of a misdemeanor.

6. That said National Hospital for Lepers shall be under the control and direction of the Surgeon-General of the United States Public Health Service, who shall make rules an regulations for its administration, and when any officer or employee of the United States Public Health Service shall be detailed for duty in said hospital, he shall receive in addition to the pay and allowance of his grade one-half the pay of said grade and such allowances as shall be provided by the Surgeon-General of the United States Public Health Service with the approval of the secretary of the treasury.

7. That any person, partnership or corporation violating any of the provisions of this act shall be guilty of a misdemeanor and shall on conviction thereof be punished by a fine of not more than five hundred dollars or imprisonment for not more than two years, or both, in the discretion of the court.

THE DUTY OF THE GOVERNMENT IN LEPROSY CARE AND CONTROL*

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The modern interest in leprosy was excited in the decade between 1880 and 1890, governed largely by the announcement of the discovery of the leprosy bacillus by Hansen in 1879 and by the death of Father Damien in the later eighties.

Impetus was given the study of leprosy by the immense work undertaken and completed by the British government in India and embodied in the report of a special commission, promulgated in 1890.

Many other governments grew active and the Berlin conference of 1897 was the direct outcome. Representatives of all important leprosy centers were there, as well as delegates from countries casually interested. The findings of that conference were important. Not only was leprosy declared contagious, but it was also considered so important in the economic relations of governments as to occasion especial recommendation of isolation "in all countries where social and legal conditions permit."

As special action covering this phase of the control of leprosy, resolutions were adopted, without a dissenting vote, covering isolation, to wit:

> 1. All cases of leprosy should be reported, and this should be made compulsory.
> 2. Each leper should be isolated.
> 3. Every government must recognize the necessity and the method of effecting isolation under its own social conditions.
> 4. That it be recommended to every government that isolation is necessary to prevent the spread of leprosy, and that the health authorities be authorized to act under the regulation of civil and national assemblies.

The response to the deliberations of the Berlin meeting was wide-spread, and a renewed effort was made by most civilized countries to investigate leprosy and to provide for its control. Among the few countries which ignored the findings was the United States.

EVIDENCE OF LEPROSY IN THE UNITED STATES; INDIGENOUS AND IMPORTED CASES

Twice in the last fifteen years the U. S. Public Health Service has been authorized to make a leprosy survey in this country.

The first report of 1902 submitted 278 cases as the result of the commission's work. Of these cases, 155 were from Louisiana alone. The balance of the cases came irregularly from other states, where no general system prevailed for the care of leprosy or of its notice.

The second report, in 1912, I believe, showed practically the same results.

The mere compilation of state records and of current periodicals showed that neither of these official reports was of any statistical value.

Since 1894, the Louisiana Leper Home alone has cared for nearly as many lepers as the Public Health Service statistics showed for the whole United States. That leper home has had a gradually increasing population, now numbering nearly 100 inmates. Texas has a number of cases, known to be as many as twenty-five or thirty, and estimated at twice that number; Florida has a number of cases also. There are cases in Mississippi and Alabama, and in all these states the great majority have originated in the state in which the disease has been recognized. California has had around thirty cases under control for many years. New York City has many cases—more reported in the journals than in all other sections put together; in New York the number is usually estimated at more than 100. Massachusetts has enough cases to have demanded an isolation hospital for them. Other states have noted cases, as Oregon, Minnesota, Michigan, Pennsylvania, Iowa, Wisconsin, Missouri, Ohio, Indiana, etc.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The disease is wide-spread and without much hindrance or control. The easy entrance of these cases from foreign countries is evident in the clinics in New York City as reported at the various dermatologic societies. In the winter of 1911-1912, at a meeting of the Academy of Medicine, seventeen cases were shown; among them not more than two or three were native-born, the rest coming from Central America, the West Indies or Continental Europe. At a clinic on the day of that meeting, several cases of extreme types were shown, all the patients being foreign-born.

THE FAILURE OF STATE ADMINISTRATION

The indifference of many states is in strong contrast with the hysteric activity of others. In New York the leper goes about freely, visiting the clinics, and often remaining as an inmate in a general hospital. Some lepers are confined on Blackwell's Island, but too few to be significant of any public health effort. The states of West Virginia and Maryland a few years ago struggled with one another to see which could be more medieval in the handling of a Syrian leper. The case of the soldier Early is still an acute problem in the care of leprosy. It will be remembered that his final allotment to government care disposed of popular clamor. Texas has passed laws which could not be enforced because of popular prejudices.

In Louisiana the law is adequate, compelling the report and confinement of lepers, but they abscond from the home, or run away to another state as soon as they know what is the matter with them.

The knowledge of the existence of the Louisiana Leper Home has made it the asylum for lepers from other states and even other countries, in spite of the fact that the law is specific in restricting provisions to Louisiana residents. There are many ways of subterfuge. The growing tax on Louisiana will be an obvious object-lesson to other states as soon as the provision for leprosy control is demanded by the incidence of the disease. Meanwhile no state has as yet solved the problem of leprosy control, and the disease grows annually in its spread and in its numbers.

THE PATERNAL FUNCTION OF THE GOVERNMENT

The federal government until now has been apathetic to this question. It might be properly urged that leprosy, like tuberculosis, syphilis, pellagra or smallpox, is a question of state administration under local health authorities. But the government has taken direct interest in some of these things, even at home. The stronger opposing argument, however, is the attitude of the government abroad.

Leprosy is a matter of such direct concern to the United States in the Sandwich Islands, Porto Rico, the Philippines and even on the Island of Guam, that in each of these territorial divisions there are large provisions for leprosy. The Philippines are provided with several asylums; the Sandwich Islands conduct a model leper colony for less than 500 inmates and appropriations are constant for the care of this asylum. More than this, only a few years ago as much as $250,000 was appropriated for the study of leprosy at Molokai.

Why has no provision been made at home, other than makeshift investigations which have no real value in the control of the disease?

OPPORTUNITY IN RESEARCH, TREATMENT AND CARE

It is true that good work in the study of leprosy has been accomplished by Brinkerhoff at Molokai, and Heiser and Clegg at Manila, but with the very limited opportunities afforded in this country, more has been done in treatment and care than in the colonies. The influence of climate has been observed in Minnesota; the treatment now most used in this country and in the Philippines originated at the Louisiana home and in my practice. The study of leprosy transmission to monkeys, fish and cold-blooded animals was elaborated by the laboratories of Tulane. The cultivation of the accepted bacillus of leprosy was furthered in this country, and at least one of the modern vaccines was originated in this country.

How much more could be done with governmental control and governmental opportunity, coordinating the many men available in the United States for such work!

This is a problem of national interest and importance and it only needs concentrated effort to solve it, which means permitting proper methods.

THE DANGER IN NEGLECT; EPIDEMIOLOGY IN THE UNITED STATES

As yet no great effort has been made to control leprosy in the United States. The foci of the disease are already recognized at all the four points of the compass—Minnesota, New York, California, Louisiana and Texas. The sporadic cases in the states in the middle territory show the signals of new areas of infection. Each seaport at present is a ready medium of new cases as quarantine of leprosy is administered, and once admitted the regulations of local and state boards of health are not adequate in provisions or enforcement to check the ingress by a proper notification to federal officials charged with the quarantine enforcement. Those of us who have been persistently militant in the demand for national control of leprosy are repeatedly subjected to the charge of hysteria in our ideas of the dangers of leprosy. Such attacks are engaged in by men to whom leprosy is an exotic disease, rarely observed and to whom no economic, sociologic or domestic phase can appeal. The disruption of a family through the occurrence of leprosy in its bread-winner; the horror of public condemnation of the unfortunate attacked by the disease; the notice of fresh outbreak in the same family, all are forceful arguments to one who knows the habits of the disease and the possibilities of the outcome. While leprosy is slowly contagious and probably mildly contagious, its usual horrors argue the danger of neglect. With probably 500 known cases to-day, how many will there be in ten years, if there is no control?

PREVIOUS ATTEMPTS AT NATIONAL LEGISLATION AND ACTION FOR LEPROSY CONTROL

In 1900, a bill for a national leper law was introduced at the Fifty-Sixth Congress by Mr. Raynor of Maryland. Its provisions generally contemplated a response to the Berlin Lepra Conference. A commissioner on leprosy was projected, to cooperate with state boards of health. A reservation in Yellowstone Park or other suitable place was suggested, with an appropriation of $50,000 for the erection of suitable buildings. The bill carried provisions for the apprehension, observation and control of the individual leper, in and out of the national asylum, which should be open to all lepers in the United States. Provision for regulation of entrance or transportation of lepers from foreign countries, territories, etc., was also made. It was intended that the asylum should be in charge of the United States Public Health Service. This bill died in committee.

In April, 1913, at the first session of the Sixty-Third Congress, Mr. Lafferty introduced House Bill 1751, providing for a national leprosarium. The text follows:

> Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury be, and he is hereby, authorized and directed to establish a national leprosarium in the United States or any of its insular possessions, the location thereof to be decided upon after proper investigation by the Surgeon-General of the United States Public Health Service, subject to the approval of the Secretary of the Treasury. The Secretary of the Treasury shall have power to acquire, by condemnation or otherwise, a suitable site for the leprosarium and shall erect thereon all necessary buildings and thoroughly equip the same for the proper care and treatment of lepers confined therein and for the investigation and study of the disease of leprosy.
>
> Sec. 2. That the Surgeon-General of the United States Public Health Service shall appoint all medical officers, assistants, surgeons, pharmacists and other necessary employees, and shall promulgate and adopt, subject to the approval of the Secretary of the Treasury, all necessary rules and regulations to carry this act into effect.
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> Sec. 3. That, under authority of this act, any state or territory of the United States is authorized to transport all persons afflicted with leprosy found therein to the leprosarium, and the Surgeon-General is directed to receive the same, such transportation charges to be paid by the United States.
>
> Sec. 4. That there is hereby appropriated, out of any money in the treasury not otherwise appropriated, the sum of ——— for carrying this act into effect.

This bill has been before Congress over a year. A recent reading of the bill was noted in the press, but unless more interest is excited it will likely go the way of the first attempt.

RECOMMENDATIONS

The Lafferty bill should become law and the provisions for leprosy isolation should be adequately undertaken at once.

The institution of a leper colony should carry with it all of the necessary details for the proper care of the patients as well as for the study of the disease.

The cases should be grouped according to their type and stage. Terminal cases should be separated from recently developed cases. An infirmary should care for those with complicating diseases. Single rooms are better than wards, and these should be arranged with ample ventilation—as nearly open air as possible. Frame buildings are more desirable than other structures as they may be easily destroyed or renewed should this be desired. The walls, ceilings and floors should be of such material as to permit frequent fumigation. Men and women and children should be separated in any colony provision aiming at final cure.

All hospital plans should look out for the provision for bathing facilities, hot water especially.

No matter what experimental treatment may finally attain, accepted methods should be systematically followed.

The first and most important thing is to have a national asylum established. Then its opportunities should be broadly offered to all students of the disease.

The hospital facilities should be of such a character as to attract the leper who wishes treatment and care. The general public should know early that the national leper home is not for compulsory detention but for the care and possible cure of the disease.

124 Baronne Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RUCKER AND DYER

Dr. Martin F. Engman, St. Louis: The need of a home for lepers and the national control of leprosy is well illustrated by a single dramatic incident that happened in St. Louis last summer. A former soldier in the Philippines came to the Washington University clinic with the macular type of leprosy. The period of incubation was about nine years. As the Missouri law required, the case was reported, and the patient at once was taken to a hut occupied by a chinaman with leprosy of a mutilating type. He later escaped from the quarantine, but, due to the publicity given his case, he returned to the quarantine hut in St. Louis and subsequently was given a better house to live in. A month later we had a second case of macular leprosy in St. Louis. This man had also been in the Philippines, and the period of incubation was about ten years. Owing to climatic conditions and the long period of incubation of the disease, the increase in cases in this country will be slow. We do not know anything about the method of infection. We probably know the organism that causes it; that is all. We know nothing of its cycle outside of the human body or its habitat. It is wise, therefore, to take every possible precaution against it, because when once established in a country it is difficult to eradicate. The only method by which this can be accomplished is by segregation. The time is now ripe to establish some law under which lepers can be segregated. It cannot be left to the individual states, as this would cause endless differences of opinion as to the diagnosis, etc. Government control is necessary. Every effort should also be made to check the hysterical wave that passes over this country every time a leper is discovered. This is one of the reasons why Congress has been so slow in taking any definite action in the matter. Whenever the question of the establishment of a leprosarium has been raised, and any particular locality has been mentioned, it has raised a storm of protests from the people in that particular section of the country. The opening campaign should be one of education. Through the daily press and by other means the people should be informed with regard to this subject. The Public Health Service of the U. S. Government is much handicapped by the lack of cooperation of the government, and the inability of the latter to do anything in the matter at present. One of the bills presented, that by Mr. Lafferty, is now before the Interstate and Foreign Commission, where it has been for some time. Mr. Dana, the chairman of the Mission to Lepers, who has worked hard in connection with this matter, has tried during the past winter to have this bill taken up by the Committee on Interstate and Foreign Commerce, but his efforts have thus far been unsuccessful, as the committee is overburdened with work. He thinks that if the medical men throughout the country will use their influence with the members of the committee, especially with the chairman, Mr. Adamson, it may be brought up.

There is at present quite a stir in Washington about leprosy on account of the Early case, and it is an opportune time for persons who are interested in this subject to communicate with their congressman by letter or otherwise, or even through their county medical societies. In Missouri we are trying to bring some influence to bear on Mr. Decker, who is a member of this committee. In that way we may be able to promote this cause, and if an urgent demand is made at once by the American Medical Association, coming through this body, it is possible that the question could be settled in a comparatively short time.

Dr. William S. Gottheil, New York: Every aspect of this subject should be carefully considered, lest we go to extremes and do an injury to our leper patients instead of helping them. While leprosy is contagious, the danger of contagion is extremely slight, and it is not in the same class with tuberculosis and syphilis. For thirty years we have had from one to six lepers in our skin wards at the City Hospital in New York, and in all that time we have not seen a single case of infection. We have lepers in New York City who are well to do, and I know of two cases in which the families are abundantly able to take care of their afflicted relatives and it would be a crime to remove these patients to a leprosarium. I know that Dr. Rucker, in his proposed legislation on the subject, makes removal to a leprosarium optional by bonding such patients. There are cases of leprosy without any buccal or nasal secretion, and I do not regard such cases as a menace to society. They may remain in such a condition for many years. We have had one leper at the City Hospital in whom for many years the only symptom was the presence of a few macular lesions. That patient is now developing a few tubercles.

Dr. Ernest L. McEwen, Chicago: The care of the leper should fall on the nation rather than on the states. The disease could be eradicated if we could isolate all the lepers. A most important step, as Dr. Engman has pointed out, will be to educate the laity with regard to leprosy, and this must be accomplished largely through the press. We must get at the people who control the press dispatches. The efficacy of this press control was well shown in a case of leprosy which we recently had in Chicago, when the patient was allowed to remain in the county hospital for some time without sensational comment by the newspapers. Later, this leper was sent east for deportation. A private car was assigned to him, together with a male nurse and a representative of the health department who had him in charge. When the food which they took with them became exhausted, they were obliged to apply to the men on the dining-car ahead for a further supply. This was finally obtained, but the food was passed to them on broken dishes and with the understanding that these dishes were to be destroyed! This is a good illustration of the insane dread with which leprosy is regarded by the laity. In order to educate the people properly I believe we must get in touch with the daily press and seek to change its attitude with regard to the news items on this subject, so that these will be discussed plainly but truthfully, rather than from the point of view of the prevailing standard of news value, namely, ability to create a sensation.

Dr. M. L. Ravitch, Louisville: While it is easy to talk about educating the public or the press, it is quite another matter to accomplish it. Whenever you mention the word "leprosy" everybody gets panicky. The dramatic picture of lepers, described by Engman, can be seen in a good many places. In my own city we had a case of leprosy of the tubercular form in an American woman belonging to a very aristocratic family; through wealth and influence a report of the case was kept out of the newspapers. In spite of that, her own family refused to shelter her. You cannot educate the public on this subject. The best way would be to establish a national leprosarium, or, better still, institutions for lepers in different sections of the country where these patients could be received and treated, where they could work, and feel that they were not totally ostracized. A number of small institutions would be preferable to one large one.

Dr. Charles H. White, Boston: Massachusetts is fortunate in having its own hospital for lepers, but the advantages of such an institution cannot be compared with those of a national leprosarium. Besides, the expense to the state of maintaining such an institution is excessive. In the leper hospital in Massachusetts we have nineteen patients, and while I do not remember the cost per capita, it is very high, and it has been difficult to get an appropriation large enough to maintain it properly. We are at present trying to get an appropriation to build a central treatment station which will cost about $40,000, but the outlook is not very promising. Then, again, the relatively few persons of the various races represented in such a small institution means lonesomeness for the patient and added expenses owing to radical peculiarities as to diet, etc. Such an institution offers many opportunities for valuable original work in connection with this disease, but owing to its isolation, the means are not always at hand under state control. We shall never be able to do what we should for these patients until the national government takes hold of the work. At present, the institution is under the contol of the State Board of Charities, and I think they would be glad to consider a proposition to turn it over to the national government.

Dr. Jay F. Schamberg, Philadelphia: The national control of leprosy is imperative on two grounds: first as a proper protection for the public health, and, secondly, for the humane care of the leper himself. The absurd lack of uniformity in the different state laws concerning leprosy is frequently brought to our attention. About a year ago a resident of a neighboring country temporarily residing in New York was told that he was suffering from leprosy and came to Philadelphia for advice and treatment, but he always went back to New York to sleep, because in New York he was a free man while in Pennsylvania he was the subject of a quarantinable disease. This lack of uniformity in the laws of different states regarding leprosy also leads to the inhuman treatment of lepers, who are often driven from pillar to post, because the several states do not wish to burden themselves with the perpetual care of these unfortunate subjects. I agree with Dr. McEwen that it is the duty of physicians in general and of dermatologists in particular to educate the public with regard to the relatively feeble degree of contagiousness of leprosy and the unreasoning fear of the community at large. Most of us believe that these patients should be quarantined, with, possibly, certain exceptions. It would be difficult to discriminate between the wealthy and the poor leper, but I agree with Dr. Gottheil that we should not recommend that every leper in the community should be forcibly quarantined. I feel very strongly, however, that the care of the leper under federal jurisdiction is much to be desired.

Dr. M. B. Hartzell, Philadelphia: I think it wise that we should be a little more in accord before we commit ourselves to any definite action. We should decide first as to the kind of institution in which the lepers should be segregated. Should they be regarded as prisoners or given a certain amount of freedom, as is done in leprosariums in foreign countries? In view of the fact that the disease is very feebly contagious, it is exceedingly questionable whether we should take such a patient by the neck, figuratively speaking, and thrust him into a prison to remain for the rest of his life. We must discriminate in the treatment of these patients, and ask the government to take care of them in a scientific and humane manner. Indeed, I am not at all convinced that every leper should be closely segregated. Considering how little we know of the method of transmission of the disease, I do not think we are as yet in a position to say that these patients should be imprisoned.

Dr. S. E. Sweitzer, Minneapolis: I am in favor of segregating lepers both for the purpose of studying the disease and for its proper treatment. In Minnesota we have a considerable number of lepers; as many as forty, I believe, have been under Dr. Bracken's supervision, but they are gradually dying out, and I do not think we have ever had a case of leprosy in the native born. This effect of climatic influence, I think, should be borne in mind in choosing the site for a leprosarium. I believe we will never succeed in stamping out this disease until proper precautions are taken to exclude lepers from this country. A number of years ago I saw a woman on shipboard, traveling first-class, in whom I made a diagnosis of leprosy.

and she was reported as a suspicious case. The quarantine officer said he had never seen anything like it and permitted the woman to go to her home.

Dr. Gardner T. Swarts, Providence: In order to secure a leprosarium it has been suggested that we must first educate the public. That is to say, we must uneducate people concerning a belief which goes back over 2,000 years, but in order to do that we must first agree among ourselves as to the contagiousness of leprosy. In other words, we must first educate ourselves and then the public. In view of the generosity shown by New York, why should not New York be regarded as a leprosarium for the time being? A 15 year old leper was discovered by the Massachusetts authorities and escaped to Rhode Island, where he was immediately isolated. His family was ostracized and the health officer fumigated the school that the boy had formerly attended, even going so far as to burn the boy's desk and books and finally to tear down and burn an American flag with which the child was supposed to have come in contact. This is a good illustration of the views held by the public with regard to leprosy. I think one of the best ways to interest your Congressman in this subject is to call his attention to the expense that is entailed on the individual states by the care of lepers, and what a saving it would mean to his state if a national leprosarium were established. Such a suggestion might take hold. Is there not a law under which the federal public health service can take charge of and segregate a leper who is a fugitive from one state to another?

Dr. W. C. Rucker, Washington: The U. S. Public Health Service is deeply interested in this subject from the standpoint of the public health, the prevention of the further spread of the disease and its eradication. The humanitarian aspect of the problem has not escaped our notice; we also have an administrative interest in this matter, and we can handle it through the interstate quarantine regulations. One of the functions of the federal government is the control of interstate traffic; hence it is the duty of the government to see that the states be not harmed in that traffic. Regulations have been established known as the interstate quarantine regulations, which provide that when a leper goes from one state into another he may be apprehended by the government and placed in a convenient quarantine station, but every time we have done that we have been deluged with letters and protests.

As to the mildness of the contagion of leprosy, I do not believe that anybody can assert whether leprosy is mildly contagious or violently contagious. We are not even convinced as to the cause of leprosy, let alone the manner in which it is transmitted from one person to another. I believe the education of the general public with regard to this disease should begin with the medical profession, and I do not think that anyone can educate the latter better than the members of this Section. I believe the more publicity leprosy gets, the better. The more we agitate this subject in the daily press, the sooner we will get the leprosarium. With regard to the transportation of lepers, I believe they can be transported with perfect safety provided it is done intelligently. Until we know more about this disease and its mode of transmission, we will naturally take a lot of unnecessary precautions. In answer to Dr. Ravitch I would suggest that we can get one leprosarium first and then perhaps we can get more afterwards.

According to the provisions of the act for the prevention of the interstate spread of leprosy, suggested in my paper, there is no danger of these leprosariums becoming prisons or of segregating these patients against their will or without due process of law. The idea of Surgeon-General Blue is to have these leprosariums regarded as asylums of refuge or homes, with theaters, etc., where the patients could be amused, where they could work and perhaps even earn money to help support those who were dependent on them.

Dr. Isadore Dyer, New Orleans: I appreciate the fact learned from Dr. Rucker, that the U. S. Public Health Service is now actively interested in the leper question. I have been working with that end in view for the past fifteen years.

THE THERAPEUSIS OF PERICARDITIS *

RAY LYMAN WILBUR, M.D.
SAN FRANCISCO

The pericardial sac in spite of its relationship to many important structures is, compared to the endocardium, accessible both for purposes of investigation and for local treatment. Since it often responds to the same infections, a careful study of pericarditis should be of value in considering endocarditis. In many ways the pericardium can, in its pathologic reactions, be likened to a joint. It may be infected by the same organisms as a joint either by extension of a local process or as part of a general infection. There is present the same spontaneous pain, the pain after excessive movement or strain, and often the pain after exposure to cold. Effusions of various kinds form and adhesions may appear and extend up to the point of obliterating the cavity. The treatment usually given is not unlike that employed for a joint, the main differences being that the danger to life is greater in pericarditis either from excessive effusion or hampering adhesions, and there is the impossibility of keeping the part absolutely at rest which is the principal aim of most forms of treatment for acute inflammations of joints. Since, as Rosenow has pointed out, bacteriologic studies of the disease processes of the living body up to date have largely been confined to its excretions and fluids, it is not unlikely that the study of the tissues, bone-marrow, cartilage, etc., about joints and of the pericardial sac itself and of the upper layers of the heart-muscle will clarify our conceptions of the inflammations in these localities. Unfortunately, it is likewise probably true that local injections of medicaments into the pericardium for purposes of treatment will be as disappointing as they have been in most joint conditions, and for similar reasons, that is, the infecting agents being in the deeper tissues. The conditions in the pericardium except for the nervous tissues are apparently simpler than those of the synovia of joints. As in joints, it seems justifiable to make careful studies to learn the limitations and possibilities of medical treatment and of surgery both as to the drainage from the pericardial sac of the fluid products of inflammation and the treatment of adhesions in the pericardial sac or outside of it.

The wonderful nervous mechanism of the heart including the end organs in the endocardium and pericardium and their involvement in inflammatory processes complicates the problem. This mechanism must be most carefully considered in any local treatment as shown by experiments and clinical experience. The variability in the reaction of the pericardium of individual animals of the same species to the same agent is often quite inexplicable. Just as in previous experiments performed by me on the terrapin[1] in which at times irritants applied to the epicardium caused marked cardiac disturbances and often signs of general irritation, while at others no marked effect was produced, so in the human cases in which tincture of iodin has been injected into the pericardial sac there has either been no pain or a considerable reaction with marked distress, even shock.[2] This variability may be due to the fact that the thickening of the pericardium, particularly in the presence of pus, may protect the nerve-endings. McPhedran has suggested that in pyopericardium, 2 per cent. liquor formaldehydi in glycerin be injected with the hope that similar results to those observed in empyema may be obtained. One of the possibilities in this connection is that serums or various bacterial products may be injected into the pericardium if they are of value in controlling the organisms known to cause the pericarditis under consideration. In a short series of experiments on rabbits, carried on with the assistance of Drs. E. C. Dickson and E. G. Cary, in which various irritants were injected into the pericardium to produce pericarditis, the same variability in reaction seemed evident, some animals succumbing promptly while others survived without apparent early disturbances. This may be due either to the fact that rabbits are particularly susceptible or to imperfections in technic so that the whole charge of irritant did not become well distributed in the sac.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Wilbur, R. L.: Some Relations of the Nervous Mechanism of the Heart to Drug Effects, as Indicated by Experiments on the Terrapin, The Journal A. M. A., Dec. 23, 1911, p. 2037.

The following is a brief summary of a series of experiments in which injections were made into the pericardiums of sixteen rabbits:

Rabbit 10, 0.75 c.c. emulsion of diplostreptococcus (from a case of bacteriemia).

Rabbit 11, 0.75 c.c. emulsion of diplostreptococcus (from a case of bacteriemia).

Rabbit 12, 0.75 c.c. emulsion, Gram-negative bacillus (infectious polyarthritis, chronic, from knee-joint).

Rabbit 13, 0.75 c.c. emulsion, Gram-negative bacillus (infectious polyarthritis, chronic, from knee-joint).

Rabbit 14, 0.5 c.c. emulsion *B. diphtheriae* (New York strain).

Rabbit 16, 0.5 c.c. emulsion *B. diphtheriae* (local strain).

Rabbit 17, 0.5 c.c. tincture of iodin, 100 per cent.

Rabbit 18, 0.5 c.c. tincture of iodin, 100 per cent.

Rabbit 19, 0.5 c.c. tincture of iodin, 50 per cent.

Rabbit 20, 0.5 c.c. tincture of iodin, 50 per cent.

Rabbit 21, 0.5 c.c. tincture of iodin, 25 per cent.

Rabbit 22, 0.5 c.c. tincture of iodin, 25 per cent.

Rabbit 23, 0.5 c.c. oil of turpentine.

Rabbit 24, 0.5 c.c. oil of turpentine.

Rabbit 25, 0.5 c.c. oil of turpentine.

Rabbit 26, 0.5 c.c. oil of turpentine.

Rabbits 10, 11, 13, 16, 18, 19 and 23 died within a few days, and showed no pericardial lesions.

Rabbit 14 died in about ten weeks, and showed no pericardial lesions.

Rabbits 12, 17, 20, 21, 22, 24, 25 and 26 were killed, May 25, 1914.

Rabbit 12 (Gram-negative bacillus from knee-joint): Some increase in fluid in pericardium, slight protuberance at tip of left ventricle.

Rabbit 17 (tincture iodin, 100 per cent.): Liver enlarged, congested, anterior mediastinum shows some adhesions. Pericardium distinctly thickened and adherent to chest wall. Is opaque and shows some small hemorrhages. Epicardium has numerous opaque areas. Myocardium apparently involved. Hemorrhages in lungs.

Rabbit 20 (tincture of iodin, 50 per cent.): Some adhesions, some increase in fluid, few opacities in auricle, few opaque areas in pericardium.

Rabbit 21 (tincture iodin, 25 per cent.): Some prominent vessels in pericardium, no thickening, some whitish deposits along coronary vessels in ventricles.

Rabbit 22 (tincture iodin, 25 per cent.): No signs of pericarditis, few opaque areas in auricles.

Rabbit 24 (oil of turpentine): No changes excepting some fibrous material in ventricular wall.

Rabbit 25 (oil of turpentine): No thickening of pericardium, no adhesions, whitish deposits along coronary vessels in auriculoventricular junction. Apparently some increase in fibrous tissue in auricular wall.

Rabbit 26 (oil of turpentine): Pericardium slightly thickened and opaque, slight increase in fluid, opaque and slightly elevated areas over both ventricles and auricles.

Rabbit 17.—*Section of Pericardium* (tincture iodin, 100 per cent.): There is fairly marked fibrous thickening of the pericardium, with moderate infiltration with round cells. In places strands of fibrous tissue invade the muscle for a considerable distance. There is apparently some round-cell infiltration around the smaller vessels in the more superficial portion of the myocardium, but this is not marked.

Thus, tincture of iodin in full strength when the primary shock was survived produced a typical pericarditis with thickening, and interference with the general circulation leading to a marked engorgement of the liver.

In some of the animals turpentine produced a slight effect. Injection of an organism cultured from a joint, the site of a chronic process, was without evident result on the pericardium except perhaps a slight increase in fluid. The two injected with a diplostreptococcus died early without pericardial lesions. The results obtained are similar to those just reported by Wenulet,[3] who produced pericarditis by the local injection of bacteria, various toxins and turpentine. Staphylococci obtained from a dog produced the most marked lesions. Turpentine pericarditis ran a favorable course, but in all forms there were hemorrhages into the cardiac ganglia with some infiltration and degenerations of the nervous tissues. This was particularly marked following turpentine, in which the damage to the heart was slight in comparison to that of the ganglia. The Purkinje fibers were not found to be involved in the pathologic process. Rubino[4] found that the injection of staphylococci into an animal when the region over the pericardium was chilled by ice led to infection there. Rosenow[5] has shown that certain strains of streptococci, particularly *Streptococcus rheumaticus,* include the pericardium in their predilection for certain tissues. Rehn[6] has recently described experiments on the successful removal, under the Meltzer-Auer method of anesthesia, of portions of the pericardium, and has shown that often no adhesions form between the heart and the surrounding tissue. He has also been able to relieve adhesions by various forms of plastic operations with fat and omentum. Water-soluble substances such as indigocarmin when injected into the pericardium were found to appear within five minutes in the urine. He also by the injection of iodin and vegetable albumin into the pericardium of dogs produced marked pericarditis and found that simultaneous injections of iodipin with either the iodin or vegetable albumin limited or protected the heart from adhesions which usually form. Simple oil such as olive-oil was not found by him to be as effective as oil of sesame (iodipin). We hope to have the opportunity of continuing our experiments along these lines particularly to see if the injection of some substance such as liquid petrolatum into the pericardium will resist absorption and limit adhesions and also whether or not acute processes can be modified by harmless local injections. Up to date the various experiments on pericarditis have not added much to our methods of treatment, and even the numerous studies made on the cadaver have been of limited service because tried on the normal pericardium instead of that previously subjected to inflammation with consequent loss of elasticity and strength. We must then base our therapeusis at present largely on analogy and on clinical experience.

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[2] Aran and Maller, quoted by De Lorme and Mignon: Sur la ponction et l'incision du péricarde, Rev. de chir., 1895, xv, 796; ibid., 1896, xvi, 56.

[3] Wenulet, F. F.: Russk. Vrach, 1913, No. 49; abstr., Deutsch. med. Wchnschr., 1914, xl, 38.

[4] Rubino, A., quoted by Eichorst: Les péricardites expérimentales et bactériques, Arch. ital. de biol., 1892, xvii, 298.

[5] Rosenow, E. C.: Etiology of Acute Rheumatism, Articular and Muscular; Jour. Infect. Dis., 1914, xiv, 78.

[6] Rehn, L.: Zur experimentelle Pathologie des Herzbeutels, Arch. f. klin. Chir., 1914, cii, 1.

CLASSIFICATION

For purposes of treatment, pericarditis can best be classified as:

Acute:
  A. Dry.
  B. Serofibrinous:
    1. Diffuse, with epicardial involvement.
    2. Circumscribed, usually about the base of the heart and the origin of the great vessels, or posterior (Cassaet[7]).
  C. With effusion:
    1. Simple.
    2. Purulent.
Chronic:
  A. With effusion (exudate or transudate).
  B. With adhesions:
    1. Adhesion bands.
    2. Total obliteration.
    3. External adhesions—anterior, posterior, etc.

In general we can state that the processes mentioned above are due to the many kinds of organisms capable of producing inflammation or pus, and that access to the pericardium may be obtained by extension from neighboring parts, but usually is through the arterial blood-stream. This is particularly true in rheumatic pericarditis and the pericarditis of pneumonia, tonsillitis and the various primary septic processes. The pericarditis of scurvy, which is readily treated by proper food and drainage if necessary, and that form found in late chronic nephritis which is rarely affected by treatment I shall not discuss here.

While our treatment of all forms of pericarditis is far from specific, yet early recognition is of the greatest importance and unfortunately the disease is commonly overlooked. If anything definite is to come from therapeutic measures, the early stages of all of the forms of pericarditis are the ones most susceptible to the measures that we know how to employ.

EARLY DIAGNOSIS

The main points on which early diagnosis of dry and serofibrinous pericarditis depend are:

1. Feeling of oppression or peculiar tension over the cardiac region with a sense of anxiety.

2. Pain, spontaneous, often nocturnal, noticed most frequently over the heart, but also within the chest, radiating at times into the abdomen near the navel, also to the back, the left shoulder and even up to the left side of the neck. The pain may be increased by pressure at times and there is apt to be tenderness just below the left nipple in association with it. Since this tenderness also occurs in many patients with beginning decompensation and dilatation of the ventricles, not too much stress must be laid on it. Pain is also often markedly increased by movement, deep inspiration, swallowing and cough. In some patients pain is entirely absent.

3. Marked cardiac irritability with abnormal increase in the heart-rate on change in position or on exercise. Irregularity is common, evidently suggesting the involvement of the nervous apparatus. This irritability is apt to persist for some time even after the acute process seems to have subsided.

4. A friction rub, diastolic, systolic, or both, heard most clearly at some particular point over the heart and variable at times with change in position. Reliance cannot be placed on friction alone without other evidence, since it may come from the so-called *Sehnen-Flecken*, the significance of which is still a matter of dispute.

5. Fever is not always present, but pericarditis is often the cause of a cryptic fever. There may also be evidences early of a marked cardiac disturbance—dyspnea, cyanosis, etc., but these are not distinctive of the condition.

It is encouraging that we see occasionally a pericarditis which rapidly disappears. It is the only evidence at times of an infection probably with the *Streptococcus rheumaticus*. It is also striking that a complete return to normal can take place even when there is most marked inflammation of the pericardium. McPhedran describes a patient in whom there was apparently complete recovery from a well-marked fibrinous condition which distended the pericardium so much that it led to a number of fruitless aspirations. Just why some patients recover readily without apparent damage while others, in whom evidently the etiology is the same, are left with adhesions, even obliteration of the sac itself, is quite unknown. The amount of involvement of the surrounding tissues, particularly the myocardium and endocardium and pleura, no doubt plays a prominent part in the clinical course of many of these patients, and evidence should always be sought in pericarditis for such involvement. The main therapeutic indications are to give physical rest, combat the local inflammation, and when rheumatism is suspected, administer promptly the salicylates in quantity. The experience of Eichhorst, who describes the prompt relief seen in patients with pericarditis without other treatment than the salicylates and without further disease manifestations, has no doubt been shared by all of us.

LOCAL MEASURES

An ice-bag applied at intervals is probably the most effective whenever the heart-action is markedly accelerated. Romberg doubts the wisdom of its use in cases with a rheumatic origin, and the work of Rosenow showing the favorable effect of low temperature on the growth of *Streptococcus rheumaticus* indicates the soundness of his belief. It is difficult to state whether the favorable effect of the cold is due to the general influence of the lowered temperature on the activity of the inflammatory process or is the result of a vasomotor reflex. Heat gives more relief in certain patients, particularly the aged and asthenic. The application of leeches, painting over the heart with tincture of iodin, the use of Spanish fly blisters, either the large ones recommended by Bamberger, or the numerous small blisters advised by Caton, have often proved of marked value in my experience. The galvanocautery is a satisfactory form of counter-irritation. In general, it is most important for the patient to be put on a simple diet, to be given salines so as to avoid strain at stool, to be kept in partially upright position and above all to have the pain in the chest relieved by some form of opium. Morphin hypodermatically may be necessary, but since it often produces subsequent vomiting with strain on the heart, it is better to use regularly suppositories of opium, hyoscyamus and belladonna when they prove effective. Veronal must be used with great care in severe pericarditis, as in fact in all cardiac lesions, since at times it has a marked depressing effect on the heart. It is most important in this connection to remember that patients presenting various stenocardiac evidences, particularly when they are non-smokers, not of neurasthenic or hysteric habit and when fever is present, should be investigated for the pericardial rub that may clarify the picture. Stimulants should not be regularly given, but the usual ones, particularly caffein and camphorated oil, should be available for the sudden emergency which is apt to arise in any patient with severe pericardial inflammation. Quinin is often of value when there is a high temperature in pericarditis. With signs of decompensation, digitalis is to be used. Some have thought that its effect in increasing the force of the systole might also interfere with the formation of adhesions, but it is difficult to judge whether a rapid rate or a forcible beat is most effective in this particular.

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[7] Cassaet, E.: La péricardite postérieure, Paris, Masson et Cie., 1914.

ACUTE PERICARDITIS WITH EFFUSION

Treatment.—Here also early recognition is of greatest importance. The marked change in the elasticity and extensibility of the pericardium when it is the site of inflammatory processes produces such conditions that the experiments of Rotch,[8] Ebstein[9] and many others are not a criterion as to what may happen in a pericardium in which effusion is taking place. The greatest difficulty is the confusion with dilatation of the chambers of the heart and the fact that clinical experience and such experiments as those of François Frank[10] have shown that the effect of a large effusion on the heart is similar to that of the vasomotor paralysis seen at times in acute infections.

Early Diagnosis.—The surest sign in doubtful cases is the gradual increase of the cardiac dulness with the coalescence of the borders of the absolute and relative areas of cardiac dulness. With this there is often the somewhat characteristic percussion figure of a blunt triangle with the base below and the left border extending beyond the apex-beat, an obtuse angle of dulness at the right cardiohepatic junction and muffled heart-sounds often with friction over the left ventricle. Roentgen-ray observations are often of much value. The danger of the sudden increase in the amount of fluid must be recognized when the pulse becomes rapid, small and irregular with marked dyspnea, for sudden paralysis of the heart is possible. The general and local symptoms are often alike in both purulent and simple effusion, and in both effusions may be present without physical signs.

The only satisfactory treatment for such effusions, either when acute and menacing or when they fail to absorb after two weeks, is aspiration. Treatment by diaphoretics, purgation and diuretics may be carried on with very great care if the amount of fluid is not great, and as it disappears often, they may seem at times to be effective. The tolerance of the heart for large amounts of fluid in the pericardial sac when it forms slowly is remarkable.

Aspiration.—Numerous studies have been made as to the best method of aspirating the pericardium. It now seems most probable that even in large exudates there may be only a very thin layer of fluid between the heart and the chest wall, or the heart may be entirely uncovered anteriorly, not showing the sinking due to its higher specific gravity that has been so often described. There have been many changes in the technic recommended. The methods of Dieulafoy,[11] Schaposchnikoff,[12] Aporti and Figaroli,[13] De Lorme and Mignon,[2] Curschmann and others are all at variance. We can safely say that aspiration should be preceded by puncture with a small syringe and that it should be, if possible, done in the fifth interspace about 1 inch inside of the area of absolute cardiac dulness. Here there is some danger of going through the pleura, but usually it is adherent. The danger of puncturing the heart except in the strong left ventricle is insignificant. When there is marked dulness to the right of the sternum, puncture can be made there, but the danger is greater owing to the thinner wall of the right ventricle. It is a safer procedure to make a small incision in the skin under local anesthesia if necessary as deep as the pericardium when a pyopericardium seems probable. Aspiration is best done with a very sharp trochar of the Curschmann type, draining either by siphon, syringe or aspirator. A curved trochar can be used to reach the posterior pericardium, or better still a fine rubber catheter passed through the trochar to explore the cavity. The character of the effusion as discovered by the exploratory puncture is of great importance in deciding on the treatment which should be adopted. Barkan and Lucas[14] recommend the same treatment for pyocardium as for empyema. If a distinctly purulent fluid is obtained, incision and drainage should be done promptly, laying bare the pericardium under the cartilage of the fourth or fifth rib and making a careful opening without going through the pleura. The mammary arteries can be tied if necessary. The presence of hemorrhagic fluid does not necessarily mean that there is a tuberculous or malignant condition present, as the capillaries of the pericardium are apt to be broken readily in the adhesions which are torn by the movements of the heart. The removal of a small amount of nonpurulent fluid is often sufficient to stimulate the absorption of the rest, but as much as possible should be withdrawn. The fact that very thick serofibrinous exudates may simulate fluid, and that pleurisy with effusion is often likewise present, should be borne in mind.

Our present information does not warrant us in injecting remedial substances into the pericardial sac after the withdrawal of simple effusions, and great care should be used even in tuberculous pericarditis

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8. Rotch, T. M.: Absence of Resonance in the Fifth Right Intercostal Space Diagnostic of Pericardial Effusion, Boston Med. and Surg. Jour., 1878, xcix, 389.

9. Ebstein: Discussion of Rotch's Sign, etc., Virchows Arch. f. path. Anat., 1892, cxxx, 418.

10. Frank, François: Recherches sur le mode le production des troubles circulatoires dans les épanchements abondants du péricarde, Gaz. hebd. de méd., 1877, xiv, 455.

11. Dieulafoy: Traité de l'aspiration des liquides morbide, Paris, Masson et Cie., 1873, p. 264.

12. Schaposchnikoff: Zur Frage über Pericarditis, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1897, ii, 86.

13. Aporti and Figaroli, P.: Zur Lage der akut entstandenen Ergüsse im Herzbeutel, Centralbl. f. inn. Med., 1900, xxi, 737.

14. Barkan, H., and Lucas: Acute Suppurative Pericarditis in Infancy, Boston Med. and Surg. Jour., 1912, clxvi, 444.

in injecting foreign substances such as iodin and formaldehyd because of the possibility of damaging the nervous mechanisms of the heart with possible collapse. The chronic forms of pericarditis with effusion are to be handled about as are the acute ones except that the measures used can be somewhat more radical.

Pericarditis with Adhesions. — The treatment depends largely on how exact a diagnosis can be made in a condition that is usually not recognized. As Tornai[15] has pointed out, these patients all present individual characteristics since there is marked variance in the adhesions, their direction and their strength. A few patients show the depression on deep inspiration which he calls "inspiratory funnel-breast," "Complete obliteration of the pericardium may occur without clinical evidences" (Smith[16]), but there are apt to be some signs of cardiac involvement and decompensation whenever adhesions are of the type that cause symptoms. This is apt to be manifested particularly by enlargement of the liver.

The Roentgen ray at times gives valuable evidence of the extent and course of the adhesions. In some patients the pain when the pericardium is adherent is similar to that of true angina pectoris. In acuter attacks this has been ascribed to the inflammation extending to the cardiac nervous mechanism, and these symptoms may be grave enough to be followed by death, although usually the pain appears only on exertion or on exposure to cold, or is a manifestation of beginning decompensation. Unfortunately there is apt to be associated with many cases of pericarditis a certain amount of myocardial change; but this is not necessarily true, as the myocardium often remains intact unless a secondary hypertrophy and dilatation follows the resulting pericardial adhesions.

A few adhesions probably mean but little, and can be regarded as the natural scar following inflammation; but when they become thick and firm and interfere with either ventricle or auricle, or lead to obliteration or involve the mediastinum or neighboring pleura, they cause marked disability. This is particularly noticeable when they involve the great vessels running from the heart. Taylor has shown that about one-third of these patients show pleural adhesions.

Pain when present is often difficult to control, but is frequently relieved by such remedies as the salicylates (aspirin, etc.), with local warmth and physical rest. Deep breathing and moderate exercise at the proper periods are probably of value in preventing adhesions both of the pericardium and the pleura, and also in bringing about their destruction by stretching the connective-tissue cells.

When the external adhesions are so extensive that systolic retraction of the intercostal spaces (Broadbent's sign) or systolic retraction of the thorax over the heart is noticed, operative measures should be considered, since when the adhesions are external they can be dealt with surgically, as undoubtedly could also adhesions between the epicardium and the sac provided they were recognized and localized.

If we can eliminate aortic stenosis and general atheroma as causes of the retraction, an early operation, the so-called "cardiolysis," which has been brought into more extensive use by Brauer,[17] is in order. His reports are quite satisfactory, and a recent one by Delagenière[18] of thirty-eight cases in which thirty-one gave good results is worthy of attention. The mechanical interference with the cardiac chambers is often of the greatest consequence. The amount of damage done is greater if the myocardium is at the same time involved. When the endocardium is affected, the opportunity for surgical relief is not so great, but nevertheless may be valuable in reducing disability. Whether or not the adhesions interfere with the diastole or systole is not important. The Brauer operation does not require penetration of the pericardial sac, but under local or general anesthesia the cartilages of the fourth, fifth, sixth and seventh ribs for from 10 to 12 cm. from the sternum are removed. The sternum is not disturbed. The rib periosteum can be removed or not, according to the condition. Its removal prevents bone regeneration, but increases somewhat the danger of the operation. The results obtained depend largely on the extent of the adhesions and the condition of the cardiac muscle.

It seems clear that we have in Brauer's method or in some one of the other forms of operative relief from these adhesions a method of prolonging life which should be tried much more often than is at present the rule. Early diagnosis of the condition before marked secondary myocardial changes have taken place is again here of importance. When we have a definite retraction of the lower left ribs with systole with the cardiac dulness not changed by respiratory movement and with the lateral postural movement of the heart absent, especially if the Roentgen-ray evidence fits into the picture, we can expect good results from the operation. The time may come when a direct intrapericardial operation will be desirable, but now certainly some such operation as that of Brauer is the one from which the best results can be obtained. In this operation it is desirable to make a small opening into the pericardium to be sure that the diagnosis is correct before the more extensive removal of the ribs is practiced.

CONCLUSIONS

1. The accessibility of the pericardium makes local treatment valuable and surgical treatment possible, and leads to the hope that further study may permit the application of remedies directly to the interior of the acutely or chronically inflamed sac. Induced pericarditis in animals offers a good field for study along this line.

2. Early diagnosis of dry or serofibrinous pericarditis permits of the most effective treatment and must be based largely on (*a*) vague feeling of oppression in the chest or actual pain, (*b*) cardiac irritability and (*c*) friction rub.

3. Early aspiration, preferably to the left of the nipple-line, is of value in the diagnosis of pericardial effusion, and tapping should be practiced when the heart-action is markedly disturbed from apparent increase in intrapericardial pressure.

4. The Brauer method should be more often used in patients with the evidences of pericarditis with adhesions and with early signs of cardiac hypertrophy

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[15] Tornai, Josef: Beiträge zur Symptomatologie der adhäsiven Pericarditis, Berl. klin. Wchnschr., 1913, No. 39, p. 1792.

[16] Smith, William H.: Chronic Adherent Pericarditis: A Study of Sixty-Two Cases, The Journal A. M. A., Sept. 6, 1913, p. 739.

[17] Brauer, L.: Die Behandlung der Herzbeutelentzündungen und Verwachsungen, Hamburg. med. Ueberseehefte, 1914, i, 7.

[18] Delagenière, H.: De la péricardiolyse dans certaines affections cardiaques ou de la thoracetomie prépéricardique, Arch. d. mal. du cœur, 1913, vi, 633.

or dilatation. It will often diminish disability and markedly prolong life.

5. Careful attention should be paid to the differentiation of pain in the region of the heart due to pericarditis (acute or chronic) from true angina pectoris, since the prognosis is necessarily so different. Careful and repeated examinations for a friction rub should be made over the whole cardiac area in patients with precordial pain.

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ABSTRACT OF DISCUSSION

Dr. Samuel James Meltzer, New York: In pericarditis it may be necessary to make a wide opening or to remove, if necessary, one or two ribs and sometimes five ribs. I had an experience some eighteen years ago with a case in which we did not agree on the location of the trouble. I said it was pericarditis with effusion and my consultant said it was empyema and the patient was operated on. Two weeks later when seeing the patient I said the pleural cavity had not been opened but instead the pericardium and during these two weeks it was being washed out twice a day with corrosive sublimate. The patient died three weeks later, but it gave me an idea as to how much the pericardium can and will stand.

THE ABUSE OF NORMAL SALT SOLUTION*

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The presence of a relatively large proportion of sodium chlorid in our bodies harks back to the composition of sea-water at the time when our ancestors were ameboid inhabitants of the primeval ocean. To a certain amount of sodium chlorid our organisms are habituated, and that amount has become essential to our well-being; larger amounts, however, are toxic unless promptly eliminated.

The regulation of the inorganic composition of the blood was the primal function of the simple organs from which our kidneys have developed. The elimination of the waste-products of metabolism came later. Our kidneys now regulate blood concentration and also the proportion of the various ions, preserving the acid-base equilibrium; and, in addition to these primal functions, the kidneys must now dispose of large amounts of organic waste matter—toxic substances of endogenous and exogenous origin.

These waste products are often far more toxic than the excessive amounts of inorganic salts. Nevertheless, since the primal function of an organ remains ever its predominant activity, if the inorganic balance in the blood is disturbed, that disturbance receives the more or less exclusive attention of the kidneys, though organic acids and toxins may in consequence accumulate in the blood-stream.[1] Hence the danger of flooding the organism with inorganic salts, which peremptorily demand prompt elimination. Hence, also, the fact that an excess of sodium chlorid may cause symptoms which vary in accordance with the particular toxins which happen to be retained, because the kidney function is more or less monopolized by the elimination of the excess of sodium chlorid.

A harmful amount of sodium chlorid in the human body results more frequently from the employment of normal salt solution. This solution is used for the following purposes:

1. For increasing the volume of the blood, as after severe hemorrhage or prolonged starvation.
2. To wash out toxins from the system, as after anesthetics, gas poisoning, and certain infectious or toxic diseases, by raising the blood-pressure, stimulating the action of the kidneys, etc.
3. To increase the resistance of the organism to disease.
4. To counteract the effects of shock.
5. By enteroclysis, to relieve thirst when water cannot be taken by the mouth.
6. For carrying out the so-called Fischer treatment of nephritis.

In the latter case, the solutions used are rendered still more dangerous and toxic by the increased percentage of sodium chlorid.

The solutions used for the foregoing purposes may be introduced into the system by the following routes: first, by the mouth and stomach; second, by the rectum or colon—the "Murphy drip"; third, by hypodermoclysis; and fourth, by direct infusion into a vein.

Because in certain postoperative cases the patients were found to stand in need of an artificial increase to the blood-serum, it was decided to give them water by the bowel. Because living laboratory specimens *in vitro* did better in isotonic solutions and because it was believed that the mucous membrane would be irritated by contact with any solution that was not isotonic, sufficient salt was added to the water to render it isotonic, for enteroclysis. With a rapidity which is hard to understand, the postoperative administration of large amounts of salt solution by the Murphy method has become almost routine in a large number of surgical clinics, with far too little regard to the needs of the individual case and the dangers involved in this procedure. The argument seems to be, if it is good in certain cases, why not give it to all and thus run no risk of missing any cases that really need it?

While evidence of the harmful effects of sodium chlorid has been accumulating, and while the conviction has been growing in the minds of many that this treatment is greatly overdone and productive of much harm,[2] Dr. Trout[3] has demonstrated by a series of over two thousand cases that ordinary hydrant-water is better than salt solution for such treatment. More water is absorbed, the postoperative thirst is more quickly relieved, and the toxic effects of salt are avoided.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Macallum, A. B.: The Inorganic Composition of the Blood . . . and Its Origin, Proc. Roy. Soc., B, 1910, lxxxii; The Ancient Foundations of Heredity, Can. Med. Assn. Jour. January, 1911.

[2] Rössie: Gibt es Schädigungen durch Kochsalzinfusion? Berl. klin. Wchnschr., Sept. 18, 1907.

Blum: Les dangers des injections intraveineuses alcalines: effets toxiques du sodium, Sem. med., 1911, xxxi, 433; abstr., The Journal A. M. A., Oct. 21, 1911, p. 1408.

Geyser: The Use and Abuse of Normal Salt Solution, Am. Med., January, 1914, p. 57.

Christian: Experimental Nephritis, Boston Med. and Surg. Jour., 1908, clviii, 416.

Lepine, J.: Hystérie, insuffisance rénale, rétention chlorurée, Rev. de méd., September, 1911.

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Burnett, Theodore C.: On the Production of Glycosuria in Rabbits by the Intravenous Injection of Sea Water Made Isotonic with the Blood, Jour. Biol. Chem., 1908, iv, 57.

Guthrie, C. C.: The Effect on the Kidneys of Temporary Anemia, Alone and Accompanied by Perfusion, Arch. Int. Med., March, 1910, p. 232; Quart. Bull. Med. Dept. of Washington Univ., December, 1908, p. 47.

Bain, John: Excessive Ingestion of Salt Producing Oedema, Brit. Med. Jour., Oct. 5, 1912, p. 880, Stevenson, A.: Brit. Med. Jour., Dec. 28, 1912, p. 1749.

[3] Trout: Proctoclysis, The Journal A. M. A., May 4, 1912, p. 1352; Southern Med. Jour., 1913, No. 12, p. 791; Surg. Gynec. and Obst., May, 1913, p. 560; Progr. Med., June, 1914.

It should go without saying that neither of these methods of postoperative enteroclysis should be employed without special indications, and then only in the absence of edema or symptoms of threatened cardiac failure from overburdening of the cardiovascular system. In toxic conditions with no evidence of cardiac insufficiency an increase in the mass of circulating blood, with the consequent increased activity of the kidneys, is certainly beneficial. The same is true when the toxic effects of the anesthetic persist unduly. When there is prostration from loss of blood during the operation or from diminution of the quantity or quality of the blood before operation, as from persistent vomiting or diarrhea, toxic conditions or inanition, an increase of the volume of the blood-stream is strongly indicated. In true shock, that is, vasomotor paralysis, particularly of the splanchnic vessels, often accompanied by acute dilatation or overdistention of the right heart, the addition of any considerable amount of fluid to the afferent vessels seems to me to be distinctly contra-indicated. In such cases the flickering spark of life may be snuffed out by the extra load put on the heart. Postoperative thirst can be relieved by very moderate amounts of a suitable solution by enteroclysis. This does not involve the dangers incident on the employment of large amounts of fluid.

The classic demonstration of Widal and the work of Minkowski, von Noorden, Friedrich Müller, Kraus, Magnus Levy, H. Strauss and many others have demonstrated beyond cavil a definite relation between chlorid retention and edema—the inability of damaged kidneys to eliminate urine high in sodium chlorid, the consequent chlorid retention, water retention, and toxic effects on the tissues—overburdening the cardiovascular system and producing more or less general edema.[4]

Just as this useful knowledge of chlorid metabolism was beginning to make itself felt in the treatment of cardiorenal cases, postoperative and other toxic cases, a book appeared, written by a professor of physiology who is also an internist, and endorsed as a prize essay by a body of judges whose names rightly demand respect.[5] This book calmly disregarded all the work just mentioned and has seemed to stem the beneficent spread of knowledge and plunge the medical profession with renewed enthusiasm into fallacious practices. Cardiorenal cases that we had come to believe were suffering from chlorid retention, water retention, and many consequent evils, are now treated exclusively by very many conscientious physicians with alkalies, sodium chlorid and excessive amounts of water. Protests from research laboratories have been published by Henderson, Palmer, Newburgh,[6] Moore[7] and Sellards[8] but these are slow in reaching the circles where the harm is being done.

The mechanical effect of the introduction of a large amount of any isotonic or hypotonic solution to the blood-stream, in cases in which heart is almost spent or in which hypertension has reached a dangerous degree, may promptly lead to disaster. An example of each of these two varieties has come under my personal observation within the past year.

Case 1.—To a patient with a double pneumonia, in an extremely toxic condition but with apparently a good heart and no evidences of edema of the lungs, an isotonic intravenous infusion was ordered. The intern who took the order was doing double work and did not get around to this case for four or five hours. The patient then had edema of the lungs and tracheal râles. The infusion, however, was given without consulting the physician who gave the order and the patient promptly died.

Case 2.—A patient with advanced cardiovascular fibrosis, with a systolic pressure of 220, was found by the physician whom he consulted to have albumin and casts. A flushing out of the kidneys was decided on and 3 quarts of water and 3 quarts of milk were ordered to be taken in each twenty-four hours. In about six weeks the patient began to bleed from the nose, and this bleeeding continued for twelve days off and on, causing great anxiety and necessitating repeated plugging of the anterior and posterior nares. In this case the profuse and continued hemorrhage from the nose probably saved the patient's life for the time being.

A hypertonic solution, however, provided it is nontoxic, may do yeoman service in such a case, lessening the heart's load by its dehydrating and diuretic effects.

If the case really needs a prompt addition to the blood-serum, the most prompt, direct, scientific and comfortable way of bringing this about is by venous infusion. Thus we avoid the uncertainty of absorption from the digestive tract, and the great discomfort of hypodermoclysis.

The advent of salvarsan has given a great impetus to intravenous medication and widely popularized its technic. But when we turn from enteroclysis to the more scientific intravenous infusion we naturally meet new dangers, which certainly have not as yet received proper consideration. Water for intravenous use must be not only sterile but also non-toxic. The fact that water has been freshly distilled or sterilized by boiling does not prove that it is innocuous. It may contain many harmful products of distillation or toxic substances set free from killed bacteria. The original source of the water should receive careful consideration. Water containing much organic matter should not be used for distillation if any other can be obtained. If it must be used, porcelain filtration should precede repeated distillation. The temperature of the solution as it enters the vein is also highly important. A thermometer should be inserted in the tubing near the needle, in order that the temperature of the solution as it enters the circulation can be accurately controlled.

The beneficent effects of directly increasing the blood-serum in many surgical conditions is well established and, in strictly medical cases, Osler and many others attest its value. I have myself seen good effects follow its use in pneumonia, typhoid fever and other conditions too often to doubt its efficacy.

While recognizing the great value of artificial serums in the way of deintoxication, diuresis, cardiac stimulation, etc., I can find no justification for the sodium chlorid except in the case of a patient actually suffering from chlorid starvation—as possibly after a too vigorous application of the salt-free diet—or for control of obstinate recurrent pulmonary hemorrhage.

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[4] Borchardt: Deutsch. med. Wchnschr., 1912, xxxviii, 1723.
Smith, Richard M.: Recent Contributions to Our Knowledge of Nephritis, Am. Jour. Dis. Child., May, 1914, p. 389.

[5] Fischer: Nephritis, 1911 Cartwright Prize Essay, New York, John Wiley & Sons, 1912.

[6] Henderson, Palmer and Newburgh: Jour. Pharm. and Exper. Therap., 1914, v, No. 5. Newburgh: Boston Med. and Surg. Jour., 1913, clxix, 40.

[7] Moore, A. R.: Fischer's Theory of Edema and Nephritis, The Journal A. M. A., Aug. 10, 1912, p. 423; Edema and Nephritis, ibid., Feb. 1, 1913, p. 345; A Controverted Theory of Nephritis, ibid., June 20, 1914, p. 1971.

[8] Sellards: The Essential Features of Acidosis, etc., Johns Hopkins Hosp. Bull., May, 1914, p. 141. See also review of Dr. Fischer's book, Arch. Int. Med., May, 1912, p. 637. Comment on G. Salus, Biologische Versuche mit Organplasma, Biochem. Ztschr., 1914, lx, 1.

Haig[9] has recently asserted that a deficiency of sodium chlorid plays an important rôle in the etiology of neurasthenia and various associated conditions.

In dextrose, on the other hand, we have a substance which has been recognized by physiologists since the days of Claude Bernard as in the highest degree nontoxic, diuretic, nutritious and easily assimilated. If introduced slowly, either by enteroclysis or by intravenous infusion, in isotonic or hypertonic solutions, very large amounts will be utilized by the organism without the occurrence of glycosuria, or with the loss through glycosuria of only a negligible percentage of the sugar administered.

In the summer of 1907, at the suggestion of my associate, Dr. James P. McKelvy, I substituted glucose solution for the usual normal salt solution in my wards at the West Penn Hospital. We were running a large number of typhoids, from sixty to seventy-five per month, with a mortality of from 9 to 10 per cent. Enteroclysis was administered in all cases in which condition of the patient seemed to indicate such an addition to the blood-stream. We noted a decided advantage from the substitution of glucose for the sodium chlorid previously employed. If my memory serves me, glycosuria was not noted in any of the cases.

In March, 1909, Dr. McKelvy carried out the following experiment at the Allegheny General Hospital, which I shall report in full, as it has never been published:

Case 3.—A patient aged 48, weight 142 pounds, was admitted for bronchial asthma, in an emaciated condition, with moderate emphysema, arteriosclerosis and slight cardiac hypertrophy. He was kept in bed and fed by mouth milk and other liquids, to which were added milk-sugar. Enteroclysis was given continuously and consisted of 15 per cent. glucose solution. The expelled fluids were collected in a rubber bed-pan, the twenty-four hour amount mixed and measured and the sugar determined by fermentation. This was continued for forty-eight hours. The stools were saved and analyzed for sugar for several days. For the first twenty-four hours following the test the amount was 35 gm.; after that it was negligible. The record of sugar absorbed is given in the accompanying tabulation.

The urine at no time showed sugar, although the patient absorbed 1,326 gm. and 1,237 gm. on the first and second days, respectively. If we take the blood-weight of a 70-kg. man as about 5,000 c.c., then 1,326 gm. would represent 26 per cent. of the blood-weight absorbed in twenty-four hours, or 1.08 per cent. in one hour, or 0.18 per minute. It represents over 5,400 calories in twenty-four hours.

If we assume that liver, muscles and blood were drained of sugar, the amount absorbed would restore, during the first day, their normal content—liver 150 gm., muscles 150 gm., blood 10 gm., and still leave over 1,000 gm. to be accounted for.

Recently a great deal of attention has been paid in Europe, particularly in France, to the use of hypertonic solutions of dextrose intravenously. Enriquez[10] reports the use of a 30 per cent. solution intravenously in more than fifty patients, giving from 250 to 300 c.c., repeated three or four times in the twenty-four hours. The essential feature in the technic is that the hypertonic dextrose solution enters the blood-stream very slowly, one hour being occupied for the infusion of from 250 to 300 c.c. Enriquez asserts that when thus given the glycogen is stored in the liver and muscles, including, of course, the myocardium, and the glycemia varies within normal limits rarely, and then only for short periods passing the three parts per thousand, which was found by Claude Bernard to be the point at which glycosuria would appear. I might mention here that Wilenko[11] asserts that the presence of large amounts of sugar in the blood modifies the permeability of the kidneys for sugar, the effect being first a transient increase, and then a decrease of renal permeability; also that sugar solutions affect the osmotic pressure much less than salt solutions.

Enriquez found 4 or 5 gm. of glucose at the most in the urine during the first two hours after infusion, and none later. Even in two cases of alcoholic cirrhosis with ascites the result was the same. In none of the cases was sugar found in the feces. Examination of the blood showed no evidence of hemolysis, no change in the red blood-corpuscles, no icterus, and no blood-pigment in the urine. Some of his patients received as many as thirty intravenous infusions.

RECORD OF ABSORPTION OF SUGAR IN CASE 3

FIRST DAY

Solution administered by enteroclysis,	8,192 c.c.	
containing 15 per cent., or......		1,200 gm. of glucose
Solution expelled	7,496 c.c.	
containing 5.75 per cent., or......		430 gm. of glucose
Balance of glucose absorbed by bowel..		770 gm.
Sugar in milk foods.......	90 gm.	
Lactose by mouth.........	466 gm.	
Total sugar by mouth.....		556 gm.
Glucose by rectum........		770 gm.
Total sugar absorbed.....		1,326 gm.

SECOND DAY

Solution administered by enteroclysis,	7,650 c.c.	
containing 15 per cent., or.....		1,147.50 gm. of glucose
Solution expelled	7,810 c.c.	
containing 6.1 per cent. or......		476.41 gm. of glucose
Balance of glucose absorbed by bowel		671.09 gm.
Sugar absorbed in food....	86 gm.	
Milk-sugar by mouth......	480 gm.	
Total sugar by mouth.....		566 gm.
Glucose by rectum........		671 gm.
Total sugar absorbed......		1,237 gm.

Urine	*Before test*	*Second day of test*
Amount in 24 hours	2,100 c.c.	1,800 c.c.
Total N	10.5 gm.	12.30 gm.
Urea	15.9 gm.	21.60 gm.
Urea N	7.4 gm.	10.08 gm.
Percentage of urea N	70 plus	82 plus

Microscopically, occasional hyaline cast.

Estimating the caloric value of dextrose as four to the gram, one can see at a glance the great nutritive value of this treatment. Enriquez lays great stress on the dangers of chlorid retention when salt solutions are used and on the fact that dextrose in hypertonic solutions may be used in cases in which any isotonic solution, and particularly isotonic saline solution, is contra-indicated, as in cases of general edema or edema of the lungs, with tracheal râles, because the dextrose is absolutely non-toxic and because the hypertonic solution actually draws water from the tissues into the blood-stream. He reports in detail a case of bronchopneumonia in a man aged 67, with a temperature of 104 F., pulse 150 with fetal rhythm, tracheal râles, carphologia, and urine about 200 c.c. in twenty-four hours. This patient promptly improved as soon as the hypertonic dextrose infusions were instituted. In another case, one of carbonic monoxid poisoning, the patient, who was brought in cyanosed, semicomatose, with rapid thready pulse, high temperature, rigidity of the neck, etc., received a liter of the 30 per cent. solution of dextrose intravenously every day for a week, with recovery. The remainder of his cases included cases of advanced uremia with oliguria, acute inanition, profound prostration in typhoid fever, postoperative conditions, and as a preparation for operation in desperate cases. In certain cases of cardiac edema, with hyposystole or asystole, the intravenous infusion was preceded by phlebotomy. In these cardiorenal cases, he noted a prompt and very satisfactory diuresis, together with a marked improvement of the tone of the heart-muscle. He therefore asserts that all cases in which the clinical danger is measured by the diminution of the urine are benefited by this treatment.

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[9] Haig: Med. Rec., New York, 1914, lxxv, 1017.

[10] Enriquez: Presse méd., Feb. 14, 1914; abstr., The Journal A. M. A., March 28, 1914, p. 1054.

[11] Wilenko: Zur Wirkung intravenöser Einspritzungen, u. s. w., Arch. f. exper. Path. u. Pharmakol., 1911, lxvi, 143.

Beddard[12] asserts that dextrose is an active diuretic, which, though it diminishes the percentage of sodium chlorid in the urine, increases the total elimination.

Fleig[13] states that of all known substances, glucose is by far the least toxic, much less toxic than sodium chlorid and far more diuretic and at less expense to the kidneys. To the diuretic effect of lavage of the isotonic solution, the hypertonic solution adds diuresis by dehydration of the tissues. Accompanying this there must go on a deimpregnation of the tissues as regards waste products and toxic substances. When there is no particular indication for the dehydration or deintoxication of the tissues, isotonic solutions may be used, but in all urgent cases hypertonic solutions are strongly indicated. Fleig asserts that the direct stimulating effect on the heart-muscle by the dextrose and its effect on the liver, increasing the antitoxic function of the latter organ, make it particularly indicated after anesthetics, and for that purpose he advises the addition of a small amount of calcium chlorid to the solution—from 0.2 to 0.4 per cent. He has noted relief of postoperative vomiting after the use of dextrose. He prefers isotonic dextrose solutions to salines as a diluent for salvarsan in either acid, alkaline or neutral solutions. This permits its administration in cases in which the condition of the heart or kidneys contra-indicates the use of sodium chlorid.

When the organism has been already dehydrated by vomiting, diarrhea, or hemorrhage, Fleig advises the use of a hypotonic solution of dextrose—20 gm. to the liter, or 40 gm. of lactose. In these cases, a hypotonic solution of sodium chlorid may be employed if there is no contra-indication in the form of a nephritis. In cases of acodisis, he recommends the combination of dextrose with sodium bicarbonate—from 2.5 to 10 per cent. dextrose, and from 0.7 to 3 per cent. sodium bicarbonate.

CONCLUSIONS

1. The administration of any artificial serum as routine postoperative practice is questionable therapeutics.

2. Too much water may fatally embarrass the heart.

3. Too much salt may fatally embarrass the kidneys.

4. When fluids cannot be taken by the mouth, thirst may be relieved by tap-water or by isotonic dextrose solution given by enteroclysis. The dextrose solution is preferable when there is danger of acidosis and in all cases of inanition.

5. When there is a distinct indication for an artificial addition to the amount of the circulating blood-serum, this may best be accomplished by the use of dextrose solution: isotonic (5.1 per cent.) by enteroclysis; isotonic, hypertonic (up to 30 per cent.), or hypotonic (2 per cent.), by intravenous infusion.

6. There are no contra-indications for the use of dextrose, but often serious contra-indications for the use of saline solutions.

7. In all urgent cases the intravenous method is preferable.

8. Greater care should be exercised to see that all water used intravenously is not only sterile but also non-toxic.

9. In medical practice artificial serums should be more frequently employed: (1) isotonic or hypotonic (*a*) after severe hemorrhage, exhaustive vomiting, or diarrhea; or (*b*) in cases of extreme inanition; (2) hypertonic (*c*) in toxemic cases, including eclampsia and uremia; (*d*) in cases of oliguria with threatened uremia; (*e*) to combat acidosis, or (*f*) in toxic states, as after anesthetics, gas, morphin poisoning, etc.

10. Dr. Fischer's theory of nephritis is a gratuitous hypothesis and his recommendations as to treatment are not justified either by established physiologic facts or by clinical experience.

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ABSTRACT OF DISCUSSION

Dr. John F. Anderson, Washington, D. C.: It is advisable to have distilled water. Is there any difference in the use of freshly distilled water or water that has been distilled for some time?

Dr. Ray L. Wilbur, San Francisco: My experience is similar to Dr. Litchfield's with regard to these solutions. Some of the same precautions concerning the use of serums apply to all forms of intravenous solutions. The recommendation we have had from Dr. Litchfield should not mislead physicians to use it too freely.

Dr. John A. Lichty, Pittsburgh: It is through Dr. Litchfield's work that I took up the substitution of glucose for normal salt solution. I think his paper is timely in calling attention to the routine use of normal salt in surgical clinics. I have for a long time noticed the appearance of acetone and diacetic acid in the urine in cases in which, for certain reasons, we starved the patient, as in gastric ulcer. Formerly I used rectal feeding but since knowing of the use of glucose I substitute this for other food by rectum. It is a question whether any good is being done by rectal feeding: I cannot answer this question except by experience. Since using glucose solutions in gastric ulcer I see less of the symptoms of acidosis in these cases, which I think is a strong recommendation of Dr. Litchfield's conclusions. I have had an experience which showed me this was the proper procedure: I saw, eight years ago, a case of hyperthyroidism. This patient apparently recovered and I did not see her again until one month ago when the symptoms were more marked—elimination of 6 ounces of sugar a day. I reduced the carbohydrates thinking thereby to control the sugar output. When I saw the patient later the sugar was 1 ounce a day and she was better and said she would rather go without the carbohydrates. Within twenty-four hours I was called and the patient had symptoms of diabetic coma. I felt responsible for the condition and gave her glucose to drink and per rectum. The pulse was 170; patient was delirious, and in an alarming condition. In thirty-six hours the symptoms changed, she was recovering from the attack, the pulse was 96 and she was feeling well. This is really the only case of diabetic coma in which I have ever seen recovery.

Dr. Lawrence Litchfield, Pittsburgh: We have tried to get the cleanest and purest water we could. Several years ago many of my patients, at my suggestion, put little stills in their houses, and the effect of distilling dirty river-water was sometimes quite astonishing. By passing the water through a Pasteur filter before distilling it, the product was of course greatly improved. The Pasteur filter, distillation and subsequent boiling will not necessarily remove all noxious substances from the water. Our custom is to get as pure a water as is possible and distill and redistill thoroughly before using. The giving of dextrose solutions intravenously is very simple.

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[12] Beddard: In Leonard Hill's Recent Advances in Physiology and Biochemistry, New York, Longmans, Green & Co., 1908.

[13] Fleig: Serums artificiels et médicament, etc., Gaz. d. hôp., 1912, p. 317; Bull. gen. d. therap., 1912, clviii, 575.

THERAPY OF CARDIOVASCULAR DISTURBANCES *

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The object of this investigation has been twofold: (1) to determine whether the poison of infectious diseases injures the vasomotor mechanism, and (2) to determine whether strychnin and caffein, both of which are commonly used to stimulate the cardiovascular apparatus, do actually have such an effect.

BLOOD-PRESSURE IN PNEUMONIA

Since 1899 clinicians[1] have believed that many of the grave symptoms and a large number of the deaths in pneumonia and other infectious diseases are directly due to failure of the vasomotor mechanism.

If it be true that grave symptoms and death in pneumonia are due to failure of the vasomotor apparatus, then it ought to be possible to divide pneumonics into two groups: (1) a group in which the vasomotor apparatus is intact, and (2) a group in which the vasomotor apparatus is seriously injured. In the first group blood-pressure measurements ought to form a curve which does not diverge widely from that for normal persons. In the second group the blood-pressure curve ought to be low in proportion to the gravity of the symptoms, and it should be very low indeed as death approaches. The blood-pressure curve ought to be the most reliable single measure of the state of the circulation in pneumonia, and a definite and exact indicator for our therapeutic efforts.

Weigert,[2] in 1911, studied the blood-pressure in a variety of infectious diseases, including pneumonia, and reviewed the work of earlier observers. His general conclusion is that one can establish no rule for the blood-pressure curve in pneumonia, and that consequently blood-pressure readings in pneumonia are of no prognostic value.

In contrast to this view is the statement of G. A. Gibson:[3]

> A pressure appreciably below the normal in pneumonia is invariably of evil omen and any considerable fall bodes disaster. When the arterial pressure, expressed in mm. Hg does not fall below the pulse-rate, expressed in beats per minute, the fact may be taken as of excellent augury, while the converse is equally true.

Newburgh and Minot have studied the blood-pressure in forty-five cases of pneumonia (1) with regard to the course of the systolic pressure in the fatal cases (nineteen cases) as compared with that of the persons who recovered, and (2) with regard to the working of Gibson's rule in these cases.[4]

The following conclusions have been reached:

1. The systolic pressure in the fatal cases tends to be higher than it is in the recoveries.

2. Low systolic pressures are not invariably of evil omen.

3. The rate of the pulse, and not the level of the pressure, is the chief factor in determining whether the pressure will fall above or below the pulse.

4. Prognostic inferences based on the relation of the level of the systolic pressure curve to the pulse curve (Gibson's rule) are wrong oftener than they are right in this series.

5. The course of the blood-pressure does not suggest that there is a failure of the vasomotor mechanism in pneumonia.

STATE OF THE VASOMOTOR MECHANISM IN PNEUMONIA

Romberg[1] and his associates gave lethal doses of pneumococci to rabbits. They then selected animals in various stages of the disease and recorded the effect on carotid blood-pressure of stimulation of the nasal and anal mucous membranes.

In normal animals and those only moderately sick, peripheral stimulation caused a very large rise in blood-pressure. In very sick animals the rise was much smaller, while in animals near death the strongest faradic currents applied to the mucous membranes caused no blood-pressure response. Since the myocardium was still intact, as alleged on the basis of other experiments by these authors, the failure of the blood-pressure to rise as the result of peripheral stimulation proved that the vasomotor center was paralyzed.

Porter and Pratt[5] have given rabbits lethal doses of diphtheria toxin. The vasomotor reflexes were then studied in all stages of the disease. The fall in general blood-pressure following stimulation of the depressor nerve and the rise in blood-pressure following stimulation of the sciatic nerve were measured. A normal response was obtained.

Porter and Newburgh have produced pneumonia in rabbits, cats and dogs.[6] When the animals were within a few hours of death, the vasomotor reflexes produced by stimulation of the depressor and sciatic nerves were examined. Even in animals about to die a normal response was obtained.

We conclude that it cannot be demonstrated that the poison of pneumonia impairs the function of the vasomotor mechanism.

STRYCHNIN

A. Broken Cardiac Compensation

The cases were studied in accordance with the following plan: The patients on entrance to the ward were placed on a diet of liquids and soft solids, and the liquids were limited to 1,000 c.c. in the twenty-four hours. If there was either sufficient dyspnea or cough to prevent sleep, morphin or codein was ordered. The bowels were moved with various cathartics. The weight was noted. Temperature, pulse and respirations were recorded twice daily. The twenty-four-hour fluid intake and urinary output were noted. The patients were kept in bed throughout the period of observation. For the first few days after entrance the clinical course of the affection was watched. As the result of this regimen many patients will entirely recover their compensation without the aid of digitalis. It is important to exclude all such cases from a series in which the effect of any given drug on the heart is being studied.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Aided by a grant from the Council on Pharmacy and Chemistry of the American Medical Association.

[1] Romberg, Pässler, Bruhns and Müller: Experimentelle Untersuchungen über die allgemeine Pathologie der Kreislaufstörung der acuten Infectionskrankheiten, Arch. f. klin. Med., 1899, lxiv, 1652. Pässler and Rolly: Experimentelle Untersuchungen über Kreislaufstörungen bei acuten Infectionskrankheiten, Deutsch. Arch. f. klin. Med., 1903, lxxvii, 96.

[2] Weigert, K.: Ueber das Verhalten des arteriellen Blutdrucks bei den acuten Infectionskrankheiten, Samml. klin. Vortr. (Volkmann's), 1911, p. 459, Inn. Med., p. 138.

[3] Gibson, G. A.: Some Lessons from the Study of the Arterial Pressure, Edinburgh Med. Jour., 1908, new series, xxiii, 17.

[4] For a detailed report of this work see Newburgh and Minot: Blood-Pressure in Pneumonia, Arch. Int. Med., 1914.

[5] Porter and Pratt: The State of the Vasomotor Center in Diphtheria Intoxication, Am. Jour. Physiol., 1914, xxxiii, 431.

[6] For a detailed report of this work see Porter and Newburgh: The State of the Vasomotor Mechanism in Pneumonia, Am. Jour. Physiol., 1914, xxxiii, and Newburgh: Arch. Int. Med., 1914, shortly to be published.

Only those patients who showed no persistent slowing of the cardiac or respiratory rates, no increased output of urine, and no loss of weight after three or four days were considered unimproved. Failure to observe this precaution may cause an error of as much as 50 per cent. The latter group was then given strychnin, and the effect, if any, on the pulse, respiration, urinary output, systolic and diastolic pressures, weight and subjective symptoms, noted.

Finally, a third period followed in which digitalis bodies and diuretics were given in order that the effect of strychnin might be compared in the same patient under otherwise uniform conditions, with the effect of remedies whose efficacy is established beyond doubt.

Eight cases of broken compensation were studied. The smallest single dose of strychnin was $\frac{1}{30}$ grain, the largest $\frac{1}{10}$ grain. No improvement occurred in any of the eight patients who were given the strychnin. Four of them subsequently recovered their compensation, following the administration of digitalis and diuretics.

Conclusions: It cannot be demonstrated that strychnin, even when given to the point of toxicity, has any beneficial effect on broken cardiac compensation.

B. Infectious Disease and Hypotensive Cases

In this group, the effect of single doses of varying size or of a number of doses given within a short period of time on the systolic, diastolic and pulse-pressure, on the rate and character of the pulse, on the respiratory rate and on the general condition was studied.

When judging the effect of any therapeutic procedure on the blood-pressure, one must thoroughly realize that moderate and even very large variations result from slight external stimuli of all sorts. For example: Zabel,[7] who investigated the causes for sudden changes in pressure, found that a superficial pinprick caused a systolic rise of 72 mm. in one individual, and that the average rise following this stimulus lay between 11 and 30 mm.

Our readings were made under conditions far from ideal. The patients were nearly all exposed to the noise and bustle and changing temperature of an open ward. They were all sick, some of them desperately so, some of them had painful diseases, others were receiving subcutaneous medication every hour. Under such conditions, variations of 10, 15 or even 20 mm. are to be expected as the result of unavoidable external stimuli, and, unless very consistent, cannot be held up as evidence that the drug is increasing the activity of the vasomotor center or that any other effect peculiar to the drug has been produced. The same reasoning applies to the rate of the heart-beat.

The data were obtained from seven cases of lobar pneumonia, varying in type from mild to fatal, two mild and one severe typhoid, one fatal tuberculous enteritis, one severe general peritonitis, one fatal infectious colitis, one delirium tremens and one traumatic shock.

In a patient suffering from tuberculous enteritis, who showed a persistently low systolic pressure for several weeks — from 80 to 95 — and who was emaciated and very weak, the failure of $\frac{1}{10}$ grain of strychnin to affect the pressure was considered highly significant. A frail, small woman suffering from a fracture of the thigh, received $\frac{1}{10}$ grain of strychnin every hour for six hours and after an interval of seven hours three more doses at the rate of $\frac{1}{10}$ grain per hour, without showing either toxic symptoms or any blood-pressure change. In a case of typical surgical shock induced by fracture of the skull, the initial systolic pressure, which was from 55 to 65 mm., was unaffected by either $\frac{1}{10}$ grain of strychnin or 5 grains of caffein sodio-salicylate; but nevertheless the failure of these drugs to show a pressor effect cannot be explained by assuming that the function of the vasomotor center was in abeyance, for stimulation of the peripheral nerves was followed by a prompt and lasting rise in the pressure of 30 mm. The stimulus consisted of the application to the wound of tincture of iodin.

The results obtained from the use of strychnin in this group of patients may be summed up as follows:

1. Eight times out of seventeen there was no change in systolic pressure. Once it fell 10 mm. for two hours. Nine times out of seventeen there was a rise in systolic pressure. This rise was small, usually brief, often of only a few minutes' duration. It was inconstant, never to be relied on — often occurring after the first injection of a series, then falling to the original level in a short time and not recurring after subsequent injections. In no instance was the rise accompanied by improvement in the clinical condition. Only once was there a rise of more than 15 mm. In this single instance the pressure rose 26 mm. for a few minutes. In one patient the examination of the lungs caused a rise of from 20 to 30 mm. which lasted one hour; and in another patient, subcutaneous injection of water caused a greater rise than $\frac{1}{10}$ grain of strychnin.
2. Nine times out of thirteen there was no effect on the diastolic pressure. Once it fell 10 mm. for forty minutes, and in another case 15 mm. for one and one-half hours. Once it rose 30 mm. for fifteen minutes.
3. Eleven times out of sixteen the pulse showed no change. In no case was there a slowing which could be honestly attributed to the drug.

CAFFEIN

It is a very common clinical practice to give caffein, for the purpose of stimulating the vasomotor center, to persons suffering from acute infectious diseases. It has, however, been shown by Sollmann and Pilcher[8] that caffein has a very insignificant stimulating effect on the vasomotor center. They summarize their very careful and complete studies thus:

> The circulatory effects of moderate doses of caffein consist in vasodilatation combined with sufficient cardiac stimulation to maintain or even increase blood-pressure. Both of these

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[7] Zabel: Plötzliche Blutdruckschwankungen und ihre Ursachen, München. med. Wchnschr., 1910, lvii, 2278.

[8] Sollmann and Pilcher: The Actions of Caffeine on the Mammalian Circulation, Jour. Pharmacol. and Exper. Therap., 1911-1912, iii, 19.

activities favor blood-flow. The oncometer shows conclusively that the moderate rise of pressure which is observed in anesthetized animals is, in most cases, exclusively cardiac.

The method adopted for studying the effects of caffein was the same as that used for studying the effects of strychnin in the acute infectious and hypotensive cases. Caffein sodio-salicylate was invariably employed.

Data: There were three cases of severe pneumonia, one of general peritonitis, one of fatal tuberculous enteritis, two of traumatic shock and one fatal septicopyemia.

Results: 1. Eight out of nine times there was no effect on the systolic pressure. Once it fell 35 mm. during the period of treatment. There was not a single rise in systolic pressure as a result of administering caffein.

2. Five out of six times there was no effect on the diastolic pressure. Once it fell 10 mm. during the period of treatment.

3. Nine out of ten times there was no effect on the rate of the pulse. Once it rose 10 beats per minute during the period of administration.

4. In no instance was there a measurable change in respiration.

It could not be demonstrated, with the method used, that either strychnin sulphate or caffein sodio-salicylate has any beneficial effect on the cardiovascular disturbances of the infectious diseases.

SUMMARY

1. Since the blood-pressure is not low either in persons showing grave symptoms of pneumonia or in those dying of that disease, and since it has been proved that the vasomotor arcs are normal in animals near death from pneumonia, it is logical to conclude that the vasomotor mechanism is not impaired in pneumonia.

2. Strychnin does not improve or augment the work of the heart in persons suffering from broken cardiac compensation.

3. It could not be shown that either strychnin or caffein stimulated the cardiovascular apparatus in any of the conditions studied.

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ABSTRACT OF DISCUSSION

Dr. Lawrence Litchfield, Pittsburgh: Dr. Newburgh gave the impression that blood-pressure increases in pneumonia and that many patients die therefrom. I think the blood-pressure varies in pneumonia as it does in persons without pneumonia and, therefore, this should be taken into account. So far as my observation goes, most of the pneumonia patients that I lose are either those who have a low blood-pressure or those in whom the pressure falls in spite of treatment. I do not think that pneumonia in the beginning affects the blood-pressure specifically. Pressure varies in pneumonia as it does in health and there are very wide variations in healthy people.

Dr. Bernard Fantus, Chicago: The critical study of the action of drugs on diseased human beings is something that we are very much in need of; and Dr. Newburgh's paper is an excellent example of the kind of work of which we should have a large amount. On the other hand, using drugs in a routine manner does not enable us to formulate any judgment concerning the value or lack of value of that particular form of treatment. As far as my own observations are concerned I must take issue with the statement made by the previous speaker that strychnin is of value in pneumonia. I had occasion to make some observations on the death-rate of pneumonia patients some years ago, in services at the Cook County Hospital in Chicago, in which strychnin was used and in other services in which it was not used, and my impressions were such as would confirm the belief that the patients had a better chance for life in the services in which strychnin was not used in a routine manner.

Dr. L. P. Hamburger, Baltimore: What is the history of the clinical use of strychnin in this country? In Germany it is not viewed at the "life-preserver" which we here deem it!

Dr. C. S. Williamson, Chicago: One important point is that the variations in the systolic blood-pressure alone are by no means a reliable criterion of improvement, or the reverse. Sahli, some years ago, made a study of cases associated with high blood-pressure, and concluded that the blood-pressure was kept up by the cyanosis and venous congestion of the medullary centers, a condition to which he gave the name *Hochdruck-Stauung*—high pressure stasis. Now every clinician of much experience sees these cases occasionally. The blood-pressure is very high, despite outspoken signs of broken compensation, and after the use of some of the digitalis bodies intravenously or otherwise, the systolic pressure drops as much as 20 or 25 mm., with a simultaneous great improvement in the condition. One must therefore bear in mind this group of cases, or othrwise run a great risk of misinterpreting the results. Might not the high pressure in some of Dr. Newburgh's cases be due to medullary stasis, as in the cardiac group just referred to?

Dr. L. H. Newburgh, Boston: It is a fact that we find high blood-pressure in cases of pneumonia. Because a drug does not raise or does not affect the pressure does not permit us to decide whether or not it is a good drug. Caffein probably is a good drug, as has been shown, but its effect is not primarily on the blood-pressure, though it does augment the circulation without increasing the blood-pressure appreciably. Incidentally it has no effect on the pulse. I merely stated that there was no measurable effect.

A COMPARISON OF CHOLESTERINIZED AND NON-CHOLESTERINIZED ARTIFICIAL ANTIGENS IN THE WASSERMANN REACTION *

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Since the introduction of cholesterinized antigen by Sachs[1] from Ehrlich's laboratory, reports concerning its specificity have been conflicting, varying from the assertion that an artificial antigen had been found possessing the requirements of an ideal "standard antigen,"[2] to an assertion that it was unreliable and hence a menace to the clinician.[3]

In view of such diversity of opinion, it appeared desirable to investigate its merits in our own hands before relying on it, and to report the result of that investigation extending over a series of four hundred reactions. In these cases, as accurate knowledge of the clinical condition of the patient was obtained as a mixture of hospital and dispensary practice and referred cases would permit. Inadequacy of clinical records and personal histories have alone been influential in excluding about two hundred more reactions in a straight series of approximately six hundred cases. Study of the clinical data led me to adopt the five divisions of clinical diagnosis with reference to syphilis as follows: (1) positive, (2) probable, (3) for diagnosis (this division [six reactions] was omitted in a consideration of those cases in which there was a diversity of results with the antigens used), (4) doubtful, and (5) negative.

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* From the Department of Clinical Pathology and Experimental Medicine of the College of Physicians and Surgeons, Baltimore.

1. Sachs, H.: Berl. klin. Wchnschr., 1911, lxviii, 2066.
2. McIntosh, J., and Fildes, P.: Syphilis, London, 1911, p. 220; Ztschr. f. Chemotherap., 1912, i, 79.
3. Thomas, B. A., and Ivy, I. H.: Use of Cholesterinized Antigens in the Wassermann Reaction, The Journal A. M. A., Jan. 31, 1913, p. 363.

Approximately half of the reactions included in this study were performed at the laboratory of Dr. Charles E. Simon and the remainder by myself. The moderate discrepancy of parallelism between these two portions of the series is adequately explained on the ground that, in one instance, tests are made on all the male public patients of the Mercy Hospital by one of us as routine, while at least a suspicion of lues is entertained when specimens are referred to the other.

The comparison in the reactions of this series was confined to the analysis of the same serum or spinal fluid tested in duplicate with two antigens, one, the acetone-insoluble lipoid extract of beef-heart of Noguchi (designated in the accompanying tables as N. A.), and the other, cholesterinized alcoholic extract of beef-heart prepared after the method of Sachs (designated as S. C. A.). Repeated titration of anticomplementary and antigenic power of these two antigens during the course of the series gave a constant titer of one in ten parts of 0.9 per cent. salt solution. They hence exhibited complete parallelism and splendid keeping power.

TABLE 1.—CASES IN WHICH BLOOD-SERUM RESULTS WERE IDENTICAL WITH THE TWO ANTIGENS

Reaction *	Total No. of Cases	Clinically and Historically					
		Positive	Probable	For Diagnosis	Doubtful	Negative	Positive Cases Include
+++	95	73	13	7	2	0	One case of tabes and 3 of general paresis.
++	21	18	0	2	0	1	Two of long-standing lues with active treatment; 1 of general paresis.
+	10	6	1	3	0	0	One of long-standing lues with active treatment; 1 general paresis.
∓	6	1	0	1	0	4	One of long-standing lues with active treatment; 1 general paresis.
±	22	3	2†	5	4	8	Three of long-standing lues with active treatment.
—	115	22	0	24	22	47	Eight of general paresis; 21 of long-standing lues with active treatment, and 1 of cerebrospinal lues.
Total	269	123‡	16	42	28	60	

* In this and the following tables +++ and ++ indicate, respectively, strongly positive and positive; + and ∓ inconclusive, and ± and —, negative.

† One case in the primary stage and one also of congenital lues.

‡ Included in the 32 doubtful and negative reactions were long-standing with active treatment, 26; cerebrospinal lues, 1; general paresis, 10, 9 of which were of long standing with active treatment.

The antigen of Noguchi was selected for the comparison, not only because it was one which we had previously been using, but also because it is considered the most efficient[4] of uncholesterinized artificial luetic antigens.

This series includes 379 serums and 21 spinal fluids. The tests on the latter were usually made in more than one dilution, each dilution being made in duplicate with either antigen. Two hundred and sixty-nine serums, or 71 per cent., and 14 spinal fluids, or 66 per cent. of the total number of each, gave reactions which were identical with both antigens; 105 serums and 7 spinal fluids (27.7 per cent. and 33 per cent., respectively), gave in varying degree a more marked deviation of complement with standard cholesterinized antigen than with Noguchi antigen. But 5 serums (1.25 per cent.) and no spinal fluids gave more complete fixation of complement with Noguchi antigen than with standard cholesterinized antigen.

CASES IN WHICH RESULTS WERE IDENTICAL

1. As shown in Table 1 there were 116 positive reactions. Of these, 2 were clinically doubtful and 1 clinically negative. These three were all in negroes, and though not showing signs of syphilis, one cannot escape the lingering suspicion that their faulty observation, not to question their veracity, might account for the discrepancy in past history. The remaining 113 positive reactions were not at variance with the clinical findings or histories.

2. There were 16 inconclusive reactions. Of these, 4 were negative, the same number for diagnosis, 1 was probably luetic and 7 were definitely so. Of the last, 2 were general paretics and 2 were active cases, all 4 undergoing vigorous antiluetic treatment, leaving 3 positive cases which were not detected by either antigen.

3. There were 137 negative reactions. Of this number, 25 had positive histories, 24 of which had been under long-continued antiluetic treatment. The remaining case was diagnosed as brain syphilis (Case 1, Table 2 and Case 1, Table 4) the cerebrospinal fluid giving complete complement fixation with both antigens.

In this group there were two cases in which lues was clinically probable. One was tentatively diagnosed as congenital syphilis—parenthetically, congenital lues is the evil genius of the Wassermann reaction—and the other a chancre. In the latter case the appearance of a secondary rash four weeks later substantiated the clinical diagnosis, at which time a second blood Wassermann gave a + + + reaction with both antigens.

Twenty-nine out of a total of 42 cases which were clinically for diagnosis yielded a negative reaction, and 26 out of 28 cases which were clinically doubtful were likewise negative.

4. A separate consideration of the so-called parasyphilitic diseases is of interest. This includes 14 general paretics. All except 4 had had vigorous treatment, including in most cases intraspinal injections of salvarsanized blood-serum. Of the 4 untreated cases, 1 gave a negative and 1 an inconclusive reaction, while 2 were strongly positive. Of the 10 treated cases, 1 persisted with complete complement fixation, the remaining 9 being modified to a greater or less extent by treatment (or otherwise). One case of tabes dorsalis yielded complete complement fixation.

Fourteen spinal fluids were examined in which identical results were obtained with both antigens (Table 2).

Six of these were clinically positive cases and gave complete complement fixation in all dilutions. One was tentatively diagnosed as brain syphilis and gave a + + reaction in the stronger dilutions only. The remaining seven cases were Wassermann-negative even in the strong concentrations. The clinical diagnoses in these cases were as follows: multiple sclerosis, 1 case; sciatica, 1; neurasthenia, 2 (one of which had active lues and a positive blood-serum Wassermann); chorea, 1 (congenital lues was considered but not established); paralysis of third right nerve, 1; for diagnosis, 1 case.

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[4] Kolmer, J. A.; Lanbaugh, E. E.; Casselman, A. J., and Williams, W. W.: Practical Studies on the So-Called Syphilis "Antigens," with Special Reference to Cholesterinized Extracts, Arch. Int. Med., December, 1913, p. 660.

CASES IN WHICH RESULTS WERE NOT IDENTICAL

Most important, of course, are the 110 serums (29 per cent.) and the 7 spinal fluids (33.33 per cent.), in which there was not agreement in the results obtained with the two antigens. For purposes of accuracy in clinical control it seemed advisable to disregard in this connection six additional cases which would, if not omitted, be listed "for diagnosis."

TABLE 2.—CASES IN WHICH CEREBROSPINAL FLUIDS YIELDED RESULTS IDENTICAL WITH THE TWO ANTIGENS

Case No.	Diagnosis	N. A.*							S. C. A.*						
		1-1	1-2	2-5	1-3	1-5	1-8	1-10	1-1	1-2	2-5	1-3	1-5	1-8	1-10
1	Brain syphilis	+++	..	+++	..	..	..	..	+++	..	+++	..	..	..	..
2	General paresis	..	..	+++	..	..	..	..	..	..	+++	..	..	..	..
3	Multiple sclerosis	—	..	—	..	..	..	..	—	..	—	..	..	..	..
4	Tabes	+++	..	+++	..	..	..	..	+++	..	+++	..	..	..	..
5	Brain syphilis	..	..	..	..	+++	..	..	..	..	..	..	+++	..	..
6	Tabes	..	..	..	..	+++	..	..	..	..	..	..	+++	..	..
7	Tabes	..	..	..	..	+++	..	..	..	..	..	..	+++	..	..
8	Brain syphilis ?	..	++	..	++	—	—	—	..	++	..	++	—	—	—
9	For diagnosis	..	..	..	..	±	..	..	..	..	..	..	±	..	..
10	Sciatica	..	±	..	—	—	—	—	..	±	..	—	—	—	—
11	Neurasthenia	..	—	..	—	—	—	—	..	—	..	—	—	—	—
12	Lues; neurasthenia ?	..	—	..	—	—	—	—	..	—	..	—	—	—	—
13	Chorea; congenital lues	..	—	..	—	—	—	—	..	—	..	—	—	—	—
14	Third nerve paralysis	..	..	..	..	—	..	.	..	..	..	..	—	..	..

* The figures heading the columns below (1-1, 1-2, 2-5, etc.) indicate dilutions. Thus 1-1 indicates undiluted spinal fluid; 1-2, 1 part spinal fluid and 1 part 0.9 per cent. saline; 2-5, 2 parts spinal fluid and 5 parts saline; 1-3, 1 part spinal fluid and 3 parts saline; 1-5, 1 part spinal fluid and 5 parts saline; 1-8, 1 part spinal fluid and 8 parts saline; 1-10, 1 part spinal fluid and 10 parts saline, of each of which 0.5 c.c. was used.

We considered these cases with reference to the degree of complement fixation exhibited by the more inhibitive antigen irrespective of the reaction of the weaker one. On this basis the same interpretation applies to the results here obtained as when the reactions were identical, namely, + + and + + + being considered positive, + and ∓ as inconclusive, and ± as negative (obviously with our method of indicating complement fixation there could be no disagreement of results for degrees of inhibition less than ±).

Those cases in which the blood-serums yielded a greater degree of complement fixation with standard cholesterinized antigen than with Noguchi antigen are recorded in Table 3. This division yielded 68 (64.7 per cent.) positive Wassermann reactions, 29 (27.6 per cent.) inconclusive Wassermann reactions and but 8 (7.7 per cent.) negative reactions.

Of the 68 patients with positive reactions, all save 4 of the persons were or had been definitely infected with syphilis. Of the 4 who denied such infection, 3 admitted a history of chancroid, which is certainly suggestive of the possibility of a specific lesion, thus leaving only 1 case to be explained either on the ground of a non-specific reaction or false history. Which of these alternatives is correct remains an open question.

Of the 29 patients with inconclusive reactions, 9 gave no evidence whatsoever of lues. Seven were doubtful, considered clinically (1 gave a history of chancroid), 1 was a congenital luetic and the remaining 12 were undoubted cases of lues under the influence of vigorous treatment.

Of the 8 cases yielding negative reactions, 3 were clinically negative, 3 were doubtful and in 2 the reactions had changed from positive to negative in the course of vigorous antiluetic therapy.

Those cases in which the cerebrospinal fluids yielded a greater degree of complement fixation with standard cholesterinized antigen than with Noguchi antigen are recorded in Table 4. All of these cases were undoubtedly luetic. Before treatment two of them (Cases 1 and 4) had shown the same degree of inhibition with the two antigens (compare Cases 1 and 4 of Table 2). Two others were before and after treatment in the same persons. These two exhibit one of the most

TABLE 3.—CASES IN WHICH BLOOD-SERUM COMPLEMENT FIXATION WAS GREATER WITH CHOLESTERINIZED THAN WITH NOGUCHI ANTIGEN

Reaction		Total No. of Cases	Clinically and Historically				
N. A.	S. C. A.		Probable	Doubtful	Negative	Positive	Positive Cases Include
++	+++	16	2	0	0	14	
+	+++	8	3	0	0	5	One case of general paresis; 1 of long standing with active treatment.
∓	+++	2	0	0	0	2	
±	+++	5	2	1*	0	2	One case of general paresis; 1 gave a +++ N. A. reaction before treatment.
—	+++	19	3	1*	0	15	One gave a +++ N. A. reaction before treatment; 1 gave a + luetin reaction; 2 of long standing with active treatment; 5 general paresis and 1 of tabes.
+	++	5	1	0	1	3	One gave a +++ N. A. reaction before treatment.
∓	++	0	0	0	0	0	
±	++	7	1.	1*	0	5	One gave a +++ N. A. reaction before treatment; 3 of long standing with active treatment; 1 persistent —N.A. for one year.
—	++	6	2	0	0	4	One of general paresis; 1 of long standing with active treatment.
∓	+	1	0	0	1	0	
±	+	6	0	0	2	4	Four of long standing with active treatment; 1 of general paresis.
—	+	4	1‡	2	0	1	One of long standing with active treatment.
±	∓	5	0	1	2	2	Two gave a +++ N. A. reaction before treatment.
—	∓	13	0	4*	4	5	Two gave a +++ N. A. reaction before treatment; 5 of long standing with active treatment; 1 with brain syphilis.
—	±	8	0	3	3	2	Two of long standing with active treatment.
		105	15	13	13	64†	

* One case with history of chancroid.

† Totals: a +++ N. A. reaction before treatment, 8; a + luetin reaction, 1; history of "chancroid," 4; long standing with active treatment, 19; congenital lues, 1; persistent — N. A. for one year, 1; general paresis, 8; tabes, 1; brain syphilis, 1.

‡ One case congenital lues.

notable features of the entire series; namely, the more resistant nature of standard cholesterinized antigen complement fixation during the course of treatment. After the collection of data for this paper was concluded, it is interesting in this connection to note that a third test in this same case gave negative results in all dilutions with both antigens, indicating that the reaction with standard cholesterinized antigen is amenable to complete change, provided that treatment is sufficiently extensive and intensive.

There remain for consideration only those cases in which Noguchi antigen gave a greater degree of complement fixation than standard cholesterinized antigen. There were but five such cases (1.25 per cent. of the entire series) all occurring in blood-serums (see Table 5). One case probably luetic gave a positive reaction with Noguchi antigen and an inconclusive one with standard cholesterinized antigen. Three of the remaining four cases were definitely non-luetic or doubtfully so. The last case was definitely luetic, but, under vigorous treatment, the reaction was becoming negative.

TABLE 4.—CASES IN WHICH THE CEREBROSPINAL FLUID WAS MORE STRONGLY POSITIVE WITH CHOLESTERINIZED ANTIGEN THAN WITH NOGUCHI ANTIGEN

Case No.	Diagnosis	N. A.							S. C. A.						
		1–1	1–2	2–5	1–3	1–5	1–8	1–10	1–1	1–2	2–5	1–3	1–5	1–8	1–10
1	Brain syphilis	—	..	—	..	..	..	..	+++	..	+++	..	..	..	..
2	Tabes	..	+	..	+	—	—	—	..	+++	..	+++	—	—	—
3	Tabes	..	∓	..	±	±	..	±	..	+	..	+	±	±	±
4	Tabes	..	±	..	—	—	—	—	..	+++	..	±	±	±	±
5	Brain syphilis	..	—	..	..	—	..	..	..	—	..	..	+++	..	..
6	Tabes	..	+++	..	+++	+++	±	±	..	+++	..	+++	+++	+++	+++
7	Brain syphilis	..	..	..	..	+	..	..	..	..	..	..	+++	..	..

See explanation under Table 2.

TABLE 5.—CASES IN WHICH BLOOD-SERUM COMPLEMENT FIXATION WAS GREATER WITH NOGUCHI THAN WITH CHOLESTERINIZED ANTIGEN

Reaction		Total No.	Clinically and Historically			
N. A.	S.C.A.		Positive	Probable	Doubtful	Negative
+++	+	1	..	1	..	..
±	—	4	1*	..	1	2
Total	......	5	1	1	1	2

Under active treatment.

SUMMARY

1. In a series of 379 serums and 21 spinal fluids, 269, or 71 per cent., of serums and 14, or 66.66 per cent., of spinal fluids gave identical results with standard cholesterinized antigen and Noguchi antigen.

2. In 110, or 29.05 per cent., of serums and 7, or 33.33 per cent., of spinal fluids, there was to a greater or less extent a lack of agreement between these two antigens. Of the 110 serums showing differences in complement fixation, 105, or 95.4 per cent., showed greater complement fixation with standard cholesterinized antigen than with Noguchi antigen, while 5, or 4.6 per cent., showed greater inhibition of hemolysis with Noguchi antigen than with standard cholesterinized antigen. No spinal fluid exhibited the latter phenomenon.

CONCLUSIONS

1. Standard cholesterinized antigen does not yield an appreciable number of non-specific reactions.

2. Standard cholesterinized antigen detects many luetic cases which do not yield positive results with Noguchi antigen.

3. Standard cholesterinized antigen, though amenable to the influence of treatment, is less susceptible to extinction by therapeutic measures.

4. Standard cholesterinized antigen possesses splendid keeping properties, is always available and is easy of preparation.

5. Standard cholesterinized antigen is an ideal artificial antigen.

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THE ADRENALS AND THE PULSE-RATE

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The adrenal glands seem to be an important factor in integrating the body for unusual muscular activity. Circulating epinephrin causes a depression of the digestive activities, a shifting of the blood from the splanchnic to the somatic structures, increased blood-pressure, dilated bronchioles and mobilization of dextrose. It is an efficient aid in abolishing fatigue.[1]

During muscular exertion acceleration of the pulse occurs. It would seem that the acceleration might be due in part to a discharge of epinephrin, which is a well-known cardiac stimulant. But the general supposition is that in a normal animal the drug causes slowing of the heart, the depression being a reflex effect resulting from high blood-pressure. Such is the common text-book statement of the case. On this ground, Gasser and Meek[2] have recently concluded that epinephrin discharge is not to be considered a factor in the accelerated pulse which accompanies muscular exercise. On the face of the matter this would seem an anomaly. Why should adrenal secretion cause a number of other effects which favor muscular activity but oppose the acceleration of the pulse, which, as a matter of fact, occurs despite any such opposition?

The statement that epinephrin slows the pulse seems to be based on Oliver and Schaefer's[3] and Szymonowicz's[4] original reports on the effects of injecting adrenal extracts. Their observation, that the sudden injection of massive doses slows the pulse, has often been confirmed. But it is to be noted that such experiments fail in two respects to simulate actual adrenal secretion. Normal adrenal discharge cannot be supposed to occur with the rapidity of an ordinary intravenous injection. Moreover, the quantities used in pharmacologic demonstrations are usually far out of proportion to any that the glands themselves can be supposed to secrete. While conclusive data have not been obtained, the available evidence indicates that the potential discharge of epinephrin is comparatively small. Hoskins and McPeek[5] observed that in dogs in which particular care was taken to conserve the available epinephrin, direct massage of the glands produced at most but a slight elevation of blood-pressure — approximately 25 per cent. above the normal.

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[1] For a review of the literature see Cannon: Am. Jour. Physiol., 1914, xxxiii, 357.

[2] Gasser and Meek: Am. Jour. Physiol., 1914, xxxiv, 69.

[3] Oliver and Schaefer: Jour. Physiol., 1895, xviii, 230.

[4] Szymonowicz: Arch. f. d. ges. Physiol., 1896, lxvi, 131.

Osgood[6] compared the effects of stimulating the secretory fibers to the adrenal glands with injecting epinephrin. He found that the quantity discharged was small and that the glands were soon exhausted.

Subcutaneous injections of epinephrin with consequent slow absorption have been observed to cause acceleration of the pulse. Oliver and Schaefer's original paper contains an illustrative protocol of a dog in which, after a large subcutaneous injection of adrenal extract, the pulse gradually increased for an hour and a half from 116 to 150 per minute.[7] Also with the use of epinephrin clinically as a test for *sympathicotonie* an accelerated pulse is often observed.[8]

Normal epinephrin discharge can be closely simulated by injecting the drug slowly into a femoral vein. We have investigated the effects of such injections on the pulse, using medium-sized dogs as the experimental animals. We employed quantities of the drug sufficient to cause all degrees of increased blood-pressure, in various cases from 9 to 77 per cent. The aim was to inject the fluid steadily so as to produce smooth curves, either gradually ascending or ascending and sustained at an increased height. The injections were continued over a period of from a half to two minutes. The doses were from 3 to 8 c.c. of epinephrin (adrenalin, P. D. & Co., 1 : 50,000 dilution). The dogs were held under ether anesthesia just sufficiently deep to abolish the corneal reflex. The heart-rate was determined by counting the pulse-waves in a femoral arterial pressure record on which a synchronous time record was registered from a Harvard "electric clock." The pulse was counted for ten or fifteen seconds before the injection began and at intervals while the animals were under the full influence of the drug. All the dogs under the influence of ether showed a somewhat high pulse-rate as compared with that of unanesthetized dogs. The results of the experiments are embodied in the accompanying table. In cases in which a single reading gives the essential result of the experiment, one only is given. In other cases in which different results were obtained during different stages of the reaction two readings have been selected to exemplify the results of the whole series of determinations of that particular experiment. In eighteen of the twenty-eight dogs studied acceleration alone resulted from the injection. In five instances decreased pulse-rate only was observed. In four instances the pulse was accelerated when blood-pressure was moderately increased, but slowed when the pressure went higher. In one case the pulse-rate was unchanged, although the blood-pressure was increased from 108 to 154 mm.

These determinations were made either during the period while the injection was continuing or within less than a half minute after it was discontinued. Doses of epinephrin of the size employed are destroyed very quickly. As soon as this destruction is accomplished, or well under way, the pulse begins to be retarded and is often below the initial rate before the original pressure equilibrium is restored. If the dose has been very large and quickly injected this secondary retardation becomes pronounced. It is probable that an undue attention to this effect has given rise to the general opinion that retardation is the characteristic effect of epinephrin injections.

THE INFLUENCE OF EPINEPHRIN ON PULSE FREQUENCY AND BLOOD-PRESSURE IN TWENTY-EIGHT DOGS

	Pulse		Blood-Pressure	
Animal No.	Before Epinephrin*	After Epinephrin*	Before Epinephrin†	After Epinephrin†
1	234	228	132	152
	234	192	132	162
2	174	198	108	154
	174	210	108	192
3	150	162	92	116
	150	204	92	124
4	200	168	108	134
5	204	252	82	114
6	188	180	98	140
	188	164	98	170
7	162	198	96	128
8	180	228	96	104
9	162	144	62	108
	156	162	68	82
10	204	224	114	154
	204	224	114	186
11	180	196	108	154
12	210	234	116	132
	198	234	114	140
13	160	152	98	112
	148	152	88	108
14	216	220	116	136
	216	208	116	162
15	156	204	94	130
16	258	258	108	154
17	240	246	114	140
18	186	210	82	112
19	210	240	100	140
20	156	138	112	150
21	174	210	108	190
22	162	252	82	160
23	184	228	110	120
24	234	282	92	176
	144	216	110	144
25	192	228	114	176
26	184	216	76	130
27	210	192	112	154
28	188	204	94	130
	188	164	94	142

Decreased pulse frequency, 11.
Increased pulse frequency, 28.
No effect, 1.
*Beats per minute.
†Mm. of mercury.

Even though a slowing of the pulse had been found, the anomaly previously referred to would be seeming rather than real. Under ordinary natural conditions any occurrence which causes accelerated pulse causes at the same time augmented blood-pressure. It is a fundamental law, however, that increased pressure in itself tends always to retard the pulse. In any case, therefore, in which acceleration of the pulse and augmentation of blood-pressure occur together, there has been a stimulation of the heart sufficient more than to compensate for the operation of this law. The accelerated pulse is probably due to the cumulative effect of several kinds of stimuli to the heart, as nerve impulses, venosity of the blood and circulating epinephrin. It would by no means follow, therefore, that even if epinephrin *alone* did slow the pulse, adrenal discharge is not a factor in the accelerated pulse which accompanies muscular activity. The accelerator influence is acting in any case.

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[5] Hoskins, R. G., and McPeek, Clayton: The Effects of Adrenal Massage on Blood-Pressure, THE JOURNAL A. M. A., June 7, 1913, p. 1777.

[6] Osgood: Cited by Cannon: (Footnote 1.)

[7] Oliver and Schaefer: Jour. Physiol., 1895, xviii, 236.

[8] Sardeman, G.: Ztschr. f. exper. Pathol. u. Therap., 1913, xii, 504.

SUMMARY AND CONCLUSION

Intravenous injections of epinephrin under conditions closely simulating adrenal discharge cause not only increased blood-pressure, but, generally, also accelerated pulse. Acceleration of the pulse, therefore, is one of the adaptive functions of the adrenal glands.

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THE TIME THAT THE BREATH CAN BE HELD AS AN INDEX FOR ACIDOSIS

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The importance of acidosis in connection not only with diabetes but also with renal, cardiac and other diseases is being increasingly recognized. For practical clinical purposes it is essential, however, not merely to recognize the condition but also to be able to measure its intensity and to follow its variations—both those spontaneously occurring and those therapeutically induced. For this purpose, determination of the carbon dioxid content of the pulmonary air is rapidly coming to be recognized as the most accurate available method. In principle such a determination may be roughly said to assume that the sensitiveness of the respiratory center is normal and constant, and that the blood stimulus to it is composed of two factors, namely, carbonic acid (CO_2), and other acids (or deficiency of alkali). Whenever the former is found to be automatically decreased below normal, the latter is thereby indicated as above normal; in other words, there is a condition of acidosis.

Unfortunately the determination of the alveolar carbon dioxid is a procedure which, although not difficult for one who has acquired its technic, is quite different from most of the operations to which clinicians are accustomed. Its difficulty varies inversely with the amount of intelligent assistance which the patient can give. For these reasons there appears to be a need for some method of attaining a similar quantitative indication of the degree of acidosis which, even if somewhat less accurate, would be universally and more readily employable.[1]

I believe that such an index of the degree of acidosis is afforded by the length of time that the breath can be held voluntarily. The point of view now coming to be accepted regarding the relation of acidosis to the rate of pulmonary ventilation and the alveolar carbon dioxid is based to a considerable extent on data accumulated by the Pike's Peak expedition.[2] During our stay at the summit and after our descent we had frequent occasion to note that the length of time the breath could be held was shorter as the alveolar carbon dioxid was lower—that is, according to the intensity of the acidosis which causes the increased respiration of great altitudes. The relation was not, however, a direct proportion. While the alveolar carbon dioxid was reduced about one-third, most of the members of the party could hold their breath for less than half as long as at sea-level.

At that time the bearing of such observations on acidosis was not so clear as it is now becoming. We now recognize that one and the same underlying condition in the blood determines the resting alveolar carbon dioxid, the degree of dyspnea on slight exertion, and the duration of voluntary apnea. Lewis, Ryffel, Wolf, Cotton and Barcroft[3] have recently shown that the dyspnea of nephritis is due to an acidosis essentially like that developed in normal persons at great altitudes. Kennaway, Pembrey and Poulton[4] have found that by following the alveolar carbon dioxid in diabetics a warning drop in its tension indicates the approach of coma as long as forty-eight hours beforehand and earlier than any other method. Recent developments indicate that there are a number of distinct forms of acidosis.[5] It is quite possible that the effects on the alveolar air and voluntary apnea of the different forms of this, as yet little understood, condition may show specific variations; but if this proves to be the case, such differences would be of diagnostic advantage rather than otherwise. It will suffice for this preliminary notice to say that a few observations made for me by some of my clinical colleagues have shown that inability to hold the breath at all is an accompaniment of some at least of the forms of acidosis when approaching an acute stage.

While arrangements for a thorough investigation of this topic were under way, there appeared an abstract of a paper by V. A. Stange[6] in which voluntary apnea is recommended as a test of a patient's fitness to undergo general anesthesia. Stange regards the ability to hold the breath as depending on, and an indication of, the condition of the heart-muscle. He states (correctly) that the normal period is between thirty and forty seconds. He considers any period under twenty seconds as contra-indicating general anesthesia. While he appears to have no suspicion as to what it is, as we believe, which the test really depends on and indicates, namely, acidosis, he nevertheless reports observations on a number of chronic diseases in which he finds the duration of voluntary apnea to be abbreviated in about the degree in which acidosis is known from the results of other observers to occur.

At my suggestion a full investigation of this topic has been undertaken by Miss M. P. FitzGerald, who has an extensive experience in this field of work and who made important contributions in connection with the Pike's Peak expedition. The test used consists in directing the patient to sit quiet for at least five minutes; then to draw a full but not abnormally deep inspiration; and to hold it with the mouth closed and the nostrils compressed with the fingers, while the observer notes the time.

The practical utility of this test appears so considerable that it seems advisable to publish it even in its present incompletely studied condition. This is done in the hope also that some of those who may use it will favor us with a report of their observations to supplement and control our own.

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[1] Compare Boothby, W. M., and Peabody, F. W.: A Comparison of Methods of Obtaining Alveolar Air, Arch. Int. Med., March, 1914, p. 497.

[2] Douglas, Haldane, Henderson and Schneider: Phil. Tr. Roy. Soc., 1913, Series B, cciii, 185. FitzGerald, M. P.: Ibid., p. 351.

[3] Lewis, Ryffel, Wolf, Cotton and Barcroft: Heart, 1913, v, 45.

[4] Kennaway, Pembrey and Poulton: Jour. Physiol., 1914, xlvii; Proc. Physiol. Soc., p. 10.

[5] Compare A. W. Sellards: Bull. Johns Hopkins Hosp., 1914, xxv, 101, 141.

[6] Stange, V. A.: Russk. Vrach, 1914, xiii, 72; abstr., The Journal A. M. A., April 4, 1914, p. 1132.

VARIABILITY IN THE RESULTS OF INTELLIGENCE-TESTS

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Although measures for the detection of mental deficiency, and the estimation of its degree when present, are being rather widely discussed at the present time, there is one very important factor which has seldom been emphasized, but which must be taken into consideration in forming conclusions based on the use of intelligence-tests. I refer to the possibility of wide variations in the results of such tests when applied to the same individual by different examiners, if the examiners do not take into account certain features which I shall state later.

In this paper I shall deal only with the Binet-Simon test-scale, as adapted by the late Dr. E. B. Huey for use in the Johns Hopkins Dispensary; but as this scale is the basis of all the commoner forms of intelligence-tests, it would seem that the possibilities for error which must be guarded against in its employment, must likewise be considered in connection with the other varieties.

As part of a general examination, and as a means of gaging *approximately* the extent of mental development in any given case, the Binet-Simon tests are of unquestionable value. Unfortunately, though, there is a wide-spread tendency among both physicians and educators to regard these tests as yielding estimates of the mental age of patients just as accurate from the scientific point of view as are the results of quantitative chemical analyses, and to disregard factors which, if given due weight, might alter materially their deductions.

Experience has shown that the Binet-Simon tests cannot be considered to be exact in the sense that chemical tests are exact; and it is more than doubtful if intelligence-tests can ever be made so. Many things, of which I shall mention those that seem to me the most important, have to be taken into consideration in the application of an intelligence-test scale. The possibility of fatigue on the part of the subject, and to a lesser degree, of the examiner, is one of these. The slowing-up of mental processes during exhaustion is a recognized fact, yet I have seen a physician put a thoroughly tired-out child through the tedious ordeal of a Binet test. The subject's home surroundings and the training he has received are others; for, though the scale is intended to be a measure of native intelligence and not of education, environmental conditions play a large part in an individual's ability to answer correctly certain of the tests, especially for the later ages. Again, and perhaps most important of all, the personal equation as regards both subject and examiner must be considered if these tests are to be properly used. For example, a timid or sulky child and an examiner with a brusque harsh manner, make a bad combination. Under such circumstances, the subject is apt to grow worried or bewildered, and to fail on questions which, under other conditions, he would pass without difficulty. This is of course especially true of those tests done on a time basis. On the other hand, a too sympathetic or inexperienced examiner will often unwittingly suggest the proper responses to tests of which the subject has not the slightest real comprehension. Finally, a patient's general health may have considerable effect on his grading in an intelligence-test. It is surprising how often an apparently low-grade subject is found to be suffering from defective vision or hearing, or some other pathologic condition, the relief of which is followed by marked improvement in his mental status.

These factors are too frequently completely ignored, with the result that diagnoses of mental deficiency are made when no deficiency exists, and conversely, that parents are sometimes told that there is nothing the matter with a child who is in reality handicapped by an incurable constitutional defect. It is this point of variability in the results of the tests that I wish to illustrate by means of the appended table.

All the cases quoted are white males, pupils in the special class for defectives in one of the public schools of this city. In each instance, the first examination was made in the Johns Hopkins Dispensary; and on the result of this first test was based the recommendation which was the means of obtaining the child's admission to the special class. The second and third examinations were conducted at varying times after entry into the special class, the training given in which is largely manual in character. The physical age is that reported by the person accompanying the child at the time of the first examination. In the grading, a plus-mark indicates that the subject received sufficient credits to pass at the mental age given, and any number of additional credits not exceeding four. Thus, "mentality 6+" shows that the subject responded correctly to enough tests to enable him to grade up to six years, plus one or more additional tests, up to and including four. The examiners were, with three exceptions, physicians, the exceptions being postgraduate students in psychology at Johns Hopkins University. In only a single case was the same individual tested more than once by any one examiner. This was Case 6, in which instance the first and third examinations were both conducted by me.

VARIATIONS IN THE RESULTS OF INTELLIGENCE-TESTS, CONDUCTED BY DIFFERENT EXAMINERS UNDER DIFFERENT CONDITIONS

Case	Age, Years	First Examination Date	Mentality	Second Examination Date	Mentality	Third Examination Date	Mentality
1. J. M. ...	15	12/10/12	7+	1/23/13	7+	12/ 3/13	8+
2. L. K. ...	11½	1/ 3/13	7	1/15/13	5+	10/27/13	7
3. D. F. ...	12	1/15/13	9+	12/10/13	10	2/28/14	8
4. J. W. ...	10½	1/21/13	7+	12/ 3/13	9	4/20/14	10
5. E. D. ...	9	9/15/13	5+	12/10/13	5+	4/ 4/14	4
6. R. H. ...	13	9/29/13	10+	12/10/13	12+	4/ 4/14	10+
7. L. P. ...	9	11/ 1/13	5	12/10/13	6+	4/ 4/14	5
8. A. D. ...	14	12/15/13	10+	2/18/14	10+	4/18/14	9+
9. H. T. ...	12	12/31/13	7	2/18/14	7+	5/ 9/14	6+

While the cases cited are too few in number to afford a basis for any general conclusions, it is nevertheless impossible to deny the significance of the results obtained. These show, as will be noted, variations of from one to three years in the estimated mentality of the individual subjects, the average being between one and two years. The final test, as compared with the first, shows apparent progress in two cases and apparent regression in four; while in three cases the first and last results coincide. In no case did all three tests agree. If each successive examination showed progressively higher mentality, the objection might be made that all the cases in the table happened to be subjects who had not reached their limit of development when first tested, and that the special-class training had improved their condition. The fact that the majority show apparent regression or remained stationary contradicts this, and the only conclusion possible is that the differences in the results were caused by the variability of the tests themselves.

If intelligence-tests, when conducted by examiners with a knowledge of psychology and psychiatry, show such great divergence in their results, the assumption seems justified that the variation would be even more marked in inexperienced hands. It would also seem that it is time to stop regarding such tests as an infallible method of determining a patient's degree of mentality, independently of other considerations.

935 St. Paul Street.

THE USE OF A NO-SOUND STROKE IN PERCUSSING OUT THE BOUNDARIES OF SUPERFICIAL DULNESS OF AIRLESS BODIES

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In the recent editions of the more important books on physical diagnosis one sees at a glance that the strong percussion stroke is being gradually displaced by lighter percussion as a more accurate method of determining the deep dulness of air-free bodies.

Goldscheider[1] has been particularly active in this field of work. He uses the lightest percussion (*Schwellenwertsperkussion*, "threshold of audibility"[1]) in ascertaining the deep heart-boundaries, liver edge, upper boundaries of lung and small areas of pulmonary infiltration.[2] The ordinary method of finger-finger percussion is employed except that the pleximeter finger is held in the position of Plesch[3] or, preferably, his own method of *Griffelperkussion*,[4] which consists in the use of a small glass rod as the pleximeter. The upper end is slightly curved, or covered with rubber, and is lightly percussed with the right middle finger; the lower end is placed in the intercostal spaces parallel to the margin of the borders to be delimited. He advises that the rod be held obliquely in order to give the *Schallstrahl eine gewisse Richtung*[4] — orthopercussion. He controlled the method by orthodiagraphic findings[1] and by experiments on the cadaver, claiming for it many advantages.[4]

Sahli vigorously opposes the method because "it does not depend on any generally applicable acoustic principle, and because it disregards the didactically important distinction between deep and superficial dulness."[5] He says that "to appreciate superficial boundaries it is a good general rule that we should percuss as lightly as possible, and a good criterion of the desired strength is to evoke practically no note over the dulled areas."[6]

On the other hand, Orlowski,[7] among others, has gained satisfactory results by adopting Goldscheider's method of orthopercussion, particularly in mapping out the lower border of the liver. He modifies Goldscheider's method somewhat by using the right index finger as plexor and the left index-finger as pleximeter; but the latter is held in the position of Plesch.

Where fecal masses or gaseous distention of the large intestine interfere with accurate work a saline or enema is given. He claims correct findings in 86 per cent. of livers with soft edge and in 92 per cent. of those with hard edge.

Sahli[5] tells us that "by light percussion the lower liver boundary is generally easy to determine." Cabot[8] laconically remarks that "percussion of the lower edge of the liver is notoriously unreliable." Butler,[9] who strongly upholds Goldscheider's method, admits that "it may be difficult to find the lower limit of the liver in the median line in front because of the thinness of the left lobe of the liver and the dulling effect of the muscular layers of the recti."

Owing to the inconstant results obtained by my students and myself in percussing out the areas of superficial heart and liver dulness, it seemed clear to me that the fault lay in the varying strength of the stroke, and that uniform results could be obtained only when each individual examiner percussed with a blow of equal force. To attain this end I devised some eight or ten years ago the following method, which I have since employed:

To determine the outline of the area of superficial cardiac dulness the patient is placed in the usual dorsal decubitus, and is directed to suspend respiration. The examiner's ear is held close to the patient's body. There should be absolute quiet in the room. A point is selected where the heart is known to be uncovered by lung. The pleximeter finger (left middle) is laid gently on this area, the other fingers remaining elevated. The second phalanx is now percussed with the right middle finger. A sound is at first produced by moderately strong percussion which is quickly graded down, by lessening the force of the blow to a *no-sound* or control stroke. This control stroke, which proves inaudible over that portion of the heart's surface uncovered by lung (area of superficial dulness), produces a faint sound over the area of the deep cardiac dulness, and a more decided one over the lung region just outside of it. The no-sound stroke having been obtained, one percusses with a blow of equal force from the area of deep dulness toward the area of superficial dulness. The borders of the latter are instantly recognized by the sudden disappearance of the faint sound obtained over the former. The outstretched pleximeter finger, resting gently in its entire length on the part percussed and parallel to the border to be determined, edges its way quickly in short lateral (pendulum-like) swings toward the objective border, and receives at the end of each swing two short control taps quickly delivered. The other fingers, as stated, are held up from the body surface, allowing the pleximeter finger free action. This maneuver serves as an excellent means for comparing delicate shading in sound, and also in detecting its abrupt disappearance.

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[1] Goldscheider: Ueber Herzperkussion, Deutsch. med. Wchnschr., 1905, xxxi, 333 and 382.

[2] Goldscheider: Ueber abgestufte Lungenperkussion, Verhandl. d. Kong. f. inn. Med., 1907, xxvi, 284.

[3] Plesch uses the right middle finger as plexor, and delivers the blow just above the flexed second phalangeal joint of the left middle finger, the first and second phalanges of which remain rigid and are held vertically, the finger-tip only coming in contact with the patient's body. Ueber ein Verbessertes Verfahren der Perkussion, München. med. Wchnschr., 1902, xlix, 620; Einiges über Perkussion, Deutsch. Arch. f. klin. Med., 1908, xciii, 201.

[4] Goldscheider: Zur Schwellenwertsperkussion des Herzens, Deutsch. med. Wchnschr., 1907, xxxiii, 1121.

[5] Sahli, Hermann: Diagnostic Methods, Philadelphia, Saunders & Co., 1911, p. 216.

[6] Sahli: ibid., p. 210.

[7] Orlowski: Contribution à l'exploration du foie: Au moyen de la percussion, Presse méd., 1912, xx, 643.

[8] Cabot, R. H.: Physical Diagnosis, New York, Wood & Co., 1913, p. 363.

[9] Butler: Diagnostics of Int. Med., New York, Appleton, 1913, p. 501.

The identical technic is used in ascertaining the superficial limits of the liver. The examiner obtains the control (no-sound) stroke at a given point over the exposed surface. He then readily delimits the superficial boundaries by noting the sudden disappearance of the faint sound, as he percusses in a line toward the dulled area, manipulating the pleximeter finger as described.

In persons with very flaccid abdominal walls and in those with marked diastasis recti abdominis, the accuracy of the method for percussing out the lower limit of the liver may be readily proved by the prompt disappearance of the faint percussion sound at a point where the liver edge is just palpable.

After a little practice in the use of the method one almost unconsciously uses a stroke of no greater force in outlining the obtainable deep borders of cardiac and hepatic dulness, only, stronger pressure on the part of the pleximeter finger is added to pick up the relative resistance which is experienced at the instant of slight diminution in the resonance.

The no-sound control percussion stroke is also applicable in mapping out the contour of thoracic aneurysm, dulled lung-areas, abdominal tumors and the like.

2701 Calvert Street.

INTESTINAL MYIASIS

WITH REPORT OF CASE

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In 1907 I reported[1] a case of infection with *Anthomyia canicularis* as the eighteenth on record at that time, five having been reported in America, five in Germany and the remainder scattered throughout France, England, Sweden and Argentina. At that time it was stated the *Anthomyia* was the larva of the very small black house-fly so often seen on windows. This classification of the parent was rather indefinite and confusing. It is now positively known that the *Anthomyia canicularis* is the larva of the small black flower-fly known, according to Stitt, as *Anthomyia pluvialis*.

The passing of dipterous larvae in the stool is uncommon and in most cases causes no grave symptoms as the result of their invasion of the intestinal tract. Cachagne, however, reports four deaths following intestinal ulceration accompanied by dysentery. Finlayson of Glasgow has reported an interesting case in a physician who after protracted constipation and pain in the back and sides passed large numbers of the larvae of the *Anthomyia*.

F. C. Wellman records a case of intestinal myiasis with dysenteric symptoms due to the larvae of *Anthomyidae* and *Sarcophaga*. From eighteen to twenty-one larvae were passed after doses of castor oil. The larvae hatched into flies in about a fortnight. The flies, which are often found parasitic in man, lay eggs on decaying vegetables and are suspected of infecting the person during defecation by depositing eggs in and around the anus, which later are thus incubated. This, however, is a recent theory; the eggs are usually ingested. The larvae vary in size from ⅛ to ¼ inch in length, and can be readily seen with the naked eye. The body proper is divided into segments, from ten to fourteen in number, according to age, with lateral branchii or gills. They are beset bilaterally with feathered bristles, two to each segment. The larvae are light brown in color, and when passed in the stools are more or less active. They invade the intestine and produce disagreeable symptoms until vomited up or passed with the feces. The life of the larvae in the human intestine is about two weeks. They are ingested as eggs and hatched out in the small intestine and are highly resistant to all forms of treatment. At the time the first case was referred to me I was convinced that I would never see a similar case again.

Case 2.—Mrs. E. W., aged 32, widow, native of Illinois, referred by Dr. D. W. Deal of this city, has lived on a farm the greater portion of her life. Personal history is negative. The present illness began fourteen years ago with nausea and vomiting. There was irregular menstruation. At this time the patient received more or less extensive treatment for uterine trouble. She was given ferrous sulphate and states that she was treated for every known disease. After several months' illness she began passing larvae and was compelled to resort to enemas. She was married and at once became pregnant, had constant nausea and finally aborted at the third month. She had several uterine hemorrhages and was curetted with poor results. She became very nervous and slept poorly, had no appetite and was unable to retain anything but egg lemonade. Three years ago, after separating from her husband, she noticed frequent shooting pains in the rectal region and at times abdominal tenderness was marked. There was much mucus in the stools and she experienced the sensation of the larvae crawling in the intestine. Occipital headaches are marked, with remissions. Two years ago constipation became chronic and is so to-day. There is burning urination at intervals. At present the menses are regular and not painful. There is almost constant abdominal distention at this time. The pulse is soft and compressible, not rapid, pupils contracted, and respirations normal. She is an adept at taking her own temperature and states that it varies from 95.6 to 101. The appetite is variable; there is a bad taste in the mouth, and the tongue is furred and ridged and red at the edges. Her complexion is sallow and she is generally nervous. She is able to be up and around the house and do light work and reading.

Treatment consists in 1-dram doses of magnesium sulphate before breakfast and at 4 p. m. with 5-grain doses of salol four times a day. The customary parasiticides have been tried with no marked benefit.

She passes from four to fifty larvae per day now and is showing some signs of improvement. The nausea has disappeared, her nervousness is less evident and there is a slight gain in weight. The prognosis would seem to be favorable.

Pocket Flash-Lamp for Transillumination.—The electric pocket flash-lamp makes an excellent light for transillumination of tumors of the scrotum. One of large size is to be preferred, with deep-set lens which may be so pressed against the tumor that light will not escape at its border. If, however, extreme convexity of the lens permits this, or a small tumor, the lens may be unscrewed and removed. The bulb, left deep in the shaft, furnishes a satisfactory substitute for lamps of similar construction that require connection with the electric current. For country doctors or those in small towns without adequate facilities for the operation of other apparatus, this is a practical and convenient method of applying a simple, but valuable diagnostic procedure.—A. L. Glaze, Jr., M.D., Athens, Ala.

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[1] Blankmeyer, H. C.: Infection with Fly Larvae, Anthomyia Canalicularis, The Journal A. M. A., May 4, 1907, p. 1505.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 25, 1914

NEWER VIEWS OF THE FUNCTIONS OF THE ADRENALS

When an extract of the medulla of the suprarenal bodies is introduced directly into the circulation a series of profound physiologic reactions may be observed. The most important of these changes are: a cessation of the activities of the alimentary canal; a notable shifting of the circulation from the great vessels of the abdomen to the lungs, heart, limbs and central nervous system, frequently manifesting itself further in a rise in peripheral arterial pressure; an increased cardiac vigor; an augmentation of the sugar-content of the blood. These are the prompt results of what may be termed the "heroic" mode of experimentation—the administration of considerable doses of the active agent of the adrenals.

The question has often been raised whether or not comparable phenomena take place in the ordinary physiologic performances of the body; whether or not epinephrin is continually being secreted in small amounts to maintain the normal tonus of the blood-vessels and to keep the content of the blood-sugar up to its normal level. We have previously reviewed the current ideas on these topics and suggested the improbability of the vasomotor and perhaps the entire sympathetic apparatus being kept in tonic activity by a persistent minimal suprarenal discharge.[1] W. B. Cannon of the Harvard Medical School has offered a novel and ingenious interpretation of the service which the adrenals may render to the organism — an emergency function, as he terms it.[2] To understand it one must recall that the bodily alterations noted above—the changes in the circulation, hyperglycemia, etc.—are also caused by nervous discharges along sympathetic pathways; discharges such as are sent forth in crises of pain and great emotion. Furthermore, the adrenal medulla is subject to central nervous influences coming to it by way of the splanchnics, the artificial stimulation of which will induce a secretory activity with a resultant increase of epinephrin in the blood. The next step was to prove that the adrenal glands can actually be made to discharge their products promptly into the circulation when they are affected by vigorous nervous impulses coming to them normally by way of the pathways indicated.

If it prove true that insignificantly minute quantities of suprarenal secretory products enter the circulation in the usual routine of the bodily functions, of what value to the organism are the extraordinary discharges of epinephrin called forth by the major emotions? As Cannon says, the cessation of activities of the alimentary canal (thus freeing energy for other parts); the shifting of the blood from the less insistent abdominal viscera to the organs immediately essential to life itself, such as the lungs, the heart, the central nervous system and, at critical moments, the skeletal muscles as well; the increased cardiac vigor; the quick abolition of the effects of muscular fatigue, the mobilizing of energy-giving sugar in the circulation—these are the changes which occur when fear or rage or pain causes the adrenal glands to pour forth an excessive secretion.

Muscles work preferably by utilizing the available carbohydrate of the organism. Great muscular activity considerably reduces the quantity of stored glycogen and of circulating sugar. The outpouring of sugar which is attendant on the major emotions and physical pain and which leads to hyperglycemia may be interpreted as a biologic adaptation to the necessities of struggle, fighting or flight. The epinephrin, which we now know is set free by pain and by fear and rage, would put the muscles of the body unqualifiedly under the control of the nervous system; for precisely as removal of the adrenals has a well-known debilitating effect on the muscular system, injections of their secretory products act as an invigorator. Epinephrin prepares fatigued muscles for better response to nervous impulses sent forth in great excitement.[3] This provision, together with the abundance of energy-supplying sugar newly flushed into the blood as the consequence of the epinephrin present, would give to an individual in which these mechanisms are most efficient the best possible conditions for putting forth supreme muscular efforts. Cannon even believes that if these results of emotion and pain are not "worked off" by action, it is conceivable that the excessive epinephrin and sugar in the blood may have pathologic effects.[4]

More recently Cannon and Mendenhall[5] have noted that emotional excitement occasions very rapid clotting of the blood. This may properly be associated with a discharge of epinephrin, which also has been shown[6] to hasten clotting and is known to be liberated by pain and strong emotion. This phenomenon of the blood may also be regarded as an adaptive process, useful to the organism. Prompt clot-formation tends to conserve the blood by sealing opened vessels in the injury which may accompany pain or may follow the struggle that fear or rage may occasion.

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[1] The Suprarenals and Vasomotor Tonus, editorial, The Journal A. M. A., March 7, 1914, p. 778; also Hoskins, R. G., and Wheelon, H.: Adrenal Deficiency and the Sympathetic Nervous System, Am. Jour. Physiol., 1914, xxxiv, 172.

[2] Cannon, W. B.: The Emergency Function of the Adrenal Medulla in Pain and the Major Emotions, Am. Jour. Physiol., 1914, xxxiii, 356.

[3] Gruber, C. M.: The Fatigue Threshold as Affected by Adrenalin and by Increased Arterial Pressure, Am. Jour. Physiol., 1914, xxxiii, 335.

[4] Cannon, W. B., and D. de la Paz: The Stimulation of Adrenal Secretion by Emotional Excitement, The Journal A. M. A., 1911, lvi, 742.

[5] Cannon, W. B., and Mendenhall, W. L.: Factors Affecting the Coagulation Time of the Blood, IV. The Hastening of Coagulation in Pain or Emotional Excitement, Am. Jour. Physiol., 1914, xxxiv, 251.

Such considerations help to round out Cannon's hypothesis of the emergency function of the adrenals, especially when taken in connection with the fact that the absolutely essential organs — the heart, lungs and brain, as well as the skeletal muscles — in times of excitement or critical moments when the adrenal glands discharge, are abundantly supplied with blood from organs of less importance. As Cannon concludes, each of these changes in the body is directly serviceable in rendering the organism more efficient in the struggle which fear or rage or pain may involve; for fear and rage are organic preparations for action, and pain is the most powerful known stimulus to supreme exertion. The organism which with the aid of increased adrenal secretion can best muster its energies, can best call forth sugar to supply the laboring muscles, can best lessen fatigue, and can best send blood to the parts essential for the run or the fight for life, is most likely to survive. Such, according to the view here propounded, is the function of the adrenal medulla in times of great emergency.

SODIUM FLUORID—A POISON

Although from the point of view of superficial chemical classification the compounds of fluorin belong in the group of halogen salts with chlorids, iodids and bromids, they present many points of difference from the latter. This is particularly true with respect to the behavior of fluorids in the animal organism. They have long been regarded as decidedly toxic substances and have found no recognized acceptance in pharmacotherapy. This failure of fluorids to be used in medical practice need not be attributed solely to their admittedly poisonous nature; for all too often harmful as well as inert substances have been accepted as therapeutic agents for reasons which even historical research cannot discover.

The fluorid of sodium, which alone has any prominent significance in commerce, has considerable antiseptic power, putrefaction being delayed by the addition of one part to five hundred of fluid, while one part in two hundred completely arrests the growth of bacteria. For this reason sodium fluorid was at one time suggested as a surgical antiseptic. One catalog of pharmaceutical preparations actually mentions it as used internally in "epilepsy, malaria, ague, tuberculosis and skin diseases," and externally as an antiseptic dressing for wounds and injuries, remarking further that it does not attack nickel-plated instruments. The internal dose is given by this publication as from $^1/_{12}$ to $^1/_6$ grain (from 0.005 to 0.01 gm.) in solution with sodium bicarbonate; as an application for wounds a solution is suggested of from 0.5 : 1,000 to 10 : 1,000, and a solution of from 0.5 to 1 per cent. for mouthwashes or for injections in vaginitis. Sodium fluorid, being antiseptic, is said to be used in alcohol distilleries to prevent the formation of injurious quantities of lactic and butyric acids during fermentation of the mash, and also for purifying vats used in fermentation and for disinfecting apparatus employed in distilleries.

If one turns to the actual descriptions of the behavior of sodium fluorid in the animal body and its tissues, the reports do not encourage its use. Even dilute solutions when brought into contact with the mucous membranes produce irritations. In the eye they may cause congestion and inflammation of the conjunctiva and defects in the cornea. In the gastro-intestinal tract symptoms of pronounced irritation appear. Solutions of the fluorids are absorbed with great difficulty by the intestinal epithelium. After subcutaneous injections, suppuration and necrosis may occur.

These acute results from the use of sodium fluorid are, to say the least, admonitory against it. Inasmuch as in appropriate dosage it is a poison which acts simultaneously in the most diverse parts of the organism, any theory as to its action must be based on some general or broadly applicable principle. The most probable one at present involves the property of fluorids, like oxalates, to precipitate calcium as the insoluble salt calcium fluorid wherever the reaction can take place in the body. The blood or tissues may thus be deprived of lime in regions in which it is physiologically needed.

The immediate occasion for taking up anew any consideration of the toxicology of fluorids lies in reiterated reports that they are being used, as they doubtless were a few years prior to the agitation against food preservatives, as admixtures in articles of diet. A commercial motive is readily found in the excellent antiseptic properties of sodium fluorid. For this reason, renewed studies of the effects of repeated administration of this chemical are welcomed. Schwyzer[1] has found in animals that the continued intake of small doses of sodium fluorid, in amounts of from 1 to 2 mg. per kilogram of body-weight, brings about detectable symptoms: increased coagulability of the blood, tendency toward venous thrombosis and indications of irritation of the bone-marrow. The chemical result is a loss of chlorin and of calcium from the bones. The elimination of chlorin is attributable to the unlike "affinities" of chlorin and fluorin. The chlorin is excreted through the kidneys, the calcium in both urine and feces. The body may become deficient in chlorin in this way. There is, furthermore, frequently a decided disappearance of fat from the bone-marrow owing to the invasion by lymphoid elements.

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[6] Cannon, W. B., and Gray, H.: Factors Affecting the Coagulation Time of the Blood, II. The Hastening or Retarding of Coagulation by Adrenalin Injections, Am. Jour. Physiol., 1914, xxxiv, 232.

[1] Schwyzer, F.: Einfluss chronischer Fluorzufuhr auf den Chlor- und Calciumstoffwechsel, Biochem. Ztschr., 1914, lx, 32.

Such experimental observations speak for themselves; at best they should force the users of fluorids, if there still be such, to furnish rigorous proof of the harmlessness of the preservative. Meanwhile we shall repeat verbatim the conclusions of Schwyzer: Fluorin preparations, administered steadily even in the small dosage of 1 mg. and less per kilogram of body-weight per day, are poisonous. They should be completely excluded from the nutrition of man and that of domestic cattle.

PATHOLOGIC ASPECTS OF VAGRANCY

The acting superintendent of the New York Municipal Lodging-House has made a study of about two thousand vagrants. The results of his examination, which he has embodied in a report to the Commissioner of Public Charities, are of special interest to physicians because they disclose the fact that the immediate etiologic factor in vagrancy is not, in the great majority of instances, economic, as is usually thought, but pathologic. The common impression is that a great many of the vagrants of large cities are men whose advancing years have thrown them out of employment. This is the day of the young man; many firms and corporations refuse to take on men over 40, and some persons think that "the advent of the young man into business has practically crowded the aged into the poorhouse." It was found, on the contrary, that the majority of the men who applied to the New York Municipal Lodging-House were young—indeed, in the very prime of life. Of the two thousand men examined—and they were selected at random—5 per cent. were under 21, while scarcely a greater proportion—altogether 6.85 per cent.—were over 60.

It is generally assumed that in a city like New York, which receives every year many immigrants and in which a large part of the population is of foreign birth, many, if not indeed the majority, of the vagrants will prove to be foreigners who have become a charge on the community because, handicapped as they are by difference of language and of customs, they are unable to make their way in this country. There is an idea too, that a great many of the vagrants in large cities everywhere are not city-born, but have been attracted to the centers of population because of the ease with which an unearned livelihood may be obtained there. New York, as the gateway of by far the greatest part of the immigration of this country, and as the possessor of a municipal lodging-house famous for its comfort, is best situated for the determination of this question.

The report, however, contradicts all of these *a priori* impressions. Of the two thousand men examined, only forty, that is, 2 per cent., had been in this country less than three years, while only 9 per cent. had been in New York less than one year. The average time of residence in the metropolis proved to be thirty-two years and four months; as thirty-six was the average age of the men altogether, they had lived practically all of their lives in the city and the superintendent adds that "practically all of these two thousand were our own native sons."

About 35 per cent. of the homeless men who seek the shelter of the municipal lodging-house are unemployable. Twelve per cent. of them showed definite evidences of defective mentality. The infirm from age and those handicapped by the loss of a member represent about as many more. About 10 per cent. are habitual loafers and confirmed beggars, who have lost the habit of work. Sixty-five per cent. are willing and able to work but are hampered partly by lack of skill and partly by the fact that they are victims of the seasonal trades which employ a great many men at certain times of the year and very few at others, leaving men without any definite occupation for months every year.

Alcohol played an important rôle in the etiology of these tendencies to vagrancy. The report says that about 50 per cent. of these men proved to be excessive drinkers, a fact which is not nearly so significant as the admission of over 30 per cent. that intoxicating liquors were the sole cause of their dependency and wretchedness. The physician's cardinal interest in this social problem is centered in the alcoholism and mental defectiveness, though a great many other cases would be diagnosed under some of the forms of discouragement and psychasthenia, if only the patients could afford to be cared for by physicians who make such diagnoses. When out of work a great many of the men become discouraged and depressed and then are unable to rouse themselves to take up their labor again. The whole problem is one of social aid, rather than punishment and repression, for such men, being unfitted by character for the present struggle for existence, cannot be held responsible for their condition.

In a word, the actual study of conditions in New York, as a typical American large city, emphasizes the need for the physician's interest in social problems. That city may fairly be taken above all to represent other large cities in its relation to our immigration for it retains more than its share. It is, therefore, very clear that vagrancy among us is distinctly an American and not an immigrant problem. It is our own people who need care to prevent the occurrence of social breakdowns that are as serious in their way for the individual and the community as physical breakdowns. The physician probably understands all the factors of the problem as thus presented better than any one else. This is the day of prevention rather than cure, and knowledge is the best possible element in prophylaxis. Undoubtedly social work in connection with dispensaries can do much to relieve this condition and with the decrease of infectious disease social service becomes the physican's next duty in prophylaxis.

THE NERVE-CONTROL OF THE THYROID GLAND

The question as to the innervation of the so-called glands of internal secretion has proved to be one of the most difficult, as it is one of the most important, problems of modern physiology. The belief that an organ like the thyroid, for example, is in some manner under the dominance of the nervous system is fostered by numerous analogies. Other similar cellular structures, notably the secretory glands of the alimentary system, are subject to the influence of direct and indirect nervous control. Vasomotor fibers regulate their blood-supply, and secretory fibers affect more directly the production and discharge of their specific products from the gland-cells. Anatomically, the thyroids furnish an added analogy in that, like the digestive glands, they are richly supplied with nerves. The latter, however, for the most part follow the blood-vessels, which may account for the fact that earlier investigators were content to assign to the thyroid nerves a purely vasomotor function.

As the precise nature of the active product furnished by the thyroid gland is still unknown, it has been practically impossible to search for a secreted substance, after its supposed discharge from the gland, with any sanguine hope of success. Many facts, of course, point to the probability that the active substance in the thyroid contains iodin in combination with protein and that the physiologic activity is in proportion to the quantity of iodin in the combination. Some attempts have been made to demonstrate the presence of this active substance in the blood by means of a biologic reaction, but none of them have thus far been really successful. This is not surprising, however, if one considers how vascular the gland is and how small a quantity of the active agent must be distributed through the blood leaving the gland in the course of the entire day.

Leon Asher[1] and his collaborators at the Physiologic Institute in the University of Berne, Switzerland, have attempted by an indirect method to demonstrate a nerve-control of the thyroid gland. Their experiments were made to determine if any phenomena could be observed, after stimulation of the thyroid nerves, which would indicate that an increase in thyroid secretion discharged into the blood had been produced thereby. Accordingly they compared the excitability of certain nerves before and after stimulation of the thyroid nerves, and also the effect of a small intravenous injection of epinephrin before and after such stimulation. They concluded that, under otherwise exactly similar experimental conditions, a stimulation of the depressor nerve or injection of epinephrin was more effectual during stimulation of the thyroid nerves than shortly before it. That both of the symptoms, namely, the increased excitability of the depressor and the more effective action of epinephrin, actually depend on an internal secretion of the thyroid and not on any accompanying circumstance of nerve stimulation, is proved by the fact that on extirpation of the thyroid the symptoms no longer appeared; while the action of intravenous injections of thyroid extracts was the same as that produced by stimulation of the thyroid nerves.

Realizing, as many other investigators have, that such complicated experiments and indirect evidences, though extremely suggestive, are far from satisfying or conclusive, Rahe, Rogers, Fawcett and Beebe[2] have attacked the problem of nerve-control by experiments of a different character. Briefly, the plan of experiment was to determine, first, whether the iodin content of the two lobes of the normal thyroid gland from the same animal is identical; and secondly, whether stimulation of the nerves leading to one lobe causes a loss in its iodin content. If the two lobes of the normal thyroid are identical in iodin content they may serve as controls of each other. Granting this to be true, it was their hypothesis that stimulation of the nerves entering one lobe might cause a change in the iodin content because of the resulting discharge of iodized protein from the gland.

Although the iodin content varies widely in different individuals, the two lobes are wonderfully constant. From the analytic data supplied by a very accurate method the difference shown falls within the limits of error. It seems evident that one lobe of the thyroid may serve as a control of the other, provided both lobes are normal. The average difference of iodin, expressed as milligrams per gram of fresh gland, between the two thyroid lobes of seven normal dogs was 0.0055 mg. The average difference found when the superior vessels, with accompanying nerve-fibers, of one lobe were stimulated was 0.1351 mg. The average difference found when the stimulus was applied to the vagus peripherally to the superior ganglion, the nerve being cut centrally to the ganglion and ligated peripherally to the stimulus, was 0.1699 mg. The average difference found when stimulus was applied to the intact vagus was 0.264 mg.

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[1] Asher, L., and Flack, M.: Die innere Sekretion der Schilddrüse und die Bildung des inneren Sekretes unter dem Einfluss von Nervenreizung, Ztschr. f. Biol., 1911, lv, 83. Asher, L., and von Rodt, W. E.: Die Wirkung von Schilddrüsen und Nebennierenprodukten und die sekretorische Innervation der Schilddrüse, Zentralbl. f. Physiol., 1912, xxvi, 223. Ossokin, N.: Zur Frage der Innervation der Glandula Thyroidea, Ztschr. f. Biol., 1914, lxiii, 443.

[2] Rahe, J. M., Rogers, J., Fawcett, G. G., and Beebe, S. P.: The Nerve Control of the Thyroid Gland, Am. Jour. Physiol., 1914, xxxiv, 72.

In these experiments, conducted in the department of experimental therapeutics at the Cornell University Medical School in New York, a loss of iodin from the thyroid was observed in every case after nerve stimulation. According to the investigators, there seems to be no reasonable doubt from these results that the thyroid is at least in part under nerve-control, and that its physiologically active substance is discharged into the circulation in response to a nerve stimulus.

EXERCISE AND THE HEART

The importance of acquiring more information than is now available with respect to the physiology of exercise has not lacked emphasis in The Journal.[1] Many of the facts which are learned find an immediate application in the domain of practical medicine and notably in the clinic of cardiac diseases. The enlargement of the heart, for example, may be attributable either to hypertrophy of its musculature or to an increase in its blood-volume. Both of these conditions are affected by muscular activity or exercise, but the interrelations which are involved have never been fully elucidated.

Obviously a precipitate change in the size of the heart must be dependent primarily on changes in its content of blood. Aside from this, however, are those permanent enlargements which represent the result of long-continued vigorous exercise of the heart. They may be conditioned by extreme bodily activity calling for a liberal blood-supply and thus indirectly involving the heart in unusual performance; or they may also be brought about by mechanical difficulties in the circulation whereby the cardiac musculature is compelled to work against an increased peripheral resistance. The effect of long-continued vigorous muscular effort is seen at necropsy in the enlarged heart musculature of those who have engaged in active military service, and in professional athletes. In animals the same functional cardiac hypertrophy appears in race-horses and other species accustomed to vigorous activity instead of the more lethargic existence of many of the domesticated types. This phenomenon of enlargement is familiar and readily explained, for the heart as for any other muscle or groups of skeletal muscles, as the result of systematic use. Our muscles are said to "grow" with exercise.

Less is known, on the other hand, about the *immediate* effects of exercise on the heart. The usual observations ordinarily follow the exertion and give indication of the after-effects only. Experiments on animals involving the direct inspection of the heart in the opened chest are unsatisfactory because the requirements of the circulation are notably altered under such conditions. Roentgenoscopy has furnished a far more adequate method of investigation in this field than was ever available before its introduction. It has reached a high degree of perfection in the hands of Zuntz and Nicolai of Berlin, who have devised a scheme for making observations by means of a stationary ergometer directly on the human subject during the period of work. With such an apparatus they have now collected numerous measurements of the outlines of the heart.[2] These show that during exercise the heart becomes slightly enlarged; immediately thereafter it is suddenly decreased in size below the normal. From the latter fact the German physiologists conclude that ordinarily the heart contains a small undischarged residue of blood which is expelled under the conditions immediately succeeding the cessation of work.

If this interpretation of the temporary diminution of heart-volume following vigorous exercise is correct, the residual blood remaining in the ventricles after a normal systole may be looked on as a reserve supply to meet any emergency call which may suddenly arise in some distant organ, for in such an event the dilatation of these peripheral vessels and the consequent more ready passage of blood would lead to a fall in blood-pressure in the aorta. Obviously under these conditions a constant systolic efficiency would permit a more complete discharge from the ventricle in the face of decreased peripheral resistance. Perhaps this phenomenon is one of the almost innumerable "factors of safety" which are coming to light with the progress of knowledge.

INULIN IN THE DIETARY OF THE DIABETIC

The search for a carbohydrate to replace starch in the dietary of the diabetic patient which will be utilized satisfactorily by him has been a long one. Thirty-five years ago inulin was suggested as a suitable substitute, and its value for the purpose indicated has been under discussion more or less ever since. Inulin is a polysaccharid of levulose, comparable in this respect with starch which is the polysaccharid of dextrose. It occurs in the roots of many of the composites, particularly in the tubers of the dahlia, artichoke, elecampane and other similar plants; so that its use in the dietary might easily come within the range of economic possibility.

No enzymes which can convert inulin into sugar have been found in the digestive tracts of the higher animals. It happens, however, that the normal acidity of the gastric juice is sufficient to effect a partial hydrolysis of inulin to levulose in suitable conditions. This would seem to be the only process, therefore, by which inulin can be rendered available for absorption, unless the carbohydrate is converted into appropriate products by the agency of micro-organisms in the alimentary tract. Dr. H. B. Lewis[1] reviewed the situation in THE JOURNAL some time ago. He noted that inulin fed to a healthy man was not eliminated in the feces; but the marked intestinal fermentation which was observed to follow the ingestion of the carbohydrate suggested that it is impossible to administer more than comparatively small amounts without discomfort, and that aside from a possible small formation of levulose in the stomach, the bulk of the product is decomposed with the formation of products other than carbohydrates.

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[1] The Hygiene of Athletic Sports—Rowing, editorial, The Journal A. M. A., April 11, 1914, p. 1172.

[2] Zuntz, N., and Nicolai, G. F.: Füllung und Entleerung des Herzens bei Ruhe und Arbeit. Berl. klin. Wchnschr., May 4, 1914, p. 821.

H. Strauss of Berlin has championed the use of inulin-yielding vegetables which he believes to be employed with advantage by many diabetics. Largely owing to his hearty advocacy, the recommendation of these food materials in the dietary of the diabetic is still continued in current text-books, particularly the Continental ones.[2] Unless it is assumed that inulin as such is actually utilized after absorption or in the form of some unknown and unusual derivative, the probability arises that any available inulin will reach the circulation as levulose. The inulin problem thus becomes one concerning the relative availability of levulose for the diabetic — a question that has been given various answers. At best it can only be said to be tolerated by various diabetics in quite unlike degree.

Inasmuch as it has been shown that levulose readily yields glucose in animals rendered diabetic by phlorhizin, one might expect that any significant conversion of inulin to levulose either in the stomach or elsewhere would manifest itself by a rise in the glucose output in the urine of such subjects. Lewis and Frankel[3] have put the matter to a test, with the anticipated result that no significant amount of extra glucose was eliminated after the feeding of inulin. The feeding of levulose in comparable amounts to the same diabetic animals resulted in an abundant excretion of corresponding extra glucose. There is little probability, therefore, that an appreciable amount of inulin is converted to levulose or to any substance which can give rise to glucose in the diabetic organism. The burden of proof of its usefulness in the dietary of the diabetic ought now, we believe, to rest with those who claim some unexplained virtue for inulin.

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[1] Lewis, H. B.: The Value of Inulin as a Foodstuff, THE JOURNAL A. M. A., April 20, 1912, p. 1176.

[2] Strauss, H.: Diätbehandlung innerer Krankheiten, Dritte Auflage, Berlin, 1912, p. 193. Albu, A.: Die Ernährung von Zuckerkranken, nebst praktischen Anweisungen für die Diabetesküche, Halle, 1912, p. 43.

[3] Lewis, H. B., and Frankel, E. M.: The Influence of Inulin on the Output of Glucose in Phlorhizin Diabetes, Jour. Biol. Chem., 1914, xvii, 365.

Current Comment

LIQUID CHLORIN AND WATER STERILIZATION

"Liquid chlorin" is the name under which liquefied chlorin gas appears in commerce. During the last seven or eight years the manufacture of liquid chlorin has become well established in this country, and the product is said to be displacing bleaching-powder in a number of industries. It is also used in chemical manufacturing industries such as detinning. The gas is generated by the electrolysis of brine and is then dried, compressed and cooled until it liquefies. It is marketed in steel cylinders having a capacity of from 100 to 110 pounds weight. The results obtained by the calcium hypochlorite process in emergency water sterilization have led to experiments with liquid chlorin for the same purpose. Excellent results as to bacterial efficiency have been obtained at Philadelphia and Wilmington, Del. Experimental observations by Jackson at Cleveland and Brooklyn are also favorable. The advantages claimed for the process are economy in cost of installation and operation, simplicity in regulation of the quantity of chlorin applied, and absence of the unpleasant odors and tastes sometimes resulting from the bleaching-powder treatment. Some experimenters are very enthusiastic over the virtues of this new mode of water sterilization,[1] but a wider experience with the practical application of this procedure seems desirable before its general adoption can be confidently urged.

THE TONIC EFFECT OF SYMPATHY WITH OTHERS

Some years ago there appeared in the newspapers an open letter in which a suffering and helpless woman asked aid in securing a law to permit invalids pronounced incurable after a medical consultation to be painlessly put to death.[2] Naturally, the letter attracted attention and reawakened the old question whether or not physicians are ever justified in shortening life. It is of interest, then, to note that the writer of the letter now rejoices at the non-fulfilment of her wish. She has lived to experience how much life may hold even in the face of bodily helplessness and how greatly hope brightens prospects which seem at first so unfavorable. She tells of having received thousands of letters from all over the world containing messages of sympathy and approbation for her daring attempt to secure a modification of present-day laws protective of life. Some of these invalids, she says, have since written her of their cure and of their gladness that conservatism and old-fashioned legislation had intervened between themselves and their impatience. One of these correspondents, who was sure that hope was dead for her and who eagerly desired the "finis" at the end of the chapter, has written of her complete recovery and how much more life now means to her since she has "passed through the shadow of the valley of desolation." This correspondence has proved, as might well be expected, a stimulant and a tonic to the invalid. She feels not only that her contact with others has given them a renewed interest in life, but also that even her mistaken suggestion of a revolutionary change in law has not been without its good effect, since it has drawn together in bonds of deep human sympathy, invalids who felt their helplessness yet were helped by the knowledge of their common lot. It was the touch of nature that makes the whole world kin—and kind. Probably nothing is more stimulating and genuinely tonic to sufferers, especially those with chronic ailments, than the feeling that in spite of their own helplessness they themselves can still be helpful to others. The Shut-in Society in this country has made life more bearable for many persons who are confined to their rooms or their houses. Nothing disturbs a certain class of patients so much as to be constantly in contact with those who are in good health and strength and whom they can scarcely help but envy. To be brought into touch with those for whom they themselves can feel is a precious source of consolation and uplift. Pity is a luxury to be enjoyed, but no human being likes to be pitied or to feel that he is an object of pity. To be conscious of some advantage in one's situation over that of others is of itself an alleviation for many sicknesses.

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[1] Kienle: Proc. Am. Waterworks Assn., 1913, p. 267.

[2] Supplicant for Euthanasia Recovers, Current Comment, THE JOURNAL A. M. A., Feb. 28, 1914, p. 705.

Medical News

ALABAMA

Hospital Name Changed.—The trustees of the Holy Innocents Hospital, Birmingham, announce the change of the name of the institution to the Children's Hospital of Birmingham, and furthermore that the institution is free for the care of children from infancy to the age of 14. The ward capacity of the institution is twenty-five.

COLORADO

Corner-Stone Laid.—The corner-stone of the Samuel Grabfelder Medical Building of the National Jewish Hospital for Consumptives was laid June 28. Addresses were made by Governor Ammon, Dr. James M. Perkins, the mayor of Denver, and others.

Health Officers Organize.—At a meeting of the health officers of Colorado held at Boulder, July 1, the Colorado Association of City Health Officers was organized. The scope of the work of the association was outlined, and a committee was appointed to arrange for permanent organization.

Personal.—Dr. Caleb W. Pressnal, Trinidad, has sailed for Europe.——Dr. John L. Schwer, Pueblo, who recently underwent an operation at St. Mary's Hospital in that city, is said to be improving.——Dr. Ross E. Wright, Loveland, sustained serious injuries by the overturning of his automobile, July 5.

ILLINOIS

Hospital Notes.—The new Dispensary for Sick Children, Kewanee, made possible by the efforts of the local women's club, was opened July 1 in the Lyle building on North Tremont Street.——The East St. Louis Board of Health has closed the contagious hospital of that city.

Correction.—Dr. E. Vincent Hale, Anna, states that the announcement of his retirement from active practice, which appeared in The Journal of last week, the information being derived from the Cairo *Bulletin* of July 2, is incorrect, and that he has no intention of retiring from active practice.

Staff Physician Honored.—At the completion of the twenty-fifth year of service of Dr. Otis Johnston on the staff of St. Mary's Hospital, Quincy, the sisters gave a dinner in honor of Dr. Johnston, July 2. A jubilee song was sung and poems in honor of the occasion were read, and many silver gifts were presented to Dr. Johnston.

Personal.—Dr. Whedon W. Mercer, a member of the staff of the Peoria State Hospital, has been appointed assistant superintendent of the Anna State Hospital.——Dr. Arthur L. Hagler, Springfield, who was operated on at St. John's Hospital in that city, recently, is reported to be improving.——Dr. George P. Gill, Rockford, was operated on for mastoiditis at the Wesley Hospital, Chicago, July 8.——Dr. Perry H. Wessel has been reappointed city physician of Moline.——Dr. Edgar H. Little has been appointed postmaster of East St. Louis.

Chicago

Tuberculosis Exhibits in Schools.—The request of the Chicago Tuberculosis Institute that it be allowed to place educational exhibits in several of the social education schools, was granted at the meeting of the school management committee of the board of education, July 17, and the institute was requested to place exhibits in as many of the schools as it deemed profitable.

Koch Society Meeting.—July 16, the Robert Koch Society for the Study of Tuberculosis met under the auspices of the Chicago Tuberculosis Institute at the City Club. The subject discussed was "Tuberculosis of the Bones and Joints: Its Present Status." Dr. Charles M. Jacobs read a paper on "Etiology and Pathology," Dr. John L. Porter, on "Non-Surgical Treatment," Dr. Edward W. Ryerson on "Surgical Treatment." The discussion was opened by Dr. John Ridlon.

Personal.—Dr. Nathan S. Davis, who was operated on at the Presbyterian Hospital for the removal of gall-stones, June 30, has made a good recovery and is convalescing at his home in Lake Forest.——Dr. and Mrs. William Fuller, Dr. John B. Murphy, Dr. and Mrs. George T. Tristram, Dr. Charles Davison, Dr. William L. Abbott, Dr. and Mrs. Jabez D. Hammond and sons, Dr. Truman W. Brophy and Dr. Emilius C. Dudley and daughter have gone abroad.——Dr. Andrew M. Harvey is ill with typhoid fever at the West Suburban Hospital, Oak Park.

INDIANA

Children's Dispensary and Hospital Incorporated.—The Children's Dispensary and Hospital Association of South Bend was incorporated, July 3, with the following directors: Drs. Charles E. Hansel, Roscoe L. Sensenich, Hugh M. Miller, Edwin J. Lent and others.

Free Clinics Resumed.—After an intermission of a month, the free clinics of the Hillside Christian Church, Indianapolis, for the treatment of diseases of the eye, ear, nose and throat, was resumed, July 10. Free clinics for children will be conducted by Dr. Homer W. Cox on Tuesdays and Thursdays from 2 to 4 p. m.

Milk Clinic Opened.—The new pure milk clinic was opened July 9, under the direction of the Indianapolis Children's Aid Association at the College Mission Settlement, Haughville. Clinics are held each Monday and Thursday morning from 8:30 to 9:30, in charge of Dr. Frank McCool.——A new milk station will be opened by the Flanner Guild in Culvert Street, and will be in care of Dr. Harry Conner.

Personal.—Dr. Frank H. Jett, Terre Haute, coroner of Vigo County, is reported to be seriously ill with pneumonia complicating typhoid fever, in London, England.——Dr. John P. Herrington, Logansport, local surgeon of the Pennsylvania System, was awarded a sphygmomanometer for the best essay on surgery at the annual conference of surgeons of the Pennsylvania lines, east and west, held recently in Atlantic City.

KENTUCKY

University Sells Hospital.—The Board of Education of Louisville has purchased the city hospital building at South Sixth Street, from the University of Louisville for $40,000. The building will be remodeled for a graded school for white children.

To Relieve Congestion at State Hospital.—Congestion in the three state hospitals will be temporarily relieved by the construction of a common dining-hall at the Western State Hospital, Hopkinsville. This dining-hall will cost $30,000, but will take the place of twenty-five dining-rooms in the various buildings of the institution, and these will be transformed into sleeping quarters for about two hundred patients. The additional accommodations will permit the transfer of several patients from the Lakeland and Eastern State Hospitals.

MARYLAND

Personal.—Dr. Charles L. Mattfeldt, of Catonsville, has returned to his home from the Baltimore Eye, Ear and Throat Hospital, where he underwent operation.——Drs. Randolph Winslow, Baltimore, and Edwin B. Claybrooke and James T. Johnston, Cumberland, have sailed for Europe.

More Money for Medical School.—In addition to the general fund of $1,500,000 recently given to the Johns Hopkins University Medical School, Baltimore, the General Educational Board is said to have appropriated a fund of $50,000 for the development of the Hunterian Laboratories of the school.

Montevue Asylum Closed.—The State Lunacy Commission has transferred all the insane patients from Montevue Asylum, Frederick county, to state hospitals for the insane, which means that this institution will now be closed. It is the first county asylum in the state to be relieved of the care of the insane, and tends toward the gradual elimination of county asylums.

Health Department Moves.—The Health Department of Baltimore, the State Board of Health and Department of Vital Statistics are now located in the old Polytechnic Building on Portland Street, which has been remodeled for their use. The first and second floors are given over to the offices of Health Commissioner Gorter and his assistants. On the third floor are the State Board of Health and the nurses connected with the department of Vital Statistics, and the chemical, pure food and dairy supply departments are on the fourth floor.

State Health Survey Commenced.—The state and national health authorities began on July 7 the sanitary survey of Maryland. It was begun in Dorchester County. It is proposed to visit and inspect every house, and carry on health propaganda by public meetings, moving pictures and health exhibits, and all other means of emphasizing the importance of sanitation and health. The survey board consists of Dr. John S. Fulton, State Board of Health, Dr. Leslie L. Lumsden, U. S. P. H. S., and Drs. Josiah H. Bowen, Washington, William C. Stone, Ellicott City, Caldwell Woodruff, Baltimore, Alexander M. Stevens, Easton, and Richard B. Norment, Baltimore.

Staff Changes.—Dr. Karl H. Van Norman, for the last two years chief admitting physician of Johns Hopkins Hospital, has been selected as first assistant superintendent of the hospital, to succeed the late Rupert Norton, who died a month ago. Dr. Henry A. Stephenson, resident obstetrician, and Dr. Frank Hinman, assistant resident surgeon, have accepted appointments to the staff of the Leland Stanford Medical School of San Francisco. Dr. Stephenson will be succeeded by Dr. Everett Dudley Plass, who was called to a New York hospital. Dr. Ralph Seem, for the last two years in charge of the dispensary and third assistant to Supt. Winford H. Smith, has been designated as second assistant, succeeding Dr. Van Norman as chief admitting physician.

MINNESOTA

Southern Minnesota Physicians to Meet.—The mid-summer meeting of the Southern Minnesota Medical Association will be held in Winona, August 20 and 21.

Counties Build Sanatorium.—Beltrami, Koochiching and Hubbard Counties are uniting to build a sanatorium for tuberculosis, which will probably be located near Lavina, on Bass Lake.

Tuberculosis Quarantinable.—The State Board of Health July 14 officially declared tuberculosis to be a communicable disease and subject to certain regulations. These regulations include the isolation of tuberculosis patients in a sanatorium or at home, the care of the patients in the early stages of the disease, and the enforcement of quarantine rules.

School of Public Health.—It is proposed to establish a school of public health at the University of Minnesota, and a meeting was held to discuss plans for the school, July 13. The instruction is to be entirely by the present teaching staff, and will include the consideration of the subject from a medical as well as from a modern sanitary engineering standpoint.

Personal.—Dr. William B. Lande, St. Paul, has recovered from his recent severe illness and resumed practice.——Dr. and Mrs. James L. Lynch, Winona, Drs. Olaf J. Hagen and Edward W. Humphrey, Moorhead, have sailed for Europe.——Drs. Robert I. Hubert, Edward Schons and Charles E. Smith have been appointed medical inspectors of the St. Paul Department of Health.

District Sanatorium Desired.—Lyon, Cottonwood, Nobles, Murray, Pipestone and Lincoln counties sent representatives to Pipestone June 18 to promulgate plans for establishing a district sanatorium for tuberculosis. At a meeting to be held in Tracy, July 21, the matters of site, plans and specifications will be discussed. Of the three remaining counties of the district, Rock and Redwood counties are still undecided, and Jackson county has declined to unite with the organization.

MISSOURI

Personal.—Dr. and Mrs. John D. Pifer, Joplin, have returned from abroad.——Dr. Charles Sandy, of the staff of the Emergency Hospital, Kansas City, was seriously injured, July 9, in a collision between a motor-ambulance and a motor-truck.

St. Louis

Personal.—Dr. and Mrs. Walter Fischel have returned from Europe.——Dr. Albert May has started on an automobile trip to San Francisco.

MONTANA

Personal.—Dr. Charles R. Blake, Butte, has moved to Dillon, where he will be associated in business with Dr. Harry A. Bond.——Dr. Arthur G. Allen, Butte, has been appointed a member of the examining board of the municipal police department.

Health Officers' Meeting.—The annual meeting of the Montana Health Officers' Association was held in Lewistown, July 7; and the following officers were elected: president, Dr. Arter W. Deal, Lewistown; vice-president, Dr. Clyde W. Jump, Bozeman, and secretary, Dr. William F. Cogswell, Helena.

State Medical Society Meeting.—The twenty-sixth annual meeting of the Montana State Medical Association was held in Lewistown, July 8 and 9, under the presidency of Dr. William P. Mills, Missoula. The following officers were elected: president, Dr. James H. Irwin, Great Falls; vice-presidents, Drs. John C. Schapps, Butte; Clyde W. Jump, Bozeman, and Paul L. Greene, Livingston; secretary-treasurer, Dr. Elmer G. Balsam, Billings, and councilors, Drs. Clyde W. Jump, Bozeman; Drura R. Claiburn, Big Timber, and Benjamin C. Brook, Helena. It was decided to hold the next meeting in Bozeman.

NEW YORK

Personal.—Drs. Arthur W. Elting, Howard Van Rensselaer, Herman C. Gordinier, and John A. Sampson have resigned from the faculty of Albany Medical College.——Dr. Frederick W. Sears has been elected temporary president of the Syracuse Advisory Recreation Commission.——Dr. Sherman Voorhees, Elmira, was seriously injured in an automobile accident, July 5, in which Mrs. Voorhees was instantly killed, and their son, Sherman P. Voorhees, painfully injured.

Drug Traffic in Penitentiary.—In a hearing on July 8, in reference to the alleged drug traffic and the extent to which drugs were being used in Sing Sing prison, Ex-Warden John M. Clancy testified that the extent of the drug traffic in the prison is appalling, but he said, furthermore, that the sanitary conditions of the prison are worse and that tuberculosis, pneumonia, and rheumatism are as dangerous menaces as the smuggled drugs. It was brought out that at least forty keepers have been in the habit of assisting in smuggling drugs to the prisoners. Mr. Clancy testified that drugs were smuggled into the prison in almost untold quantities and in ways that were most uncanny. He claimed that many times during the time he held office he had endeavored to get a hearing for the purpose of altering conditions but had been unable to do so. The histories of many of the prisoners show to what a large extent the drug habit has been responsible for crime.

State Health Department Activities.—The State Health Department has just sent out a special bulletin in which the sanitary code established by the Public Health Council of the state is printed in full. The department plans to report each month the current progress along health lines in the cities and towns of the state. The annual and monthly reports of local health departments will be briefly reviewed and health officers are urged to see that the state department receives all their publications for this purpose. Reports of all civic and philanthropic organizations dealing with the public health will also be welcome. It is also urged that the supervisors of the department be kept informed of any happenings of unusual interest such as epidemics and new developments in administrative and educational work. There have been twelve sanitary inspectors appointed from the list certified by the Civil Service Commission and they have already entered on their duties. These are: Drs. Edward Clark, Buffalo; Frederick W. Sears, Syracuse; Harry H. Crum, Ithaca; John J. Mahoney, Jamestown; Charles S. Prest, Waterford; LeRoy W. Hubbard, Mt. Vernon; John Archibald Smith, Saranac Lake; John A. Conway, Hornell; Charles C. Duryee, Schenectady, and Charles V. Pachin, Dansville. Dr. Samuel D. Hubbard of New York City was also appointed but has resigned.

New York City

Small-Pox Comes to Port.—The steamship *Batavia* from Hamburg, which came to port on July 5, was held in quarantine because one of the steerage passengers was ill with small-pox. Seventy-seven passengers were held at quarantine for observation.

Care for Children with Sick Mothers.—An institution which will care for children whose mothers are ill in hospitals or sanitaria will be opened next month at Far Rockaway under the auspices of the Ladies Auxiliary of Temple Israel. A house has been secured on Hollywood Avenue, which will accommodate fifteen children.

Floating Hospital Begins Season.—The steamer *Helen C. Juilliard*, floating hospital of St. John's Guild, entered its eighteenth year of service, July 6. The steamer plies between New York and Staten Island, and infants who are seriously ill are removed to the Seaside Hospital, Staten Island. About 1,200 children are carried by the boat on each trip.

Vaccination in the Parochial Schools.—With the special appropriation which the Department of Health secured for the purpose, vaccination has been going on in the parochial schools of the city. During the month of May there were 69,354 children vaccinated in these schools. It is stated that only a little over 6 per cent. of the children refused vaccination. The authorities of the parochial schools cooperated in every way to have the children under their care given the same protection against small-pox as is given the children in the public schools.

Another Conservation Program.—The Equitable Life Assurance Society offers from July 1, free physical examinations, chemical tests and health reports to policy holders whose insurance has been in force for three years or longer, by the society's salaried examiners. It is agreed that if any large proportion of the policy holders get the habit of having periodical examinations or health reports, either through the Equitable service or through their own physicians, the average health of the members will be improved and the average length of life will be prolonged.

Personal.—Dr. Oscar Teague of the Cornell University Research Laboratory has been appointed director of the new bacteriologic laboratory at Quarantine.——Among those who have sailed for Europe recently are Dr. Samuel B. Moore Dr. Charles Ogilvy, Dr. and Mrs. Joseph F. Todd, Dr. and Mrs. Moses S. Kakels, Dr. and Mrs. George K. Swinburne, Dr. George M. Swift, Dr. and Mrs. John E. L. Davis, Dr. and Mrs. Charles N. Dowd, Dr. William H. Luckett and Dr. and Mrs. Louis Faugeres Bishop.——Dr. Frederick W. Loughran has been appointed chief medical adviser of the State Insurance Department of Workingmen's Compensation Commission.——Dr. Thomas A. McGoldrick, Brooklyn, has been appointed chief consulting surgeon to the new St. Anthony's Hospital, Woodhaven.——Dr. Herman B. Sheffield has been awarded the Alarenga prize for his essay entitled: "Idiocy and Allied Mental Deficiencies of Early Childhood."

OHIO

May Deport Leper.—The case of Salvatore Paluso, declared to be suffering from leprosy, has been officially referred to the United States Inspector of Immigration, J. A. Fluckey, with a view to his deportation.

Society Honors Departing Member.—A banquet was given in Xenia, July 2, by the Greene County Medical Association in honor of Dr. and Mrs. Samuel S. Wilson, who left the next day for their new home in Ozona, Fla.

Hospital Corps Mustered.—The Third Field Hospital Ohio N. G., was mustered into service at Youngstown, June 30, with an initial personnel of twenty-nine. Major William P. Love has been assigned to command the organization.

Personal.—Dr. Henry M. Osborne, Youngstown, and Dr. and Mrs. Birt Garver and daughter, Lorain, have sailed for Europe.——Dr. Judson A. Hulse, Akron, has obtained permission from the common pleas court to change his name to the original family name, Van der Hulse.

Leprosy in Cleveland.—A case of leprosy has been discovered at the City Hospital, Cleveland. The patient is a man of 28. He has been isolated from the other patients and placed in the contagious ward of the hospital. This is said to be the third case of leprosy discovered in Cleveland.

Tuberculosis Fighters Meet.—The thirteenth annual meeting of the Society for the Prevention of Tuberculosis was held in Columbus, June 30. Dr. Gilbert E. Robbins, Chillicothe, was elected president, and Dr. Chester B. Bliss, Sandusky, a director. The society recommended the following measures for the work of the state: Renewed campaign for the establishment of a state public health day. Cooperation with the State Board of Health, which has taken over the active antituberculosis work in Ohio. Extension of scholarships to trained nurses to fit them for special work in instructive visiting nursing, through training in the antituberculosis work of the larger cities of the state. The inauguration of an active educational campaign against so-called tuberculosis remedies, through which the sick are being exploited. The amendment of the state tuberculosis hospital law to eliminate the county medical examiners for the Mt. Vernon institution and to abolish the $5-a-week charge, which has been found to bar many patients needing treatment. The establishment of a bureau under the State Board of Health to keep in direct touch with the patients in the various state districts and municipal hospitals.

Civil Service Commission Permits Aliens to Take Its Examinations.—The State Civil Service Commission of Ohio has for the first time in its history lifted the bars for applicants who desire lucrative positions under the government of that state. On August 4 a special examination is to be conducted by this commission to secure a list of competent employees to man the newly organized Bureau of Juvenile Research. Hereafter, instead of committing delinquent children directly to an institution, the courts of Ohio will commit them to the Board of Administration. They will be detained in a special department, to be known as the Bureau of Juvenile Research, until their mental and physical condition shall have been determined to a certainty. Then they will be committed to proper institutions for treatment. This advanced method of receiving children, charged with having violated some state law, is so unusual that Ohio is anxious to get the best employees possible for this department, and has therefore issued a call open to any resident of the United States to take part in the special examination to be conducted on August 4. Any one desiring to take this examination should be experts in pathologic and psychologic work. They should address the State Civil Service Commission at Columbus, Ohio, and the necessary blanks will be sent at once. On these blanks the examination will be conducted, and it will not be necessary for the applicant to leave his home to participate in them. Good salaries will be provided for the places by the state of Ohio. Among those wanted are a psychologist, a laboratory worker, diagnostician, field workers and laboratory workers. The competitive examinations ordered are for the following positions: 1. Psychologist: psychologic examination and grading of juvenile commitments to the Ohio Board of Administration. Experience and thesis (one to be appointed). 2. Laboratory worker: experienced in pathologic research. Experience and thesis (one to be appointed). 3. Diagnostician: experience and thesis (one to be appointed). 4. Field workers: experienced in the investigation of heredity and environmental traits, and the collection of family histories and statistics. Experience and thesis (three to be appointed). 5. Laboratory workers: experienced in giving the Binet-Simon and other similar mental tests (two to be appointed). Salaries to be fixed by the Board of Administration. Application blanks may be secured from the State Civil Service Commission, Columbus, Ohio. Questions will be sent to applicants and answers mailed to this office. All final papers must be in the hands of the State Civil Service Commission on or before 5:30 p. m. August 4.

OKLAHOMA

Hospital Opens.—St. Mary's Infirmary, McAlester, was recently opened for the reception of patients. All reputable practitioners have access to the institution.

Disease Prevention Day.—Dr. J. C. Muir, commissioner of health of Oklahoma, is actively engaged in organizing the state for the observance of disease-prevention day, which is fixed for October 3.

Personal.—Dr. John L. Houseworth, Guthrie, has been appointed local surgeon to the Fort Smith and Western Railroad.——Dr. Kelley D. Gossom, Custer, and Arthur S. Risser, Blackwell, are reported to be convalescent after surgical operations.——Dr. Alva A. West, Guthrie, who was to have sailed for Europe, July 10, sustained a sunstroke June 28, and was taken to the Methodist Hospital, where he is reported to be improving.

PENNSYLVANIA

Off for Europe.—Dr. James F. Saltry, Dr. Arthur H. Bernstein and Dr. Patrick H. Kearney, Scranton; Dr. and Mrs. Charles D. Schaeffer, and Dr. Charles H. Schlesman, Allentown, and Dr. Roger R. Rupp, Coplay, have sailed for Europe.

Hospital Corner-Stone Laid.—The corner-stone of the Brownsville General Hospital was laid July 9, with imposing ceremonies. The hospital will be completed January 1, and will cost $75,000. It will have two surgical and two medical wards.

Employers Must Report Accidents.—John Price Jackson, head of the Department of Labor and Industry of the state, in his report for June issued a warning to all employers that he will prosecute those who neglect to send a report of every accident in their factories to the State Labor Commission.

Common Drinking-Cups Abolished.—On July 16 the Pennsylvania Railroad issued an order requiring all common drinking-cups in its train service to be abolished. This means that on locomotives, where fireman and engineer used the same cup, each in the future will have to have his own and the order will also be effective in the cabooses or wherever the train crews are concerned.

Licenses for Masseurs and Healers Required.—Dr. John M. Baldy, head of the State Bureau of Medical Education and Licensure, announced, July 16, that all persons practicing massage, or allied branches of healing, including medical gymnastics, electrotherapy, etc., would be required to take out licenses to practice in this state and must make application for them before November 1.

Study Industrial Diseases.—Dr. Samuel Scholes, superintendent of the Milton Institute for Industrial Research, and Mr. J. O. Handy, Pittsburgh Testing Laboratory, have been appointed members of the Committee on Occupational Diseases of the American Chemical Society. The work of this committee is to make a thorough investigation of occupational diseases, with especial reference to the prevention of such diseases from a technicologic viewpoint.

Philadelphia

Personal.—Drs. Burton A. Randall and Richard F. Woods have sailed for Europe.——Dr. Robert N. Wilson has been appointed a member of the visiting staff of the Philadelphia General Hospital, vice Dr. William E. Hughes, resigned.

Hospital Buys Land.—The Mt. Sinai Hospital has purchased the dwellings at 438, 440 and 442 Wilder Street, on which it is proposed to enlarge the present hospital buildings. The plot of ground acquired is 42 by 40 feet.

Milk Tax.—The Health Department intends to enforce the new regulations governing the sale of milk to the extent of supervising soda water fountains and liquor saloons and the license fee of $5 that is required by law will be collected from all proprietors who dispense milk.

Woman Fined for Breaking Quarantine.—A woman resident of one of the suburbs of the city was fined $100 and costs by a magistrate for violating provisions of the state health laws by causing a maid suffering from measles to be removed from her home after quarantine had been established.

Carnival of Safety.—The General Carnival Committee of the Carnival of Safety, to be held in this city September 21-29, plans to include a reconstructed Fourth of July exhibit, the purpose of which will be to put in a form readily understood reasons for the discontinuance of all methods of celebrating Independence Day which are inimical to life.

Community House for Mothers Opened.—A three-story building at 1401 South Front Street, to be known as the First Ward Community House for Mothers and Babies was opened July 9, and weekly baby clinics will be held beginning July 16, under the general supervision of Dr. W. F. Newmeyer of the Bureau of Child Hygiene.

To Forbid Sale of Firearms to Boys.—Judge Brown of the municipal court, July 9, gave instructions that all firearms taken from boys in juvenile court are to be tagged, showing the circumstances of the seizure, that they may be presented before the legislature next fall as concrete reasons for the passage of a law against the indiscriminate sale of firearms.

Suit for Housing Money.—On behalf of the new division of housing and sanitation, a new suit to compel councils to make an appropriation for its organization will be brought in the name of the commonwealth. The commission proposes to obtain a writ of mandamus, directed to both select and common councils to compel them to make an appropriation for the payment of the salaries of the employees of the division. This councils have repeatedly refused to do since the creation of the division by the Act of July 22, 1913.

West Philadelphia's Water-Supply to Be Doubled.—The water-supply provided by the Belmont pumping station will be doubled by new equipment for which contracts aggregating nearly $200,000 were let by the director of public works, July 17. Two centrifugal pumps of 20,000,000 gallons daily capacity will be installed to replace two 10,000,000 gallons reciprocal pumps; six vertical water-tube boilers of 500 horsepower each will replace the five in use at present. Other contracts include piping, fans, turbines, small pumps, water-softening tanks, etc.

Campaign against Cigarette Dealers.—A campaign against dealers selling cigarettes and cigarette papers to minors, in violation of a law passed in 1913, was begun in this city July 17, by Judge Brown, of the juvenile court. Summary action will be taken in every case brought before the juvenile court, and the full penalty of the law, which provides for a fine of not less than $100 and not more than $300, will be imposed. On July 13, a woman who kept a cigar store at Germantown Avenue was held under $500 bail for court on the testimony of five small boys, who said she had sold them cigarettes at the rate of three for a cent. It developed that numerous dealers were engaged in this practice.

GENERAL

Southern Surgeons to Meet.—The annual meeting of the Southern Medical Association will be held in Richmond, Va., November 9-11, under the presidency of Dr. Stuart McGuire, Richmond.

Railway Surgeons to Meet.—The eighth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association will be held in Ashland, Wis., September 9 and 10. On the morning of the first day the president, Dr. John M. Dodd, will give a clinic in St. Joseph's Hospital. A clam-bake is to be given in honor of the Soo physicians by the Badger Clam Bake Club of Ashland.

District Society Meeting.—The annual meeting of the Iowa and Illinois Central District Medical Association was held in Davenport, Iowa, July 9, and the following officers were elected: president, Dr. Frank H. Gardner, Moline, Ill.; vice-president, Dr. Charles S. Young, Geneseo, Ill.; secretary, Dr. Lawrence W. Littig, Davenport, Iowa, (reelected); and treasurer, Dr. Frank H. First, Rock Island, Ill. (reelected).

Prevention of Infant Mortality.—The American Association for the Study and Prevention of Infant Mortality will hold its annual meeting in Boston, November 12-14. The work of the association will be taken up under sections of nursing and social work and vital and social statistics. The first general meeting will be held jointly with the Massachusetts State Conference of Charities.

Congress for Sexual Research.—The first International Congress for Sexual Research will be held in Berlin, October 31-November 2. The congress will consider all questions regarding sexual research under the following sections: biologico-medical section; section on sociology; legal section and section of philosophy, psychology and pedagogics. Sanitätsrats Albert Moll, Berlin W. 15, Kurfürstendamm 45, is chairman of the committee on arrangements.

Tri-State Meeting.—The semi-annual meeting of the Northern Tri-State Medical Association (Michigan, Indiana and Ohio) was held in Lima, Ohio, July 14. The following officers were elected: president, Dr. James A. Duncan, Toledo; vice-president, Dr. John C. Fleming, Elkhart, Ind.; secretary, Dr. George W. Spohn, Elkhart, Ind. (reelected); and treasurer, Dr. Joseph A. Weitz, Montpelier, Ohio (reelected). The next semi-annual meeting will be held in Elkhart, Ind.

Roentgenologists to Meet.—The American Roentgen-Ray Society will hold its fifteenth annual meeting at the Hotel Stadtler, Cleveland, Ohio, September 9-12, under the presidency of Dr. Sidney Lange, Cincinnati. Among those who will be present are Dr. Frederick Dessauer, Frankfort, Germany, who will read a paper on "The Artificial Production of Gamma-Rays," Mr. Reginald Morton, London, England, and Dr. W. S. Barclay, Edinburgh, Scotland. Papers will also be read by Dr. Coolidge, inventor of the Coolidge tube, Shearer and Duanne. The subject of deep therapy and the production of hard rays will be fully discussed.

Mouth Hygiene Experts Meet.—The Mouth Hygiene Association held its annual meeting in Rochester, N. Y., July 11 and 12, and elected the following officers: president, Dr. Harvey W. Wiley, Washington, D. C.; vice-presidents, Drs. William A. Evans, Chicago; Oscar Dowling, New Orleans; William R. Malone, New York City, and Surg-Gen. Rupert Blue, U.S.P.H.S.; and secretary-treasurer, Dr. William G. Ebersole, Cleveland. The association authorized the appointment of a commission to revise the regulations of the society, making it a "corporation not for profit," under the laws of the United States in the District of Columbia and the state of Ohio.

Bequests and Donations.—The following bequests and donations have recently been announced:

Associated Jewish Charities, Chicago, $5,000; Home for Destitute Crippled Children, $1,000; Michael Reese Hospital, $2,000, by the will of Nathan Friend.

Beverly, Mass., Hospital, $5,000, by the will of Miss Sarah Warner Clark.

State Sanatorium for Consumptives, Sabillasville, $1,000, by the will of Mrs. Elizabeth Miller in memory of her son.

O'Conner Sanitarium, San Jose, Cal., $25,000, by the will of Dr. G. W. Seifert.

Hebrew Orphan Asylum, Mount Sinai Hospital, Home for Aged and Infirm Jews, and Young Women's Hebrew Association, equal shares of $81,016, by the will of Constant Mayer.

Massachusetts General Hospital, Boston, $5,000, by the will of Susan C. Dove, Andover.

Boston Floating Hospital, $1,000, by the will of Henry K. Barnes, Boston.

Philadelphia Home for Incurables, $5,000, Children's Seashore Home, Atlantic City, Children's Aid Society, Pennsylvania Branch Shut-In Society, Philadelphia Sanatorium Association, Epileptic Hospital and Colony Farm, Oakburne, Pa., Lying-In Charity and Nurses Training School, Rush Hospital, Philadelphia, Philadelphia Free Hospital for Poor Consumptives; Wills Eye Hospital and Germantown Dispensary, each $2,800 by the will of Mrs. Jane S. Echternach.

The Care of Lepers.—In the Section on Dermatology at the Atlantic City session, of the American Medical Association, papers were read proposing legislation for the establishment of a national leprosarium for the care of lepers in the United States, whose number seems to be increasing. Only three states have made provision for the care of lepers. Attention is called to the work of the Mission for Lepers which is an international, interdenominational institution for the care of lepers in all countries and has connection with the various foreign church missions. This organization is doing most commendable personal work for lepers. It was established thirty-six years ago and has derived its principle support heretofore from Great Britain. The United States has made some contribution but not sufficient to take care of its own lepers and for the support of this work in the American missions abroad, of which there are twenty-seven stations which care for lepers. An instance of the personal nature of the work is the case of an American boy who, while in the Navy, apparently contracted leprosy from the operation of tattooing while on an oriental trip. He was sent to the baths in Japan by a brother who subsequently died, and the boy was sought out and became a charge of Miss Ridell's Hospital for Lepers at Kumamoto, Japan, where there are two American men and one American woman being cared for. Cases like these are sought out by members of this leper mission wherever they may be, all of which, of course, entails considerable expense, and an appeal is made for funds for the support of this deserving work. William Danner, 105 Raymond Street, Cambridge, Mass., is the secretary of the United States committee, and Miss Bertha G. Johnson, 816 West Fifty-First Street, Chicago, is field secretary for the United States.

Rockefeller's Institute Changes.—The Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following appointments and promotions: Dr. Hideyo Noguchi, hitherto an Associate Member in the Department of Pathology and Bacteriology, has been made a Member of the Institute. Dr. Alfred E. Cohn, hitherto an Associate in Medicine, has been made an Associate Member for the term of three years. Dr. Wade H. Brown, hitherto an Associate in the Department of Pathology and Bacteriology, has been made an Associate Member for the term of three years. The following Assistants have been made Associates: Harold Lindsay Amoss, M.D. (Pathology and Bacteriology); Arthur William Mickle Ellis, M.D. (Medicine); Thomas Stotesbury Githens, M.D. (Physiology and Pharmacology); Israel Simon Kleiner, M.D. (Physiology and Pharmacology); Alphonse Raymond Dochez, M.D. (Medicine); Dr. Dochez has also been appointed Resident Physician in the Hospital of the Rockefeller Institute to succeed Dr. Swift. The following Fellows have been made Assistants: Frederick Lamont Gates, M.D. (Physiology and Pharmacology); Louise Pearce, M.D. (Pathology and Bacteriology). The following new appointments are announced: Chester Harmon Allen, M.S., Fellow in Chemistry; Alan M. Chesney, M.D., Assistant Resident Physician and Assistant in Medicine; Harold Kniest Faber, M.D., Fellow in Pathology; Ross Alexander Jamieson, M.D., Assistant Resident Physician and Assistant in Medicine; Benjamin Schönbrun Kline, M.D., Fellow in Physiology and Pharmacology; John Jamieson Morton, Jr., M.D., Fellow in Pathology; James Kuhn, Fellow in Chemistry; Joseph Richard Turner, M.D., Fellow in Pathology.——Dr. Paul Franklin Clark, formerly Associate in Pathology and Bacteriology, has been appointed Assistant Professor of Bacteriology in the University of Wisconsin.——Dr. Homer F. Swift, formerly Resident Physician in the Hospital of the Rockefeller Institute, and Associate in Medicine, has been appointed Associate Professor of Medicine at the College of Physicians and Surgeons, Columbia University, and Associate Attending Physician, Presbyterian Hospital.

The Plague Situation.—During the past week, Passed Assistant Surgeon R. A. Kearny, Assistant Surgeon Francis A. Carmelia and Acting Assistant Surgeon Mark D. Holds have been added to the plague eradicative staff. From July 12 to 18, 6,307 rats were trapped, and 6,863 rodents were examined. Sixteen suspicious rats were found, of whom six have already proved positive. During the week, three human plague cases have been discovered, one of whom, that of Elizabeth Domingo, has already been mentioned. The sixth case was that of Helen Soell, a white female, aged 10, residing at 522 Camp Street, who sickened July 16, with a right femoral bubo. Plague was diagnosed two days later, the patient was removed to the Isolation Hospital, and Yersin's serum was administered. The seventh case was discovered on July 19. The patient was Philomene Glation, a colored female, 15 years of age, residing at 1131 St. Philip's Street. This infection, like the sixth case, has been traced to the original and only foci, and the patient has been removed to the Emergency Hospital. Of the seven patients, three have died, two are convalescent and the last two are very ill. Elizabeth Domingo, the fifth case, received the serum in large doses, and is said to be in good condition. The plague rodents were found at 1904 Magazine Street, Burgundy Street, 529 Religious Street, 525 South Peters Street and 434 South Rampart Street. A complete inspection of all outgoing freight for overland and over-sea has been organized, and outgoing quarantine of ships still continues. During the week ninety-five bodies were inspected, and in three cases special necropsies were made. Special market inspectors have been appointed for the French, Poydras, Dryades and Magazine Markets. The bacteriologic department of the State Board of Health, under the direction of Dr. William H. Seemann, and his associate, Dr. Charles C. Bass, has manufactured a satisfactory supply of anti-plague serum, some of which was given on July 18, to Dr. Oscar Dowling, president of the State Board of Health, and to employees. While it has not been made compulsory, the use of serum is encouraged. No charge is made for its administration. The clean-up campaign, under the direction of the United States Public Health Service, working in cooperation with the New Orleans Board of Health, and the Louisiana State Board of Health, is being carried on vigorously, and before long it is expected that New Orleans will be the southern sanitary seaport city free of rats. The campaign of publicity and education is being actively continued. In addition to the meetings previously reported, meetings have been held at the First Christian Church, Real Estate Board, Louisiana Sugar and Rice Exchange, Mother's and Parent's Club, Association of Commerce, Seventh Ward Civic League, Dryades Church, Contractors' and Dealers' Exchange, Pan-American Medical Association, and with the Citizens' Health Committee. These meetings were addressed by Asst. Surg-Gen. William Colby Rucker, U.S.P.H.S., and other officers of the Service stationed in New Orleans. Many of the lectures were illustrated by stereopticon views. The Citizens' Health Committee has appointed a leader in each ward, to organize a committee to have general charge of the clean-up campaign. The women of New Orleans have formed volunteer committees on hotels, restaurants, markets and publicity and education, and these committees have begun their work with most stimulating effect. The city council has under consideration the ordinances previously mentioned, and it seems probable that they will pass. Many persons have begun rat-proofing, and there is already a marked improvement in the sanitary condition of the city.

In order that the public may be kept fully informed as to the plague situation in New Orleans, postal-card notices are sent out daily by the president of the State Board of Health, Dr. Oscar Dowling, advising health officers throughout the state as to progress of old and the occurrence of new cases. Circular letters are also sent out giving more complete information in regard to the plague situation and urging the cooperation of all officials and citizens in cleaning up and rat-proofing their cities. These letters are addressed to parish and municipal health officers and to the mayors of cities and towns. Accompanying these letters is a bulletin containing a schedule of measures to be carried out on a clean-up day as follows: Begin with destruction of all trash or débris. Give particular care to stables, chicken coops, closets and corners used for piles of rubbish. Fill in rat holes with brick, stones or concrete. Tear up plank floors of stables, etc. Rat proof, if possible, barns, stables, etc., with tin, galvanized iron or concrete. Barrels, boxes, bins and receptacles for storing food or other materials should be put on pillars, 2 feet above ground. Manure should be kept in rat and fly proof bins. Provide metal garbage cans with tight covers. If there is no daily scavenger and garbage service, ask the town authorities to provide it. Ask that garbage be collected daily. Help the garbage man by wrapping garbage and placing it conveniently at the proper hour. Don't allow garbage or other refuse to be thrown on vacant lots around your premises. Watch and report, for your own protection, insanitary conditions in your neighborhood. Tell your neighbors to do the same. Keeping premises clean is a question of daily effort. Help the health officers to help you. Your duty: Obey the sanitary regulations. Trap rats, dip in kerosene to kill fleas. Protect all foodstuffs and garbage from rats. Make rat proof all buildings which furnish rat-harboring places. Destroy breeding places of flies and mosquitoes. Keep your premises clean. Cut and remove weeds.

FOREIGN

Death-Rate of Manila.—Dr. Victor G. Heiser reports that in March the death-rate among the residents of the city of Manila was 18.97 per thousand, which is the lowest rate reached since the American occupancy, and is probably much lower than any previous rate during the past century.

Health of Government Employees in the Philippines.—Dr. Victor G. Heiser, U.S.P.H.S., Director of Health of the Philippine Islands, reports that during the quarter ended March 31, 1914, the total number of employees of the Philippine government was 9,318, of whom 2,312 were Americans and 7,006 Filipinos, of which there were two deaths among the Americans and ten deaths among Filipinos, the respective death-rate being: American 3.51, and Filipino 5.79.

Souvenir to Venerable Practitioner.—The medical profession of Cuba recently united in tendering a banquet and presenting a souvenir plaque to Dr. Juan B. de Landeta of Havana, on the completion of his fiftieth year of medical practice. The plaque represents an open book with appropriate inscription and decorations. He obtained his medical degree and served as intern in Paris.——The degree of doctor of sciences, honoris causa, has recently been bestowed on Dr. Aristides Agramonte of Havana, by Columbia University, New York, for his works on tropical diseases.

Monument to Carrion.—Daniel A. Carrion, a medical student in Lima, Peru, inoculated himself in 1885 with blood from a verruga tumor in an effort to throw light on the nature of the disease, and he died from it in less than two months. The sixth Pan-American Congress held at Lima last year started a fund for a monument to this young martyr to science, and subscriptions are now being received. The Academia de Medicina of Venezuela recently forwarded over $125 as its contribution. The fund is in charge of the dean of the medical faculty, Prof. E. Odriozola, Lima, Peru. Carrion's work was described recently in The Journal, Nov. 8 1913, p. 1713.

Banquet Novy.—The Asociacion Medica de Puerto Rico tendered a reception and banquet to Prof. F. G. Novy of the University of Michigan, on his arrival at San Juan July 15, Drs. W. A. Glines and J. S. Belaval being in charge of the affair. This association was not officially represented at the annual meeting of the American Medical Association as no delegates are admitted unless the society has been affiliated with the Association for two years at least, and consequently, as the organ of the Porto Rico Association remarks, for this year they were orphans. At the next meeting they will have an official representation. The son of the editor of the *Boletin* de la Asociacion Medica has just been graduated from the Naval Academy at Annapolis.

CANADA

University News.—Several citizens of Toronto have agreed to contribute various sums amounting to $15,000 for five years to enable the University of Toronto to engage in research work.

Personal.—Dr. Charles T. Ballantyne, Montreal, is spending some months in Glasgow.——Dr. Herbert A. Bruce is returning to Toronto in August after a trip abroad.——Drs. A. Orr Hastings and C. E. Cooper Cole, Toronto, have been in Britain for several months.

Conservation Commission to have Charge of Public Health.—Instead of having or inaugurating a department of health or a national board of health for Canada, it has been definitely decided to have the Canadian Conservation Commission look after all health matters in the Dominion of Canada. On August 1 the first number of a bulletin will be issued to doctors, teachers and others interested in public health work, and will, thereafter, continue to be issued each month. Of 100,000 deaths in Canada last year, it is stated that at least 40,000 were caused by diseases that could have been prevented.

Prevention of Tuberculosis.—At the annual convention of the Canadian Association for the Prevention of Tuberculosis in Halifax July 13, strong pleas for federal governmental aid were made to assist in the campaign against tuberculosis in Canada. The welfare of the child is the most important phase of the warfare. The president's address pointed out that year by year the deaths from tuberculosis in Canada were decreasing, and much praise was given the board of health of Ontario for its work in bringing its exhibits before the people. Lieutenant-Colonel Burland, Montreal, was elected president for the ensuing year. Dr. George D. Porter, Toronto, was reelected secretary.

Hospital News.—For the tuberculosis hospital to be built in Quebec City the sum of neary $5,000 was recently collected by means of a flower sale.——The Winnipeg City Council has made a grant of $15,590 to its General Hospital.——The city of Calgary has granted to its General Hospital $14,000 for current expenses.——The Hugh Waddell Memorial Hospital was formally opened at Canora, Sask., on June 18. Mr. C. R. Graham of Winnipeg contributed the site and Mrs. Waddell of Regina the hospital. It has a capacity of thirty-eight beds.——At New Westminister, B. C., the New Royal Columbian Hospital was formally opened, May 29.——A new wing to cost about $6,000 is to be added to the Chilliwack, B. C., Hospital.——The Ontario government approved the hospital bill of the Western Hospital, Toronto. It was only opposed by two members of the staff. The bill confers on the governors full power to manage the hospital as they deem best; and in future the board will be composed entirely of laymen. Hereafter the hospital staff will have no voice in the management of its affairs, acting merely in a consulting capacity.——Dr. Bain, a graduate of the Western University, London, Ont., has been appointed house surgeon in the Brantford Hospital.——The service of oto-laryngology, Toronto General Hospital, has a vacancy for a house surgeon for eighteen months. Applications should be addressed to Dr. David J. G. Wishart, chief of the service.

LONDON LETTER

London, July 9, 1914.

The Royal Commission on Venereal Diseases

At a recent meeting, evidence was given by Blaschko, honorary secretary of the German Society for Combating Venereal Diseases. He thought that while the figures for venereal diseases in the British army were much higher than in the German, these diseases were probably more prevalent in Germany. This he attributes to better conditions of life in England; at any rate, temptation was far greater in German than in English towns of the same size. The society which he represented was constituted in 1902. Its main objects were: (1) enlightenment of the public on the ravages of venereal diseases; (2) the scientific discussion of means for combating them and (3) keeping in touch with legislative and administrative bodies and proposing reforms. The committee represented all classes—educationists, insurance companies, physicians, lawyers, public officials, merchants, members of parliament and well-known women. There were branches of the society in nearly all large German towns, and through these the principal part of the work was done. These branches organized public meetings. The society had a large number of wax figures, drawings and lantern-slides which were lent for exhibition. Representations of Brieux's drama, "Les Avariés," had also been organized. In Berlin alone it had been performed more than a hundred times at seven theaters. The society had taken much pains to introduce better sexual legislation at home and in school, but there were many difficulties and prejudices to be surmounted. It had thoroughly changed public opinion on venereal diseases. The whole press and the general public were in sympathy with the movement.

At the last meeting of the Royal Commission on Venereal Diseases, evidence was given by Dr. J. J. Pringle, physician to the skin department of the Middlesex Hospital. He stated that of 36,151 cases of skin disease at the hospital during the last twenty-five years, 1853, or rather over 5 per cent., presented indubitable evidence of syphilis. This figure did not represent the number of patients who had attended the hospital for syphilitic manifestations, but only those who had been referred to the special department as suffering from some affection of the skin. Of these nearly 24 per cent. were foreigners. Dr. Pringle could not see his way to supporting or advocating any measure of compulsory notification of venereal diseases. The medical profession was, he thought, practically unanimously opposed to it, and even if made confidential, its effects on the public would be merely to drive them to seek treatment from unqualified persons. His experience, both in hospital and private practice, convinced him that much of the syphilis existent in England was of foreign importation. A considerable proportion of prostitutes left their own countries because they were unable to ply their trade there and spread disease in this country.

The Family Encyclopaedia of Medicine

The extraordinary circumstances connected with the publication of the Family Encyclopaedia of Medicine have been commented on in a previous letter as well as in an editorial in The Journal (March 2, 1914, p. 1407 and 1414). It may be remembered that this book was issued to the public as representing the views of the most distinguished men in the profession whose names and qualifications were blazoned in the lay press, and even the aid of "sandwich men" who promenaded the West End were used to advertise the project. Indeed, so eminent were the physicians that a cynic said that their disappointment on finding their names brought before the public in this blatant and unprecedented manner was nothing to the disappointment of others who found they had not been included in such a distinguished company! As already stated, the use of their names was unauthorized. They had merely consented to correct the proofs at the request of the physician who edited the work. His explanation was that the publishers in an excess of zeal published the names while he was ill and away from London. He has not, however, given any explanation as to why he communicated a full list of the names and qualifications and appointments of the distinguished men, who in confidence and as a personal favor consented to help him. Some further revelations throw a sinister light on the transaction. Not only was an unauthorized use made of their names, but they were not even told the nature of the work which was being produced. Thus in a letter evoked by strictures in one of the medical journals, Sir Lauder Brunton states that he was requested by the editor to correct some proofs for a work on alcoholism on which this young man, a student at St. Bartholomew's Hospital (to which Sir Lauder is attached), was engaged. Not a word was said about the use to which this production would be put. Under similar circumstances the professor of medicine at one of the leading universities, a writer of world-wide fame, was induced to correct an article on blood-pressure. In another case an equally distinguished professor and well-known teacher on both sides of the Atlantic had paid no attention to the request for help. Nevertheless his name was duly published on the title-page. The first intimation which he had of being concerned in the work was a letter from the Royal College of Physicians inviting him to explain the circumstance.

Syphilis in New Zealand and the South Sea Islands

An important report on this subject has been presented to the Australasian Medical Conference. The reports from 301 physicians show 1,941 fresh infections in the last two years. It is calculated that if all the physicians in the Dominion had replied this number would have been doubled. Two hundred cases of general paralysis have been treated in the New Zealand mental hospitals in a period of ten years. Physicians doing eye work are very insistent on the prevalence of the disease, especially the congenital form. The committee who compiled the report is of opinion that in order to act in unison with the royal commission at present sitting in London, similar commissions should take evidence throughout New Zealand and Australia. They make the following recommendations: 1. Syphilis should be declared a notifiable disease; notification should be discretionary; and the chief health officer should be the only person to whom notification is made. 2. Provision should be made through hospital boards to establish laboratories in the four centers where not already existent for the diagnosis of the disease. 3. Free treatment in the public hospitals and dispensaries should be provided. 4. Steps should be taken to educate the mercantile marine as to the dangers of the disease and provision should be made for preventive treatment on the intercolonial service. 5. Legislation should be enacted against the treatment of the disease by unqualified persons. It is considered that the monetary cost of eradicating the disease would not be very great; in fact, the expenditure would be small in comparison with that resulting from the present wholesale infection of the populace. No form of public expenditure could be so truly described as national and reproductive. If the steps indicated be taken, the results would be diminution of mortality, diminution of insanity, and diminution of expenditure on hospitals and asylums.

PARIS LETTER

Paris, July 3, 1914.

National Conference on Social Hygiene

The meeting of the Alliance d'hygiène sociale, which just took place in Lyons, devoted itself particularly to deciding the rôle which dispensaries should play in the battle against the development of social maladies, which are due principally to alcoholism and insanitary dwellings. It was recognized that, in this battle, the old methods of individual charity were not sufficient: it is necessary to come to the aid of the family. The dispensary, which does a certain amount of work in the home, can be the most appropriate means of this new "sanitary strategy," because it allows the classification of cases and makes possible the immediate and certain sanitation of stricken or threatened neighborhoods. Nevertheless there is difference of opinion in regard to the best type of dispensary. Each one defends the system with which he is most familiar. The dispensaries in France differ decidedly in their organization and work. From an investigation made by Dr. Filassier, chief statistician of Paris, into the forty-six antituberculosis dispensaries which exist in fifteen departments, it appears that all the dispensaries follow a common idea while employing different methods: one gives consultations in winter and organizes vacation colonies or instals a house for open-air treatment for summer; another distributes clothing; another dispenses food; another subsidizes works for infant welfare. It was nevertheless recognized that the dispensary of the "Calmette variety" is that which should be multiplied with the provisos that the different requirements of different places must be taken into consideration, and that an urban and a rural type are necessary. In any case, the dispensary should not supplant the practitioner in undertaking treatment.

It is especially important to find resources for the dispensaries. The majority of those existing, being private, have resources which are entirely insufficient: assessments, benefit fêtes, etc. The principle which was put into practice in Lyons by Arloing and Courmont seems capable of giving better results. This principle is to have an arrangement with the municipality and the bureau of charity, to prove that the tuberculous make a considerable proportion of all the invalids who are aided, and to ask that a part of the allowance used for the care of the sick and indigent be set aside for the tuberculous sick and indigent; in other words, not to add to the budget for relief, but to subtract certain sums which shall be used for the relief of tuberculous persons in their homes; in a word, to divide the municipal budget into general expenses and special expenses for the tuberculous. With a budget of 35,000 francs ($7,000)—of which 17,000 francs ($3,400) is furnished by the city and 10,000 francs ($2,000) by the bureau of charities—the dispensary at Lyons gave astonishing results: before its establishment, the mortality from tuberculosis in Lyons was more than 35.4 per ten thousand; but in 1911 it was not more than 26.1, or a gain of 9.3, a diminution of more than a fourth.

Personal

At its session, June 30, the Académie de médecine elected Dr. Marfan, professor of therapeutics at the Faculté de médecine de Paris, as an honorary member. Bernard-Antoine Marfan is best known as a specialist in diseases of children. He has written on the digestive disturbances of infants, on artificial feeding, and on the relation between rachitis and infections, notably syphilitic and tuberculous infections.

Honor to Dr. Koeberlé

An international committee has just been formed to commemorate, by a bronze medallion to be placed on the walls of the city hospital of Strassburg, the fiftieth anniversary of the first successful ovariotomy, in Europe, which was performed by Dr. Koeberlé (The Journal, Sept. 7, 1912, p. 814).

Child Welfare at the Museum of Hygiene

At the reunion which just took place under the presidency of Dr. Roux, director of the Institute Pasteur, the commission on improvements of the Musée d'hygiène approved the propositions which were submitted to them by the guardian of the museum concerning the opening of a hall reserved for child culture. A series of comprehensive pictures will instruct the mothers of families in the bringing up of the infant.

Infant Mortality and Alcoholism

M. Paul Juillerat, member of the Conseil d'hygiène et de salubrité of the department of the Seine, and Dr. A. Filassier, chief statistician of the city of Paris, have just published, in the *Revue philanthropique*, the result of researches which they have made into the causes of infant mortality in Paris. This article shows, concisely, the ravages of alcoholism. In the period of ten years from 1903 to 1912 inclusive, of 97,885 children who died, 53,619, almost half, were children under 11 months old. Congenital debility is responsible for 12,342 of these deaths. However difficult it may be in the present state of statistics to place the cause with absolute certainty in these matters, Juillerat and Filassier do not hesitate to say that this enormous proportion must be attributed to alcoholism in the parents of the congenitally debilitated children. Dr. Jacquet's statistics are particularly instructive in this respect. In the investigation which he made from May 1, 1912, to May 1, 1913, at the hôpital Saint-Antoine, he divided the 396 patients whom he examined into three classes, with a total of 879 children: alcoholism in moderation (those who drink a liter of wine, alcohol or, rarely, aperients); decided alcoholism (those who drink habitually from 1.5 to 2 liters of wine, alcohol or absinthes rather frequently), and very decided alcoholism (those who drink habitually 2 liters of wine or more, aperients, alcohol, occasional repeated absinthes).

MORTALITY AMONG THE CHILDREN OF ALCOHOLICS

	Alcoholic Consumption	Births	Deaths	Per Cent.
Moderate	141	305	83	18.78
Decided	108	248	115	26.01
Very decided	147	326	244	55.47
	396	879	442	....

Of these 442 dead children, 272 succumbed in early infancy. Thus, the children of these 396 patients, all addicted to alcohol to a greater or less degree, gave a round mortality of 50.28 per cent.

Juillerat and Filassier then show that in different domains, medical and social foresight have noticeably diminished the infant mortality. This is the case with diphtheria, pulmonary tuberculosis, tuberculous meningitis, syphilis, diarrhea, etc. In contrast to this, so far as congenital debility is concerned—which furnishes so considerable a contingent to this mournful record—there has been almost no amelioration.

BERLIN LETTER

Berlin, July 4, 1914.

Personal

Gärtner, director of the Hygienic Institute at Jena, and v. Hippel, director of the eye clinic at Göttingen, resigned their positions at the end of the summer semester. Hippel is to be succeeded by his son, v. Hippel of Halle.

October 1, Sander and Moeli also resign their positions as directors of the Berlin insane asylums at Dalldorf and Herzberg on account of age. Both are authorities in psychiatry and have done very good service both in scientific advancement of psychiatry and in the organization of the care for the insane. Moeli was also for many years a member of the Prussian government board for insanity.

Annual Meeting of the Organized Profession in Germany

The German Aerzte-Verein and the Leipsic League held their meeting for this year in Munich, June 25-27. Altogether about 26,000 physicians were represented by delegates, amounting to about three-fourths of the physicians of Germany.

In the meeting of the Leipsic League, the chief interest was felt in the report of the president, Hartmann of Leipsic, on the so-called Berlin agreement, that is, the contract which was made last December, under the auspices of the government, between the Leipsic League and the insurance societies. Hartmann took the pains to answer the criticisms which had been made by a number of physicians in regard to the result of the contract. He emphasized the important fact that, in the long run a profession, like that of medicine, is not adapted for battle and that an organization which is made only for the sake of strife has no justification for existence. I will omit the details of his report and the discussion as the questions involved have not come up in America.

Hartmann admitted that not all of the demands of the German profession had been secured in the conclusion of peace, but in his opinion, the essential end had been reached.

GRATUITOUS MEDICAL SERVICES

Aside from the address of Hartmann, Lennhoff of Berlin discussed the question of the extent to which physicians should render free service in so-called philanthropic undertakings. In the previous year, the proposal was made by a Leipsic society to limit considerably gratuitous medical service but this proposal met with marked opposition from many physicians' societies and particularly from the public. On the basis of his extensive collection of data, Lennhoff proposed the following conclusions which were also approved by the board of the German Aerzte-Vereins-Bund and were adopted by the meeting by an almost unanimous vote:

1. Free medical service for charity is an honorable duty of the German medical profession but it needs to be protected against abuse. 2. The fact that an undertaking is designated as "philanthropic" (*gemeinnützig*) does not in itself necessitate gratuitous medical service. 3. A general prerequisite for this is that the object of the undertaking does not fall in the sphere of official duty (*nicht in den Bereich behördlicher Leistungen*) and that the undertaking itself is carried on without gain or only a slight one. 4. In individual cases, the gratuitous service should depend on the peculiarity of the medical service. 5. A special service requiring no pay may be assumed in the instruction of societies of voluntary nurses in war and in health colonies and assistants of the Red Cross. 6. Wherever physicians furnish free service for instruction a written statement should be obtained from the bureau which gives the commission and from the persons to be instructed that this shall not involve any kind of medical service.

7. All questions as to whether medical service should be rendered free for a philanthropic undertaking, should be referred to the local organization of physicians. An appeal can be made from the decision of this body to the business committee of the German Aerzte-Vereins-Bund.

ANTIQUACKERY CAMPAIGN

Another important resolution of the Aerzte-Tag was that the campaign against quacks, whose number is continually increasing in Germany, should be carried on with increased vigor. For this purpose the commission appointed by the Aerzte-Vereins-Bund is to be enlarged and to be provided with larger funds. In order to secure the latter, the fee from each member of the Aerzte-Vereins-Bund was raised 1 mark. An appropriation of $6,250 (25,000 marks) was made for the commission. Finally the question of the improvement of the midwife system was thoroughly discussed.

Marriages

Benjamin Merrill Ricketts, M.D., Cincinnati, to Mrs. Bertha W. Davidson of St. Paul, Minn., at Cincinnati, June 17.

Edward Maples Steger, M.D., Winnebago, Wis., to Miss Agnes Johnson of Lansing, Mich., at Oshkosh, Wis., July 6.

Paul Henry Anthony, M.D., Morris, Ill., to Miss Mary Gwendolyn Fitzgerald of Rogers Park, Chicago, June 30.

Louis Clifton Kuyrkendall, M.D., McAlester, Okla., to Miss Ione Williamson of Durant, Okla., July 1.

Arthur E. Wade, M.D., Lexington, Neb., to Miss Clara Esther Danielson of Tacoma, Wash., June 16.

Harold Le Roy Avery, M.D., Primghar, Ia., to Miss Lydia Fenner of Independence, Ia., June 30.

Axel Emanuel Hedback, M.D., to Miss Gladys Margaret Webb, both of Minneapolis, July 2.

Leonard George Rowntree, M.D., to Miss Katherine Marie Campbell, both of Baltimore, July 9.

Earl Hobart McRae, M.D., New York City, to Miss Helen Ray Kitchen of Easton, Pa., July 6.

Deaths

George Whitten Magee, M.D. Western Pennsylvania Medical College, Pittsburgh, 1889; a Fellow of the American Medical Association; for two terms a member of the Pennsylvania Legislature; for twelve years a member of the school board of Oil City, Pa., and for three terms its President; a member of the Board of Directors of the State Institute for the Feeble-Minded, Polk, Pa.; a member of the Medical Staff of Oil City Hospital; died suddenly at his home in Oil City, July 3, from heart disease, aged 49.

Rufus C. Webb, M.D. Vanderbilt University, Nashville, Tenn., 1883; for twelve years Coroner of Acadia Parish, La.; president of the police jury of the parish; for twenty years a member of the common council of Rayne; formerly a member of both houses of the legislature; president of the Rayne Board of Health and director of the Commercial Bank of Rayne and the Commercial Bank of Church Point, La.; died in the Touro Infirmary, New Orleans, July 5, from nephritis, aged 52.

Carl Matthey, M.D. University of Zurich, Switzerland, 1880; a member of the Iowa State Medical Society; for more than thirty years a practitioner of Davenport, Ia.; a member of the Staff of St. Luke's and Mercy hospitals, Davenport; for six years a member of the Davenport School Board; died at his home, July 8, from embolism, aged 61.

Sumner Ferdinand Quimby, M.D. New York University, New York City, 1881; a Fellow of the American Medical Association and a member of the staff of the Addison Gilbert Hospital, Gloucester, Mass.; medical examiner for the Cape Ann district for more than thirty years; died at his home in Gloucester, July 10, from cerebral hemorrhage, aged 62.

George Barr Scholl, M.D. Johns Hopkins University, Baltimore, Md., 1902; a Fellow of the American Medical Association and professor of pathology, bacteriology and clinical microscopy in Baltimore Medical College; who was taken ill while visiting at Drum Point, Md.; died on a steamboat on Chesapeake Bay, July 9, from spinal meningitis, aged 39.

Charles Bigelow Braman, M.D. University of Buffalo, N. Y., 1898; a member of the Medical Society of the State of New York; formerly a practitioner of Rochester, N. Y., but for the last ten years in charge of the pharmacy of the Clifton Springs Sanatorium; died at his home in Clifton Springs, July 4, aged 53.

George Harvey Lee, M.D. Bennett Medical College, Chicago, 1883; of Kankakee, Ill.; a member of the Illinois State Medical Society; president of the Kankakee County Medical Society; died in the Emergency Hospital in Kankakee, July 8, from septicemia, due to a splinter wound of the finger, aged 54.

Edmund Quandt, M.D. Detroit, Mich., College of Medicine, 1902; for four years a city physician of Detroit and for the last two years county physician of Wayne County; died at his home in Detroit, July 5, from tuberculosis; aged 34.

Merrill L. Eidson, M.D. Missouri Medical College, St. Louis, 1885; formerly a practitioner of Beeville, Texas; but for the last five years a resident of San Antonio, Texas; died at his home in San Antonio, July 2, from the effects of skull fracture received in a fall the day before, aged 54.

Samuel Claggett, M.D. University of Maryland, Baltimore, 1898; a Fellow of the American Medical Association; local surgeon at Petersville, Md., for the Baltimore and Ohio System; died in the Maryland University Hospital, Baltimore, July 9, from acute disease of the kidney, aged 41.

George W. Seifert, M.D. Jefferson Medical College, 1883; a member of the Medical Society of the State of California; a prominent and wealthy practitioner of San Jose, Cal.; died in the Palace Hotel, San Francisco, July 2, from acute dilatation of the heart, aged 54.

William H. Willis, M.D. Missouri Medical College, St. Louis, 1881; a Fellow of the American Medical Association; a member of the staff of the Proctor Hospital, Peoria, Ill.; died suddenly at the base-ball park in that city, July 4, from angina pectoris, aged 54.

Henry W. Grauel, M.D. Eclectic Medical Institute, Cincinnati, 1875; of Painsville, Ohio; a member of the Ohio State Medical Association; died at the summer cottage of his son at Linden Beach, Ohio, July 3, from heart disease, aged 66.

Robert T. Miller, M.D. Washington University, St. Louis, 1850; said to have been the first practitioner of Sedalia, Mo., and once mayor of that city; died at the home of his daughter in Jefferson City, Mo., June 11, aged 86.

John Andrew Lee, M.D. Vanderbilt University, Nashville, Tenn., 1887; of Pine Hill, Ala.; a member of the Medical Association of the State of Alabama; died in a hospital in Birmingham, May 29, aged 50.

Dean Samuel Ellis, M.D. Jefferson Medical College, 1883; a Fellow of the American Medical Association; for thirty years a practitioner of Worcester, Mass.; died at his home in that city, June 30, aged 58.

Milton Ira Beeman, M.D. University of Toronto, Ont., 1873; for some time major of the Forty-Seventh Battalion; died at his home in Newburg, Ont., May 10, from cerebral hemorrhage, aged 62.

Milton Isaac Brosius, M.D. Cincinnati Medical College, about 1847; one of the oldest practitioners of Seneca County, Ohio; died at his home near Tiffin, June 9, from senile debility, aged 90.

Barnard H. Gallegher, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1891; a member of the Arkansas Medical Society; died at his home in Pine Bluff, Ark., June 27, aged 51.

Napoleon B. Morrison, M.D. Jefferson Medical College, 1857; a surgeon in the Federal service during the Civil War; died at his home in Wilmington, Del., June 26, aged 80.

Scy W. Ewell, M.D. Kentucky School of Medicine, Louisville, 1882; for many years a practitioner of Bogard, Mo.; died at his home in Carrollton, Mo., June 25, aged 58.

Frederick William Denkewalter, M.D. Rush Medical College, 1874; was found dead in his sanitarium in Spencer, Ind., June 28, from valvular heart disease, aged 71.

Walter E. Truax, (license, Minn., 1883, and California) formerly a practitioner of Breckenridge, Minn., died at his home in East San Diego, Cal., June 19, aged 66.

John Lawrence Hummel, M.D. Louisville, Ky. Medical College, 1893, of Louisville; died in the Louisville City Hospital, June 24, from heart disease, aged 40.

Isaac C. Hazlett, M.D. University of Pennsylvania, Philadelphia, 1870; died at his home in California, Pa., June 29, from cerebral hemorrhage, aged 74.

James A. Barnes, M.D. Medical College of Ohio, Cincinnati, 1875; a veteran of the Civil War; died at his home in Perrysville, Ind., June 21, aged 69.

Edward K. Harding, M.D. Louisville, Ky. Medical College, 1877; died at his home in Carterton, Va., April 7, from cerebral hemorrhage, aged 66.

John Henry Thieman, Jr., M.D. University of Louisville, Ky., 1902; died at his home in Louisville, June 9, from tuberculosis, aged 36.

George W. Hurlburt, M.D. McGill University, Montreal, 1869; died at his home in Thornbury, Ont., May 12, aged 77.

W. J. Trott, (license, Tenn., 1889), died at his home in Raus, Tenn., June 28, from heat exhaustion, aged 53.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

CAN NEBRASKA EDITORS BE BLUFFED?

Buck and Loffler, Itinerant "Specialists," try to Intimidate a Newspaper

Frederick Wellington Buck and Gilbert Dennis Loffler has each brought suit for $25,000 against the editor and publisher of the *Ord Weekly Journal.* The *Ord Weekly Journal* is the official county and city paper for the city of Ord, Valley County, Nebraska. Its editor and publisher is Mr. Horace M. Davis. Mr. Davis, in the line of his editorial duties, had occasion to call the attention of the Valley County public to the fact that it had in its midst Drs. Buck and Loffler the Quaker Indian Specialists of Denver. Mr. Davis said some other things about these two individuals, and the result is the filing of suits aggregating $50,000, against him. That these suits will ever come to trial no one concerned in them believes. They have been brought, doubtless for the main purpose of intimidating other editors of country newspapers and making them hesitate to turn the cold, cruel light of publicity on the peripatetic Buck-Loffler combination.

Gilbert Dennis Loffler (who sometimes signs himself Gilbert D. Loffler and at other times G. Dennis Loffler) is, according to our records, a graduate of Barnes Medical College, St. Louis, 1901. In the same year he received a license to practice in South Dakota. We find no record of his being licensed to practice in any other state. For some years previous to 1908 Loffler was located at Yankton, S. Dak. According to those living in the locality Loffler made a business of going through the country soliciting work from farmers. One alleged scheme was that of sending out an advance-agent under the guise of a horse-buyer, who, by careful questioning, would discover who was ailing in the homes of prospective victims. Soon after, Loffler is said to have appeared on the scene and astonished the people by his wonderful diagnostic ability. He would then, it is said, promise a cure in consideration of a note given for a certain number of months' "treatment." These notes, it is alleged, were immediately sold to bankers at a liberal discount.

After leaving Yankton, for reasons not necessary to go into at this time, Loffler went to Sioux Falls, S. Dak., where he is said to have been interested, first in a "medical institute," and later in an "Intravenous Therapy" scheme. From Sioux Falls he seems to have gone to Minneapolis and later to have drifted to Chicago, where he now lives. According to one Loffler letterhead, he has his "laboratory" at 22 Quincy Street, Chicago. It may or may not be a coincidence that this is also the address of the Accuracy Public Service Company, a concern which offers its services to quacks and purports to be able to secure evidence against reputable physicians. This was referred to in this department of The Journal, Feb. 28, 1914.

To indicate the scientific standing of Loffler, we quote, from a letter written by him some months ago, to a prospective victim; spelling and composition original with Loffler:

> "The treatment consists of injecting a chemical into the blood stream by way of a vein in the arm and which causes no disturbance of any kind.
>
> "The Chemical improves the Hemoglobine of the blood to normal and positively corrects the Density in which the patient can truthfully understand the possibilities of recovering strength and health.
>
> "I wish, however, for you to first understand that we cannot perform miricles, we cannot hope to bring about good results in those cases that come to us without a foundation to build upon, but in the first and second stages of Tuberculosis and in all cases of Anaemia, stomach disturbances, Nervous disorders etc. we have a positive remedy and wish you to fully investigate it for your own good as well as your friends."

So much for Loffler. Frederick Wellington Buck before he found a lush field for the exercise of his peculiar qualities in the Dakotas, Nebraska and Colorado, used to live in Grand Rapids, Mich. According to the Michigan State Board of Registration, Buck went through a form of registration in Michigan in 1898 as a "graduate" of the Independent Medical College of Chicago. The Independent Medical College, as many of our readers will remember, was a fraudulent mail-order "diploma mill" which sold "diplomas" to any one who sent the cash. It was finally put out of business by the federal authorities.

When the Michigan medical act of 1899 came into force Buck applied for re-registration under this act, but the Michigan State Board of Registration refused to re-register him. At that time Buck was secretary of a concern calling itself the West Michigan Association of Physicians and Surgeons, an organization said to have been composed largely of men whose medical (?) qualifications were similar to those possessed by Buck. This "association" was behind a mandamus suit brought by two men, Metcalf and Reetz, to force the Board of Registration to register these men even though they had no proper qualifications. Both the cases went to the Michigan Supreme Court and were thrown out. The Reetz case was carried to the United States Supreme Court which upheld the constitutionality of the Michigan medical act and also the action of the Board in refusing to register applicants who were without proper qualifications.

Shortly after the Reetz case was decided, Buck found it advisable to leave Michigan. Although the medical directories for 1902 give Buck's address as Muskegon, Mich., Buck claims to have graduated from Central Medical College at St. Joseph, Mo., in 1902. According to the Central Medical College records, Buck gave Lepanto, Ark., as his home address. How Buck was able to be graduated in 1902 is a mystery, as he left Michigan at about the same date and at that time, according to the State Board of Registration, had absolutely no qualifications involving attendance at a reputable medical college.

In 1904 and 1906, Buck's name appears in the directory under Aberdeen, S. Dak. Various newspapers, during the winter of 1910-1911, contain advertisements published in news-item form telling of the "promotion" of Dr. Frederick Wellington Buck. The items state that Dr. Buck "has just been elected President of the Affiliated Offices of the Quaker Indian Medical Institutes with a salary of $10,000 a year." Buck's "promotion," according to the "news-items," was due "to his faithful record of six years' work in Nebraska without signing a single death certificate." The advertisements state further that "Dr. Buck will continue his office at Flagler, Colo., and will continue making his regular visits here every sixty days until next spring, when he will take personal charge of the Omaha or Denver office with two assistants. . . ." According to our records, Buck is not licensed to practice in any state except Nebraska, where he obtained his license in 1903.

This, then, is the brace of worthies that attempts to intimidate the editor of a country newspaper because he endeavors to protect his readers by directing attention to the character of these two itinerants. Fortunately, Mr. Horace M. Davis, editor and publisher of the *Ord Weekly Journal,* is being supported by the decent element in his locality. The Valley County Medical Society meeting at Ord, June 2, passed resolutions sustaining Mr. Davis in these words:

> "*Be it Resolved,* that the members of the Valley County Medical Society assure Mr. Davis, the editor of the *Ord Journal,* their moral support and encouragement in his controversy and lawsuit with the alleged representatives of the Quaker Indian Specialists and that the society highly commends Mr. Davis and all other editors and publishers of their effort to awaken the public to the dangers of patronizing and placing their lives in the hands of medical practitioners whose professional reputation is questionable."

This resolution has also been officially endorsed by the Nebraska State Medical Association. It now only remains to be seen whether the impudent bluff of Buck and Loffler will cause other country newspapers to refrain from criticizing these men. It is unquestionably true that if the country papers do their duty they can make Nebraska so hot for both quacks and itinerant "specialists" that Buck and Loffler will give that state a wide berth.

FIGHTING FAKERY IN IOWA

State Board of Health Will Use Exhibit Cards Prepared by the Association

"The state of Iowa is going to fight fake medicine cures and quackery. The fight will not be carried on through the courts. It will not be taken before the legislature for additional legislation.

"Through the board of health, the state is going before the thousands of people who visit the state fair this year and call a spade a spade. Medicines and cures that have been branded by the American Medical Association as fakes will be named. Their advertisements will be exhibited. Their results will be pictured. Their effects on the life and health of their users will also be told.

"The women's building at the state fair will be 'plastered' with great placards denouncing various cures. Every woman who enters the building cannot help but see them. One placard in particular will show the testimonials of four persons. The testimonials declare the writers thereof were cured of consumption by various 'cures.' Right below the testimonials will appear the obituaries of the four and their cause of death, tuberculosis. Clippings from newspapers showing deaths from various kinds of headache powders and 'wonderful cures' will be reproduced on other placards.

"It is the first time, according to Dr. Sumner, that the state of Iowa has campaigned against fake medicines and quackery. Some of the placards have already been printed and received."—Des Moines (Iowa) *Capital.*

PROPRIETARY THERAPEUTICS

Le Mars, Iowa, is Put in the Vanguard of Progress

The methods by which proprietary manufacturers have attempted to teach physicians the science of therapeutics, are notorious. Those that have viewed this movement with disgust and discouragement will be interested in the following news item from the Le Mars (Iowa) *Sentinel* of recent date:

> "Dr. .... returned Monday from Detroit, Mich., where he went as one of a class of one hundred doctors selected from all over the United States, to take a course in the large Medical Research Laboratory located there. The lectures and demonstrations were given by Parke Davis & Co.'s staff of scientific medical research workers. All the latest discoveries in the cause and cure of diseases were here given to the visiting doctors long before they get to the medical profession at large."

Correspondence

Mauriceau's Seventeenth Century Treatise

To the Editor:—On "Round Prairie," 4 miles east of the village of Oconee in Shelby County, Ill., stands a fine old country residence that was built a number of years before the Civil War. It was for a time owned by Dr. W. T. Linn, who came from Ohio in 1844, served as private, hospital steward and in the medical director's office (at Detroit) during the war, and is yet living at the age of 99, having been a physician for seventy-five years.

In remodeling the old house last year, the present owner, Mr. Tony Hinton, found within its walls some letters, written to daughters of Dr. Linn (who was father of twelve children) fifty and sixty years ago. With them was found a mutilated copy of a work on obstetrics and diseases of women and the new-born that is evidently 246 years old. Mr. Hinton, who is related to my wife, kindly gave the book to me.

It is without cover or title-page and only enough of the introduction remains as to disclose the initials of the author —F. M.— in italic capitals. The body of the work is complete as far as page 352, the missing pages from the latter portion of the work carrying a part of Chapter XXXII. "Of the Scabs that are on the Head and Face of Children." There is nothing to indicate how many subsequent pages the book contained.

The type is of the Elzevir style, with bold hair-lines and short serifs, the lower case s being like f excepting that it has not the cross mark. There are a number of excellent engravings bearing the inscription, "Holmes Sculp."

On page 8, dealing with barrenness, the author notes that some finally conceive after being many years in wedlock: "Of which we have had a remarkable example in the person of the Queen mother, lately deceased, who was above twenty years married, and without children, and yet afterwards, to the great joy and content of all France she had our invincible Monarch Lewis XIVth, now reigning." (Anne of Austria died in 1666. She bore Louis XIV when 37 years old.)

This one extract alone enables us to identify the author, "F. M.," as François Mauriceau, since Roswell Park, in his "Epitome of the History of Medicine," states that this author "in 1668 published his Treatise on Diseases of Pregnancy and Childbirth, which was translated into all the languages of Europe." He was chief accoucheur to the Hôtel-Dieu in Paris.

The English translation is evidently by one of the Chamberlains, since at the beginning of Chapter XII, "The Signs to know whether the Child be alive or dead," occurs the following: "If there be any case, wherein a Chirurgeon ought to make the greatest reflection, and use most precaution in his art, it is this, *to know whether the infant in the womb be alive or dead," etc. And in a marginal note, printed in italics: "*This is not so necessary to those practitioners which can fetch a child coming right, or with the arm, without hooks or sharp instruments, as the translator of this book, and his father and brother can."

It will be recalled that Park (*loc. cit.*), page 166 also says: "About this time the Chamberlains, an English family devoted to the practice of midwifery, invented an instrument to facilitate the extraction of the foetal head when arrested, and one of them went to Paris, and, failing of success there, went on to Holland, where he sold his secret to two Dutch practitioners, who kept it only too faithfully."

While the work contains much sound reasoning in matters of pure mechanical detail, reminding one of Marion Sims in this respect, it abounds in quotations from the works of Hippocrates and Galen.

Certainly the therapeutics of those days would now be considered barbarous, and if carried out to-day would bring down on us the antivivisectionists and the Humane Society. Even the Christian Scientists would marvel at the number of difficulties that were in those days left to the beneficent hand of the Almighty.

Our author, however, mentions much of it in order to condemn it. Thus on page 249: "We'll now pass to convenient remedies for the belly of a new-laid woman. . . . All authors do appoint immediately after delivery, the skin of a black sheep, flea'd alive, for this purpose, to be laid all over her belly, and to lie on four or five hours; others will have a hare skin. . . . Truly, I believe that by the natural heat of such skins, the remedy is not bad; but I also fear lest in some small time after it may do more hurt than good, and that by its moistness, cooling of her, it may make her chill, which would be very prejudicial in stopping her cleansings, which ought to flow. . . . Besides it is a remedy of too much trouble; for there must always be a butcher ready for every woman that is laid, or some other person who can do it as readily, who must be for this purpose in the very chamber, or at least in the house, so that he have the skin very hot, according to directions."

And in the next succeeding paragraph: "They likewise direct a small plaister of *Galbanum,* with a little Civet in the middle, to be applied to the woman's navel, which as they imagine, is very proper to keep the womb in its place, because being delighted with that smell, it draws near to it of itself" (thus obviating the necessity of modern surgical intervention for suspension of the uterus). He sagely concludes, however, that "this remedy is a little superstitious; wherefore I am not for it, it being sufficient to keep the belly very warm, in the situation we have directed, and to prevent the least cold."

He recites at length, the story told by Averroes, of the woman "who conceived in a bath wherein a man had washed himself a little before. . . . But this is a story fit to amuse little children," is his wise conclusion.

Chapter XXII treats of "The venereal Disease in Women with Child." He insists on active mercurial treatment by inunctions, purgations and salivation, in those cases "where the woman hath the *Pox* in the highest degree"; and cites cases in which they have gone through this treatment and been delivered of a healthy child at full time.

The author argues ably against the belief in maternal impressions, and yet the persistency with which medieval credulity still survives—in this one instance at least—may be attested by every practitioner in this country.

When it is recalled that the obstetric forceps was not introduced to the world until 1721, by Palfyn of Ghent, and that Sir James Simpson did not introduce chloroform anesthesia for women in labor until 1847, with Lord Lister's epochal labors beginning about thirty years later yet, the tragic occurrences of the lying-in chamber in those olden times must be something awful to contemplate at the present time. Indeed, the technic then employed would be amusing, if we could eliminate the tragic. Thus on page 193: "There are some women whose children (notwithstanding they come right) remain sometimes four, five or six whole days in the passage, and would continue there longer, if they were left alone, without being able to be born, unless assisted by art" (?).

Then follows a lengthy description of craniotomy, so commonly resorted to at that time. He then concludes with the statement that "for my part I had rather do this in the like occasion than resolve on that cruelty and barbarousness of the Caesaerian Section, in which tis absolutely impossible ('tho many imposters, whom Rousset favors, assure the contrary) that a woman should ever escape."

In Chapter XIII, "How to Fetch the After-Burthen when the String is Broke," the author relates that he was once called to a poor woman in the Fauxbourgh St. Marcel three days after her delivery by a midwife, where he found her in "continual pain all over her belly, which held her like Throws of another Travail, voiding black humors extremely stinking and offensive, with which she also had a great pain in her head, and a fever, which in a short time would have augmented, if I had not presently fetched what remained." The midwife had left the placenta *in situ*, stating that it would come away of itself. (Apparently the professional ethics of many midwives has not undergone much revision to this day.)

After describing the removal of the retained placenta, the author observes: "She immediately after felt no more pain, and recovered soon after: but otherwise she had certainly been in danger of her life, because of the great corruption of what was left behind in the womb: for that which I fetched away smelt so ill, that my hands stank of it above two days after, although I washed them three or four times with vinegar."

(Unfortunately he does not give his mortality statistics for the series of cases immediately following, and doubtless could not have been led to believe that they bore any connection.)

Thus in Chapter X, "The causes of the Stoppage of the *Lochia* proceed either from a great looseness of the bowels because a great evacuation that way turns the *Lochia* and makes them stop; or any strong passions of the mind, as great fear or grief, or any anger or swoonings, for these things do cause the Humors to retire suddenly inwards, and by this quick motion they often cause suffocations. . . . Great colds stop the *Lochia*, because it closes the vessels and pores of the womb: the use of astringent remedies produces the same effect, as also cold drink; because by condensing and thickening the Humors, they hinder their easy flowing."

I should like to learn where a perfect copy of this work might be found.

J. P. Simpson, M.D., Palmer, Ill.

[The foregoing letter was submitted to Dr. Fielding H. Garrison, of the Surgeon-General's Library, who in reply says:]

"I find that the book described by your correspondent is in all probability one of the several editions of Hugh Chamberlen's English translations of Mauriceau published in the eighteenth century. This library has four of these, viz., 1718, 1727, 1752, 1755, the last being according to the biographers of Chamberlen the last English edition published. Each one of these corresponds with the description given by Dr. Simpson and he could no doubt find some one of them at least in such a collection as the John Crerar. There are also two earlier seventeenth century editions of this translation (1673, 1697) but these do not correspond with the description given, so it must refer to one of the eighteenth century imprints. The 1673 was the earliest to be published."

International Anti-Alcoholic Congress

To the Editor:—As the International Anti-Alcoholic Congress meets in this country next year, it may be interesting to know something of its origin. It was organized in Antwerp in 1885 by a group of teachers and doctors, who met to discuss the subject as a sociologic one. Two years later the second congress was held at Zurich, Switzerland, under the presidency of Forel, at which time the real organization took place. Its central object was to discuss the alcoholic problem in its racial, national, hygienic and sociologic aspects. No theories were to be endorsed by the congress or special plans for relief. It was to be a study and accumulation of the facts, regardless of what they indicated. From that time the congress has been held every two years, in different cities of Europe, and has gradually increased and become more and more authoritative, attracting the attention of sociologists and students of the great problems of race development.

In 1907 the Swedish government gave the congress a national character by appropriating money and assuming the responsibility of inviting the different nations of the world to send officially appointed delegates. This resulted in a very enthusiastic gathering of nearly 2,000 persons at Stockholm, and a representation from more than twenty governments of the world. The crown prince presided and leading officials of the government took active parts.

In 1909 the British government assumed the same responsibility, inviting delegates from all over the world officially to the congress at London. The Lord Chief Justice and home government were represented and a large number of distinguished medical men took a very active part.

The next congress, in 1911, was held under the auspices of the Holland government and took place at The Hague. Thirty-one governments sent officially appointed delegates, and over 2,000 persons, including many leading men of Europe, participated in a five days' session in which many most interesting papers were presented and discussed.

The Italian government sent a warm invitation to meet at Milan in 1913, and this was attended by an equally large number of distinguished persons, and the large volume of transactions indicates the magnitude of their work.

Our government sent an invitation to hold the next meeting here, and this was accepted, and will be held at Washington July, 1915. The government has already appropriated a large sum of money, and a committee is now engaged in perfecting the organization.

T. D. Crothers, M.D., Hartford, Conn.

Passing of a Type of General Practitioner.—It is perfectly true that a certain type of general practitioner is passing. The man who does an incredibly large amount of work in a slipshod manner cannot stem the tide of progression; he is being supplanted by a new type of general practitioner, by a better-trained man, who does his general work in a careful, deliberate, skilful and an adequate manner.—President's Address by Dr. James R. Carroll, Western Tennessee Med. and Surg. Assn.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POHL'S METHOD FOR REMOVING THE BLOOD

To the Editor:—Kindly refer me to Pohl's article regarding the complete removal of blood from various organs for biologic experimentation, as mentioned by you editorially commenting on Fischer's theory of nephritis, The Journal, June 20, 1914, p. 1971.

M. H. Kaiden, M.D., New York.

Answer.—Pohl's method is described in Abderhalden's "Handbuch der biochemischen Arbeitsmethoden" under the title "Das Arbeiten mit dem Organeiweiss." He obtains from the various organs material which he calls organ plasma. The organ plasma must be entirely free from blood. It is best obtained from organs with easily prepared afferent vessels such as the liver, kidney, spleen, etc. The liver is washed out in a reversed direction from the vena cava with an 0.8 per cent. solution of the purest sodium chlorid entirely free from calcium, and the washing out is continued until the wash-water flows away entirely colorless. For qualitative purposes it is sufficient to mince the blood-free organs, mix with the proper amount of physiologic salt solution with the addition of toluene or benzene, shake thoroughly, let stand in the cold for twenty-four hours and filter, pouring back the first part of the filtrate until it comes through clear. The filtrate resembles blood-serum. Even from a liver that contains glycogen a bright yellow filtrate will at last be obtained. For quantitative purposes when time for work is lacking, the organ emulsion can be rapidly dried and preserved, but it is best to work with fresh solutions.

FRAGMENTATION OF TUBERCLE BACILLI

To the Editor:—Is there any diagnostic significance in finding on examining a specimen of sputum microscopically that the tubercle bacilli are broken into small segments? Specimens from the same patient have been examined from time to time, and without exception all bacilli seen on the slide in question were segmented, while specimens from other patients examined at the same time under exactly the same conditions did not show segmentation.

F. J. Reid, M.D., Deming, N. Mex.

Answer.—The broken or splintered condition of tubercle bacilli has no diagnostic significance. The fragments, if really fragments of bacilli, are of the same diagnostic value as the whole bacilli. Opinions are much divided as to the significance of fragmentation with reference to prognosis. As a rule, however, authorities have admitted that no certain conclusions can be drawn from the form of the bacilli. Some, however, believe that the predominance of fragments indicates a relatively favorable prognosis.

TYPHOID SERUMS AND TEMPERATURE

To the Editor:—Have the typhoid serums of the present day any effect on fever? That is, will they shorten its course in any way like the diphtheria antitoxin, or is the old routine treatment of typhoid the better course to pursue? I have read literature for and against its use except as a prophylaxis. In other words, will its use lessen the severity of the disease?

W. S. Campbell, M.D., Albany, Mo.

Answer.—A distinction must be made between typhoid serums and typhoid vaccines. Typhoid serums have been recommended for the treatment of typhoid fever, but there is no consensus of opinion as to their value. The typhoid vaccine has been used in treatment by a number of clinicians who assert that it renders the course of the disease milder. It must be regarded, however, as still in the experimental stage.

VACCINES AND SERUMS IN HAY-FEVER

To the Editor:—Please give me the status of vaccines and serums in the treatment of hay-fever.

G. R. Reid, M.D., Toronto.

Answer.—An antitoxin serum has been included in N. N. R. Theoretically, there can be no vaccine treatment of this disease since it is produced, not by bacteria, but by the toxin of the pollen of various plants. Vaccines have been used derived from the micro-organisms found in the nasal secretions. They must be regarded as still on trial.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

THE DAVIS CASE AND THE IOWA STERILIZATION LAW

From a case arising out of an attempt to enforce the Iowa sterilization law, the endeavor is being made to test the constitutionality of such measures before the United States supreme court. The Iowa law is fairly typical of these enactments. It provides for the "prevention of the procreation of criminals, rapists, idiots, feeble-minded, imbeciles, lunatics, drunkards, drug-fiends, epileptics, syphilitics, moral and sexual perverts and diseased and degenerate persons." This law specifically empowers the state board of parole, together with the managing officer and the physician of each public institution in the state, to examine into "the mental and physical condition of the inmates of such institutions with a view of determining whether it is improper or inadvisable to allow any of such inmates to procreate." By a majority decision, this board may order the operation of vasectomy, or ligation of the fallopian tubes, as the case may be, on any inmate. It is particularly set forth that these operations shall be performed on any inmate convicted of prostitution, or twice convicted of other sexual offenses, including soliciting, or who have been twice convicted of a felony.

The Davis case arises under an order of the board authorizing the sterilization of certain convicts who fell under the last clause, that is, who had twice been convicted of a felony. Immediately on the issuance of this order, the plaintiff filed his petition in the federal district court, agreeable to the federal statute providing therefor, praying that an injunction issue to restrain the enforcement of the Iowa sterilization law, on the ground that this law controverted the constitution of the United States, in that the operation as authorized was a cruel and unusual punishment.

As we have seen, the language of the statute under which plaintiff would apparently be classed is "who have been twice convicted of a felony." But from this phraseology it is not quite clear as to just who would be within this class. Hence, the question arises whether the law should apply only to those who had been twice convicted subsequently to the passage of the act or whether it should receive a broader interpretation and apply to any one who had been twice convicted either prior or subsequently to the act. To obtain a proper construction of this language the board wrote the attorney-general for Iowa. In his opinion, the attorney-general said that the issue involves (*a*) the intention of the legislature, that is to say, whether or not the legislature intended the act to apply to persons confined or convicted prior to the taking effect of the act and (*b*) if the legislature so intended, is the act constitutional? The attorney-general resolved the question in favor of the first construction, because the latter construction would tend to render the law unconstitutional as being *ex post facto*, if this operation may be considered as a means of punishment or even if it contained directly an element of punishment. Hence, it was held by the attorney-general that the act should be construed to apply only to those persons who have been convicted of crime subsequently to the taking effect of the act. A further question was also presented in the Davis case, as to whether both convictions should be subsequent to the passage of the act, and whether both convictions should be had in the state of Iowa. This too, was resolved in the affirmative, the attorney-general holding that both convictions must be subsequent to the passage of the act and had in the state of Iowa. The board on receipt of this opinion reversed its order authorizing sterilization of the plaintiff and others.

These facts, together with the affidavits of the prison physician and of the warden of the state penitentiary, were filed as exhibits in the reply of the attorney-general to the petition of the plaintiff for the injunction. This was apparently an attempt so to change the circumstances as to render the federal court without jurisdiction, in that the plaintiff would not be aggrieved by the act. But the court refused to dismiss the petition and enjoined the officers in question, that is, those vested by the statute with the enforcement thereof, from carrying out its provisions. These officials, deeming themselves injured by the decree and order entered by the court, prosecuted their appeal therefrom to the supreme court of the United States, which appeal was granted. Now this appeal would place directly before the United States supreme court the question as to whether or not the Iowa law, as applied directly to those convicted twice of felony, is unconstitutional as being a cruel and unusual punishment were it not for one fact. This is that the supreme court has held that this provision does not apply to state laws but only to enactments of Congress. This position of the court would seem to leave only a question of jurisdiction before it.

The validity of these laws has been twice determined in state supreme courts, but never by the federal court. The Washington supreme court held in the case of *State* v. *Feilen* that the Washington law was not unconstitutional as authorizing a cruel and unusual punishment, while the New Jersey supreme court held the law of that state unconstitutional as being an unreasonable exercise of the police power. The New Jersey law more nearly resembles that of Iowa than does the Washington measure; but the question as presented in the Feilen case is more nearly analogous to the present case, in that the Washington law was being applied to a man who had been convicted of a felony, namely, statutory rape, while in the New Jersey case, the law was being applied to a woman affected with epilepsy. The Washington case has been severely criticized as being hasty and ill-considered; but aside from this it is by no means a precedent for the United States supreme court, if by any possible chance it should be held that a constitutional question has been raised. And therefore, should that tribunal decide that the constitutional question is squarely before it and that the issue is not merely one of jurisdiction, the Davis case, when adjudicated, will be one of great moment and of tremendous import. In that case the issue that would be involved is whether a state can, in the interest of the public welfare, apply a scientific theory for the advancement of the human race and thereunder sterilize twice-convicted criminals, or whether such a measure would be a cruel and unusual punishment as prohibited by the federal constitution. The decision of the supreme court of the United States if made on this point would have bearing on all the sterilization laws so far enacted of which there are at present twelve: California, Indiana, Iowa, Wisconsin, Washington, New York, New Jersey, North Dakota, Michigan, Connecticut, Kansas and Nevada. A negative opinion would abrogate practically all these laws and would in effect deny the right of a state to adopt unproved theories for race betterment, while an affirmative finding will open the way to the application of a vast untried mass of theories. But as has been said it is extremely doubtful that the federal court will hold the question before them.

And thus the issue will be left as at present to the decisions of the several states.

Sanitation at Home.—It is a curious fact, and one by no means gratifying to our national pride, that when we wish to illustrate the value of modern sanitary laws and regulations we draw our most striking illustrations from outside the United States proper. For instance, modern sanitary science backed up by wise sanitary laws and sufficient authority to enforce these laws has abolished yellow fever in Cuba and the Canal Zone, has controlled largely the ravages of hookworm in Porto Rico and has isolated and controlled leprosy in Hawaii and the Philippines.—W. F. King, M. D., in *Jour. Indiana State Med. Assn.*

Book Notices

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. With the comments that have appeared in THE JOURNAL. Cloth. Price, 50 cents. Pp. 56. Chicago: American Medical Association Press, 1913.

New and Nonofficial Remedies is devoted to a discussion of medicinal substances which the Council on Pharmacy and Chemistry has found eligible for recognition under its rules. This separate volume of reports contains descriptions of preparations which were not satisfactory. It includes, first, preparations which were examined, found wanting in some particular and hence denied admission to New and Nonofficial Remedies, and second, articles which at one time were admitted to the book and later in the light of further evidence, or because they were no longer marketed ethically, had to be omitted. Many of the reports included in the present volume were previously published in THE JOURNAL. These reports are of great interest as showing the amount of time and the extent of the investigation which the Council gives to individual products. One report deals with a series of glycerin esters of lactic acid called Dianols. The Council with the aid of its chemical laboratory had the duty of convincing an unwilling scholar—a German firm—that its preparations are not what they are said to be, evidently because of inherent instability. In another report the Council showed the "Perfection Liquid Food Company" that a malt extract flavored with meat extract does not make a perfect food. Although the name "Perfection Liquid Food" is enough to condemn the product to thinking men, the Council studied patiently a mass of half information and commercial analytic reports which had been submitted before definitely rejecting the product. Those who have been inclined to give ear to the reports that the Council on Pharmacy and Chemistry takes its work lightly and allows personal bias to affect its decisions should get the present volume and read these reports. The Council possibly takes evidently worthless or fraudulent products too seriously, but its reports are certainly not based on snap judgment.

DIE ENTSTEHUNG DER MENSCHLICHEN LUNGENPHTHISE. Von Privatdozent A. Bacmeister, Assistant der medizinischen Universitätsklinik zu Freiburg. Paper. Price, 2.40 marks. Pp. 80. Berlin: Julius Springer, 1914.

In this monograph, Bacmeister discusses a problem on which there has been much difference of opinion and on which his researches have thrown much light. The agency of the bacillus in the production of all forms of tuberculosis is universally acknowledged and no longer merits discussion. The problem of the pathogenic nature of the bovine strain of bacillus may also be said to be settled, but it is not yet determined what part it may play in the causation of human phthisis. It is one thing to assert that the bovine tubercle bacillus is an excitant of tuberculosis in man and another to determine its share in the production of pulmonary tuberculosis as it appears in the adult human being. Bacmeister makes it plain that pulmonary tuberculosis in the adult is a different type of disease from that observed in animal experiment or in children. The disease in adults begins at the apex and progresses as a rule somewhat slowly, indicating a special predisposition of a part of the lung and a certain resisting power in the adult not seen in the child. The channel by which the bacteria reach the lung may be, according to Bacmeister, either by inhalation or through the blood from some former focus of infection. Phthisis may be produced in either of these ways, provided the apex of the lung is sufficiently predisposed. The influence of infection in childhood on the development of phthisis in adult life is thoroughly discussed. Bacmeister's conclusion is that the outbreak of phthisis in adult life after the occurrence of tuberculosis in infancy is due not to a general transformation of the whole organism, but to the production of a local predisposition. In the discussion of the individual predisposition of the lung to develop phthisis, Bacmeister formulates the following principle: All factors which lead to an obstruction to the flow of lymph at the apex of the lung form an occasion for the localization of the tuberculous process in that neighborhood. In this retardation of the tubercle bacilli, in this obstruction to the lymph-flow, in this inability of the lung apices to free themselves from the bacilli which settle there by preference lies the peculiar local predisposing influence. The author's own work, which has shown that it is possible to so adjust the local and general condition as to produce almost typical phthisis in animals by obstructing the lymph-flow, emphasizes the importance of the principle stated. Disease of the upper air-passages may bring about such an obstruction of the lymph-flow, and the influence of general diseases of an enfeebling nature in hindering active respiration is a factor not to be neglected. The organic changes in the cartilage of the first rib and the deformity of the upper aperture of the chest which have been emphasized by Freund and Hart are to be regarded as factors, but not the only ones which tend to bring about the development of a local predisposition to apical phthisis. In conclusion the author draws the lesson that there is no reason to confine prophylaxis to a definite age period. The germ of phthisis may be received in childhood and the healthy adult may, at any time, fall a victim to the disease. The battle against the enemy must be carried on at every age. This fact is not affected by our knowledge that certain years of life are of special importance for the factors which lead to consumption both for the infection and for the development of the predisposition.

Der Blutdruck des Menschen. Ergebnisse der Tonometrie. Von Dr. Arthur Horner, em. Assistent der I Medizin. Mit einem Vorwort von Prof. Dr. J. Pal. Paper. Price, 6 kroner. Pp. 198, with 7 illustrations. Vienna: Moritz Perles, 1913.

This monograph comprises a description of the physical and physiologic principles on which the measurement of the blood-pressure of man depends, followed by a description of the instruments and technic of the determination, and a study of the relations of the blood-pressure in various diseases. A bibliography of twenty-five pages gives one an indication of the space filled in modern clinical medicine by it and the labor necessary to produce a reliable review like the present. In therapy, drugs, physical remedies, etc., are discussed. A few proprietaries are noticed but not indiscriminately praised, as is so often the case. A brief discussion of the treatment of conditions of low blood-pressure is included. On the whole, the work must be regarded as a suitable guide to the diagnosis and treatment of conditions dependent on alterations in the blood-pressure.

Cunningham's Text-Book of Anatomy. Edited by Arthur Robinson, M.D., F.R.C.S., Professor of Anatomy, University of Edinburgh. Fourth Edition. Cloth. Price, $6.50 net. Pp. 1596, with 1124 illustrations. New York: William Wood & Co., 1913.

Practically every section of this book has been revised, a few departments have been entirely rewritten, and some new chapters have been added. The deaths of Cunningham, Birmingham and A. H. Young have necessitated bringing new blood into the authorship of the volume. This has not, however, detracted from its quality. The Basle anatomic nomenclature is employed, the old terminology being also given in many instances. A glossary of old and new terms precedes the text and the illustrations, many colored, are abundant and instructive. On the whole, Cunningham's text-book may be considered a useful and dependable single volume work on anatomy.

Kurzgefasste Lehre von den Knochenbrüchen mit Besonderer Berücksichtigung Ihrer Mechanik und Biologie. Herausgegeben von Dr. F. de Quervain, o. ö. Professor der Chirurgie. Unter Mitarbeit von Dr. Th. Christen, Privatdozent für Physikalische Therapie and Dr. H. Iselin, Privatdozent für Chirurgie, und nach den Mitteilungen und Aufzeichnungen des Verstorbenen Dr. H. Zuppinger, Privatdozent für Medizinische Mechanik. Part 1. Paper. Price, 9 marks. Pp. 140, with 123 illustrations. Leipsic: F. C. W. Vogel, 1913.

This is a short, clear and well-written treatise on the mechanics of the production and treatment of fractures in general, with diagrams, reproductions of roentgenograms and photographs showing the especial pathology and management of the more common varieties. The portion devoted to the open operative methods is short but sound, and properly conservative. Nothing new is advanced. There is shown the ingenious automatic extension apparatus for fractures of the femur designed by Zuppinger, to whom the book is in effect a memorial.

The Home Nurse. By E. B. Lowry, M.D., Cloth. Price, $1. Pp. 224. Chicago: Forbes & Co., 1914.

This practical little work is intended for use when sick members of a family must be cared for at home without the aid of a trained nurse. It is free from technical terms, and methods of bathing and administration of external remedies are so clearly described that any one of ordinary intelligence may easily follow the directions. One criticism: In discussing the nursing of typhoid fever the author says, "Occasionally it is necessary to give a turpentine enema." It might be well to omit this sentence from later editions as turpentine is seldom given on account of its effect on the kidneys, and some home nurses might be tempted to give it without orders if the tympanites was not relieved quickly by other measures.

Miscellany

Charles Dickens on Children's Hospitals

To the Editor.—Few of your readers are perhaps acquainted with the after-dinner speech delivered by Charles Dickens at the anniversary festival of the Hospital for Sick Children at Freemasons' Hall, London, Feb. 9, 1858. It is not contained in his collected works and is worth reprinting on account of its large human and social interest. Charles Dickens and Charles Reade did as much as any other men of their time to reform the status of prisons, insane asylums and dangerous occupations. Dickens was always a clever satirist of the foibles of doctors, and Reade was everywhere a keen critic of the medical practice of his time.

If the sentiment of this beautiful speech should seem exaggerated to those who see everything in terms of the "struggle for existence," it is well to remember that Dickens had a peculiarly delicate and kindly feeling for children as a result of the rough handling which he had himself received in his early life. With the exception of Shakespeare and Charles Lamb, no one wrote better of children than Dickens, and his hospital speech (subjoined) seems one of the best contributions ever made to the cause of social medicine by a man of genius.

F. H. Garrison, M.D., Washington, D. C.

At the anniversay festival, after the usual loyal and other toasts, the chairman, Mr. Dickens, proposed "Prosperity to the Hospital for Sick Children," and said.

"*Ladies and Gentlemen:*

"It is one of my rules in life not to believe a man who may happen to tell me that he feels no interest in children. I hold myself bound to this principle by all kind consideration, because I know, as we all must, that any heart which can really toughen its affections and sympathies against those dear little people must be wanting in so many humanizing experiences of innocence and tenderness, as to be quite an unsafe monstrosity among men. Therefore I set the assertion down, whenever I happen to meet with it—which is sometimes, though not often—as an idle word, originating possibly in the genteel languor of the hour, and meaning about as much as that knowing social lassitude, which has used up the cardinal virtues and quite found out things in general, usually does mean. I suppose it may be taken for granted that we, who come together in the name of children and for the sake of children, acknowledge that we have an interest in them; indeed, I have observed since I sat down here that we are quite in a childlike state altogether representing an infant institution, and not even yet a grown-up company. A few years are necessary to the increase of our strength and the expansion of our figure; and then these tables, which now have a few tucks in them, will be let out, and then this hall, which now sits so easily upon us, will be too tight and small for us. Nevertheless, it is likely that even we are not without our experience now and then of spoilt children. I do not mean of our own spoilt children, because nobody's own children ever were spoilt, but I mean the disagreeable children of our particular friends. We know by experience what it is to have them down after dinner, and, across the rich perspective of a miscellaneous dessert to see, as in a black dose darkly, the family doctor looming in the distance. We know, I have no doubt we all know, what it is to assist at those little maternal anecdotes and table entertainments illustrated with imitations and descriptive dialogue which might not be inaptly called, after the manner of my friend Mr. Albert Smith, the toilsome ascent of Miss Mary and the eruption (cutaneous) of Master Alexander. We know what it is when those children won't go to bed; we know how they prop their eyelids open with their forefingers when they will sit up; how, when they become fractious, they say aloud that they don't like us, and our nose is too long, and why don't we go? And we are perfectly acquainted with those kicking bundles which are carried off at last protesting. An eminent eye-witness told me that he was one of a company of learned pundits who assembled at the house of a very distinguished philosopher of the last generation to hear him expound his stringent views concerning infant education and early mental development, and he told me that while the philosopher did this in very beautiful and lucid language, the philosopher's little boy, for his part, edified the assembled sages by dabbling up to the elbows in an apple pie which had been provided for their entertainment, having previously anointed his hair with the syrup, combed it with his fork, and brushed it with his spoon. It is probable that we also have our similar experiences sometimes, of principles that are not quite practice, and that we know people claiming to be very wise and profound about nations of men who show themselves to be rather weak and shallow about units of babies.

"But, ladies and gentlemen, the spoilt children whom I have to present to you after this dinner of to-day are not of this class. I have glanced at these for the easier and lighter introduction of another, a very different, a far more numerous, and a far more serious class. The spoilt children whom I must show you are the spoilt children of the poor in this great city, the children who are, every year, for ever and ever irrevocably spoilt out of this breathing life of ours by tens of thousands, but who may in vast numbers be preserved if you, assisting and not contravening the ways of Providence, will help to save them. The two grim nurses, Poverty and Sickness, who bring these children before you, preside over their births, rock their wretched cradles, nail down their little coffins, pile up the earth above their graves. Of the annual deaths in this great town, their unnatural deaths form more than one-third. I shall not ask you, according to the custom as to the other class—I shall not ask you on behalf of these children to observe how good they are, how pretty they are, how clever they are, how promising they are, whose beauty they most resemble—I shall only ask you to observe how weak they are, and how like death they are! And I shall ask you, by the remembrance of everything that lies between your own infancy and that so miscalled second childhood when the child's graces are gone and nothing but its helplessness remains; I shall ask you to turn your thoughts to these spoilt children in the sacred names of Pity and Compassion.

"Some years ago, being in Scotland, I went with one of the most humane members of the humane medical profession, on a morning tour among some of the worst-lodged inhabitants of the old town of Edinburgh. In the closes and wynds of that picturesque place—I am sorry to remind you what fast friends picturesqueness and typhus often are—we saw more poverty and sickness in an hour than many people would believe in a life. Our way lay from one to another of the most wretched dwellings, reeking with horrible odors; shut out from the sky, shut out from the air, mere pits and dens. In a room in one of these places where there was an empty porridge-pot on a cold hearth, with a ragged woman and some ragged children crouching on the bare ground near it—where, I remember as I speak, that the very light, refracted from a high damp-stained and time-stained house-wall, came trembling in, as if the fever which had shaken everything else there had shaken even it—there lay, in an old egg-box which the mother had begged from a shop, a little feeble, wasted, wan, sick child. With his little wasted face, and his little hot, worn hands folded over his breast, and his little bright, attentive eyes, I can see him now, as I have seen him for several years, looking steadily at us. There he lay in his little frail box, which was not at all a bad emblem of the little body from which he was slowly parting—there he lay, quite quiet, quite patient, saying never a word. He seldom cried, the mother said; he seldom complained; 'he lay there, seemin' to woonder what it was a' aboot'. God knows, I thought, as I stood looking at him, he had his reasons for wondering—reasons for wondering how it could possibly come to be that he lay there, left alone, feeble, and full of pain, when he ought to have been as bright and as brisk as the birds that never got near him—reasons for wondering how he came to be left there, a little decrepit old man pining to death, quite a thing of course, as if there were no crowds of healthy and happy children playing on the grass under the summer's sun within a stone's throw of him, as if there were no bright moving sea on the other side of the great hill overhanging the city; as if there were no great clouds rushing over it; as if there were no life, and movement, and vigor anywhere in the world—nothing but stoppage and decay. There he lay looking at us, saying, in his silence, more pathetically than I have ever heard anything said by any orator in my life, 'Will you please to tell me what this means, strange man? and if you can give me any good reason why I should be so soon, so far advanced on my way to Him who said that children were to come into His presence, and were not to be forbidden, but who scarcely meant, I think, that they should come by this hard road by which I am traveling; pray give that reason to me, for I seek it very earnestly and wonder about it very much'; and to my mind he has been wondering about it ever since. Many a poor child, sick and neglected, I have seen since that time in this London; many a poor sick child I have seen most affectionately and kindly tended by poor people, in an unwholesome house and under untoward circumstances, wherein its recovery was quite impossible; but at all such times I have seen my poor little drooping friend in his egg-box, and he has always addressed his dumb speech to me, and I have always found him wondering what it meant, and why, in the name of a gracious God, such things should be!

"Now, ladies and gentlemen, such things need not be, and will not be, if this company, which is a drop of the life-blood of the great compassionate public heart, will only accept the means of rescue and prevention which it is mine to offer. Within a quarter of a mile of this place where I speak, stands a courtly old house, where once, no doubt, blooming children were born, and grew up to be men and women, and married and brought their own blooming children back to patter up the old oak staircase which stood but the other day, and to wonder at the old oak carvings on the chimney-pieces. In the airy wards into which the old state drawing-rooms and family bedchambers of that house are now converted are such little patients that the attendant nurses look like reclaimed giantesses, and the kind medical practitioner like an amiable Christian ogre. Grouped about the little low tables in the center of the rooms are such tiny convalescents that they seem to be playing at having been ill. On the dolls' beds are such diminutive creatures that each poor sufferer is supplied with its tray of toys; and, looking round, you may see how the little tired, flushed cheek has toppled over half the brute creation on its way into the ark; or how one little dimpled arm has mowed down (as I saw myself) the whole tin soldiery of Europe. On the walls of these rooms are graceful, pleasant, bright childish pictures. At the beds' heads are pictures of the figure which is the universal embodiment of all mercy and compassion, the figure of Him who was once a child himself, and a poor one. Besides these little creatures on the beds, you may learn in that place that the number of small outpatients brought to that house for relief is no fewer than ten thousand in the compass of one single year. In the room in which these are received, you may see against the wall a box on which it is written that it has been calculated that if every grateful mother who brings a child there will drop a penny into it, the hospital funds may possibly be increased in a year by so large a sum as forty pounds. And you may read in the hospital report, with a glow of pleasure, that these poor women are so respondent as to have made, even in a toiling year of difficulty and high prices, this estimated forty, fifty pounds. In the printed papers of this same hospital, you may read with what a generous earnestness the highest and wisest members of the medical profession testify to the great need of it; to the immense difficulty of treating children in the same hospitals with grown-up people, by reason of their different ailments and requirements, to the vast amount of pain that will be assuaged, and of life that will be saved, through this hospital; not only among the poor, observe, but among the prosperous too, by reason of the increased knowledge of children's illnesses, which cannot fail to arise from a more systematic mode of studying them. Lastly, gentlemen, and I am sorry to say, worst of all (for I must present no rose-colored picture of this place to you—I must not deceive you) lastly, the visitor to this children's hospital, reckoning up the number of its beds, will find himself perforce obliged to stop at very little over thirty; and will learn, with sorrow and surprise, that even that small number, so forlornly, so miserably diminutive compared with this vast London, cannot possibly be maintained, unless the hospital be made better known; I limit myself to saying better known, because I will not believe that in a Christian community of fathers and mothers, and brothers and sisters, it can fail, being better known, to be well and richly endowed.

"Now, ladies and gentlemen, this without a word of adornment—which I resolved when I got up not to allow myself—this is the simple case. This is the pathetic case which I have to put to you; not only on behalf of the thousands of children who annually die in this great city, but also on behalf of the thousands of children who live half developed, racked with preventable pain, shorn of their natural capacity for health and enjoyment. If these innocent creatures cannot move you for themselves, how can I possibly hope to move you in their name? The most delightful paper, the most charming essay, which the tender imagination of Charles Lamb conceived, represents him as sitting by his fireside on a winter night telling stories to his own dear children, and delighting in their society, until he suddenly comes to his old, solitary, bachelor self, and finds that they were but dream children, who might have been, but never were. 'We are nothing,' they say to him; 'less than nothing, and dreams. We are only what might have been, and we must wait on the tedious shore of Lethe, millions of ages, before we have existence and a name.' And immediately awaking, he says, 'I found myself in my armchair.' The dream-children whom I would not raise, if I could, before every one of you, according to your various circumstances, should be the dear child you love, the dearer child you have lost, the child you might have had, the child you certainly have been. Each of these dream-children should hold in its powerful hand one of the little children now lying in the child's hospital, or now shut out of it to perish. Each of these dream-children should say to you, 'O, help this little suppliant in my name; O, help it for my sake! Well!—And immediately awaking, you should find yourselves in the Freemasons' Hall happily arrived at the end of a rather long speech, drinking 'Prosperity to the Hospital for Sick Children,' and thoroughly resolved that it shall flourish."

Cost of Medical Treatment in Bohemia

"The city of Prague", says Consul Frank Deedmeyer, Prague, Austria, "population with suburbs 600,000, has about 800 practicing physicians. A medical house call to a middle-class family costs $0.60; an office call, $0.50; a night call, between 9 and 7, $1.20 to $2, according to distance. Professors attached to the clinics of the two local universities charge much more—$2 to $4 for a house call and $1.20 to $2 for an office visit. The physicians, except those of the homeopathic school, do not supply medical remedies.

"At most of the hospitals under the control of the Roman Catholic associations, treatment and care are entirely free; at the Allgemeines Krankenhaus in Prag (General Hospital in Prague), a government institution, which had over 24,000 admissions in 1913, the charges to patients, including medical treatment and nursing, per day, are: Class I, $2.40; Class II, $1.20; and Class III, $0.52. To citizens of Prague the Class III charge is only $0.31. The cost per day at a private sanatorium, of which there are many, ranges from $2.20 to $4.80. Nurses at hospitals are paid $0.80 per day for the first year, with an annual increase of $0.20 per month; at sanatoriums, from $6 to $8 per week; at private houses, from $0.80 to $1 per day, board being always included for all nurses."

Medicolegal

Admissible Evidence in Action for Malpractice

(Baker vs. Langan (Ia.), 145 N. W. R. 513)

The Supreme Court of Iowa says that a verdict for the defendant ought not to have been directed in this action for alleged malpractice in the treatment of a simple fracture of both bones of the plaintiff's leg about 3 inches above the ankle-joint. There should be a new trial. The defendant introduced no testimony, and that offered and received for and on behalf of the plaintiff should be given the strongest interpretation in his favor. Of course no one may expect as strong a leg after as before a fracture, and no physician or surgeon is held to a guaranty of results; but he is held to the exercise of the skill and learning of the profession generally in the community in which he practices. Whether or not he did that in a particular case may be proved either deductively or inductively, and the usual and customary treatment of physicians and surgeons in the particular locality may be shown in order to ascertain whether or not the defendant exercised the skill required of him.

The court thinks too, that competent physicians and surgeons who have examined the result and learned of the treatment or know what treatment should have been given, if assured of the patient's prior condition of health, and of his own care and treatment of the fracture, may properly give an opinion as to whether or not they found such results as usually follow from the customary treatment of such a case by men possessing the usual skill and learning of their profession in the locality where they practice. Such testimony must of necessity be admissible, for it may happen that the injured man is incapable himself of accurately describing the treatment given.

Certain questions were propounded to show the condition of the plaintiff's blood at the time he was injured. It was true that he was not complaining of any infection, but the record showed that the condition of his blood might have had something to do with the success of the treatment given him by the defendant. In view of the other testimony in the case, the court is inclined to think that the witness should have been permitted to answer the questions propounded, leaving the final conclusion to the jury.

Injury From Hot-Water Bag During Operation—Permitting Wound to Heal Over Drainage-Tube—Husband's Damages

(Reeves vs. Lutz (Mo.), 162 S. W. R. 280)

The St. Louis (Mo.) Court of Appeals says that the defendant was employed to remove a cancer from the breast of the plaintiff's wife. The defendant's obligation was to exercise ordinary care for the protection of Mrs. Reeves from burns likely to occur as a result of the application of hot-water bags while the operation was being performed. If, as the defendant and the expert witnesses said, burns are frequently inflicted in such a manner, then the precepts of ordinary care required the defendant to anticipate this possibility. The evidence was that the hot-water bag was wrapped in a towel and the patient's limb covered with a flannel operating garment. A considerable and severe burn, however, ensued from the application of the hot-water bag. Inspection of the bag would have revealed the probabilities of a burn, notwithstanding the towel and the flannel garment. Moreover, the application of the hot-water bag continued for two hours, and during that time some inspection should have been made to ascertain if an injury was thus being inflicted. Obviously the evidence revealed a case for the jury. An instruction was erroneous which implied that if the defendant used proper care in performing the operation, he was then acquitted of the full measure of his obligation, and this, too, although the hot-water bag came in contact with the person of the plaintiff's wife and burned her. It was not enough for the defendant to exercise the requisite skill and care in performing the operation; he was under obligation also to look out for and prevent the burn. There was no evidence in this case justifying the theory of accident.

The drainage-tube involved was inserted in the wound in the right breast, and the averment of negligence was that the defendant "carelessly and unskilfully permitted said wound completely to heal up and over said drainage-tube and gauze, and negligently, carelessly and unskilfully permitted the same to remain within the body of the plaintiff's said wife." No one can doubt that this was negligence on the part of the defendant, if established to the satisfaction of the jury. It could not be said that a verdict should have been directed for the defendant on this cause of action, because the evidence was uniform that it was proper practice to insert a drainage-tube in the wound and permit it to remain there until the healing was complete. No witness testified that it was proper to permit the wound to heal over the tube, and it is certain that none would undertake to do so.

The plaintiff sought to recover only for the loss of services, companionship and society of his wife as a result of the burn and permitting the wound to heal over the drainage-tube. For the latter the court does not consider a verdict of $1,500 was excessive. The plaintiff was not entitled to recover for the pain and suffering his wife endured, but he was entitled to the services of his wife of which such pain and suffering deprived him, and he was entitled, too, to the companionship and society of his wife free of such pain and suffering as the defendant's act entailed on her. Therefore it was not error to permit the plaintiff to detail the pain and suffering of his wife incident to the concealed tube in her breast and subsequent for a time to its removal.

Case in which Surgeon not Liable for Death when Administration of Anesthetic was by Medical Student

(Michael A. Levy, Administrator, vs. Vaughan (D. C.), 42 Wash. Law R. 258)

The Court of Appeals of the District of Columbia says that the patient was a man about 6 feet, 1 inch in height, weighing 275 pounds and suffering from hernia, on whom the defendant undertook to perform an operation at a hospital. The ether was administered, in the room provided therefor, by what is called the "open method," with the "Esmarch inhaler." The administrator of the ether was a medical student in his last year of a four-year course, to graduate in the following June. He had carefully studied the subject of administering ether, and had observed its administration in at least a thousand cases in a number of hospitals. He had actually administered ether, before, in eight or ten cases. Two medical interns, graduated surgeons and physicians, were in and out of the room during the administration. Not more than 3 ounces of ether were administered during the twenty-five or thirty minutes required to get the patient completely under its influence. No unusual condition was noticed until after the patient had been lifted to the operating-table. He was then observed to be cyanotic. The defendant, who was waiting in the operating-room, noticed the condition immediately, felt the patient's pulse, and started artificial respiration. The patient seemed better and was taken to the ward, but respiration became bad again. Remedies were used and the defendant was sent for and again performed artificial respiration; but the patient's respiration ceased and he died. A necropsy was performed and the patient's heart was found to be in a state of fatty degeneration. A verdict was properly directed for the defendant, judgment on which is affirmed with costs. It was the duty of the defendant to use such reasonable care and skill as are usually given by surgeons in good standing, but it was incumbent on the plaintiff to prove that the death was caused by the failure of the defendant to exercise such care. There was no evidence whatever to justify submission to the jury of the question of negligence either in the preliminary examination of the patient or in the administration of the ether. There was no error in refusing to permit the following question to be answered by a medical witness: "In your opinion, would a surgeon be in the exercise of due care if he intrusted the administration of ether to a student of the description given, without making some provision for the presence of an experienced physician?" The evidence on behalf of the plaintiff showed that at least two experienced hospital physicians were present generally during the administration. They were employed in the hospital, and that they may not have been provided by the defendant was wholly immaterial. Nor was it material that the hospital physicians were licensees of another state, and not of the District of Columbia, as they were not practicing medicine in the District, but were engaged in the hospital and shown to be competent.

Requirement as to Record of Certificate

(Byrd vs. State (Tex.), 162 S. W. R. 360)

The Court of Criminal Appeals of Texas says that, under the present law of 1907, no one can legally practice medicine in that state unless he has, and has recorded, a certificate granted by the board of medical examiners either with or without a personal examination. So that under the present law, whether he has a diploma or not, or a dozen diplomas, for that matter, the law does not provide that he may record it or them, as his authority to practice medicine; but they may be used by him as evidence before the board to avoid an examination for a certificate, and thereby to procure the verification license provided for by said act.

The unconstitutionality of the law was urged on the ground that it does not definitely and intelligently describe before whom certificates shall be registered. The fact that the act requires the physician to register his certificate to practice medicine "in the district clerk's office of the county in which he resides," in Section 4 of the act, and that the next section or article makes it the duty "of the district clerk of each county in this state to purchase a book," etc., in which to register such license, instead of, as the appellant claimed, that he should be designated as "the clerk of the district court," is certainly very hypercritical and should mislead no one, and is definite and certain in that the clerk of the district court is meant, if there is any difference between the "clerk of the district court" and the "district clerk" of a given county. The appellant's contention as to the unconstitutionality of the act on this ground, and that the indictment was fatally defective because thereof, was wholly without merit.

Privilege Covers Instructions and Their Observance—Acts not Waivers

(Marfia vs. Great Northern Railway Co. (Minn.), 145 N.W.R. 385)

The Supreme Court of Minnesota says that one of the plaintiff's legs had been broken and that owing to an improper union of the bones the leg was shortened. The defendant railway company sought to show by the attending physicians that the plaintiff had failed to heed or follow their instructions as to the care and treatment of the injured limb and thus that the plaintiff himself had displaced these bones by his own improper acts. The company contended that instructions given the patient and his attitude and conduct as to obeying them were not within the inhibition of the statute as to privileged communications. But it was held that this testimony was properly excluded under the statute supra. The testimony of the physicians called as witnesses in this case by the plaintiff was confined to the information acquired by their own examination, made shortly before the trial and after the leg had healed. The plaintiff himself testified concerning the manner in which the injury occurred and his present condition in consequence thereof. Neither the plaintiff nor the physicians called by him testified as to the matters which the defendant sought to elicit from the attending physicians. The bringing of the action and the presentation of the testimony adduced by the plaintiff did not operate as a waiver of the privilege.

Society Proceedings

COMING MEETINGS

American Roentgen Ray Society, Cleveland, Sept. 9-12.
Michigan State Medical Society, Lansing, Sept. 11-12.
Oregon State Medical Association, Portland, Sept. 10-11.
Colorado State Medical Society, Boulder, Sept. 8-10.

AMERICAN CLIMATOLOGICAL ASSOCIATION

Thirty-First Annual Meeting, held at Atlantic City, N. J., June 19 and 20, 1914

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Henry Sewall, Denver; vice-presidents, Dr. Arthur K. Stone, Boston, and Dr. James Alexander Miller, New York; secretary and treasurer, Dr. Guy Hinsdale, Hot Springs, Va.

The next annual meeting will be held in San Francisco.

Prolonged Subnormal Temperature in Tuberculosis

Dr. A. K. Stone, Boston: At a certain period of the disease, usually after the active febrile stage, there is a time when the temperature curve shows a marked excursion into the subnormal. In this stage, not much more latitude should be allowed the patients in their movements than in the active stage. When there is a constant variation in the temperature from the normal, there must be a pathologic process going on in the body. This subnormal temperature has no prognostic value. The patients are usually improving at this time, but very little is required to give them an exacerbation of the disease. Persistent subnormal temperature is rather a common symptom in tuberculosis, and when this symptom is present, tuberculosis should be suspected.

DISCUSSION

Dr. Charles L. Minor, Asheville, N. C.: There is one common causation for this subnormal temperature, and that is lowered activity of metabolism. It expresses inherent weakness, overexertion and very cold weather. It is a sign that the patient needs vitalizing.

Dr. George W. Norris, Philadelphia: Persistent subnormal temperature is frequently associated with lowered blood-pressure, and occurs in persons with visceroptosis. There is considerable difference of opinion in regard to the value of blood-pressure readings in tuberculosis. These patients have a general unfitness to maintain a normal blood-pressure. They may be suspected of having tuberculosis on this account, when they do not have it at all.

Dr. William LeRoy Dunn, Asheville, N. C.: There is a great discrepancy between the rectal and the mouth temperature in many of these cases; and before it is decided that a patient has a persistent subnormal temperature, rectal observations should be made.

Dr. C. Fox Gardiner, Colorado Springs, Colo.: I should look to the correctness of the thermometers also. Some of those possessed by patients are very inaccurate.

Dr. Gordon Wilson, Baltimore: In studying cases of broken compensation, which constantly show subnormal temperature, I have found the diastolic blood-pressure to be low. As this came up, the temperature also came to normal. I have found this true also in tuberculous cases.

Dr. James A. Miller, New York: I think it well to go slow in drawing definite conclusions from temperature observations. We need more careful observations of the normal temperature under varying conditions of life—environment, atmosphere, exercise, etc.—both by the mouth and by the rectum.

Dr. Cleaveland Floyd, Boston: I have seen some striking results from taking the mouth and the rectal temperature at the same time.

Dr. Carroll E. Edson, Denver: The fundamental basis of the physiology of normal temperature has not yet been worked out wholly; and until this has been done, we should be careful in drawing conclusions. The clinical temperature is of two kinds, deserving different management; those in which the daily range is slight, but in which it is slightly subnormal in the morning: and those in which, although the afternoon temperature may be only 98.2 F., yet the morning temperature is but 97.8 F., so that there is as much swing as if there were the ordinary range of tuberculous temperature. The latter cases constitute the type in which the resistance is low, and correspond to the type of low diastolic pressure. Rest in bed is important for such patients.

Dr. W. D. Robinson, Philadelphia: In taking the temperature by the rectum, one should be sure that there is no low-grade pathologic process taking place in the lower bowel (as is often the case), as this would influence the temperature.

Housing and Its Relation to Climate and Health

Dr. Estes Nichols, Portland, Me.: America has been very slow in recognizing the importance of housing and its relation to climate and the health of the masses. The method of having one home on top of another, many stories high, is unnatural and unhealthful. The present system of apartment houses is placing a premium on the rearing of children. We should take a more active part in housing reform. We should apply to the cities some of the principles of housing used at health resorts.

DISCUSSION

Dr. Thomas Darlington, New York: It is sometimes difficult to determine how much of the ill health of the people is due to overcrowding, and how much to other causes, such as lack of ventilation, bad food, soil pollution, contagion, etc.

Dr. H. M. Landis, Philadelphia: The people have quite as much to do with making the result as the houses. Any improvement in the slums will have to come as much through educating the people how to use hygienic conveniences that are at their command as through providing them with properly constructed houses.

Dr. David R. Lyman, Wallingford, Conn.: If the people are taught to make use of what housing conditions they have, they can get along better in good tenements in the city than they can in the country. Some of the worst infections with tuberculosis that I have met have been in the rural districts. There the people have many natural advantages, but do not know how to use them.

Dr. Robert C. Paterson, Ste. Agathe des Monts, Quebec: If the people should leave the cities and go to the rural districts, how could we supply them with proper facilities for sewage disposal and other sanitary advantages? In the mountains north of Montreal, where we send people for their health, we find that the death-rate from tuberculosis is as high as anywhere else, if not higher. Though the people can get fresh air, they will not get it.

Dr. E. O. Otis, Boston: One of the worst slum districts of Northampton was formerly occupied mostly by Irish people, and the death-rate from tuberculosis was very high. The Irish have now been almost entirely displaced by the Russian Jews and Italians, and a most striking fall in the death-rate from this disease has taken place.

Dr. W. D. Robinson, Philadelphia: In Philadelphia, we have accomplished a great deal by the establishment of open-air schools for children. It is better to try to deal with conditions of environment as they exist than to try to change them. Our county medical society, some years ago, appointed a Committee on Infant Mortality, which has been very active in establishing baby-saving shows for the education of the people. These have been wonderfully successful, and have reached the class desired.

Some Unsolved and Debatable Problems in Tuberculosis

Dr. E. H. Otis, Boston: An undue amount of emphasis is placed on the physical signs in the early diagnosis of tuberculosis. In regard to forbidding marriage for tuberculous persons, I think that one should be cautious about advising race suicide, except for very good reasons. I do not believe that any predisposition to the disease is caused in the offspring that cannot be overcome by hygienic surroundings and proper food. Undue exercise of both the lung and the body are attended with danger; while, on the other hand, rest sometimes has a very good effect. Open-air treatment has no value in advanced cases. It is better to keep such patients in a well-ventilated room. The problem of prevention with persons who, though actively tuberculous, are able to continue their business and their social duties, is a difficult one to solve. In trying to conceal their condition, they fail to take proper precautions.

Rest and Exercise in the Treatment of Pulmonary Tuberculosis

Dr. C. L. Minor, Asheville, N. C.: Exercise is an elastic term, and we should be definite in specifying the amount, both physical and mental, that our patients should take. I would make a distinct arbitrary division into light, medium and severe exercise. Walking is the best physical exercise. Mental exercise and rest are more difficult to control than physical. It would be desirable to have the patients become accustomed to doing a certain amount of work, of the kind that they are going to do when they return to business.

DISCUSSION

Dr. Thomas Darlington, New York: There can be no stated rule with regard to the question of rest and exercise. Each individual case must be studied by itself.

Dr. C. L. Minor, Asheville, N. C.: I am satisfied that we have been overstrict in forbidding the marriage of tuberculous patients. We must consider the welfare of the man, the woman and the child in such cases, and also that of the community. If the child is separated from the mother immediately after birth, it is possible for it to grow up healthy. The world would be much poorer without the good done by the offspring of tuberculous marriages.

Dr. D. Rochester, Buffalo: If tuberculous persons are allowed to marry, they should be instructed thoroughly regarding the dangers connected with marriage. We lose less by forbidding tuberculous women to marry than we gain by letting them do so. Undue emphasis is often placed on physical signs when they have not been found; but sometimes they are not found, when they are present, because the examiners are not able to find them. The frequency of the pulse and its character afford a valuable sign in the diagnosis of tuberculosis.

Dr. C. F. Gardiner, Colorado Springs, Colo.: At Colorado Springs, there is much less disease among the children of tuberculous parents than one would expect.

Dr. James A. Miller, New York: This matter varies considerably according to the point of view, whether this be that of a physician at a sanatorium or health resort or one in a large city, where the question of early diagnosis is most important, and where the responsibility for this is greatest. We have, perhaps, overdone our insistence on this responsibility, so that some physicians make a diagnosis of tuberculosis on insufficient grounds. In large cities, where the temptations to overdo are so great, we shall get along better by leaning more to the rest idea than by emphasizing the advantages of exercise.

Dr. Herbert M. King, New York: If our conclusions had any effect, the subject would be more interesting; but I have found that my advice is never followed unless it happens to be the kind that the patient wants, especially when it affects the laws of affinity. In the advanced and long-standing case, we have in history data which will enable us to judge correctly the patient's ability to exercise. I consider therapeutic exercise a valuable method in judiciously selected cases.

Dr. William L. Dunn, Asheville, N. C.: It would be unfortunate if it should go out that this society looks with indifference on the marriage of the tuberculous. In giving exercise, the patient's original occupation should be considered, and the form of exercise be such as will enable him to prepare to resume it. In the early cases the patients should be rested even beyond the required limit, because it it important to see that a good result is obtained at the stage when it may be secured easily.

Dr. F. M. Pottenger, Los Angeles: The advice given in regard to marriage should depend, to a large extent, on the social status of the patient. We must recognize the fact that the tuberculous person has the same desires as others, and we must sometimes yield to them when we do not wish to do so. If general practitioners would take a careful history and examine the patient thoroughly for a week, they could make the diagnosis of probable tuberculosis in nearly every active case. Men not constantly doing this work are bound to be misled, if they rely solely on physical signs. Well-to-do persons have less chance of having their cases diagnosed in the incipient stage than the poor have, for a number of reasons.

Dr. Louis V. Hamman, Baltimore: Some years ago I collected statistics of patients who showed slight apical abnormalities; and I found, five or six years afterward, that although they had lived under the ordinary conditions, very few had developed active tuberculosis. I believe that this type of persons are the ones who, when sent to sanatoriums, figure largely in the favorable results of these institutions. They would not have developed the disease if left at home. This has a tendency to make us overconfident in the results of treatment in early cases.

Dr. C. L. Minor, Asheville, N. C.: What we are trying to give is a rest-cure plus a work-cure, weaving the two together so as to get satisfactory results.

Air-Baths in Treating Tuberculosis

Dr. Charles Fox Gardiner, Colorado Springs, Colo.: There are many days on which you cannot give both sun and air exposure. I have, therefore, invented an apparatus for giving air-baths in the room. It consists of a cage that fits over the bed and covers the patient, with the exception of his head. He lies on the bed naked, and the cage is covered with a sheet. A number of electric lamps are in the cage, and as many of these are lighted as are necessary to make the air sufficiently warm. The current of air is filtered through a three-ply screen of mosquito-netting. It is not necessary that it should be fresh air. The treatment tends to increase the blood-pressure and produce better metabolism. It is cheap and practical, can be used with sick patients, and does not depend on irregularities of weather conditions. Neither does it interfere with any other treatment you may wish to give.

Dr. Thomas Darlington, New York: I should like to know whether the electric bulbs have an actinic effect. I think that a good deal of the effect of our municipal shower-baths is due to the cold air.

Dr. Guy Hinsdale, Hot Springs, Va.: I believe that the principle of air-baths is one of the good elements in heliotherapy, supplementing the action of the sun-baths.

Dr. C. F. Gardiner, Colorado Springs, Colo.: We do not get actinic rays from this type of lamp. I start with a temperature of about 90 degrees, and reduce it gradually to about 60.

The Incidence of Tuberculosis Among Potters

Dr. H. R. M. Landis, Philadelphia: The dust of both clay and flint is gritty and somewhat irritating. While there has been very little histologic work done on lungs injured by these substances, a study has been made of those injured by coal-dust. The irritation is resisted for a time; but later, this resistance is overcome and the dust is carried into the lungs. Fibrous tissue is formed around these particles. This fibrous tissue is a protecting element against the entrance of tubercle bacilli. If such persons become tuberculous, it is usually after the common age period for that disease. There is also a tendency for such persons to live longer after acquiring tuberculosis than those who have not had this fibrosis beforehand. When they finally give up work, it is generally on account of dyspnea.

DISCUSSION

Dr. James M. Anders, Philadelphia: I have seen one such case in which the condition went on to actual cavity formation, yet no tubercle bacilli were found in the sputum. No matter how great the lesions in such cases, the diagnosis of tuberculosis cannot be made without the presence of the tubercle bacilli in the sputum.

Spontaneous Pneumothorax

Dr. Louis V. Hamman, Baltimore: I have seen a number of cases of pneumothorax coming on in otherwise healthy persons. In one case, this recurred once on the opposite side, and once on the same side. In four cases, the usual symptoms of pneumothorax were absent. They show how insidious the onset may be in some cases, and how easy it may be to overlook such a pneumothorax on casual examination, if this condition is not thought of. The cases ran a benign course, and the condition absolutely cleared up within a few weeks. They were probably due to adhesions of the pleura.

DISCUSSION

Dr. George W. Norris, Philadelphia: I am inclined to believe that this condition is not so rare as some suppose. A similar case that I treated cleared up in the same way.

Dr. G. Wilson, Baltimore: I had cases in two brothers. On bending over, they had pain. They walked to the office of their physician, who made a diagnosis and sent them to the state sanatorium. The sputum was negative in both cases, though their father had died of spinal tuberculosis. Both recovered completely and gained normal weight.

Dr. C. L. Minor, Asheville, N. C.: I have now under my charge a case of pneumothorax in a tuberculous patient, in which the prognosis is very grave. He came to me only because of shortness of breath, there being no pain; but I found the right lung infiltrated from top to bottom, and the left lung totally collapsed. It would be interesting to know whether cases of spontaneous pneumothorax are non-tuberculous or whether a large number of tuberculous cases have spontaneous pneumothorax, mostly unrecognized.

Dr. Robert C. Paterson, Ste. Agathe des Monts, Quebec: Two such cases came to my knowledge within two months of each other. One was tuberculous; in the other, there was slight thickening at the apex.

Dr. J. A. Miller, New York: I have seen only one case of recurrence in the same patient. After two recoveries, the condition recurred again. Fluid was withdrawn, and tubercle bacilli were found. Against the advice of his physician, a surgeon opened the chest. The cavity contained tubercle bacilli, but was sterile otherwise. Within a week after this, the patient developed sepsis and died. No necropsy could be obtained.

Dr. F. M. Pottenger, Los Angeles: I always suspect pneumothorax when there is a sudden shoot-up of a couple of degrees in the temperature. I consider this sign valuable in the diagnosis.

Dr. W. L. Dunn, Asheville, N. C.: For many years, I have examined all patients with the fluoroscope or a stereoscopic pair of plates, having examined in this way not less than two thousand patients; and it seems to me that the condition would have been rather frequently observed in these cases, if it were of frequent occurrence—certainly, if it is frequently associated with a small amount of disease.

Dr. L. V. Hamman: The commonest mechanism in the production of pneumothorax in early cases is the rupture of a small tuberculous lesion situated near the pleura, produced by the pulling of adhesions.

Heliotherapy in the Treatment of Bone and Joint Tuberculosis

Dr. John W. Brannan, New York: The treatment is begun with short exposures, until pigmentation of the skin appears. With the development of pigmentation, the cure progresses until completed. Pigmentation gives the skin resistance and favors cicatrization of wounds. At first, it was thought that heliotherapy could be carried out only at high altitudes, but later it was discovered that it is possible to carry it out at the sea level. At Sea Breeze, on Staten Island, the seat of the lesion is selected for the chief exposure. Other parts are also exposed, but entire exposure of the body is not often secured. A number of cases of sinuses of long standing have shown rapid improvement. The discharge may first be increased for a few days. Then a sequestrum of bone may be extruded, and finally the sinus closes. The general condition also improves greatly. Sometime it is necessary to interrupt the treatment, especially in blonde children, in whom pigmentation is of slow development. The best results are obtained with the smaller joints.

DISCUSSION

Dr. E. O. Otis, Boston: In 1912 I visted Rollier's sanatorium, and I never saw more healthy, rollicking children. Some of them had been operated on; but in every instance, their wounds were healing rapidly and their general condition was extraordinary.

Dr. C. L. Minor, Asheville, N. C.: Rollier always begins with the feet, wherever the trouble may be, and then gradually moves farther and farther up, until he exposes the whole body. I have not got beyond the knees, so far. It is very difficult, in this country, to get the opportunity to expose patients naked to the sun.

Dr. Thomas Darlington, New York: All these results were obtained where there is a great deal of moisture in the atmosphere. I do not believe they could be obtained, for instance, in Arizona, at a great elevation, with the strong direct rays of the sun, and with no moisture in the atmosphere. You can get too much sunlight.

Dr. C. F. Gardiner, Colorado Springs, Colo.: I have been using heliotherapy at an elevation of 6,000 feet, where the air is very dry, and have had no difficulty. We have several advantages in such a climate. There are more days on which we can expose the patients to the sun, and the rays that we receive are more efficient.

Dr. F. M. Pottenger, Los Angeles: In pulmonary cases, I have made similar exposures, using a large mirror covered with blue glass to concentrate the sun's rays on a focus 6 or 8 inches in diameter. It seems to me that the light has some influence of value. I do not see why we should begin at the ankles. I have seen no bad effects from starting with the chest. I wonder whether it is true that pigmentation is a necessity for the success of this method of treatment.

Dr. Charles C. Browning, Los Angeles: By means of this mirror, the entire body can be exposed at once: the front to the direct rays of the sun; and the back, to the rays reflected from the mirror behind the patient.

Dr. G. V. Hinsdale, Hot Springs, Va.: It is a mistake to think that Rollier confines his attention to surgical tuberculosis, or tuberculosis of the joints. Almost half of his cases are pulmonary. It is remarkable that while such stress is laid on pigmentation as an index of the value of the treatment, negroes, who easily acquire tuberculosis, rarely recover. Whether they would under this sort of treatment, we do not know, but they have natural pigmentation.

Dr. Brannan: Although you may not obtain quite as good results at the seashore as at the mountains, you must use the facilities you have. Men have obtained better results with heliotherapy at the seashore than they had obtained before, without its use.

Blood-Pressure Studies, with Especial Reference to the "Energy Index" and the "Cardiac Load"

Dr. George W. Norris and **Dr. J. R. Davies**, Philadelphia: These clinical blood-pressure studies were undertaken with a view of determining the possibility of estimating cardiac efficiency by means of the two indexes mentioned above. The energy index is established by multiplying the combined systolic and diastolic pressure by the pulse-rate per minute. The cardiac load is estimated by dividing the diastolic into the pulse-pressure. We do not feel that either of these methods offers any special advantage over the routine examinations by other methods. The two methods differ, not only quantitatively, but also qualitatively. They are more valuable in the study of a given case than in contrasting cases. The observation of the diastolic pressure, which can be done very accurately by means of the auscultatory method, is more valuable than the observation of the diastolic pressure. The two, however, should be combined.

How Shall We Tell Whether the Myocardium Is Competent?

Dr. John M. Swan, Rochester, N. Y.: The following tests have been advocated: Taking the difference in the pulse-rate between the recumbent and the erect posture; taking the second phase (murmur phase) of the auscultatory blood-pressure observation; finding the increase in systolic blood-pressure on constricting the femoral arteries, and determining the cardiac efficiency factor of Tiegerstedt. I have endeavored, from these, to make a prognosis of the competency of the myocardium in a number of cases. From my studies of these cases, it seems to me legitimate to conclude that all four factors have some value in determining the efficiency of the myocardium. The cardiac efficiency factor of Tiegerstedt and the second phase of the auscultatory blood-pressure observation are the most important. A cardiac efficiency factor of 40 per cent. or over would seem to point to distinct myocardial inefficiency. A second phase of 30 per cent. or under would seem to indicate the same condition.

Influence of Pilocarpin on the Blood-Pressure

Dr. W. D. Robinson, Philadelphia: In intelligently selected cases of hypertension, pilocarpin has not failed to be of value. In many instances, indeed, it is of very great value. The therapeutic dangers usually accredited to this drug have not been encountered in the modified doses in which I have used it.

The Comparative Value of the von Pirquet and the Subcutaneous Tuberculin Tests in the Diagnosis of Tuberculosis in the Adult

Dr. Hugh M. Kinghorn, Saranac Lake, N. Y.: There are three kinds of reaction that may be obtained: a general reaction, focal reaction and a local reaction. The patient usually describes the general reaction as feeling like an attack of grip. The focal reaction always occurs, but is not always to be detected by the most minute examination. There is never any local reaction in a healthy person, and it may or may not occur in the tuberculous. It consists in swelling and redness. Without the presence of fever, we are not justified in saying that a general reaction has occurred. An elevation of 0.9 F. constitutes a definite tuberculin reaction. The von Pirquet cutaneous reaction is less specific in the adult than is the subcutaneous test. In children, however, the von Pirquet reaction is the one of choice. Koch's subcutaneous tuberculin reaction is specific. A positive subcutaneous reaction is of importance only in cases that are clinically suspicious of tuberculosis. In these cases, a positive reaction probably points to an active tuberculous focus. In the adult, the subcutaneous tuberculin test is the most reliable one and the one of choice, as all of the clinically suspected cases reacted to it; the von Pirquet test, although not so accurate, is of great importance. Eighty-one per cent. of the cases in which it was used reacted positively.

DISCUSSION

Dr. L. V. Hamman, Baltimore: I do not believe that the tuberculin test differentiates between tuberculous and healthy persons, if the term "tuberculous" is used in a clinical sense. The subcutaneous test is the most valuable.

Dr. F. M. Pottenger, Los Angeles: The tuberculin test is of value in the differentiation between active and inactive tuberculosis. I have found that in those cases in which, from a careful clinical history and physical examination, I have decided that active tuberculosis must be present, a prompt von Pirquet reaction followed in 30 per cent.

Dr. Cleaveland Floyd, Boston: The difference between the tests is merely a differentiation of the susceptibility of the patient to tuberculin. I do think you can say that you can tell active tuberculosis by one of these tests, and not by the other.

Dr. C. L. Minor, Asheville, N. C.: The von Pirquet test is considered to be an evidence of existing tuberculosis, but not of active tuberculosis. Its use is to be discouraged in adults.

Differential Diagnosis of Mild Thyroid Toxemia and Incipient Pulmonary Tuberculosis

Dr. C. G. Jennings, Detroit: Mild thyroid toxemia may closely resemble incipient pulmonary tuberculosis. The following symptoms are often common to both: mild chronic pyrexia, tachycardia, debility, shortness of breath, indigestion and cough. The differential diagnosis will be made by a study of the temperature curve, the peculiarities of the tachycardia, the nervous phenomena, the derangements of digestion and metabolism, the physical examination, and the roentgenographic findings.

DISCUSSION

Dr. J. M. Swan, Rochester, N. Y.: Disturbances of the ductless glands are quite common at Rochester, as it is only 6 miles from Lake Ontario. Diarrhea is a fairly common symptom among these patients, many of them losing weight; but there is no evidence of pulmonary involvement. I have found sirup of iodid of iron and quinin hydrobromate valuable remedies in these cases. I never use thyroid extract.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, LXIX, No. 6, pp. 909-1140

1 *Review of Five Hundred Cases of Abdominal Cesarean Section for Eclampsia. R. Peterson, Ann Arbor, Mich.
2 Pathology and Treatment of Gonorrheal Cervicitis and Endometritis. J. G. Clark, Philadelphia.
3 Therapeutic Value of the Roentgen Ray and Radio-Active Substances in Carcinoma of Uterus. I. C. Rubin, New York.
4 Two Cases of Post-Partum Inversion of Uterus, with Discussion of Pathogenesis of Obstetric Inversion. W. C. Jones, Chicago.
5 When Is It Justifiable to Terminate Pregnancy before Third Month? What Should Our Attitude Be toward a Patient on Whom Criminal Operation Has Been Performed? Toward Those Suspected of Performance of Criminal Operations? W. R. Nicholson, Philadelphia.
6 Calcareous Shell in External Iliac Vein Twenty Years after Puerperal Phlebitis. G. E. Shoemaker, Philadelphia.
7 *Clinical Malignancy of Pseudomucinous Cystadenoma of Ovary. S. Wiener, New York.
8 Vesicovaginal Fistula in Child Eight Years Old: Spontaneous Cure Following Removal of Hairpin. J. C. Rubin, New York.
9 Unusual Case of Congenital Defect; Absence of Eyeballs. M. Strong, Omaha.

1. **Abdominal Cesarean Section for Eclampsia.**—The 500 cases of abdominal cesarean section analyzed by Peterson represent the work of 259 operators all over the world. Between 1908 and 1913 there were 283 cases of eclampsia treated by abdominal cesarean section with 73 deaths or a maternal mortality of 25.79 per cent. Up to 1908 there were 198 cases with 95 deaths or a mortality of 47.97 per cent. Peterson believes that the mortality percentage can be considerably lowered by care in technic and by not making use of the suprapubic route when there is great probability that the woman has been infected from below. Nearly one-fifth of the entire series, 91 operations, were performed by thirteen men having 5 or more cases to their credit, with 17 deaths or a maternal mortality of 18.68 per cent. Deducting 15 cases in which the proportion between moribund and septic patients was very high, the remaining 76 cases with 10 deaths give a maternal mortality of 13.15 per cent. Convulsions ceased after abdominal cesarean section in 251 out

of 457 cases or in 54.92 per cent. In 146 cases in which the convulsions ceased after abdominal cesarean section during the five year period (1908-1913) there were 41 deaths or a maternal mortality of 19.8 per cent. While the above percentage of patients died after emptying the uterus by abdominal cesarean section after cessation of the convulsions the mortality is much less than in those in which the convulsions continue, since in 130 of such cases there were 41 deaths or a maternal mortality of 31.53 per cent.

Peterson claims that the operative treatment of eclampsia has never been given a fair trial. To do this the uterus should be emptied quickly, as soon as possible after the onset of the first convulsion, not emptied after all kinds of medicinal treatment have been tried and failed. In the present series there were 25 deaths after 124 operations performed after one to five convulsions or a maternal mortality of 20.32 per cent. In 60 of the 124 cases in which the operations were performed after from one to five convulsions in which no or only one or two vaginal examinations had been made and in which no attempts were made to deliver from below there were only 9 deaths or a maternal mortality of 15 per cent. The increase in mortality due to delay is shown by a mortality of 30.33 per cent. in which the operations were performed after the sixth convulsion. This is 10 per cent. higher than after quick delivery and 5 per cent. higher than the total mortality resulting during the same period (1908-1913). In 60 cases in which the convulsions ceased after operations performed after from one to five convulsions there were 8 deaths or a maternal mortality of 13.33 per cent. The mortality is twice as high (26.92 per cent.) after the operations performed under the same conditions, except that the convulsions continued. When the abdominal cesarean sections were performed after more than five convulsions there was a resulting mortality of 26.31 per cent. in which there was cessation of the convulsions, 36.36 per cent. in which they continued.

Twins occurred 21 times in 500 cases of abdominal cesarean section for eclampsia or in 4.02 per cent. of the cases. This is over three times as frequent as are twins in normal cases. Excluding premature children and counting all children as living who survived one hour after delivery there were 9 deaths from 1908 to 1913 in which 248 children were delivered by abdominal cesarean section or a fetal mortality of 3.62 per cent. Under the same conditions the fetal mortality was 10.69 per cent., if children dying the first three days after delivery be counted among the deaths.

In 474 patients with eclampsia in the present series, 83.75 per cent. were primipara and 16.17 per cent multipara. In 225 primipara the maternal mortality was 24.44 per cent. while in 48 multipara the mortality was 27.08 per cent. The maternal mortality in eclampsia after abdominal cesarean section steadily increases with the age of the patients, it being 23.63 per cent. between the ages 16 and 20 and 31.11 per cent. between the ages of 31 and 35. The high death rate of abdominal cesarean section after operative procedures is shown by the fact that there were 10 deaths in 29 such cases, or a maternal mortality of 34.48 per cent. This 9 per cent. increase in mortality over the total mortality (25.79 per cent.) during the same period was undoubtedly due to sepsis, shock and delay in emptying the uterus. The mortality is distinctly higher after abdominal cesarean section in eclampsia if vaginal examinations have been made prior to the operations. The danger increases directly with the number of examinations made and the lack of asepsis employed.

7. **Pseudomucinous Cystadenoma of Ovary.**—One-third of all proliferating ovarian tumors Wiener states, are frankly malignant, the other two-thirds are all potentially malignant. The final estimation of malignancy must be clinical. The usual method in which histologically benign tumors cause death is by perforation of the capsule, extravasation of contents, and peritoneal metastases. Every ovarian tumor should be removed by laparotomy as soon as discovered, unless there be an absolute contra-indication to operation. Whenever at all feasible, cysts should be removed intact, without attempt at reduction in size by puncture. When spontaneous rupture of a cyst has occurred, the earlier the operation the better the prognosis. In removing a unilateral ovarian cyst, other than one which is frankly malignant or one which shows extensive papillomatous changes, the other ovary should be left *in situ* if its macroscopic appearance be normal. Every patient who has had a unilateral oophorectomy for cystadenoma should be subjected to periodical reexamination for disease of the remaining ovary.

American Journal of Public Health, Boston

June, IV, No. 6, pp. 477-552

10 Lead-Poisoning in United States. A. Hamilton, Chicago.
11 Industrial Hygiene. Neglected Field of Public Health Work. C. T. Graham-Rogers, New York.
12 Bacteriologic Standardization of Disinfectants. H. C. Hamilton and T. Ohno, Detroit.
13 Single Tax in Relation to Public Health. L. J. Johnson, Boston.
14 Wakefield and Stoneham Epidemic Sore Throat. F. L. Morse, Somerville.
15 Flies and Filth. S. Miller, Malden.
16 Outline Program for Teaching Sex Hygiene in Schools. R. N. Willson, Philadelphia.
17 Protest against 37 C. Requirement for Bacterial Counts. H. W. Hill, London, Ontario.

American Journal of Roentgenology, Detroit

April, I, No. 6, pp. 233-286

18 Roentgen Diagnosis of Gastric Ulcer. R. D. Carman, Richester, Minn.
19 *Chronic Typhoid Periostitis. H. W. Dachtler, Toledo, Ohio.
20 Roentgenograms W. H. Stewart, New York.
21 Roentgen-Ray Equipment and Work in Army at Present Time. W. A. Duncan, U. S. Army.
22 Possibility of Estimating Dosage and Penetration. W. S. Newcomet, Philadelphia.

19. Abstracted in The Journal, Nov. 8, 1913, p. 1742.

Annals of Surgery, Philadelphia

June, LIX, No. 6, pp. 805-991

23 *Prophylaxis of Cancer. W. J. Mayo, Rochester, Minn.
24 Two Fatal Cases of Systemic Blastomycosis. C. A. Powers, Denver.
25 *Value of Gluzinski's Test in Diagnosis of Gastric Ulcer. J. Nicolaysen, Christiania, Norway.
26 *Method of Subtotal Gastrectomy. F. T. Stewart, Philadelphia.
27 *Function of Gastro-Enterostomy Opening in Cases of Permeable Pylorus. H. Hartmann, Paris.
28 Chronic Pancreatitis. J. B. Deaver and D. B. Pfeiffer, Philadelphia.
29 Suggestions Regarding Anatomy of and Surgical Technic in Treatment of Jonnesco's Membrane. J. E. Summers, Omaha.
30 *Bullet in Pericardium. G. E. Armstrong, Montreal.
31 Fourteen Cases of Pulmonary Abscess and Bronchiectasis. H. Lilienthal, New York.
32 Two Cases of Visceral Pleurectomy for Chronic Empyema. C. H. Mayo and E. H. Beckman, Rochester, Minn.
33 Pleural and Pulmonary Complications of Tropic Abscess of Liver. Review of Twenty-Seven Cases. J. E. Thompson, Galveston, Tex.
34 *Causal Relation of Traumatism to Tuberculosis. J. C. DaCosta, Philadelphia.
35 *Uncomplicated Tuberculous Foci in Bones and Their Treatment. T. W. Huntington, San Francisco.
36 *Frontal Sinus Suppuration. H. A. Lothrop, Boston.
37 Blepharoplasty by Pregrafted Flap. C. Gibson, New York.
38 Successful Case of Ligation of Innominate Artery. C. A. Hamann, Cleveland.
39 Distant Results of Suture of Heart Following Wound by Pistol-Shot. R. Proust, Paris.
40 Review of Ninety-Nine Arthrotomies for Fracture of Patella. H. B. Delatour, Brooklyn.

23. **Prophylaxis of Cancer.**—Mayo emphasizes the fact that preexisting lesions play the most important part of the known factors which surround the development of cancer, that such precancerous lesions are produced by some habit or life condition which causes chronic irritation, that where cancer in the human is frequent, a close study of the habits of civilized man as contrasted with primitive races and lower animals, in which similar lesions are conspicuously rare, may be of value, and finally, that the prophylaxis of cancer depends, first, on a change in those cancer-producing habits and, second, on the early removal of all precancerous lesions and sources of chronic irritation.

25. **Value of Gluzinski's Test.**—Gluzinski's working hypothesis is as follows: An ulcer situated in the pyloric portion being the cause of retention is, as a rule, accompanied

by hyperacidity of the contents, while a cancer is attended by a mucous (or atrophic) catarrh which causes a disappearance of the free hydrochloric acid. During the transformation of an ulcer into a cancer there will yet be found free hydrochloric acid up to a certain stage of the disease. But during the progress of the mucous catarrh there will occur a secretory insufficiency which may be demonstrated by giving two test-meals, one meal following immediately on the other. The stomach is washed out before and after the first meal and the second meal is given immediately after the second washing. In ulcer both the breakfast as well as the dinner give distinct reaction of free HCl. In beginning cancer the first meal also will give distinct reaction of free HCl, while the second one will show only a slight trace, or free HCl will be altogether absent.

Kocher by determining the percentage of free HCl in the two meals found that the free acid is present in larger quantities after the second meal in ulcer, while in cancer this meal (the test dinner) shows the lowest percentage of hydrochloric acid. In 30 cases of ulcer tested according to this modified Gluzinski method, the diagnosis was verified at operation in 27 cases, in 2 cases the result was uncertain and in 1 case there was found carcinomatous degeneration of an ulcer.

At the surgical clinic of Christiania University Nicolaysen has employed the Gluzinski method since October, 1912, in the examination of 86 cases, to wit: 25 cases of gastric ulcer, 9 cases of duodenal ulcer, 21 cases of cancer of the stomach, 15 cases of gastro-enteroptosis, 11 cases of chronic appendicitis and 5 cases of gall-stones. The diagnosis is in all of the cases controlled by operation, some of the ptosis cases only by roentgenogram. Of the cancer cases two only had free hydrochloric acid and in both the test agreed with the results as obtained by Gluzinski, to wit: a decreasing amount of free hydrochloric acid in the test dinner. In those cases of cancer of the stomach where free hydrochloric acid was absent Nicolaysen found no regular decrease of the total acidity; in fact, the total acidity was increasing in the second test-meal in about 50 per cent. of the cases.

During further examinations he arrived at the conclusion, however, that the percentage of free HCl may decrease in the second meal also in diseased conditions of the gastrointestinal canal other than cancer of the stomach.

He found the free hydrochloric acid values to be diminishing in the test dinner in cases of gastro-enteroptosis. By examining 25 cases of gastric ulcer he found that all of them but one reacted in the manner described by Gluzinski and Kocher as being characteristic of ulcers of the stomach, to wit: with a decided increase in the percentage of the hydrochloric acid and of the total acidity. In 9 cases of duodenal ulcer the hydrochloric acid values were not as high as in gastric ulcer and the increase in the percentage of free acid in the second meal was moderate in 7 cases, while it was relatively great in two cases.

But the difference in this respect between gastric and duodenal ulcer is not great enough to be made use of as a means of differential diagnosis. In Nicolaysen's opinion Gluzinski's method is better than any other for testing the secretorial function of the stomach.

26. **Subtotal Gastrectomy.**—The method of subtotal gastrectomy described by Stewart consists in removing the diseased segment of stomach from left to right, after performing an end-to-side anatomosis between the lower portion of the incision, which amputates the stomach and the upper part of the jejunum, the operation being so conducted that the suturing necessary to unite the stomach to the intestine is completed before either viscus is opened.

27. **Gastro-Enterostomy with Permeable Pylorus.**—Dog experiments and roentgenographic examinations by Hartmann showed that, in opposition to the general opinion, the gastro-intestinal anastomosis may work even in cases in which the pylorus is patulous.

30. **Bullet in Pericardium.**—In the case cited by Armstrong the assailant used a 32 caliber revolver and stood in front of the patient and about 5 feet away. The patient was dazed for a moment and then recovered and pursued his assailant, but was unable to run far on account of weakness. There was a small punctured wound opposite to the third intercostal and slightly to the left of the border of the sternum, no staining or charring of the skin and but little tenderness on pressure, no discharge from the wound and very little discomfort on taking a full breath. The chest was emphysematous, but there was no evidence of pneumothorax or of air or blood in the pericardium, no murmurs nor friction rub. A fluoroscopic examination of the chest showed the bullet lying loose in the pericardium, moving with each heart beat, and changing its position with the changing position of the patient. During the succeeding four or five days, the only changes to be noted were increasing irregularity of the pulse and a change in his general condition. The temperature elevation was not great, a hundred and two-fifths was the highest. The change in the pulse was definite. It became more rapid, more irregular, and smaller and more compressible. A tracing showed complete auricular fibrillation. A radical tracing showed an irregularity both in volume and rhythm. In the afternoon of the fifth day Armstrong removed the bullet.

Throughout the operation the pulse retained the same characteristics and a rate of 130 to 140, varying slightly throughout the anesthesia. After the bullet was removed and before the pericardium was sutured the pulse obviously quieted and the rate was 120 at the carotid. Two and a half hours after the operation the pulse was 105 and perfectly regular. Armstrong emphasizes the following points: 1. Onset of auricular fibrillation in a heart where, as far as could be ascertained, there had been no previous inflammatory mischief, no symptoms of any cardiac involvement, due to the presence of a foreign body. 2. Cessation of the disorderly rhythm on the removal of the cause—the bullet.

34. **Traumatism and Tuberculosis.**—DaCosta believes that it is as certain as many things medical can be that traumatism is often a determining cause of bone and articular tuberculosis and sometimes of tuberculosis in other regions. He has seen many cases which he regards as traumatic tuberculosis of bones and of joints, and a number of cases of traumatic tuberculosis of tendon sheaths. He has also seen a number of cases of traumatic tuberculosis in the knee, foot and wrist, and several in the hip. He has seen tuberculosis of the inguinal glands after a kick, tuberculosis of the epididymis after a bruise, tuberculosis of the kidney after contusion of that organ, and tuberculosis of the mammary gland after a blow. To deny the possibility of traumatic tuberculosis, he states, is to deny many of the truths of pathology and some of the plainest lessons of clinical surgery.

35. **Tuberculosis Foci in Bones.**—To leave an accessible tuberculous bone focus, whether isolated or not, to smoulder until provoked to renewed activity at a later period, Huntington states, is without justification, and seems to do violence to surgical principles. He insists that in the acute, fulminating cases delay for any purpose is extremely hazardous, and that to this type, if to no other, early incision and evacuation offers peculiar advantages. The objects to be obtained by early, direct interference are: (*a*) permanent cure by elimination of the focus; (*b*) reduction of time of treatment from years to months; (*c*) prevention of complications, such as abscess formation, mixed infection, disintegration of bone and joint strustures, crippling deformity and loss of function; (*d*) avoidance of systemic invasion and loss of life. If the disease has extended from its original location across the epiphyseal cartilage not much respect need be paid to it; if in the remote side it will naturally be preserved. Utmost care must be exercised to avoid perforation of the cortex so as to communicate with the synovial cavity.

The resulting chamber may be dealt with variously. Huntington has generally depended on camphor phenol gauze packing (phenol one part, gum camphor three parts). The gauze is wrung dry and closely packed into the cavity. A few days later the amount of gauze is lessened and a little later is discarded. Such wounds heal rapidly and all discharge ceases in less than a fortnight under an aseptic dressing. After removal of the initial dressing the cavity is usually free from blood, and can be filled with Beck's paste or the Mosetig-Moorhof wax. The wound may then be closed in the usual manner and fixation secured by a rather loosely applied plaster-of-Paris dressing. Huntington reports sixteen cases in which he has pursued the plan described.

36. **Frontal Sinus Suppuration.**—After the vicinity of the ostium has been enlarged to as great an extent as the anatomy will allow, Lothrop sutures the edge of the skin of the upper lid to the periosteum on the outer edge of the bony opening into the sinus with small catgut; then an oval incision is made in the lid down to the muscle fibers, so as to form a flap about the size of the opening in the bone. The blood-supply of the lid is excellent and the flap is very movable so that it turns readily without much cutting after division of the thin skin of the lid. The flap is now to be turned so as to cover the bony opening and is sutured to periosteum, preferably with fine chromicized catgut. Then the parts are washed carefully with a sterile solution and the remaining wound is closed. The lid is drawn across horizontally and there is very little tension and subsequent edema, and the motion of the lid is not interfered with. In two instances where the sinus was grafted, the scar is scarcely perceptible in one and in the other the depression is moderate and is due to the previous extensive destruction of bone.

Archives of Pediatrics, New York

June, XXXI, No. 6, pp. 401-480

41 Organized Cooperation in Infant-Welfare Work. G. Smith, New York.
42 Still's Disease and Arthritis Deformans. J. B. Manning and F. J. Fassett, Seattle, Wash.

Arizona Medical Journal, Phoenix

June, II, No. 5, pp. 5-15

43 Tuberculosis and Protein Sensitization. A. D. Wilson, Prescott.

Boston Medical and Surgical Journal

July 9, CLXXI, No. 2, pp. 49-88

44 *Acute Abscess and Gangrene of Lung. I. J. Walker, Boston.
45 Scabies in Boston. F. M. Painter, Boston.
46 Anatomy and Physiology of Seminal Vesicles with Regard to Treatment of Their Lesions. W. C. Quinby, Boston.
47 Pathology of Seminal Vesicles. J. D. Barney, Boston.
48 Arthritis Associated with Lesions of Genito-Urinary Tract. E. G. Brackett, Boston.
49 Three Cases of Erythema Group. H. Morrison, Boston.

44. **Acute Abscess and Gangrene of Lung.**—The following statistics on abscess and gangrene of the lung are the result of a review of the literature of the last ten years by Walker. Total number of cases of acute abscess of the lung, 132; males, 98; females, 32; sex not mentioned, 2. Total number of cases of acute gangrene, 40; males, 27; females, 5; sex not mentioned, 8. Average age in cases of acute abscess, 24.5 years; in cases of acute gangrene, 38.6 years. In acute abscess of the lung, the right side of the chest was involved in 60 cases, the left in 45, both sides in 5 cases; side not mentioned in 22 cases.

In gangrene, the right side of the chest was involved in 21 cases, the left side in 9 cases, both sides in 2 cases; sides not mentioned in 8 cases. In acute abscess the lobes were found to be involved as follows: upper, 21 times; lower, 76 times; middle, twice; both upper and lower, 5 times. In 28 cases the lobe was not mentioned. In acute gangrene: upper, 10 times; lower, 24; middle, none; both upper and lower, 6 times. In acute abscess cases, adhesions were present in 63, absent in 2, not mentioned in 57. In acute gangrene, they were present in 17 cases; not mentioned in 23 cases. In 104 cases of acute abscess the lesions were single, multiple in 16, not mentioned in 12. The mortality in cases of acute abscess treated medically was 54 per cent.; in those treated surgically, 25 per cent. The mortality in cases of gangrene treated medically in 89 per cent.; those treated surgically, 44 per cent.

Cleveland Medical Journal

June, XIII, No. 6, pp. 375-446

50 Neanderthal Man. T. W. Todd, Cleveland.
51 Labeling Vice. S. W. Kelley, Cleveland
52 *Abderhalden Serologic Test for Pregnancy—Preliminary Report of One Hundred and Fifty Cases. W. C. Stoner and A. J. Skeel, Cleveland.
53 Two Cases of Cardiospasm. J. D. Osmond, Cleveland.
54 History of Physiology of Nervous System. R. G. Pearce, Cleveland.
55 Atresia Rectovesicalis—Report of Successfully Operative Case. F. C. Herrick, Cleveland.

52. **Abderhalden Test for Pregnancy.**—Of 78 cases examined by Stoner and Skeel in which a clinical diagnosis of pregnancy was established, only one reacted negatively. The blood was obtained throughout the pregnant period from one month up to full term. Of 8 post-partum cases in which the blood was obtained from one day to three weeks subsequent to delivery, all reacted positively. Of 68 non-pregnant cases, 8 were clinically diagnosed cancer, 6 of which gave a positive reaction to both placental and cancer tissue and 2 gave a negative reaction to both. Two cases of fibroid tumor of the uterus were positive and one was negative. The non-pregnant cases included a variety of clinical conditions aside from cancer, fibroid tumor and pelvic inflammatory cases, all of which gave negative reactions, save four cases in which the control tube gave a reaction also, showing faulty technic in the way of old blood, unclean glassware and failure to use toluol. Four urines of pregnant patients gave reaction in No. 1, and two tubes, but No. 1 tube was much more intense, showing the presence of a normal dialyzable protein in urine and probably a ferment due to pregnancy. Pregnant rabbit blood on both human and rabbit placenta was positive and non-pregnant rabbit blood on human placenta was negative. Eleven cases were syphilitic and gave a positive Wassermann, but the Abderhalden was negative. Eclampsia and threatened eclampsia cases showed positive reactions with usual intensity.

Colorado Medicine, Denver

June, XI, No. 5, pp. 213-242

56 Surgical Treatment of Thoracic Empyema. C. E. Tennant, Denver.
57 Art of Obstetrics among Primitive Peoples and Its Development among Civilized Classes. C. B. Ingraham, Denver.
58 Acapnia—Its Relation to Anesthesia and Surgery. C. G. Parons, Denver.
59 Anesthetization—Anesthetizer and Surgeon. R. L. Charles, Denver.

Delaware State Medical Journal, Wilmington

May, V, No. 6, pp. 1-26

60 How Should We Advise Our Ruptured Patients? B. R. Veasey, Wilmington.

Journal-Lancet, Minneapolis

July 1, XXXIV, No. 13, pp. 347-370

61 *Experimental Data on Intramuscular Administration of Antisyphilitic Drugs. H. E. Robertson, Minneapolis.
62 Incubus Nocturnus: Leaf from Doctor's Day-Book. D. V. Gleysteen, Lamberton.
63 Shakespeare as Physician. H. E. Day, Minneapolis.
64 Case of Retractile Mesosigmoiditis. F. R. Wright, Minneapolis.

61. **Intramuscular Administration of Antisyphilitic Drugs.**—Robertson states that intramuscular injections of salvarsan and neosalvarsan uniformly produce severe destructive lesions which always heal slowly and often are complicated by hemorrhages and sloughing abscesses. The severity of the reaction from the use of either drug is essentially the same. Salvarsan always leaves an insoluble pigment which acts as a foreign body. Mercurical preparations when injected into muscles produce similar lesions. The lesions produced by experiments on animals and in human beings are similar in every respect. Robertson regards the use of such preparations in this manner as an unjustifiable procedure in certainly the majority of cases.

Journal of Nervous and Mental Disease, Lancaster, Pa.

June, XLI, No. 6, pp. 345-416

65 Dementia Praecox in Eighth Edition of Kraepelin's Text-Book. H. D. Singer, Hospital, Ill.
66 Case of Aneurysms of Vessels of Brain. J. H. W. Rhein, Philadelphia.
67 Case of Progressive Lenticular Degeneration. E. M. Auer, Kalamazoo, Mich.

Kentucky Medical Journal, Bowling Green

June 15, XII, No. 12, pp. 365-398

68 Manual Removal of Placenta and Membranes. W. B. Gossett, Louisville.
69 Surgical Judgment in Operations for Acute Mastoiditis. G. C. Hall, Louisville.
70 Excision of Tarsal Cartilage and Conjunctiva in Old Trachoma. C. T. Wolfe, Louisville.
71 Vesical Calculi. Report of Case. E. S. Allen, Louisville.
72 Fracture of Pelvis and Separation of Sacro-Iliac Joint. W. B. Owen, Louisville.
73 Ruptured Ovarian Cyst. Report of Case. B. F. Zimmerman, Louisville.
74 Fracture of Internal Condyle of Femur Treated with Wire Nails. Report of Case. C. B. Spalding, Louisville.
75 Eclampsia. Report of Case. B. J. O'Connor, Louisville.
76 Two Cases of Hodgkin's Disease. F. C. Askenstedt, Louisville.
77 Typhoid. J. F. Adams, Bagdad.
78 Relationship of Physician to Public. W. F. Boggess, Louisville.

Maine Medical Association Journal, Portland

June, IV, No. 11, pp. 1883-1923

79 Feeding of Infants and Some Diseases of Gastro-Enteric Tract in Infancy. J. L. Morse, Boston.
80 State Care and Training of Feeble-Minded in Maine. C. J. Hedin, West Pownal.
81 Penetrating Gunshot Wound of Gravid Uterus. Case-Report. R. A. Holland, Calais.

Medical Record, New York

July 11, LXXXVI, No. 2, pp. 49-94

82 *Treatment of Diseases of Vegetable Parasitic Origin by Deep Muscular Injections of Mercury. B. L. Wright, U. S. Navy.
83 Some Radium Therapeutics. J. B. Bissell, New York.
84 Cow's Milk, Raw and Heated. E. W. Titus, Washington, D. C.
85 Pharyngeal Tonsil in Adult. L. G. Kaempfer, New York.
86 Case of Auricular Flutter Occurring During Rheumatic Endocarditis. S. Neuhof, New York.
87 Modified and Conservative Radical Mastoid Operations for Tolerance of Prostheses in Cases of Diminished Hearing after Middle-Ear Suppuration. W. S. Bryant, New York.
88 Mental and Nervous Manifestations of Pellagra. T. Frazer, Asheville, N. C.
89 Physiology of Abderhalden's Test and Its Value in Determination of Pregnancy with Table of Ninety Cases. K. H. Goldstone, Brooklyn.

82. **Treatment of Diseases of Vegetable Parasitic Origin with Mercury.**—On the basis that mercury is the chemical affinity of the entire group of the vegetable parasites, Wright advises its use in various conditions. In the early days of an acute infectious disease Wright states the maximum dosage of mercuric succinimide is solely indicated, while in the late days of these diseases, or in subacute or chronic infections smaller and more numerous injections are to be used. During the early days of an average acute infection in an average adult male, the initial dose of mercuric succinimide should be gr. 9/5; if at the end of twenty-four or thirty-six hours there has been no improvement, or if, following improvement, there has been a return of symptoms, a second injection of from gr. 5/5 to gr. 6/5 should be given, providing symptoms of mercurialism have not followed the first injection. In the more virulent and quickly fatal of the acute infections, such as meningitis, whatsoever its etiology, the initial dose should be gr. ii. In chronic infections (late days of acute and in subacute infections) in the average adult male the initial dose should be gr. 5/5 to gr. 7/5. Succeeding injections should then be given with from two to four day intervals, in such dosage as will not produce mercurialism, until ten or twelve injections have been given, providing the symptoms have not disappeared in the mean time. When ten or twelve injections have been given, the treatment should be interrupted for from two to five weeks, in order that the mercury may be eliminated and that the organisms may not become immune to its action through its constant presence in their environment.

In some of the more persistently chronic infections the interval of time between injections should be from four to eight days. In females the dosage should average from gr. 1/5 to gr. 2/5 less than in males. Should symptoms of mercurialism appear at any time during the course of treatment the injections should be stopped at once and appropriate corrective measures applied, the injections being resumed if necessary on the disappearance of these symptoms.

During this treatment the oral cavity and the teeth must have the utmost attention and be kept perfectly clean at all times, and the bowels moved freely daily. Surgical asepsis must be carefully observed in every particular relating to syringe, needles, solution and skin at site of injection.

The solution should be made of the strength of mercuric succinimide gr. 1/5 in sterile, distilled water ♏iv. Inject deeply in gluteal muscles. The only contra-indication to this method that Wright knows of is serious organic lesions of the kidneys. He has used this method of treatment in 35 cases of tuberculosis, 9 cases of lobar and 6 cases of lobular pneumonia; 5 cases of typhoid, 1 of paratyphoid, 1 of meningitis, 2 of erysipelas, 39 cases of infectious arthritis, 24 of gonorrheal arthritis and 7 of chronic articular rheumatism.

New Mexico Medical Journal, Las Cruces

June, XII, No. 3, pp. 63-100

90 Constitution of Proteids. E. S. Bullock, Silver City.
91 Management of Woman and Child during Puerperium. W. P. Mills, East Las Vegas.
92 Vincent's Angina. H. Letord, El Paso, Tex.
93 Final Report on Epidemic of Typhus Fever among Navajo Indians at Canoncito Cojo. L. C. Day, Albuquerque.

New Orleans Medical and Surgical Journal

June, LXVI, No. 12, pp. 883-1008

94 Philosophic Anatomy of Kidneys. E. Souchon, New Orleans.
95 Operative Treatment of Jacksonian Epilepsy. C. W. Allen, New Orleans.
96 Epidemiology of Whooping-Cough. H. D. King, New Orleans.
97 Cases of Obstruction of Bowels. E. D. Martin, New Orleans.

July, No. 1, pp. 1-94

98 Gunshot Wounds of Abdomen. L. B. Crawford, New Orleans.
99 Postoperative Management of Surgical Cases. E. D. Martin, New Orleans.
100 *Mosquitoes. Rôle of Certain Species in Prevention of Malaria. H. Byrd, Princeton, Fla.
101 *Remedy for Boils and Skin Infections. C. W. Allen, New Orleans.

100. **Mosquitoes. Rôle of Certain Species.**—Other things being equal, Bryd states, the prevalence of malaria in a given locality bears an inverse ratio to the abundance of salt-marsh mosquitoes. This proposition has two important corollaries: (a) That in Florida, at least, in which nearly all cases of typhoid are the result of fly convection, this disease is reduced to a marked degree by the prevalence of salt-marsh mosquitoes; for protection against mosquitoes gives partial protection against flies. (b) In which other species of mosquitoes that do not transmit disease prevail in such numbers, and with such ferocity, as to cause the inhabitants to resort to efficient screening, and other protective measures, the prevalence of malaria and of typhoid are reduced accordingly. A notable example of this is found in Lake County, about Eustis and Tavares, in which the *Culex perturbans* is at times a veritable pest. Here there is such freedom from malaria that there is a wide-spread belief, or at least was four or five years ago, that people will not take malaria in districts in which there are pines.

101. **Remedy for Boils and Skin Infections.**—In his own case Allen used a freshly prepared dilute nitro-muriatic acid, 10 to 15 drops in water after each meal. In a few days he could note some apparent improvement and soon realized that he was getting better; well-developed lesions soon disappeared and those in process of development were aborted. During its use Allen has seen many lesions started in a hair follicle, which in the past would have promised much trouble for him, disappear in a few days. He is also thoroughly convinced of one other fact, contrary to the usually accepted surgical views, which is that boils and superficial skin infections do better when not opened. Should they come to a head and point they can easily be evacuated but their incision accomplishes nothing in shortening their course or lessening their pain; on the contrary, it seemed at times to prolong their duration and to add to the violence of the inflammatory reaction.

New York Medical Journal

July 11, C, No. 2, pp. 61-108

102 Treatment of Summer Diarrheas of Children. F. M. Crandall, New York.
103 Obstetric Paralysis. T. T. Thomas, Philadelphia.

104 Transplantation of Testicle from Dead to Living Body. G. F. Lydston, Chicago.
105 Plea for Saner Methods in Treatment of Pulmonary Tuberculosis. T. J. Mays, Philadelphia.
106 Myasthenia Gravis. Report of Case. S. P. Goodhart, New York.
107 Combined Fracture and Orthopedic Operating-Table. C. H. Sanford, New York, and H. Fitz-Simmons, Boston.
108 Hygiene of Nutrition. H. P. De Forest, New York.
109 Physiologic Treatment of Catarrhal Deafness. A. C. Geyser, New York.
110 Hereditary Cerebellar Ataxia. S. A. Blauner, New York.
111 Hour-Glass Contraction of Uterus Following Use of Pituitary Extract. T. H. Cherry, New York.

Ophthalmic Record, Chicago

June, XXIII, No. 6, pp. 271-324

112 Phlyctenular Conjunctivitis; Its Importance in Conservation of Vision. B. W. Key, New York.
113 Ocular Rotations. F. Valk, New York.
114 Points Relative to Enucleation of Eyeball and Sympathetic Inflammation. E. R. Carpenter, El Paso, Tex.
115 Binocular Vision and Optic Chiasm. A. T. Poffenberger, Jr., New York.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 27, I, No. 2791, pp. 1393-1440

1 Adrenals. T. R. Elliott.
2 *Clinical Aspects of Body Temperature in Childhood. T. R. C. Whipham.
3 Vicious Circles of Neurasthenia. J. B. Hurry.
4 Internal Secretions and Dental Caries. H. P. Pickerill.

2. **Body Temperature in Childhood.**—A child whose temperature is raised, Whipham states, should be put to bed and be lightly but efficiently clothed. Plenty of fresh air may be allowed, but at the same time precautions must be taken to protect the patient from draughts. In hot weather a bed-cradle may be used to keep the weight of the bedclothes off the child's body, and thus add to its comfort. As a general principle the treatment should begin with a purge. A small dose of calomel, followed by castor-oil, is nearly always beneficial. It not only clears out the intestinal tract, but also serves to reduce the fever, whatever may be its cause. In cases in which the alimentary tract is involved special attention must, of course, be paid to such symptoms as constipation, vomiting and diarrhea, but even when some other part is at fault the excretory functions must always be regulated by appropriate means. Methods to reduce the temperature, should be deferred until a diagnosis of the case has been made, unless the child is extremely restless or shows other signs of distress; then the bath is the safest and the most efficacious method.

Older and sturdy children may be immersed in a cool bath at about 80 F., or the temperature of the water may be gradually lowered from 100 F. by the addition of ice. The body and head should be sponged freely, and after five or ten minutes the child should be dried quickly, and wrapped in a warm blanket. Young children and infants, however, especially those who are weakly, do not stand cold water well, and the same applies to the cold pack. The shock to the nervous system is too great, and harm or even death may ensue. For such children a warm or tepid bath should be employed at a temperature not lower than 90 F. If for any reason a bath is impracticable or inadvisable, sponging with tepid water, or equal parts of alcohol or vinegar and water, may be used. An alternative method is that of evaporation. The body is loosely wrapped in one or two layers of gauze, which is moistened from time to time with water 115 F., evaporation all the while being promoted by means of a fan. The feet at the same time should be kept warm by the application of hot-water bottles. This may be continued for a quarter or half an hour. By these means the body temperature is reduced, often to a marked degree, and the nervous system is soothed. Frequently, too, the child rapidly falls into a refreshing sleep. In cases of continued fever, or cases in which there is evidence of meningitis, an ice-bag lightly applied to the head is of value, but this, again, must be used with caution in the case of infants, as the continued cold is liable to cause a subnormal temperature. Its use, therefore, should, as a general rule, be restricted to rather older children. Antipyretic drugs are rarely necessary in early life, and should not be given merely with a view to reducing the temperature. In a general way the usual symptoms of fever may be allayed by a mixture containing citrate of potassium or magnesia and liquor ammonii acetatis. For older children this may be made to effervesce; it is palatable, cooling and helps to check the thirst.

As a rule the patient may be allowed to drink freely and in the case of infants suffering from diarrhea, infusions of normal saline solution under the skin are of great benefit. In the case of infants milk should be withheld and albumin water alone given for twenty-four or thirty-six hours at least, as in them intestinal toxemia is the commonest cause of fever, and must either be treated or excluded before the child is allowed to return to a milk diet. For children above 3 years of age a fluid diet, consisting largely of milk, should be ordered. As a rule the food should be given cold, and, if there is vomiting it may be iced. In respiratory diseases, however, it is often best to give the food slightly warmed, and in cases of collapse hot milk acts as a useful stimulant. Regular feeding in cases of prolonged pyrexia is a necessity in order to maintain the patient's strength, but, if possible, feeding should take place during a remission of the temperature; at other times only water or stimulant in the form of alcohol should be given. It is essential that the patient should not be awakened from sleep in order to be fed, unless there is excessive drowsiness or stupor, in which case the child must be roused at intervals, as otherwise sufficient nourishment will not be taken. In transient fevers children may go without food until the temperature falls, though water may be given freely. Prolonged pyrexia, on the other hand, is debilitating, and requires generous but careful feeding.

Dublin Journal of Medical Science

June, III, No. 510, pp. 401-480

5 Retrospect of Vital Statistics in Ireland. W. J. Thompson.
6 Leukosarcomatosis. W. D. O'Kelly.
7 Relationship between Chorea and Rheumatism. A. P. Draper.

Indian Medical Gazette, Calcutta

June, XLIX, No. 6, pp. 213-252

8 Thousand Cataract Operations Performed in Six Weeks at Shikarpur, North Sindh. H. T. Holland.
9 Two Years' Experience of Extraction of Cataract in Capsule with Notes on 1,137 Consecutive Operations. R. Baird.
10 Irrigation, after Extracapsular Extraction of Cataract. E. A. R. Newman.
11 Thyroid and Some Cases of Hypothyroidism. C. Milne.
12 Catarrhal Jaundice in Calcutta. A. Caddy.
13 Case of Ruptured Spleen: Splenectomy: Recovery. F. A. L. Hammond.
14 Case of Rupture of Spleen. C. L. Gosain.
15 Cases Treated in Ripon Hospital, Ahmednagar. C. Maddock.
16 Peritoneal Cyst of Traumatic Origin and Other Cases. F. E. Wilson and C. H. Barber.
17 Case of "Simple, Non-Infective" Thrombosis. G. D. Franklin.
18 Case of Psoas Abscess Treated by Injections of Pneumococcal Vaccine. W. O. Walker.

Journal of State Medicine, London

July, XXII, No. 7, pp. 385-448

19 *Human and Bovine Tuberculosis. Treatment by Special Kinds of Tuberculin. N. Raw.
20 Feeble-Minded Children. M. Dendy.
21 Dental Clinics. L. Williams.
22 Medico-Pedagogic Methods in Primary School Education. J. Arrowsmith.

19. **Human and Bovine Tuberculosis.**—Raw has been impressed with the fact that children who suffer from the surgical forms of tuberculosis, such as tuberculous glands, joint diseases and lupus, very rarely indeed are attacked even in the later stages of their malady, by phthisis pulmonalis. The lungs may be affected in the course of a general miliary tuberculosis, but it is rare to see phthisis pulmonalis associated with surgical tuberculosis. The cause of death in the great majority of these cases is exhaustion and waxy degeneration, so that Raw has come to the conclusion that these two varieties of tubercle are antagonistic to each other in the human body, and that children who have suffered from

bovine tuberculosis in the form of strumous glands, spinal caries, strumous joints and lupus are immune against phthisis pulmonalis. He believes that tubercle bacilli of the *typus humanus* produce phthisis pulmonalis, ulceration of the intestines and tuberculous laryngitis; whereas, tubercle bacilli of the *typus bovinus* produce tuberculous peritonitis, tuberculosis of the lymphatic glands, tuberculous bones and joints, tuberculous meningitis (probably) and lupus. In his opinion acute miliary tuberculosis is of bovine origin.

Journal of Tropical Medicine and Hygiene, London

June 15, XVII, No. 12, pp. 177-192

23 *Case of Osteoperiostitis Developing after Probable Attack of "Febris Columbensis." A. Castellani.

23. Osteoperiostitis Developing after "Febris Columbensis."—In a case of chronic osteoperiostitis developing after an attack of continuous fever said to have lasted six weeks, a microorganism was isolated by Castellani from the pus with all the characters of *B. columbensis*. The blood of the patient agglutinated the strain isolated from the pus as well as all the strains of *B. columbensis* kept in the laboratory, including the original one isolated in 1905. There is little doubt in Castellani's opinion that this germ was the cause of the osteoperiostitis, and that the fever from which the patient states he suffered before the periostitis developed, was, according to all probabilities, an attack of "febris columbensis."

Lancet, London

June 27, I, No. 4739, pp. 1799-1862

24 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shufflebotham.
25 *Treatment of Leprosy by Intravenous Injections of Iodoform. B. J. Courtney.
26 Some Cases of Traumatic Hysteria. J. W. G. Grant.
27 Mental Symptoms Associated with Exophthalmic Goiter. W. Leggett.
28 Case of Fibrosis of Lung Treated with Bacillus Friedlander Vaccine. A. Sandison.
29 Case of Acute Non-Calculous Cholecystitis in Child. F. C. Pybus.
30 Case of Gall-Stone Causing Intestinal Obstruction. S. Wickenden.

25. Treatment of Leprosy by Iodoform.—Of the 12 patients on whom the treatment was tried by Courtney for three months or longer, 4 were of the purely nodular type, 5 were of the purely anesthetic type, and 3 were of the mixed type. As regards the duration of the disease at the time treatment was commenced, the shortest was two years and the longest seventeen years. To begin with ½ grain of iodoform was given twice a week; this was gradually increased up to 1 grain given five times a week. A ½-grain tablet of iodoform is thoroughly powdered and put into an all-glass hypodermic syringe, 3 minims of liquid paraffin and then 7 minims of ether are drawn into the syringe, the needle is sealed with lanolin to prevent evaporation of the ether, and the syringe is then shaken until all the iodoform has been dissolved. The skin of the patient's arm having been washed with an antiseptic lotion and sponged with ether, a tourniquet is applied above the elbow sufficiently tight to obstruct the venous but not the arterial circulation, and the contents of the syringe are injected into the median basilic or median cephalic vein. In addition to the intravenous injections in four cases a local reaction was aimed at also—that is to say, the solution of iodoform was injected into the substance of the nodules, the amount varying from 10 to 30 minims of the solution according to the size of the nodule. Four or five nodules were treated in this way at the same time, and when the resulting ulceration had healed another 4 or 5 were injected, and so on. All the patients were examined for the presence of lepra bacilli, the fluid being taken from a nodule when such was present, and failing this the nasal secretion was examined, and the number and effect on the bacilli were observed from time to time during the course of the treatment. The bacillus was found in all the tubercular and mixed cases, but in only one of the anesthetic cases.

The results are classed as follows: (a) Effects on tubercular cases.—Of this variety 4 patients were treated, 3 of whom showed marked improvement during the period, and in 2 of the mixed cases the patients also showed improvement as regards the tubercular portion of the disease. After a period varying from six to twelve weeks the nodules became softened and finally broke down and ulcerated, the ulcers discharging copiously a thin pus containing numerous lepra bacilli. Other nodules, generally small, and more especially on the face, apparently underwent absorption and disappeared without ulceration. Two of the patients had large leprotic infiltrations stretching across the chest and abdomen; these underwent ulceration in the same way as the smaller masses.

(b) Effects on anesthetic cases.—Of this variety 5 patients were treated, and all with the exception of one were advanced cases, with numerous anesthetic areas, paralysis of the muscles of the forearm and the interossei muscles of the hand, "*main en griffe*," and loss of fingers or toes. None of these symptoms underwent any noticeable change during the period of treatment; as it is probable, however, that in these patients the destruction of the nerve fibers had proceeded so far as to be converted into connective tissue, no other result could be expected from either this or any other remedy. In the fifth case, which was one of only two years' duration, and in which the patient had no other symptoms beyond the patches of anesthesia on the skin, there was thought to be some slight improvement, but not sufficiently definite to be properly described as being due to the treatment.

(c) Effects on special symptoms and general health.—All the patients treated, both tubercular and anesthetic, said that they felt better and stronger as a result of the treatment, that their appetites had improved, and that they were able to do more work.

(d) Effects on the lepra bacilli.—The method of investigation was as follows: Fluid from a nodule or from the nose was taken and stained by Ziehl-Neilsen's method, and the number of bacilli in a dozen fields was noted. This was done from time to time during the course of the treatment and the results compared. In the cases in which the ulceration occurred it was found that during the period of profuse discharge and sloughing of the contents of the nodule the number of the bacilli was greatly increased, innumerable clumps being seen in each field. After the contents of the nodule were extruded, leaving a clean granulating surface, the number gradually declined, until many fields contained no bacilli at all, and others contained either small clumps or bacilli scattered singly. With regard to the nodules which underwent absorption, similar effects were noted.

Sei-I-Kwai Medical Journal, Tokyo

June, XXXIII, No. 6, pp. 33-38

31 Influence of Osmotic Pressure on Caliber of Vessels. Kubota.
32 Antigen Action of Tubercle Bacillus Freed from Fats. K. Momose.
33 Clinical and Bacteriologic Study of Kubisagari Disease. P. L. Conchoud and F. Shionnoya.
34 Orthodiagraphic Examination of Heart in Beriberi. Y. Ido and Y. Watanabe.
35 Experimental Study on Tetrodon Toxin. Kariya.
36 *New Method for Estimation of Sugar in Small Quantity of Blood. Kaminura.

36. Method for Estimation of Sugar in Small Quantity of Blood.—For this purpose two solutions are made by Kamimura; the first solution is composed of 4.278 gm. of pure crystalline sulphate of copper and 5 liters of distilled water, and the second solution is made up with 2.0 c.c. of glycerin, 21.0 gm. of caustic potash and so much liquor ammonia (sp. gravity 0.96) as to make the mixture up to one liter. Five c.c. of the first solution, which corresponds to 0.005 gm. of glucose, is put into Sudo's glass-tube and then it is filled up to mark "X" with the second solution. The upper surface of this mixture is then covered with liquid paraffin to prevent the influence of the air on the copper solution.

The plasma or serum is isolated from the blood, which is going to be examined, and the quantity of which needs be only 1 to 2 c.c.; it is then diluted 5 to 6 times its original volume with water, after separating its protein component in order to make the filtration easy. The filtrate is added to the mixture of the copper solution which has been warmed up to from 80 to 85 F. beforehand drop by drop till the copper solution is absolutely discolored. The quantity of sugar X can be calculated by the following formula, N being the quantity of the filtrate employed: $x = \frac{0.005}{N}$ by $100 \frac{0.05}{N}$. In case the whole filtrate is not enough to discolor the copper solution one adds a quantity of 0.02 g/dl. solution of glucose to help the final discoloration. The formula runs then as follows: $x - \frac{0.05\text{-}0.02 \times b}{a}$ a = the quantity of the filtrate used; b = the quantity of the glucose solution added. This method is simple and can be carried out with any quantity of blood. The results are fairly exact, the difference against the control examinations being not more than 3 per cent.

Annales de Médecine et Chirurgie Infantiles, Paris

June 15, XVIII, No. 12, pp. 393-428

37 Inconveniences, of Luetin Test for Diagnosis of Syphilis in Children. G. Blechmann and M. Delort.
38 Serotherapy of Cerebrospinal Meningitis; Two Cases. M. Delort and J. Stiassnie.
39 Hernia and Appendicitis. V. Veau.
40 Heliotherapy and Surgical Tuberculosis. A. Trèves.

Bulletin de l'Académie de Médecine, Paris

June 16, LXXVIII, No. 24, pp. 805-837

41 The Economic Prognosis with Industrial Accidents. (Pronostic social des accidents du travail.) E. Schwartz.
42 The Painful Form of Stenosis of the Pylorus. Enriquez. See Paris Letter, page 177.

Journal de Médecine de Bordeaux

LXXXV, Nos. 23-25, pp. 387-434

43 Cause of "Black Tongue" Still a Mystery. (Les parasites des langues noires.) L. Jannin.
44 Favorable Results of Induced Pneumothorax; Thirty-Eight Cases. C. Murard and C. Colbert.
45 Right and Left Air Passages Not Independent of Each Other. (Indépendance fonctionelle des voies aériennes droites et gauches.) Got.

Lyon Chirurgical

June, XI, No. 6, pp. 549-678

46 *The Fibula the Best Bone for Transplantation in Conservative Operations. (Le péroné greffon de choix: Son utilisation dans les opérations conservatrices, pour ostéosarcome en particulier.) M. Gangolphe and P. Bertein.
47 Transplantation of Fascia Valuable in Injuries of the Abdominal Wall. (Sur la greffe aponévrotique libre.) E. Greggio.
48 Decapsulation of the Kidney in Mercurial Nephritis; Four Cases. G. Tisserand.
49 Embolus of the Pulmonary Artery. Trendelenburg's Operation. Death during the Operation. G. Leclerc.
50 Arteriovenous Aneurysm of the Common Femoral Vessels. Extirpation and Quadruple Ligation. H. Bouquet.

46. **Transplanting the Fibula.**—Gangolphe and Bertein regard autoplastic transplantation of bone as necessary with any considerable loss of substance in bone. The fibula is the best bone to use because it is so easily removed, being near the surface; because it is not of great importance in its normal position, and because it yields a graft surrounded completely by periosteum. A complete segment of the bone should be taken at about the middle of the diaphysis. If the upper end is taken so as to secure a cartilaginous surface for use in a joint, care must be taken to avoid the external popliteal. The lower incision should not be less than 5 cm. from the external malleolus. The graft should be cut a little longer than the gap to be filled, pointed at the ends, and inserted into the marrow cavity of the bone being repaired. If this cavity is too small the transplant may be sutured in place with wire. The results were very encouraging in the 20 cases here compiled of transplantation on account of osteosarcoma; in 5 for comminuted fractures; 21 for osteomyelitis, and 1 for a case of bone syphilis.

Lyon Médical

XLVI, Nos. 23-24, pp. 1253-1364

51 Removal of Cancer of the Orbit with Preservation of Eyeball; Six Cases. No Recurrence in Five. E. Rollet.
52 Early Operation in Appendicitis and Closure of the Wound without Drainage. M. Durand.
53 Symptoms of Disease of the Upper Medulla; Two Cases. L. Bériel. Commenced in No. 22.

Presse Médicale, Paris

XXII, Nos. 49-51, pp. 465-496

54 Diagnosis and Emetin Treatment of Amebic Dysentery. L. Lagane.
55 *Albumin Content in Differentiation of Effusions and Transudates. (L'albumino-diagnostic des épanchements des séreuses.) Mosny, Javal and Dumont.
56 *Petrolatum in Treatment of Constipation. (L'huile de vaseline comme exonérateur intestinal.) A. Martinet.
57 Endonasal Treatment of Frontal Sinusitis. M. Denis and L. Vacher.
58 Azotemia and Death. D. Dumitresco and A. Popesco.
59 Syncopal Form of Paroxysmal Tachycardia. Esmein and Donzelot.

55. **Differentiation of Effusions and Transudates.**—The Rivalta test fails when it is a question of cardiac pleurisy or transudate, in which differentiation is most important. Mosny and his coworkers have determined by study of fifty cases that the albumin content in cases traceable to a like cause kept within a characteristic range. This "albumino-diagnostic" method is based on precipitation of the albumins in the fluid and dosage by weight, or estimation of the content by refractometry. The effusion with cancer or serofibrinous and infectious pleurisy has an extremely high albumin content, fully 40 to 66 gm. to the liter. An albumin content of less than 30 gm. speaks for a transudate. In the case of a boy of 11 with pleural effusion and anasarca, the diagnosis of tuberculous pleurisy and peritonitis was first disproved by the repeated finding of only 4 to 7 gm. of albumin in the puncture fluids. On this finding alone the diagnosis was changed to adherent pericarditis and the course of the case confirmed this. In another case an extensive collection of fluid in the left pleural cavity, developing after a childbirth, showed only 20 or 30 gm. albumin on repeated examination, and necropsy disclosed an entirely unsuspected mitral stenosis confirming the assumption of the mechanical origin of the collection of fluid. In another case the albumin content of only 3 gm. in the large accumulation of fluid in the abdominal cavity first threw doubt on the diagnosis of tuberculous peritonitis made by different physicians in the course of fifteen years. Closer examination of the case then revealed hydronephrosis which had previously escaped detection.

56. **Petrolatum in Treatment of Constipation.**—Martinet states that petrolatum can aid in the relief of constipation as a rule only when the trouble is due to spastic conditions. In persons inclined to atony and hyposthenia the effect is poor or directly injurious.

Revue de Chirurgie, Paris

June, XXXIV, No. 6, pp. 721-897

60 Polyp in Nasopharynx. E. J. Moure and G. Canuyt.
61 The Aponeuroses in the Axilla in Relation to Phlegmons. L. Moreau.
62 *Latent Retention of Bile. M. Brulé, H. Garban and L. G. La Salle.

62. **Latent Retention of Bile as Sign of Injury of Liver.**—In many conditions such as general anesthesia, appendicitis, etc., the liver is more or less affected but this escapes notice unless the urine is examined for retention of bile. The research here reported shows that this retention is not of the whole bile, but only of one or more of the bile elements. Only the liver cells themselves are capable of this discriminating retention. When it occurs it shows that the liver is not functioning normally and hence the detection of this is extremely important when it is proposed to inflict further injury on the liver, for instance, by general anesthesia. Brulé and his coworkers have been applying simultaneously all the tests in vogue to detect the presence of bile elements in the urine, and state here that the two simplest are about as sensitive and reliable as any and can be applied at the bedside. These are the Ehrlich benzaldehyd and Hay sulphur tests. Dusting a little dry flowers of sulphur on fresh and filtered urine reveals the presence of bile salts by the sinking of the sulphur to the bottom. Unless the urine contains biliary salts, the surface tension is sufficient to buoy up finely powdered sulphur. The benzaldehyd reagent is a mixture of 8 gm. paradimethylamidobenzaldehyd; 80 gm. concentrated hydrochloric acid and 200 gm. water. When a

few drops of this reagent are added, cold, to fresh urine, the tint changes to pink or red if it contains urobilinogen.

With these tests of the morning urine it was found that ether has an injurious action on the liver more often than has been suspected hitherto. The retention of bile elements in such conditions may be compared to the transient albuminuria during acute infections, but Brulé's experience seems to show that the liver is affected more regularly and to a greater extent than the kidneys under such circumstances. Positive findings were obtained in 11 of 21 cases of appendicitis facing an interval operation. Also in all but 5 of 33 patients just after an operation under ether, and in all but 1 of 15 under chloroform.

Revue Médicale de la Suisse Romande, Geneva

June 20, XXXIV, No. 6, pp. 385-448

63 Imagined Pregnancy. (Clinique obstétricale.) Rossier.
64 Operative Obstetric Cases. Rossier.
65 *Diabetes and Tuberculosis. Morin.

65. **Diabetes and Tuberculosis.**—Morin quotes Landouzy's recent statement that diabetes is not a morbid entity or nutritional disease but is a syndrome consequent on some infectious, toxic or parasitic affection. The correctness of this view is rendered evident by the improvement in the diabetes when the infectious, toxic or parasitic affection yields to proper treatment, for instance, specific treatment of syphilis or abstention from alcohol. The toxic or infectious influences may act on the tissues in general but their injurious effect is probably most pronounced on the glands and nervous system. In every case of diabetes the primary trouble, especially tuberculosis, should be sought and treated as the main element in the cure. He has always found a mountain climate of great benefit in diabetes by the way in which the elimination of carbon dioxid and assimilation are promoted.

Semaine Médicale, Paris

June 24, XXXIV, No. 25, pp. 289-300

66 Changes in Other Kidney after Nephrectomy, etc. (De la signification de la dégénérescence granuleuse et des lésions cytolytiques dans le rein après ligature ou excision du rein du coté opposé.) V. Jonnesco.

Archiv für Kinderheilkunde, Stuttgart

LXII, Nos. 5-6, pp. 321-482. Last indexed February 28, p. 736

67 Döhle's Inclusion Bodies Found in Leukocytes in Scarlet Fever, Measles, Diphtheria, Tonsillitis and with Serum Rashes. S. N. Rosanoff.
68 Negative Experiences with Rosenbach's Tuberculin in Internal Tuberculosis in Children. A. Stommel.

Archiv für klinische Chirurgie, Berlin

CIV, No. 4, pp. 843-1206. Last indexed July 11, p. 202

69 Experimental Transplantation of Epiphysis. (Transplantation des Intermediärknorpels in Form der halbseitigen Gelenktransplantation.) Heller.
70 Histologic Changes in Transplanted Fascia. (Experimentelle Untersuchungen über den histologischen Umbau der frei transplantierten Fascia lata und Beweis für die Lebensfähigkeit derselben unter Heranziehung der vitalen Färbung.) O. Kleinschmidt.
71 *Experimental Research on Muscle Flap Used to Arrest Hemorrhage. (Freie Uebertragung von Muskelstücken aufs Herz und in einige andere Organe.) A. Läwen and A. Jurasz.
72 Successful Excision of Extensive Hemangioma of Lower Lip and Tongue. E. Sonntag.
73 Deafness Following Fracture of Base of Skull. (Ein- und gleichseitige Vagus- und Accessoriusläsion und vollkommene Taubheit nach Schädelbasisfraktur.) E. A. Lüken.
74 *Muscle Flaps Used to Arrest Hemorrhage in Heart and Liver. (Stillung von Herz- und Leberblutungen durch frei übertragene Muskelstücke.) A. Läwen.
75 Prophylactic Treatment with Extract of Leeches as Preliminary to Laparotomies. (Versuche über Adhäsionsbeschränkung in der Bauchhöhle durch Hirulinbehandlung.) W. Schmiedt.
76 *Tests of Functional Capacity of the Stomach. (Zur funktionellen Magendiagnostik.) J. Hohlbaum.
77 Mobilization of the Duodenum. A. T. Jurasz.
78 Single Echinococcus Cyst in the Omentum. (Ein solitärer Netzechinococcus.) O. Kleinschmidt.
79 Congenital Dislocation of the Patella. W. Dünkeloh.

71-74.—**Muscle Flaps to Arrest Hemorrhage.**—All the articles in this number of the *Archiv* issue from the surgical clinic at Leipzig in charge of Prof. E. Payr. Läwen and Jurasz found it possible to arrest the hemorrhage from the heart, after injury of a ventricle, by suturing a flap of muscle over the bleeding spot. They illustrate the procedure and the outcome in fifteen rabbits. The bleeding was arrested at once and the heart kept on working the while. In another series of experiments they sutured the muscle flaps after inducing bleeding from a kidney, liver, in the marrow cavity of the tibia or in the brain. The hemorrhage was arrested with special promptness and thoroughness in the liver and kidney wounds. The muscle flap cohered to the tissues of the bleeding organ in a way to ensure almost immediate occlusion of the opening.

76. **Tests of Stomach Functioning.**—Hohlbaum discusses the various tests in vogue. Comparison of the histories of a number of cases with the findings at the operation confirms the clinical importance of the Salomon test, positive findings indicating an ulcerative process in the stomach. It is of no value for differentiation; here the Gluzinski test is of paramount importance. The literature on each is listed and the details of a number of cases are given. The Salomon test is based on the assumption that the presence of albumin in the stomach contents indicates oozing of serum from an ulcer. He regards the findings as suspicious of cancer when the rinsing fluid shows rapidly a flaky turbidity or its nitrogen content is above 20 mg. in 100 gm. of the rinsing fluid. Hohlbaum found the prompt flaky turbidity pronounced in all of his 20 cases of gastric cancer while it was constantly negative in 5 cases of duodenal ulcer, also in 5 of gall-stone trouble; in 2 healed gastric-ulcer cases, and 1 of 3 hard ulcers. He calls attention in particular to 2 cases in which the subjective disturbances, palpation findings, chemical and microscopic findings after a test breakfast, and Roentgen findings—all seemed to show an identical process in the stomach, but the Salomon test was positive in one and negative in the other. In each instance the operation confirmed the reliability of the Salomon findings; one proving to be a cancer in the stomach, the other a case of chronic pancreatitis.

The Gluzinski test is based on the assumption that incipient cancer is always accompanied by a chronic mucous gastritis which interferes with secretion of the gastric juice. Examination of the stomach content after three different test meals in the course of one day reveals whether gastric juice is being secreted normally; if not, this in connection with the clinical signs of trouble, points to malignant disease. Positive findings with it were obtained in all the cancer cases, the test proving remarkably reliable in differentiating between cancer and simple ulcer when there is free acid in the stomach content. It is liable to fail, like other tests, in the presence of a callous ulcer, and transverse resection is the advised procedure for this in any event. The microscope often reveals malignant degeneration in apparently a simple callous ulcer.

Archiv für Verdauungs-Krankheiten, Berlin

June 18, XX, No. 3, pp. 299-422

80 Carmin for Marking Off Stools. (Zur Verwendung der Karminprobe für die Bestimmung der Verweildauer im Verdauungskanal.) H. Strauss.
81 *Examination of Stomach Content with and without the Stomach Tube. (Mageninhaltsprüfung ohne Anwendung des Sondenverfahrens.) E. Schütz.
82 *Blotting-Paper Test for Stomach Acidity. (Kapillaranalyse des Magensaftes, ihre praktische Bedeutung nebst einigen Bemerkungen, andere Methoden der Magensafttitration betreffend.) H. Sochanski.
83 Present Status of the Duodenal Tube. M. Gross (New York).
84 Recurring Indicanuria in Diagnosis of Gastro-Intestinal Disease. G. Baar and K. Frenkel.
85 *Organic and Functional Gastric Achylia. L. Disqué.

81. **Examination of Stomach Contents.**—Schütz has been applying the various methods in vogue for estimating the condition of the stomach contents without and with the stomach tube, and tabulates the findings with some of them. None can compare in efficiency, he declares, with the stomach tube; next come the occult-hemorrhage, Roentgen-ray and residuum tests. The Fuld sodium bicarbonate test for free hydrochloric acid can be applied under all circumstances and is simple and convenient. The patient drinks a solution of 2 gm. sodium bicarbonate in 30 gm. water one hour

after a test breakfast. As the patient stands and the ear is applied to the epigastrium and upper abdomen, the intensity and duration of the effervescence then audible gives a good idea of the amount of free acid present.

82. **Blotting-Paper Test for Stomach Acidity.**—Sochanski regards Holmgren's method of capillary analysis of the stomach content as great progress. It is based on the fact that when a solution of a mineral acid is dropped on blotting paper, the water spreads faster and farther than the acid, so that the proportion of acid in the fluid can be readily computed from the proportional size of the concentric rings. He reports here the findings with gastric contents from thirty-two persons tested on blotting paper prepared with very weak stains to show up the different acids in the stomach content. The quantitative and qualitative findings are quite reliable and the test can be applied to vomit at the bedside. He has found the test most instructive when the blotting paper is marked off with concentric circles crossed by a perpendicular strip stained with 1 per cent. solution of congo red, and a horizontal strip stained with 0.5 solution of alizarin red. He uses 0.5 c.c. of stomach content and notes the results after an interval of three minutes. By this means the content in free hydrochloric acid and in lactic acid is shown up simultaneously.

85. **Gastric Achylia.**—Disqué concludes from his experience and study of the literature that functional achylia is more common than the organic and should be suspected in preference to the latter when there are signs indicating constitutional inferiority, weakness, nervousness or sagging viscera. The motor functioning of the stomach is generally more pronounced in case of functional than organic achylia. Abnormal chemical findings in the stomach content speak more for organic achylia. The prognosis is better with functional than with the organic form, and better with the acquired than the congenital. Treatment should be diametrically opposite with achylia of organic or functional origin. With the former the stomach should be spared as much as possible, while with functional achylia every effort should be made to nourish the patient; forced feeding may be advisable, with rather coarse foods. Meat will stimulate functioning of the stomach mucosa. Physical measures are also indicated with functional achylia to stimulate functioning, hydrotherapy, electricity, alternating hot and cold lavage, and douches, air baths, psychotherapy, etc.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXXI, No. 2, pp. 141-456

86 *Friedmann's Remedy. (Klinische Mitteilungen zur Behandlung der Tuberkulose mit dem Friedmannschen Mittel.) L. Brauer.
87 *Air Embolism in the Brain. (Cerebrale Luftembolie.) E. Wever.
88 Examination of Sputum in Diagnosis of Chronic Mixed Infection with Pulmonary Tuberculosis. E. Peters.
89 *Treatment of Asthma. O. Joppich.
90 Relations between the Public Hospitals and the Public Health. G. H. Sieveking.
91 The Skin Tuberculin Reaction in Infants. (Die v. Pirquetsche Kutanreaktion im Säuglingsalter.) Moltrecht.
92 Partial Antigens and Antipartial Antigens in Pulmonary Tuberculosis and Lupus. F. Salomon and A. Adam.
93 Relationships of the Tubercle Bacillus and Action of Sunlight on Antigens and Antibodies. (Verwandtschaftliche Beziehungen des Tuberkelbazillus.) E. Leschke.
94 Immunity to Tuberculosis. H. Much and E. Leschke.
95 Passively Acquired Anaphylaxis. K. Moeckel.
96 Treatment of Tuberculosis According to Deycke-Much. E. Alstaedt.

86. **The Friedmann Tuberculosis Treatment.** — Brauer remarks that the amazingly confident way in which Friedmann launched his remedy two years ago in the medical and lay press induced many physicians—in spite of misgivings—to yield to the wishes of certain tuberculous patients and use the remedy on them. The remedy at first could not be obtained in Germany for individual control research and the unfavorable reports which came from America further contributed to postpone the verdict of the German profession on the remedy. But when they were able to investigate it, the conclusions were almost unanimously negative. Brauer adds that communications made to him verbally and by letter demonstrate that the denunciatory verdict is even more universal and unanimous than is shown by what has been published in the leading medical journals. He gives the full details of the cases in which the treatment was applied in his service, prefacing them with Goldwater's report on the recent status of the seventy-seven patients given the treatment at the time of Friedmann's "dramatic and widely advertised visit" to New York. Brauer reiterates in conclusion that it is to be hoped in the interests of the tranquil and steady development of German medical science and of the health and peace of mind of the sick that the sensational agitation over the Friedmann tuberculosis treatment will disappear from scientific journals and, above all, from the newspapers. He appeals to the medical advisers of the daily papers to use their influence to keep out of the papers communications on half-baked or sensational medical matters liable to arouse misleading hopes in the general public, or at least to publish such items in a form suggesting critical suspension of judgment on the matter. A stricter critical judgment is needed on all the methods of treating tuberculosis, serologic and chemical, which are being put forth in all countries nowadays. Examination of the world literature on the subject cannot fail to show that much of what is published lacks an exact experimental basis and the work has been done without the necessary critical spirit.

87. **Air Embolism in the Brain.**—Wever injected air into the cerebral vessels of 7 rabbits, 24 dogs and 5 monkeys and compared the results with the clinical picture of the "mishaps" occurring in connection with operations on the lungs and chest, induced pneumothorax, etc. He compares his findings with those obtained by others in similar research. The presence of air in the cerebral vessels may cause clinical pictures of varying gravity, from transient nausea, vomiting, transient blindness, brief paresis, or brief cramps to actual epileptic seizures, or the patient may die suddenly without any premonitory symptoms. Necropsy may fail to reveal the air bubbles, especially if the heart continues to beat a few minutes longer. They were evident in the personal case reported as the patient collapsed and died at once during the operation for gangrene of the lung and cancer of the esophagus. The one certain and apparently constant sign of cerebral air embolism is the peculiar aspect of the fundus of the eye, striking and typical, as Wever shows in a colored plate. On account of the spontaneous mydriasis at the time, the fundus is easily inspected.

89. **Treatment of Asthma.**—Joppich expatiates on the necessity for combating the predisposing factors in asthma studying whether the oversensitive nerves belong to the peripheral or central nervous system, and the influence of overwork and worry, of dust, soot, fog or odors, acting directly or by summoning up memories. The reflex irritation causing the attack may be set up from the digestive, respiratory or genital organs, or the skin, and each case must be analyzed to discover and remove the special exciting factor in each. Wassermann seeks to reduce reflex excitability by deadening the sensibility of the nose with epinephrin and a local anesthetic on cotton applied for fifteen minutes a day for two weeks and later every second or third day. The reflex route thus gets trained out of the habit of transmitting the abnormal stimulus. Among the numerous other measures discussed is the subcutaneous injection of 0.5 or 1 mg. atropin with or without morphin.

Beiträge zur klinischen Chirurgie, Tübingen

XCI, Nos. 1 and 2, pp. 1-402

97 *Modern Battle-Field Surgery. A. Fraenkel.
98 Surgical Experiences in the Balkan Campaigns. F. Goldammer, Coenen, Weil, Brandes, Hauke and Cilimbaris.
99 Firearm Wounds. (Zur Kasuistik der Geschosswirkung.) P. R. v. Walzel.
100 Bullet Wounds of Vessels. (Schussverletzungen der Gefässe durch Spitzgeschoss und ihre kriegschirurgische Behandlung.) F. Lotsch.
101 Firearm Injuries Causing Aneurysms. O. R. v. Frisch.
102 Firearm Wounds of Nerves. W. Denk and M. Gerulanos.
103 *Surgical Indications in Firearm Wounds of the Brain. (Hirnschüsse im Kriege.) P. L. Friedrich.
104 Firearm Wounds of the Cranium. (Schädelschüsse im Kriege.) B. Breitner.

105 Firearm Wounds of Face and Neck. (Gesichts- und Halsverletzungen.) E. Suchanek.
106 Firearm Wounds of Thorax and Abdomen. E. Suchanek.
107 Firearm Fractures of Limbs. G. v. Saar, W. Goebel and J. Ballner.
108 Firearm Wounds of Large Joints. W. Denk.

97. **Modern Battle-Field Surgery.**—All the articles in this large double number of the *Beiträge* are on surgical experiences during the recent Balkan campaigns. A number are profusely illustrated.

103. **Firearm Wounds of the Brain.**—Friedrich remarks that modern battle-field surgery seems to be becoming more and more restricted to the brain and the limbs. Bullets in the brain mowed down about 50 per cent. of all that died on the field during the Franco-Prussian war, 54.2 per cent. in the Russo-Japanese war, 70 per cent. in the Boer campaign and the proportion was fully as high in the Balkan campaigns. He reviews a series of 43 cases of which he kept full notes and remarks that recovery was surprisingly frequent. He does not advocate trephining at once but only when cerebral symptoms develop under close and not too cursory observation. Any sudden or even a gradual rise in temperature, when the course has been afebrile before, suggests infection of the brain. It is especially important to have the temperature taken at night, between 12 and 2; it may be normal at all other times. If the normal pulse-rate drops to 55 or 50 or lower, this may be the only sign of infection. He had an operation done on this sign alone in several cases and always found the anticipated abscess in the brain. Any disturbance in consciousness, increasing somnolency, is also instructive while headache alone is not. We have no means of differentiating between meningitis and an abscess either on the battle-field or at home.

Berliner klinische Wochenschrift, Berlin

June 22, LI, No. 25, pp. 1157-1204

109 *Tuberculosis of Prostate. F. A. Hesse.
110 Obstetric Injury of Humerus. (Verletzungen des oberen Humerusendes bei Geburtslähmungen.) S. Peltesohn.
111 Cod-Liver Oil and Vegetables Often Superior to Butter and Cream in Infant-Feeding. (Fettaustausch in der Säuglingsernahrung.) J. Pesier.
112 *Excessive Tonicity of the Muscles in the New-Born. (Hypertonische Neugeborene und Säuglinge.) P. Heim.
113 Production of Anaphylatoxin. H. Sachs and E. Nathan.
114 Serum Reactions. L. Hirschfeld.
115 *Typhoid-Bacilli Carriers. (Dauerausscheider.) A. Hirschbruch.
116 *Segregation of Blood in the Limbs to Relieve Congestion in Internal Organs, Edema or Hemorrhage. Blum.
117 Streptothrix Found in Lumbar Puncture Fluid. M. Bernhardt.
118 Jaundice. (Icterus.) A. A. H. v. d. Bergh and J. Snapper. Commenced in No. 24.

109. **Tuberculosis of the Prostate.**—Hesse says that the evidence already on hand demonstrates that the prostate is the one organ in the urogenital apparatus most frequently affected with tuberculosis. In 815 cases of urogenital tuberculosis on record, the prostate was the seat of a tuberculous process in 68.5 per cent.; next came the seminal vesicles and thirdly the epididymis. The only relief lies in total removal of the gland with the seminal vesicles and vasa deferentia, and he emphasizes that the operation can never be done too early. A concomitant tuberculous process in the lung may retrogress after the prostatectomy, if not too far advanced. With one in the kidney, Hesse advises nephrectomy first, and if no benefit is apparent in six or eight weeks at most, prostatectomy should be delayed no longer. Cases are on record in which the process in the prostate retrogressed after removal of tuberculous testicles, and here, too, a delay of a month or two—never longer—might be permissible. The experiences of the last few years justify a more aggressive treatment of tuberculosis of the prostate than has hitherto prevailed.

112. **Hypertonicity in the New-Born.**—Heim remarks that the old, tacitly accepted conception that babies are created physiologically equal no longer prevails in modern pediatrics. The "exudative diathesis" was the first constitutional condition of inferiority recognized, and Heim here calls attention to another similar constitutional condition in which the infants react to physiologic and pathologic stimuli in a manner quite different from other infants. The nerves and muscles respond normally to electric tests but the deep reflexes and the physiologic tonus are exaggerated, and the muscles are drawn up, the limbs stiffly flexed. Sometimes a pencil placed in the infant's hand may be grasped so firmly that the child can be lifted by the pencil. The nervous threshold is extremely low in these children, and although they usually outgrow their hypertonicity by the fourth to eighth month, they develop into lean, muscular, bright children with very unstable vasomotor system. After birth they grow in height but do not increase normally in weight, and the sugar in breast milk is liable to bring on diarrhea. These hypertonic babies do not seem to be thriving even when stools and temperature are normal and their food seems to be correct and ample.

115. **Typhoid-Bacilli Carriers.**—Hirschbruch states that the great difficulty in discovering bacilli carriers is that they eliminate the bacilli only intermittently, as he shows by a number of instances from the Metz station. One woman was examined daily and the findings were negative fifty-two times and positive only twice, and yet typhoid bacilli were found at necropsy. In another woman examined regularly once a month, at one time there was a negative interval of three years and ten months between numerous positive findings. Typhoid bacilli were found in 1910 in the stool of a woman who had typhoid forty years before. She died three years later and nine days after her death another inmate of the house developed typhoid for which she was evidently responsible. Some of the known carriers voided the bacilli only after taking castor oil, others only after aloin and podophyllin, while in two of the known carriers elimination of the bacilli could not be stimulated by any of the numerous purgatives tried.

116. **Segregation of the Blood in the Limbs to Relieve Congestion in the Brain, Etc.**—Blum suggests that a constricting band at the root of the arms and legs would shut off a large amount of venous blood without interfering materially with the arterial circulation and thus might tide the patient past the danger point in pulmonary edema, acute hydrocephalus, serous meningitis and in acute hyperemia in the brain, with status epilepticus or paralyticus, and, above all, when there is hemorrhage from the lungs. Blum is convinced that this segregation of the blood may be found useful with hyperemia from any cause in an internal organ or tendency to hemorrhage, even with hemorrhoids, in addition to the usual measures.

Correspondenz-Blatt für Schweizer Aerzte, Basel

XLIV, Nos. 23-26, pp. 705-832

119 Operative Treatment of Enlargement of the Prostate. H. Wildbolz.
120 Necessity for Thyroid Treatment of Endemic Cretinism. A. Oswald.
121 *Pyelocystitis in Children. O. Stiner.
122 Treatment of Surgical Tuberculosis at Berne. C. Arnd. Commenced in No. 25.

121. **Pyelocystitis in Children.**—Stiner declares that getting chilled is generally found to have preceded the pyelocystitis even when it develops in a child with the exudative diathesis or a tendency to scrofula or sluggish metabolism. He describes several typical cases; in one a girl of 3 stood in the snow watching the skating and soon after returning home screamed that she was unable to urinate and fever soon developed. The external genitals were red and swollen. While a catheter was being prepared the child was seated in a hot bath of chamomile infusion and in five minutes the bladder spontaneously emptied itself. Improvement continued under hexamethylenamin and linden-flower tea internally, repeating the bath as necessary. After bathing the external genitals with boric acid, it was deemed safe to use the catheter, and the urine proved typical of cystitis. All returned to order again in two weeks, during which the child was kept in bed and treated with hexamethylenamin and salol alternately four days each. Both parents and the child were subject to frequent headaches. In the second case a boy of 19 months had "caught cold" from sitting on wet stone steps. A week later cystitis manifested itself by an

edematous swelling and cyanosis of the penis, preventing micturition. In some other cases the pyelitis began with convulsions or vomiting; catarrhal affections of the upper air passages are frequent. Sometimes pyelitis develops under the picture of meningitis or typhoid. It is more than probable, Stiner remarks, that occasionally an appendix has been sacrificed unnecessarily in an unsuspected pyelitis. In two other personal cases related microscopic examination of the urine was all that saved from this blunder. In the first, a girl of 4, had the tenderness typical of appendicitis with slight tenderness up toward and in the right kidney region. The other child, a healthy boy of 8, was taken with vomiting on his way to school and had high fever, vertigo and abdominal pain when he returned. The local findings spoke exclusively for appendicitis, but the boy mentioned that for several days frequent desires to urinate had annoyed him in school. The appendix was found much inflamed and swollen and the pyelitis healed along with the appendicectomy wound without any special measures.

Deutches Archiv für klinische Medizin, Leipzig

CXV, Nos. 1-2, pp. 1-206. Last indexed July 18, p. 282

123 Effect of Pancreas Extract on Blood-Pressure in Acute Experimental Nephritis in Rabbits. H. Zondek.
124 Functional Derangement of the Kidneys. (Zur Kenntnis der Nephropathien.) P. v. Monakow.
125 Amount of Albumin Katabolism in Fever and during Work. (Grösse des Eiweisszerfalls bei Fieber und bei Arbeitsleistung.) R. A. Kocher.
126 Measuring the Volume and Work of the Pulse. (Volum Messung des menschlichen Radialpulses, die Volumbolometrie. Neue Art der Arbeitsmessung des Pulses.) H. Sahli.
127 Increase of Eosinophils after Injection of Tuberculin. (Verhalten der weissen Blutkörperchen, insbes. der eosinophilen Leukocyten, bei probatorischen Tuberkulininjektionen.) O. Brosamlen.
128 The Symptoms of Cystic Kidney Arc Similar to but Not Identical with Those of Chronic Interstitial Nephritis. (Cystennieren.) W. H. Veil.
129 *Nucleinic Acid Test in Diagnosis in Blood Diseases. (Nukleinsäure bei Blutkrankheiten. W. Könnecke.

129. **Nucleinic Acid in Blood Disease.**—Leukocytosis is an expression of the biologic reaction of the bone marrow to the toxins of disease, and Könnecke found that intramuscular injections of a 10 per cent. solution of sodium nucleinate had the effect of stimulating the development of leukocytes and hastening their maturity.

Deutsche medizinische Wochenschrift, Berlin

June 18, XL, No. 25, pp. 1249-1296

130 Treatment of Tropical Diseases. P. Mühlens.
131 Intraperitoneal Treatment with Radium. H. Freund.
132 Experimental Study of the Protective Ferments. (Abwehrfermente.) V. Kafka and O. Pförringer.
133 Serodiagnosis of Cancer. (Zur Serodiagnostik der malignen Geschwülste.) K. Hara.
134 Animals Rendered Sterile by Treatment with Iodin. (Beeinflussung der Fortpflanzungsfähigkeit durch Jod.) O. Loeb and B. Zöppritz.
135 *Analysis of the Alleged Salvarsan Deaths. J. Benario.
136 *Indications for Friedmann's Treatment of Tuberculosis. (Erläuterungen zu den Indikationen für das Friedmannsche Mittel.) F. F. Fricdmann.
137 Periodical Hemorrhagic Nephritis. N. J. Tschistowitsch.
138 Perforation of Cecum with Ileus in Lower Intestines; Two Cases. (Zoecumperforation bei tiefsitzendem Dickdarmverschluss.) M. Cohn.
139 Metastasis of Hypernephroma in the Spine. H. Harttung.
140 Technic for Intraspinal Salvarsan Treatment. Tuszewski.

June 25, No. 26, pp. 1297-1352

141 Treatment of Acute Infectious Conditions in Children. Tobler.
142 *Type of Tubercle Bacilli in Sputum. B. Möllers.
143 *Renal Diabetes. A. Galambos.
144 Calcification of Arteries without Preceding Arteriosclerosis. (Ungewöhnliche Verkalkung der Arterien.) A. M. Levy.
145 *The Wassermann Test in the New-Born. (Eigenartiges Verhalten syphilitischer Neugeborener gegenüber der Wa. R.) F. Lesser and R. Klages.
146 Roentgenotherapy Inadequate for Burrowing Cancers of the Skin. (Therapie des tiefgreifenden Hautkrebses.) P. Wichmann.
147 Action of Roentgen and Radium Rays on Internal Organs, Especially the Spleen. Heineke.
148 *Detachment of the Retina Cured by Operation. (Netzhautabhebung.) L. Müller.
149 *Experiences with Friedmann's Treatment of Tuberculosis. (Erfahrungen über F. F. Friedmanns Heil- und Schutzmittel.) R. Rosenfeld.
150 Experiences with Piorkowski's Treatment of Tuberculosis. (Zur Behandlung der Tuberkulose mit Schildkröten- Tuberkelbazillen nach Piorkowski.) P. Bonheim.
151 Technic and Results of Certain Forms of Electrotherapy. (Diagnostische und therapcutische Bedeutung der Kondensatorentladungen.) A. Schnee.
152 Propaganda for Reform. (Zur Bekämpfung der unlauteren Heilmittel- Reklame.) J. Schwalbe.
153 The Side-Chain Theory. (Zur erkenntnistheoretischen Würdigung der Ehrlichschen Seitenkettentheorie.) A. Dworetzky.
154 New Hamburg Institute for Marine and Tropical Diseases. F. Fülleborn.
155 The Price of Salvarsan. P. Ehrlich.

135. **Deaths After Salvarsan.**—Benario claims that only from 4 to 6 of the alleged 274 salvarsan fatalities compiled by Mentberger can stand analysis as to any connection with salvarsan given by a proper technic. In the 41 cases in which the drug was given to non-syphilitics the authors almost invariably state that the patient was dying from heart or liver disease or something of the kind and the salvarsan was given as the last resource.

136. **Indications for Friedmann's Treatment of Tuberculosis.**—This communication from Friedmann himself states that his experience has shown the necessity for simplifying the technic and drawing more strictly the lines in regard to the indications.. The interval between two intramuscular injections must not be less than four or five months, as this interval at least is required before antibodies can be produced in adequate amounts. The effect of a simultaneous intramuscular and intravenous injection lasts for eight, ten or twelve months or longer. Restriction of the treatment to a single injection and then watchful waiting for many months is the secret of success. The intravenous "between injection" must be given, of course, whenever the infiltration in the gluteal muscle begins to be painful and to increase rapidly in size. He reiterates that the remedy consists of living bacteria which manifest their action very slowly. We must not forget that the process here is possibly like that of vaccination with cow-pox, the action of which extends over years and decades.

142. **Type of Tubercle Bacilli in Sputum.**—Möllers reports further experiences which confirm the rarity of bovine tubercle bacilli in pulmonary or bronchial gland tuberculosis. There are now 974 cases that have been recorded by thirty-six clinicians in which careful search was made for the special type of bacilli involved and in many instances animals were inoculated with sputum or scraps of tissue. Human tubercle bacilli were found alone in all but 0.51 per cent.; bacilli of the bovine type were found alone in only 5 cases, and associated with human bacilli in 2.

143. **Renal Diabetes.**—The case described by Galambos is possibly the severest one of true "renal diabetes" on record, while the metabolic details are tabulated with exceptional minuteness. The patient was a man of 50 with sugar in the urine and 156 gm. sugar and 2.74 gm. acetone plus acetic acid in the total urine (2,350 c.c.). The diabetes was a casual discovery when he consulted a physician on account of cramps in one calf; he felt otherwise entirely well. The sugar content of the blood was normal or below; alimentary hyperglycemia could not be induced and no connection was apparent between the intake of carbohydrates in the food and the fluctuations in the sugar content of the urine. The case therefore must be regarded as one of typical renal diabetes, and it seems to be the only one on record with acidosis. Galambos declares that the danger of coma threatens with renal diabetes—unless the acidosis can be cured—the same as with ordinary diabetes. This renders a carbohydrate diet imperative and especially as it does not augment the glycosuria with renal diabetes. Except for this, the clinical picture resembled in every respect that of phloridzin diabetes. The anatomic condition and the functional capacity of the kidneys have no bearing on the diagnosis. The low respiratory quotient and the absence of any rise under copious intake of carbohydrates confirm the defective oxidation of sugar. The prompt subsidence of the acidosis with increased intake of carbohydrates points to the loss of carbohydrates as the cause of the acidosis.

145. **Wassermann Reaction in the New Born.**—Lesser and Klages report that serum from the umbilical vein gave a positive reaction to the Wassermann test by Lesser's technic

and a negative reaction with another technic. This occurred regularly in 50 per cent. of the 1,280 infants examined for the purpose. This experience shows the necessity for applying the test with different antigens. The difference in the reaction seems to depend more on the alcohol or ether than on the organ used for the extract.

148. **Operative Cure of Detachment of the Retina.**—Müller says that both the patients operated on by his method two and a half and one year ago, were both entirely cured although the detachment of the retina was complete and of long standing. He operates only when all other means have failed, allowing at least a year for a thorough trial. His record now includes 24 cases operated on over two years ago; 10 are known to be entirely cured and a number improved while the outcome is not known in several. The overstretching of the internal membranes is what he seeks to remedy, thus reducing the size of the eyeball and restoring the vitreous body to its proper place. General anesthesia is required for the operation; the full technic is not given here.

149. **Friedmann's Treatment for Tuberculosis.**—Rosenfeld applied Friedmann's remedy in 43 cases of pulmonary tuberculosis with disappointing results, so that he had abandoned the method in these cases. But in two of his four cases of tuberculous glandular processes he states that decided and unmistakable improvement was realized.

Deutsche Zeitschrift für Chirurgie, Leipzig

CXXVIII, Nos. 3-4, pp. 209-432

156 Combination General Anesthesia. (Weitere Erfahrungen mit Kombinierten Narkosen.) P. Sick.
157 Sarcomas in Stomach and Small Intestine. (Magen- und Dünndarmsarkome.) B. Storch.
158 Rare Complications of Multiple Exostoses. H. Mosenthin.
159 Technical Points for Plastic Operations on the Esophagus. Syring.
160 Inheritance of Familial Physical Peculiarities. (Vererbung familiärer Merkmale, spez. den Vererbungsmodus der Bluterkrankheit und Versuch seiner Erklärung.) W. Lossen.
161 *Chronic Glanders in Man. (Rotz beim Menschen.) F. Ris.
162 Appendicitis. Esau.
163 Plastic Operations on Abdominal Wall. (Bauchdeckenplastik.) Grisson.
164 Operation for Exstrophy of the Bladder. (Blasenektopie.) A. Hagentorn.
165 Sugar and Charcoal as Dressing for Wounds. (Ueber den Zucker- und den Kohleverband.) A. Köhler.
166 Peculiar Healing of Supracondyle Fracture of the Humerus in Two Children. W. Carl.
167 Vulvar Cancer; Three Cases. Rittershaus.
168 Treatment of Fracture of External Condyle of the Humerus by Removing Loose Fragment. E. Fabian.

161. **Chronic Glanders in Man.**—Ris reports from Switzerland a case of this disease in a veterinarian of nearly 30. Six days after he had dissected the body of a horse with glanders he developed pain suggesting intercostal neuralgia, and the glanders then proceeded through the various stages of left pleurisy, abscesses in muscles, bronchitis, and pharyngo-laryngitis, the whole with a septic-pyemic course nearly all the time since the first symptoms in 1911. Ris applied roentgenotherapy and salvarsan, after failure of other measures, and the effect of both was decidedly favorable but the debility is so extreme still that the patient is in danger even if the salvarsan kills off the germs.

Medizinische Klinik, Berlin

June 24, X, No. 25, pp. 1045-1086

169 *Scarlet Fever and Nodose Erythema. H. Eichhorst.
170 Anemia and Its Treatment. A. Herz.
171 *Death after Neosalvarsan. (Todesfall nach intravenöser Injektion von Neosalvarsan.) R. Frühwald.
172 Osteoma in Frontal Sinus. (Stirnhöhlenosteome.) A. Zumhasch.
173 Germ Carriers at Sanatoriums and Spas. (Die Tuberkulose- und Influenza-Bacillen-Träger in offenen Kurorten und in Heilstätten.) Ritter.
174 Benefit from Mineral Waters in Organic Disease. (Haben die natürlichen Mineralquellen eine specifische Heilwirkung auf den erkrankten Organismus?) Lenné.
175 *Acute Congestion of the Liver. (Akute Stauungsleber.) J. Fels.

June 28, No. 26, pp. 1087-1126 and Supplement

176 *Clinical Importance of the Thymus. H. von Haberer.
177 *Seasickness and Its Treatment. (Die der Seekrankheit zugrunde liegenden Störungen und Therapie dieses Zustandes.) O. Bruns.
178 *Salvarsan in Herpes Zoster Ophthalmicus. H. Gebb.
179 Whooping-Cough. (Pertussis.) E. Popper.
180 Artificial Light in Treatment of Surgical Tuberculosis. Breiger.
181 Pulsation in the Throat. (Ueber Pulsationserscheinungen in der Rachenhöhle.) F. Wagner.
182 Serodiagnosis of Syphilis. (Abderhaldensche Dialysierverfahrens.) J. Luxenburg.
183 Laws of Heredity. (Abstammungs- und Vererbungslehre im Lichte der neueren Forschung.) W. Wangerin. Commenced in No. 25.
184 Gynecologic Practice. (Diagnostische und therapeutische Ratschläge für den gynäkologischen Praktiker.) R. Asch.

169. **Nodose Erythema in Connection With Scarlet Fever.**—Eichhorst has encountered two cases in which nodose erythema developed during convalescence from scarlet fever, and a third in which the erythema was accompanied by diphtheria. In both the first two cases the skin tuberculin reaction was positive. In all the cases the erythema gradually subsided. Craig, Perigal and Pollak have recently reported a case each of erythema nodosum following measles.

171. **Death After Intravenous Injection of Neosalvarsan.**—Frühwald cites the compilations of fatalities under neosalvarsan published by Tomasczewski and in Wechselmann's and Mentberger's pamphlets—a total of 29 cases, and the neosalvarsan, he says, must unquestionably be incriminated in 15. The symptoms were either those of toxic myelitis or encephalitis, and the new case he reports in detail belongs in this latter category. An otherwise healthy girl of 18 with secondary manifestations of syphilis in face, mouth and genitals, was given an intravenous injection of 0.75 gm. neosalvarsan in 2 c.c. distilled water, repeated five days later. The seventh day the girl was found unconscious and died in twelve hours.

175. **Acute Congestion of the Liver.**—Fels relates that when he found the liver much enlarged and very painful on pressure in the two cases reported, he took for granted some serious liver affection and informed the family of his grave prognosis. One patient was a girl of 4, the other an active woman of 68. The first had been taken suddenly with severe gastro-enteritis which yielded soon to treatment while the liver tumor persisted for a week and then all returned to normal. In the second case the chilliness and headache were followed by pain as of gall-stone colic and the liver was intensely painful and enlarged until it resembled the enlarged spleen of leukemia. Here too his grave prognosis was contradicted by the subsidence of symptoms and nearly complete retrogression of the liver tumor. These cases belong in the group of "peracute stasis liver" described by Ortner, as summarized in these columns Nov. 1, 1913, p. 1670.

176. **The Thymus.**—Von Haberer writes that the thymic-lymphatic status is unusually common in his region (Tyrol) and simple goiter is often accompanied by enlargement of the heart, tachycardia and other symptoms suggesting abnormal thymus functioning, and the thymus was always found enlarged in such cases. He excised part of the thymus in 20 cases of the kind, and always with the best effect. His experience confirms the assumption that both thymus and thyroid are responsible for Basedow's disease, the clinical picture being determined by the degree of involvement of each, the thyroid playing on the sympathetic, the thymus more on the vagus nervous system. In a case reported with illustrations a persisting thymus was suggested in a man of 29 by the extremely tall growth, the pallor, infantile genitals and growth of hair, the unusual development of the follicles at the base of the tongue, and dulness extending each side of the manubrium; palpation confirmed the presence of a large thymus. A fracture of the radius had healed in a vicious position and required correction but, before attempting this, Haberer operated on the thymus which proved the largest he had ever encountered. The thymus-reduction operation was easily done and the patient speedily recovered and then bore without harm the general anesthesia and operation on the radius. Haberer knows of no other case on record in which an operation was done on the thymus on the basis of the clinical diagnosis alone.

177. **Seasickness.**—Bruns made 172 tests of over 100 subjects in the revolving chair and found that the symptoms

induced were identical with those of seasickness. He accepts this as demonstrating that seasickness is a reflex phenomenon elicited in the predisposed by the unusual conditions in the apparatus for equilibration. Before applying the revolving experiments he tested the individual excitability of the cerebral and spinal nervous system and of the vegetative autonomic system. From the degree of excitability determined by these and other tests he was able to predict whether "seasickness" would follow or not when the man or woman was whirled around. Means to reduce this excitability are theoretically indicated during and to ward off seasickness; Fischer's recommendation to inject 1 mg. atropin during an attack is logical as this deadens the sensibility of the terminals of the vagus nerve. Bruns found that the atropin had a decidedly beneficial action and retarded the appearance of the seasickness when given as a preventive. During the attack it seems to act by stimulating the central nervous system rather than by paralyzing the peripheral nerves. If this is the case, caffein might be substituted for it here, or other drugs to combat the prostration and collapse during the attack.

178. **Salvarsan for Herpes Zoster.**—Gebb reports two cases of very severe herpes zoster starting in one eye; he made an intravenous injection of 0.45 gm. neosalvarsan or of 0.28 gm. salvarsan and a marked change for the better was manifest in forty-eight hours, soon followed by complete recovery. The patients were a man and a woman of about 60. The effect realized by the salvarsan suggests a possible infectious origin for the herpes zoster.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

June, XXXIX, No. 6, pp. 751-864

185 The Uncontrollable Vomiting of Pregnancy. (Hyperemesis Gravidarum.) O. Bondy.
186 Serodiagnosis of Pregnancy. E. Puppel.
187 Proteolytic Serodiagnosis in Gynecology and Obstetrics. F. Heinemann.
188 Topographic Palpation of Ileocecal Region, Especially with Displaced Tube. T. Hàusmann.
189 *Turpentine in Prophylaxis and Treatment of Puerperal and Gynecologic Infections. H. Cramer.
190 Surgical Treatment of Inflammatory Disease of the Adnexa. L. A. Kriwsky.
191 Eye Symptoms with Pregnancy Kidney Trouble. Adam.

189. **Turpentine in Gynecology and Obstetrics.**—Cramer has used turpentine successfully in many cases of infected abortion. The uterus is swabbed with turpentine after curettage. He gives temperature charts from eight cases showing the sudden decline in temperature after the treatment. He describes one case of placenta praevia in which there was a putrid discharge that stopped after the twenty-four hour application of a turpentine tampon. He also uses it to disinfect the vagina before operations for cancer and prolapse. He has never witnessed any toxic effect from the turpentine.

Monatsschrift für Kinderheilkunde, Leipzig

XIII, No. 1, pp. 1-68

192 Effect of Epinephrin on the Sympathetic Nervous System of the Infant. G. Mogwitz.
193 The Normal Blood-Pressure in Children. E. Nirrnheim.
194 Disturbances of Sleep in Children. (Schlafstörungen im Kindesalter.) F. Hamburger.
195 Clinical Picture of Bacillary Dysentery in Infants and Children. (Bazilläre Ruhr im Säuglings- und Kindesalter.) K. Blühdorn and R. Schild.
196 Rumination in Infants. J. Peiser.

Münchener medizinische Wochenschrift, Berlin

June 23, LXI, No. 25, pp. 1377-1432

197 *Psychotherapy for Children. T. Gött.
198 Relations between General Nervous Symptoms Early in Syphilis and the Findings in the Spinal Fluid. W. Wechselmann and E. Dinkelacker.
199 Tuberculosis Vaccine. (Tuberkuloseimpfstoff.) J. M. Albahary.
200 *Dialysis Serodiagnosis of Cancer. A. Schawlow.
201 Acute Appendicitis during Pregnancy; Five Cases. Wanner.
202 Hemiplegia during Typhoid; Recovery. G. Wulf.
203 The Findings in the Spine with Chronic Ankylosis. (Wirbelsäulenversteifung.) E. Fraenkel.
204 *The Salvarsan Fatalities. (Die Salvarsantodesfälle und ihre Ursachen mit Berücksichtigung der Salvarsanschäden.) A. Schmitt. Commenced in No. 24.
205 Quacks as Medicolegal Experts. (Kurpfuscher als ärztliche Sachverständige vor Gericht.) O. Neustätter. Concluded in No. 26.
206 Propaganda for Reform. (Auswüchse der modernen Heilmittelproduktion.) C. Mannich.
207 Precursors of the Red Cross. (Humanitäre Bestrebungen im Kriege vor dem Roten Kreuz.) E. Haendcke.
208 The Price of Salvarsan. P. Ehrlich.

197. **Psychotherapy for Children.**—Gött emphasizes the necessity for systematic and scientific utilization of the principles of psychotherapy which in its intuitive, instinctive form has been applied from the very beginning of medicine. It is especially useful for children on account of the frequency and importance of neurotic and psychogenic symptoms and clinical pictures at this age. He compares conditions to a chord with one discordant note; with a good ear for music the discordant note can be detected and corrected in one of several ways unless the instrument is hopelessly defective, and even then it may be possible by transposing the chord to eliminate the discord. He has found hypnosis the most effectual measure to cure enuresis, and states that even Dubois confesses that he sometimes uses hypnosis for this purpose.

200. **Serodiagnosis of Cancer.**—Schawlow says that negative findings were obtained in only 7.5 per cent. of 40 gastric cancers and in 6.36 per cent. of 64 cases of malignant disease elsewhere. The findings contradicted the course of the cases only in 9 of the total 104 cases and these were all in the early months of the research.

204. **Fatalities after Salvarsan.**—Schmitt has been sifting and analyzing the 274 cases on record in which death followed salvarsan treatment. He shows that in a large proportion of cases there was no connection between the drug and the fatality; in others the dosage was excessive or the intervals too brief. The dose even for vigorous young men should not be over 0.4 or 0.5 gm. and for women 0.3 or 0.4 gm. and the interval between doses should never be less than a week.

Wiener klinische Wochenschrift, Vienna

June 11, XXVII, No. 24, pp. 833-876

209 Success of Albumin Milk in Infant-Feeding. (Eiweissmilchernährung im Hause und im Spital.) E. Sluka and B. Sperk.
210 Differentiation of Bacteria by Protective Ferments Not Practicable. P. Kirschbaum and R. Kohler.
211 Experimental Research on Action of Arsenic on Organs. K. Ullmann.
212 Negative Results of Salvarsan in Hog Cholera. O. Baum and G. Herrenheiser.
213 *Stomach Changes in Secondary Phase of Syphilis. (Sekundäre Syphilis und Magenveränderungen.) H. Neugebauer.
214 Case of Poisoning from Luminal. (Luminalvergiftung.) J. Ungar.
215 Horizontal Ventilation by "Differential Aeration;" Knapen Method. M. Setz.

June 18, No. 25, pp. 877-924

216 Elimination of Lactic Acid in Urine and Its Connection with Carbohydrate Metabolism. (Milchsäureausscheidung im Harne und ihre Beziehungen zum Kohlehydratstoffwechsel.) O. v. Fürth.
217 *Dogs' Lungs after Seven Months of Induced Pneumothorax. O. Frank and N. v. Jagic.
218 Action of Digestive Ferments on Fish Poison. (Einwirkung der Verdauungsfermente auf das sogen. Fischgift.) S. W. Konstansoff and E. O. Manoiloff.
219 The Protective Ferments in Antitoxins. (Nachweis von Abwehrfermenten in antibakteriellen Immunseren.) F. Schenk.
220 Pathogenesis of Ileus. R. Vogel.
221 Advantages of Dispensaries for Surgical Tuberculosis. M. Jerusalem.

213. **Gastric Disturbances of Syphilitic Origin.**—Neugebauer examined the stomach functioning in 200 syphilitics in the secondary stage and found manifest hypoacidity in 62 per cent., while in 18 there was total lack or only traces of free hydrochloric acid. In 17 per cent. hyperacidity was found. The patients were all young men between 20 and 25, healthy until syphilis had been acquired. Under treatment of the syphilis the gastritis improved while it did not seem to be modified by treatment of the stomach trouble alone. The syphilitic origin of the gastritis was confirmed by the abnormal amounts of mucus, alimentary galactosuria and other signs of syphilis and by the efficacy of specific treatment. He urges in conclusion the advisability of a tentative course of antisyphilitic treatment in all puzzling cases of stomach trouble.

217. **Lung not Permanently Injured by Induced Pneumothorax.**—Therapeutic right pneumothorax was induced in two dogs and kept up complete for seven months. The lung then was found compressed to two-thirds the size of the other lung, but most of it expanded to its normal extent when inflated. Only the upper lobe was left permanently atelectatic. Slight hypertrophy was evident in the right ventricle but so slight as to be negligible. The changes consequent on the induced pneumothorax were on the whole so insignificant that Frank and v. Jagic assert that the field for this method of treatment is much enlarged thereby, as it can be applied without fear of injury to sound parts of the lung even in incipient pulmonary tuberculosis.

Zeitschrift für Kinderheilkunde, Berlin

May, XI, No. 12, pp. 81-190

222 Caloric Requirement for Infant's Nutrition. (Kraftbedarf des Säuglings.) O. Heubner and S. Samelson.
223 Albumin Content of the Blood in Tuberculous Children. B. Salge and E. Nast.
224 Serum of Patients with Rachitis or Tetany Does Not Digest Gland Tissue. (Das Dialysier-Verfahren Abderhaldens bei Rachitis und Tetanie.) H. Beumer.
225 Lack of Uniformity in the Caloric Requirements of Infants. (Klinische Beobachtungen über die calorische Betrachtungsweise der Säuglingsernährung.) E. Mayerhofer and F. Roth.
226 Reaction of Tuberculous Foci in the Skin to Tuberculin. H. Koch and W. Schiller.
227 Volatile Fatty Acids in the Intestine of Normal Infants and Those with Gastro-Intestinal Disturbances and Their Relation to Disturbance in Metabolism. (Pathogenese der Verdauungsstörungen im Säuglingsalter. VIII.) H. Bahrdt and S. McLean.
228 Transverse Striation in the Roentgen Picture in Myxedema. (Bedeutung der Epiphysenschatten beim Myxödem.) F. Goetzky and F. Weihe.

Zeitschrift für Urologie, Berlin

June, VIII, No. 6, pp. 433-528

229 The Limits for Nephrectomy. F. Legueu.
230 Surgical Treatment of Hypospadias. A. Pousson.
231 *Technic for Nephrectomy. (Zwei neue Gesichtspunkte in der Frage der Nephrektomie wegen Nierentuberkulose.) F. Kidd.
232 Diagnosis of Nocturnal Enuresis. A. Alexeieff.
233 Lipoma of the Epididymis. (Lipome des Nebenhodens.) H. Wildbolz.
234 Acute Septic Nephritis. (Niereneiterung.) H. v. Haberer.
235 Separation of Horse-Shoe Kidney into Two Practically Normal Organs. (Fall von Trennung einer Hufeisenniere.) H. Brongersma.
236 Hyperalgetic Zones and Herpes Zoster with Kidney Disease. C. Adrian.

231. **Technic for Nephrectomy.**—Kidd insists that when conditions do not permit catheterization of the ureters and cystoscopy, with a tuberculous process in the kidney, we must not hesitate to open up the pelvis to inspect one or both ureters as they pass through this region. A two-inch incision is ample for the purpose, made over the supposedly sound ureter. The ureter is exposed and palpated between the fingers. It may be necessary to open up both ureters in this way, but the information thus derived is of paramount importance. He operated in six cases on information thus derived, and with the happiest results. In addition Kidd states that the way to ensure healing without suppuration after nephrectomy is to remove the kidney with the perirenal fat and fascia intact.

Zentralblatt für Chirurgie, Leipsic

June 20, XLI, No. 25, pp. 1065-1104

237 When to Operate for Hard Gastric Ulcer. (Zur Indikationsstellung der operativen Behandlung des Ulcus kallosum ventriculi.) E. Payr. (Zur operativen Behandlung des Sanduhrmagens infolge Ulcus der kleinen Kurvatur.) A. Wagner.

June 27, No. 26, pp. 1105-1144

238 *Roentgen Ray Helps to Heal Fractures. M. Fraenkel.
239 Treatment of Bilateral Ankylosis of Lower Jaw. (Neues Verfahren zur Beseitigung einer beiderseitigen Ankylosis ossea des Unterkiefergelenkes.) W. Mysch.
240 Plastic Bone Operation after Laminectomy. O. Vulpius.

238. **Stimulating Doses in Roentgenotherapy of Fractures.**—Fraenkel emphasizes the therapeutic importance of the Roentgen rays applied in doses only just strong enough to have a stimulating action. With this *Reiz* dose he has often found it possible to start reabsorption of pleuritic and peritonitic adhesions and start tuberculous glands on the road to a cure. Many tissues and organs as long as they are in a normal condition do not seem to be affected by the Roentgen rays, but when there is already a physiologic irritation then the stimulus from the Roentgen rays or direct sunlight is soon apparent. The effect was remarkable, he states, in eight cases of fracture; callus production and consolidation proceeded with amazing rapidity. The crushed bone was "hanging by a thread" in two cases, both in children, and amputation seemed the only resource, but under the Roentgen exposures consolidation was complete in eight or ten days.

Zentralblatt für Gynäkologie, Leipsic

June 20, XXXVIII, No. 25, pp. 897-928

241 Simplification of Serodiagnosis of Pregnancy. (Vereinfachung der Schwangerschaftsdiagnose nach Abderhalden.) P. Hussy.
242 Classic Cesarean Section: Thirty Cases. A. N. Rachmanow.

June 27, No. 26, pp. 929-960

243 Vicarious or Complementary Menstruation. A. Hirschberg.
244 *The Roentgen Ray in Treatment of Chlorosis. (Die Reizwirkungen der Röntgenstrahlen und ihre therapeutische Verwendung.) M. Fraenkel.

244. **Roentgenotherapy of Chlorosis.**—Fraenkel reports a case of pronounced exophthalmic goiter in a woman of 34 which showed great benefit under fractioned Roentgen exposures of the neck and ovary region. The gradual arrest of menstruation which seems to accompany the onset of Basedow's disease suggests that hypofunctioning on the part of the ovaries opens the portal to exophthalmic goiter, and that means to restore normal functioning to the ovaries will aid in curing the Basedow. His experience in a number of cases of chlorosis with symptoms suggesting mild Basedow and hemoglobin only 48 or 50 per cent. has amply confirmed this assumption, he says. The hemoglobin ran up from 48 to 78, 80 or 85 in five cases of chlorosis in which he had the ovaries exposed, eight sittings, each one-half E.O. with no other treatment.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 23, XXXV, No. 75, pp. 793-800

245 Rat-Bite Disease in Italy: Two Cases. (Sokodu.) W. Zannini.

Riforma Medica, Naples

XXX, Nos. 24-25, pp. 645-700

246 *Adiposis Dolorosa. (Malattia di Dercum.) P. Biffis.
247 *Uremic Polyneuritis. A. Martiri.
248 Granulations in Lymphocytes Taking Blue Stain. (I linfoidi azzurrofili.) F. Radano and G. L. Della-Porta.
249 Surface Tension of Blood Serum after Operations on Adrenals. (La tensione superficiale del siero di sangue in alcuni stati surrenali sperimentali.) V. Giamberardino.

246. **Adiposis Dolorosa.**—Biffis reports a case of Dercum's disease in a woman of 48, previously healthy. The first lipomas were noticed at the age of 38; they were not painful at first. The enlargements are generally symmetrical and when there is no lymphoma to correspond on the other side yet the corresponding spot is painful on pressure. Under the influence of a hot bath the spontaneous pain was arrested for several hours, as also under the influence of aspirin or pyramidon, but the condition as a whole did not seem to be modified by any measures during the two months the patient was under observation. Biffis also relates the complete recovery of another patient, the adiposis dolorosa gradually completely subsiding and with it an alcoholic polyneuritis. Biffis calls attention to this case as sustaining the assumption that Dercum's disease is essentially a neuritis.

247. **Uremic Polyneuritis.**—Martiri's patient was a woman of 66 with parenchymatous nephritis. The symptoms of irritation of the nerves gradually subsided in the course of two months, but the muscles in both legs and arms developed pronounced atrophy. The clinical picture suggested poliomyelitis at first, but this was excluded by the symmetrical distribution of the neuritis, the slow and gradual onset and gradual subsidence, the absence of fibrillary contracture and bulbar symptoms, the curability, and the participation of the optic nerve to a slight extent. There were no symptoms of

uremia otherwise, but the advanced kidney disease suggests a connection between it and the polyneuritis, especially as the latter improved under treatment of the kidney trouble.

Brazil-Medico, Rio de Janeiro

June 1, XXVIII, No. 21, pp. 203-210

250 Experimental Research on Apnea. (Technica para o estudo da apnea.) M. Ozorio.
251 Yellow Fever in Brazil. (A febre amarella em Manaos.) T. Torres. Commenced in No. 18.

Pediatria, St. Petersburg

VI, No. 4, pp. 245-328

252 *Autoserotherapy in Pleurisy. A. S. Artamonoff.
253 Measures for Infant Welfare in Rural Districts. Z. I. Klibanskaya.
254 Favorable Experiences with Albumin Milk in Infant Feeding. (O primienenii bielkovago moloka.) A. G. Rudnik.

252. **Autoserotherapy in Pleurisy.**—Artamonoff applied autoserotherapy in 21 out of 155 cases; in 41 other cases various drugs were used in treatment, and in 93 merely hygiene-dietetic measures. It was impossible to detect any influence from the autoserotherapy on the course of the pleurisy in any of the cases in which there were signs indicating a tuberculous origin. The night sweats and temperature were not modified. The tabulated details show that none of the measures applied seems to have shortened the course of the pleurisy.

Russky Vrach, Petersburg

XIII, No. 9, pp. 289-324

255 *Action of Poisons on the Vessels in the Lungs. V. I. Berezin.
256 *Hemorrhagic Gastritis. (Coccemia chronica permanens.) B. P. Varipaeff.
257 Chemotherapy of Cancer. R. S. Krim.
258 *Frequency of Gall-Stones. E. R. Hesse.
259 *Etiology of Nocturnal Incontinence of Urine. R. M. Fronstein.
260 Leishmaniosis in Russia. N. K. and V. L. Yakimoff and N. I. Shokor. Commenced in No. 8.

255. **Action of Poisons on the Vessels in the Lungs.**—Berezin studied on rabbits the action of poisons on the vessels of the lungs, by Brodie's method; fifty-three experiments were made in all, using epinephrin, nicotin, caffein, calcium chlorid, pilocarpin and atropin. Epinephrin produced a marked vasoconstricting action on the peripheral vessels, but did not act on the pulmonary vessels at all, except that in some it caused vasodilatation. Nicotin, pilocarpin and calcium chlorid produced vasoconstriction of the pulmonary vessels. Caffein caused at first constriction of the pulmonary vessels, followed by dilatation. Atropin did not seem to influence the pulmonary vessels, but if they were previously constricted by pilocarpin or hystamin, atropin put an end to this vasoconstriction.

256. **Hemorrhagic Gastritis.**—Varipaeff found in the blood of an 11-year-old patient with hemorrhagic gastritis a micrococcus in the form of a diplococcus or streptococcus. He is inclined to think that this micrococcus is liable to cause all the severe symptoms of hemorrhagic gastritis, just as it can be caused by any severe infection such as smallpox, typhoid, pyemia, diphtheria, malignant malaria, Hanot's cirrhosis of the liver, etc.

258. **Frequency of Gall-Stones.**—Hesse studied the postmortem material of the large Obuchow Hospital of St. Petersburg in regard to the frequency of gall-stones in that city. The material comprised 17,402 necropsies in the last ten years, and refers mostly to the laboring classes. Only 378 gall-stone cases were found recorded, that is, 2.17 per cent. while from the collective statistics of 19 European and American authors, with 80,802 necropsies, the frequency of gall-stones averaged 5.94 per cent. Males were found less frequently affected than females (0.73 per cent.; 4.75 per cent. for females), and the sixth decade was the most affected. In 84 per cent. of the cases the gall-stones had given no sign of their presence during life. Cancer was found in 10 cases.

259. **Nocturnal Incontinence of Urine.**—Fronstein is of the opinion that for nocturnal incontinence of urine in children and adults there must always be some anatomic lesion as its cause. His investigations disclosed almost invariably balanitis or congenital stricture of the urethra with atony of the bladder as the result, or adenoids. In some cases spina bifida occulta seemed to be responsible. He pleads for more laborious and scientific examination in order to avoid mistakes in the treatment of enuresis.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

LVIII, No. 8, pp. 529-612

261 Spontaneous Rolling up of Eyeball on Attempt at Adduction with Congenital Paralysis of the External Rectus Muscle; Two Cases. (Retractio bulbi.) J. P. A. Hoefnagels.
262 *To Hasten Recovery after Industrial Accidents. (Arbeidsverschaffing aan door een ongeval getroffenen.) J. A. Korteweg.

No. 9, pp. 613-696

263 *Hemorrhages with Certain Internal Diseases. (Over bloedingen bij eenige inwendige ziekten.) P. G. J. Duker.
264 *Hairy Nevis Excised; Two Cases. (Behandeling van moedervlekken.) H. J. Lameris.

262. **To Hasten Recovery after Industrial Accident.**—Korteweg says that the legislation (in the Netherlands) on workman's compensation has had the effect of lengthening the period of convalescence after an industrial accident. It would be far better for the man if he were at work, but employers do not like to hire workmen even temporarily damaged. Korteweg therefore proposes as a makeshift that a full sick pension should be paid to the workman on condition that he works all day in the employ of his employer or the latter's representative, and he outlines ways and means to render this practicable.

263. **Hemorrhages with Internal Diseases.**—Duker explains the tendency to hemorrhage in pernicious and aplastic anemia, typhoid, acute leukemia and relapsing fever by the changes in the blood characteristic of the diseases. This alters the composition of the blood to such an extent that the coagulation process is interfered with.

264. **Treatment of Disfiguring Nevus.**—Lameris gave illustrations of two cases in which he excised the verrucous nevus, scattered with hairs. The defect left was too large to be repaired with Thiersch flaps so the wound was covered with gauze compressing the tissues well. A piece of tinfoil of the proper size was placed on the abdomen and a piece of skin to correspond was cut out of the abdominal wall and transferred to the defect in the face. The photographs taken one and two years afterward show scarcely a trace of the former disfigurement. The patients were girls of 6 and 21.

Hospitalstidende, Copenhagen

June 24, LVII, No. 25, pp. 793-816

265 Salvarsan plus Mercury in Treatment of Syphilis. H. Boas. Commenced in No. 24.

Hygiea, Stockholm

LXXVI, No. 10, pp. 561-624

266 *Exophthalmos. (En orientering i det Basedowska exoftalmusproblemet jämte några ord om den glatta muskulaturen omkring bulben.) C. Hesser.
267 *Urochromogen and Diazo Reactions in Pulmonary Tuberculosis. A. Gullbring.

266. **Exophthalmos.**—Hesser discusses the cause and mechanism of the exophthalmos in Basedow's disease, remarking that none of the theories yet presented explains it adequately. On the basis of his extensive experience as prosector he analyzes each of the possible factors in turn.

267. **Urochromogen and Diazo Reactions in Pulmonary Tuberculosis.**—Gullbring applied both tests in 168 cases of pulmonary tuberculosis; in the total number there were only 2 cases in which the diazo was positive plus negative urochromogen. In 114 cases the findings paralleled each other, both negative in 88 and both positive in 26. In all the others (37 per cent.), urochromogen was positive with negative diazo and in practically all these cases, besides the pulmonary lesions, there were signs of amyloid degeneration of internal organs. The urochromogen test was positive in 90 per cent. of the amyloid cases; the diazo in only 20 per cent. The majority of all the 168 patients were in an advanced stage of the tuberculosis.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 5 — Chicago, Illinois — August 1, 1914

PARENTERAL PROTEIN DIGESTION*

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INTRODUCTION

The units of life in our bodies are the cells of which our organs and tissues are composed. In order that we may be in health, all the cells of our bodies must be in normal condition and must function in harmony. Inasmuch as these cells are living, growing and multiplying, they must have a supply of normal food, and since these cells are made up of protein to a large extent they must be supplied with protein food. The digestive functions of the alimentary canal have been developed for the purpose of preparing proteins for the body-cells to feed on. The proteins of our food are normally broken up in the digestive tract into amino-acids. These are absorbed through the intestinal walls and serve for the nourishment of the body-cells. The blood and lymph carry to all the cells of the body the prepared and absorbed protein split products. Each kind of cell selects from these products such portions as it needs in its own metabolism. It sometimes happens that proteins reach the blood and lymph without being acted on by the digestive juices of the alimentary canal. On a small scale this is constantly happening. We absorb minute quantities of protein through the mucous membrane of the respiratory tract, and in ordinary health it may happen that small amounts of undigested or imperfectly digested proteins are absorbed through the intestinal wall. In the therapeutic employment of serums and vaccines undigested protein, sometimes in large amount, is introduced into the circulation. In case of infection, living proteins find their way into the body and there grow and multiply, converting the simple soluble proteins of the body-fluids into complex, foreign proteins. When foreign proteins find their way into the body by any of these methods they must be digested by the agency of ferments supplied by the body-cells. This process we designate as "parenteral digestion" in contradistinction to the normal "enteral digestion" which goes on in the alimentary canal. Up to the present we know but little concerning the action of the parenteral proteolytic ferments or their digestive products. We know that at one stage in enteral digestion the protein molecule yields an active poison, but in normal digestion this is split into harmless bodies before absorption. In parenteral digestion this poison is set free in the blood and tissues and gives rise to the symptoms of the infectious diseases.

How to control and modify parenteral protein digestion is now one of the big problems in experimental medicine.

The body-cells feed on the pabulum brought to them by the blood and lymph. The wandering cells, such as the leukocytes, may go in search of food, and observation has shown that they are attracted to localities in which there is accumulation of protein material, as to the intestinal walls during the process of digestion, to local infections and to points where non-diffusible proteins, living or dead, are injected. But most cells of the animal body are fixed and can act only on pabulum brought to them. The blood and lymph carry in solution both proteins and protein split products, the latter as amino-acids. Of these split products each kind of cell selects such as it may require in its metabolic process. To what extent body-cells are nourished by the amino-acids absorbed as such from the alimentary canal we do not know. Indeed, until recently it was believed that all the amino-acids formed in enteral digestion are synthesized into albumins and globulins either during absorption or soon thereafter. That this is the fate of the greater part of these protein split products is certainly true. The diverse proteins of the food are split into amino-acids in the intestine and synthesized into specific proteins, peculiar to the species, and these are distributed through all the tissues by the blood and lymph and constitute the protein food-supply of the cells. Therefore, the bulk of the protein food carried to the various organs is the same and each kind of cell must split this in such a way that the cleavage products can be utilized in its own particular structure. The liver-cell must split the albumins and globulins, one or both, in such a way as to serve its own needs, and the pancreatic cells must obtain from the same raw material, building stones cut to fit its peculiar masonry. The agencies with which this work is accomplished are known as ferments. We do not know the exact nature of any ferment. We can recognize their presence only by their effects. There must be as many kinds of ferments as there are kinds of cells, and each ferment is specific and cleaves the substrate along its own peculiar lines. From this it must follow that the cell peculiar to each organ in the animal body supplies its own specific ferment or ferments and it is by virtue of this that the cell continues to live. This conclusion reached by reasoning has been demonstrated by experiments.

DIGESTION IN UNICELLULAR ORGANISMS

Experimental studies of digestive processes in unicellular and other low organisms have been numerous and the literature thus developed is too voluminous to be reviewed in detail. I will content myself with notice of some of the more important contributions such as enable us to understand cellular digestion in general. Leidy[1] made many observations on digestion in amebas. In the first place he called attention to the fact that amebas feed on algae and that they are most numerous where their food-supply is most abundant. He watched the ingestion of the food which is accomplished by two pseudopodia which enclose the infusorian which now lies in the vacuole and gradually loses all structure and ultimately disappears. Large amebas (*A. proteus*) feed on smaller species (*A. verrucosa*). Engulfed algae gradually turn brown while being digested. Kölliker[2] made similar observations and found the average time between ingestion and the extrusion of the indigestible portion to vary from two to six hours. Carter[3] points out that the ingestion, digestion and egestion of food substances distinguish amebas from plant-cells. Haeckel[4] regards the intracellular digestion in rhizopods as a chemical process, but fails to make any satisfactory demonstration of this belief. Greenwood,[5] from his studies of digestion in amebas, comes to the following conclusions: 1. Starch is ingested on contact but is not digested. It may be retained as long as six days, but is then rejected without change. 2. In regard to fat he is left somewhat in doubt. Milk globules are included, but after twenty-four hours they give normal and ready reaction with osmic acid. The ultimate disposal of fat was not satisfactorily determined. 3. Naked proteins (monads) are quickly and thoroughly digested by amebas. 4. Shielded proteins (enclosed by cellulose walls, such as *Torulae*) are slowly digested without break in the cellulose wall. The last point is important. It shows that the ameba elaborates a digestive fluid which penetrates the cellulose wall and digests the contents.

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* Read before the joint meeting of the Section on Obstetrics, Gynecology and Abdominal Surgery, the Section on Pharmacology and Therapeutics, and the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

Next come the highly important experiments of le Dantec,[6] which show that in amebas and all infusoria, so far as tested, intracellular digestion is accompanied by the development of acid. The fluid of the vacuole surrounding the captured and ingested food becomes acid. The nature of this acid has not been positively determined, but there is no proof that it is not hydrochloric acid, and the weight of experimental evidence is in favor of its being this mineral acid. It must be understood, however, that as in the gastric juice, the acid is not the sole and effective agent. Any substance ingested by amebas, without regard to its nutritive character, starts the secretion of the acid, but only nutritious substances are digested. It follows, therefore, that we must assume the existence of digestive ferments which are active in acid fluids as is the case with the pepsin of the gastric juice. It should be stated that Krukenberg[7] found that the glycerin extract of the cellular substance of certain unicellular organisms contains a proteolytic ferment which is active only in the presence of acid.

There is no animal from the lowest to the highest, so far as investigation has been made, which does not elaborate one or more proteolytic ferments. The only organisms in which the truth of this assertion might be questioned on *a priori* grounds are parasites, which might be supposed to depend on their hosts for predigested food. Indeed, some of the first studies made on digestive processes in certain intestinal worms failed to detect the presence of specific ferments, but more thorough investigations have shown that intestinal worms elaborate proteolytic ferments which serve their own metabolism and antiproteolytic bodies which protect them against the digestive fluids of their hosts. The universally distributed proteolytic ferments of the animal kingdom are divided into those which are active in acid, and those active in alkaline solutions. The former are generally designated as pepsins and the latter as trypsins.

In unicellular organisms the chief digestive processes are intracellular. Indeed, with many of these low forms of life it has not been possible to demonstrate extracellular digestion; we are not justified, however, in denying its existence. The yeast-cell secretes a diastatic ferment which rapidly acts on sugar, but its proteolytic ferment is, under normal conditions, retained within the cell in which it functions. Since no known animal can live without protein food and since every species contains its own specific proteins, each living animal must produce proteolytic ferments. As the structure of the animal body becomes complicated and differentiation takes place, certain cells are set apart to do the preliminary digestion for the whole, but each cell must digest its own special food. Therefore, Weinland[8] is right when he states that intracellular digestion occurs in all animals.

DIGESTION IN BACTERIA

It has been generally assumed that bacteria are low forms of plant life, but researches in my own laboratory, confirmed by later studies in Kossel's laboratory, show that bacteria contain no cellulose and are particulate, unshielded proteins and consequently are more nearly related to low forms of animal life. I should not classify bacteria as either plants or animals. In their life processes they are more closely related to animal life. Some bacteria, possibly all, can utilize split proteins in their metabolism, but under ordinary conditions they feed on unbroken, but relatively simple proteins. All bacteria, so far as studied, produce specific proteolytic ferments. In some, only intracellular ferments have been detected; in others only extracellular; in still others both are in evidence. The liquefying bacteria pour out proteases which diffuse widely through the medium and visibly demonstrate their activity. The abundance with which a given bacterium elaborates its protease is subject to many conditions. As a rule, the richer the medium in carbohydrates, the less abundant is the secretion of protease. It is probable that the presence of certain proteins in the medium stimulate the flow of the digestive agent, though, so far as I know, this has not been experimentally demonstrated. From analogy with other living cells, this is the natural assumption. For the most part bacterial proteases act in alkaline solution and, therefore, are classified as trypsins. This, however, is not without exception. Many bacteria which grow in milk and milk products digest proteins in acid mediums.

There are two points about the action of bacterial proteases which I feel justified in emphasizing. One is the fact that their activity is delayed by quinin, antipyrin and other antifebrile medicaments. This

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1. Leidy: Fresh Water Rhizopods of North America.
2. Kölliker: Ztschr. f. wissensch. Zool., 1849.
3. Carter: Ann. Nat. Hist., 1863.
4. Haeckel: Ztschr. f. wissensch. Zool., 1865.
5. Greenwood: Jour. Physiol., vii, 253.
6. Le Dantec: Ann. de l'Inst. Pasteur, 1890, 1891.
7. Krukenberg: Kuhne's Untersuch., 1882, ii.
8. Weinland: Oppenheimer's Handbuch der Biochemie.

may in part at least explain the action of these drugs. The second is the fact that so far as experimental evidence has gone, no bacterial protease is capable of digesting living protein. This seems to me of great importance. The prevailing idea among morphologic pathologists seems to be that the lesions of the infectious diseases are due to the digestive action of the bacterium on the body-cell. The typhoid bacillus is supposed to feed on the walls of the intestine and cause ulceration, and the spirochetes are believed to induce the lesions of tertiary syphilis in like manner. Everything known up to the present time concerning the digestive action of bacteria is contradictory to these views. It seems quite certain that during the period of incubation of an infectious disease, the invading organism supplies the ferment, the simple, soluble nonorganized proteins of the body of the host constitute the substrate, the process is largely synthetic and constructive, leading to the conversion of the simple proteins of the host into the more complex, cellular proteins of the invading organism, no marked protein cleavage occurs, no poison is set free and consequently there is no recognizable disturbance in the health of the host. On the other hand, during the active stage of an infectious disease the cells of the host supply the ferment, the complex, cellular proteins of the invading organism constitute the substrate, the process is essentially analytic and destructive; and the protein poison is set free and causes the symptoms and lesions of the disease.

It should be stated that the synthetic action of bacterial proteases, such as I have spoken of as occurring in the growth and multiplication of bacteria, whether in the test-tube or in the body, is not an assumption, but a demonstrated fact. The peptone of the culture-medium is built into bacterial cellular protein. Zak[9] has shown that pyocyaneus protease *in vitro* synthesizes simple proteins into more complex ones.

LEUKOCYTIC DIGESTION

The phagocytic theory of Metchnikoff and the work which that distinguished investigator has done in its support are too well known to need statement, and I will confine myself to a brief review of what has been done in the study of leukocytic digestion. Leber[10] showed that sterile pus liquefies gelatin and digests fibrin. Blood-serum plates are now employed in determining the relative digestive action of leukocytes from different sources. A platinum loop carrying a few leukocytes is brought into contact with the plate at several points and the plate is then kept at from 50 to 55 C. (122 to 131 F.) for twenty-four hours. This temperature favors the digestive action of the ferments, and retards or inhibits the growth of bacteria that may be present. Each leukocytic colony digests the serum and forms a lacuna. From the depth of these lacunae the relative digestive activity of each leukocytic colony may be determined. This difference may be demonstrated by comparing the action of leukocytes from myelogenous leukemia with those from lymphatic leukemia. The blood from a case of myelogenous leukemia partially digests itself on being kept for seventy hours at 55 C. This autodigestion and the extent to which it occurs may be demonstrated by the presence and amount of albumoses formed as was first shown by Erben.[11] It should be understood, however, that normal leukocytes have a digestive action, as was first demonstrated by Pfeiffer.[12]

The protease of leukocytes may be obtained best from the blood of a case of myelogenous leukemia, by precipitating a properly prepared plasma—leukocyte mixture with alcohol, allowing to stand for some months, and then extracting the precipitate with glycerin. Similar preparations have been made from the spleen, bone-marrow and from sterile abscesses induced by subcutaneous injections of turpentine. The various methods of preparing leukocytic protease are given by Jochmann.[13] It is believed by Jochmann and others that the leukocytic protease is supplied wholly, or at least, most abundantly, from the neutrophil cells. It has been obtained from leukocytes, colostrum corpuscles, the saliva and the lochial secretion. It is supposed to digest excess of milk accumulating in the gland and possibly it may be of service to the child during the first few days of extra-uterine life. That of the lochial discharge may aid in the cleansing of the uterus.

The value of the leukocytic protease in causing resorption from wounds, in cleansing abscesses and in all local infections is well understood. It is well known that tuberculous pus, so long as it is due to an unmixed infection, is quite free from this ferment and it is believed that injections of iodoform in tuberculous, local infections bring to the site polynuclear cells which aid in effecting cure by their secretions. Whenever foreign proteins appear in the body, the leukocytes assemble and endeavor to destroy the undesired material by digesting it. It seems that the ferment is stored up largely in the leukocytes and that the most effective digestive action does not occur until the leukocytic cells disintegrate. In case of local bacterial infection many bacteria are taken into the leukocytes, and in some instances at least intracellular digestion proceeds much in the same way as it does in amebas. It is held by Müller and others that resolution in pneumonia is the result of the activity of the leukocytic protease, which becomes quickly effective from the dissolution of a large number of leukocytes. According to Bittorf[14] the urine after resolution in pneumonia quickly digests fibrin. Abnormal activity of this protease may be followed by the appearance of the digestive products in the form of albumose in the urine. This is the explanation of peptonuria in cases of chronic suppuration. When a large number of leukocytes disintegrate in a confined space the ferment set free digests any fibrin, lymphocytes and red corpuscles that may be present. The autodigestion of leukocytes leads to the production of ammonia, amino-acids and nuclein bases. Tuberculous pus does not undergo autodigestion. According to Jochmann a spleen, as large as a child's head, from a case of myelogenous leukemia, kept at 55 C., will within twenty hours break down into a dark red fluid in which the connective tissue floats. A normal spleen passes through the same change in about twice the time. The liquefied autolysate contains ammonia, leucin and tyrosin in abundance. The bactericidal action of the leukocytic protease has been studied by Nuttall, Buchner, Schattenfroh, Peterson, Kling, myself and others. One of the important questions is that of the identity of the bactericidal and the proteolytic constituents of blood-

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9. Zak: Beitr. z. chem. Physiol. u. Pathol., 1912, x, 287.
10. Leber: Die Entstehung der Entzündung, 1891.
11. Erben: Wien. klin. Wchnschr., 1902, p. 276.
12. Pfeiffer: Wien. klin. Wchnschr., 1906, No. 42.
13. Jochmann: Kolle and Wassermann's Handbuch, Ed. 2, ii, 1301.
14. Bittorf: Deutsch. Arch. f. klin. Med., 1913, p. 91.

serum or of leukocytic extract. There is not time to enter the literature of this subject here.

It must be evident from what has been said that the leukocytes are constantly supplying the blood and bathing the tissues with an active proteolytic ferment. Were there no regulation of this process the body would digest itself. There is constantly in the blood an antiferment. The relation between these bodies and its regulation are among the most interesting and important matters in experimental medicine. It seems to be a well-established fact that repeated injections of a ferment into an animal leads to the production of antibody. Such bodies have been produced in this way by injections of pancreatic trypsin, pepsin, rennin and fibrin ferment, and it seems justifiable to suppose that the antiferment or antitrypsin of the blood originates in this way. Indeed, Jochmann and Kantorowicz have increased the antitrypsin of blood-serum to sixty-four times the initial amount by repeated injections of leukocytic trypsin. These investigators believe that the antitrypsin of the blood is identical with pancreatic antitrypsin, and that the former may owe its development to increase in either the leukocytic or the pancreatic trypsin. This means, of course, that the two ferments are identical and their antibodies are. There are many and diverse theories concerning the relation between leukocytic trypsin and its antibody. Laboratory methods of measuring the antitrypsin strength of blood-serum and rules are given for the interpretation of the results. Wiens[15] finds a low antitrypsin content in the blood-serum in all infectious diseases in which the polynuclear corpuscles are increased, and he regards an opposite finding as unfavorable in prognosis. Theoretically he holds that the greater the number of the polynuclear cells, the more abundantly will the trypsin be supplied and the greater the number of bacteria destroyed. Other investigators have reached radically different conclusions that is, they find that those cases do best in which the antitrypsin content is high. It seems to me that a great danger to the life of the infected man lies in the too rapid cleavage of the bacterial proteins, and at one time a rise in the antitrypsin content may save life. The relation between the leukocytic trypsin and its antibody must be a delicately adjusted one and one which fluctuates from hour to hour. Brieger and Trebing[16] and others have found the antitrypsin titer high in cancer, advanced tuberculosis, diabetes and the severe anemias, and they call it a cachexia reaction. Here again it seems most plausible that the large amount of waste protein material in the blood endangers life in case of its rapid digestion, and the large amount of antibody supplied is a protective agent. Evidently the blood is a digestive, as well as nutritive fluid, and the digestive processes taking place are regulated by a finely adjusted mechanism which at present we do not understand.

There has been for some years increasing evidence that the enzyme-inhibiting constituent of blood-serum is a lipoid. So far as I know the literature, this was first suggested by Schwartz,[17] who found that the inhibiting action of serums could be lessened by extraction with ether and restored by the addition of lecithin. Sugimoto[18] found that the extraction of serums with ether and benzol has the same effect. Jobling and Peterson[19] have apparently settled the question and reached the following conclusions: 1. The ferment-inhibiting action of the serum is due to the presence of compounds of the unsaturated fatty acids. 2. These fatty acid compounds may be removed from the serum by means of chloroform or ether. 3. Soaps prepared by saponifying the chloroform or ether extracts inhibit the action of trypsin. 4. The antienzyme action of the serum can be removed by filtering acid serum through kaolin, and can in part be restored by extracting the kaolin. 5. The decrease in strength of antienzyme in old serums is probably due to the action of serum lipase. 6. Iodin, potassium iodid or hydrogen peroxid removes the inhibiting action of the serum. 7. Soaps of the unsaturated fatty acids lose their ferment-inhibiting action when heated with serum at 70 C. (158 F.).

Leukocytes elaborate in addition to the protease, a lipase and an oxidase which we pass by since they are not germane to the subject under discussion.

Jacoby[20] and Richet[21] have shown that the liver-cells elaborate a specific proteolytic ferment, and Abderhalden[22] and his students, by the optical method, have demonstrated that: 1. Infusions of liver tissue digest liver peptone, but not peptone prepared from the kidneys or thyroid. 2. Infusions of thyroid digest thyroid peptone, but not peptones prepared from liver or kidney. 3. Infusions of kidney digest both kidney and liver peptones and to some extent that from the thyroid. 4. Infusions from muscle digest muscle peptone but not peptones prepared from liver or brain. 5. Peptone prepared from testicles is digested by infusions from testicle or from kidney. While more work along this line is highly desirable it seems safe to conclude that each kind of cell in the animal body elaborates one or more specific proteolytic ferments and that the conclusions reached by pure deduction are confirmed by experiment.

It is well established that the products of the cleavage of complex proteins by ferments vary within certain limits. A protease may digest certain proteins and have no effect on others. Some unicellular organisms feed only on certain proteins. The phyloxera feeds only on the grape-vine. Some organisms must pass one or more stages in their development as parasites in certain hosts. Examples of this kind might be multiplied, but it is well known that specific foods are essential to the life and growth of both plants and animals. I take it that this means that only certain proteins can be split along the proper lines to serve in metabolism.

The proteolytic ferments of the alimentary canal of man are capable of digesting diversified proteins, but those furnished by the cells of the blood and tissues are more limited in their action. Parenteral proteolytic ferments are of two kinds, non-specific and specific. The former are normally present in the blood and tissue, especially in the former, of all animals. They differ in kind in different species and in amount and efficiency in individuals. Their function is to break up foreign proteins that find their way into the blood and tissues. They are, within limits, general proteolytic ferments as are those of the alimentary canal; though the variety of proteins on which they can act is more limited. They constitute the most important factor in racial and individual immunity. Man is immune to most bacteria, not because they do not elaborate poisons, for every protein molecule contains its poisonous group, but because they are destroyed by the general proteolytic enzymes as soon as they enter the tissue and before they have time to multiply. Such is the leukoprotease of the polymorphonuclear cells.

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[15] Wiens: Deutsch. Arch. f. klin. Med., 1906, p. 91; Centralbl. f. inn. Med., 1907.

[16] Brieger and Trebing: Berl. klin. Wchnschr., 1908.

[17] Schwartz: Wien. klin. Wchnschr., 1909, xxii, 1151.

[18] Sugimoto: Arch. f. exper. Path. u. Pharmakol., 1913, lxxiv, 14.

[19] Jobling and Peterson: Jour. Exper. Med., 1914, xix, 459.

[20] Jacoby: Hofmeister's Beitr., 1903, iii, 446.

[21] Richet: Compt. rend., Soc. de Biol., 1903, lv, 656.

[22] Abderhalden: Ztschr. f. physiol. Chem., 1913, lxxxvii, 220, 231.

It has been shown by work in my laboratory that all proteins, bacterial, vegetable and animal, contain a poisonous group. During enteral digestion this group is, partially at least, set free, as is shown by the poisonous effect of peptone when injected intravenously; but this poison is not readily diffusible and the body is protected by the walls of the alimentary canal and a further step in the process of digestion breaks up the poison into harmless split products. When this poison is set free by parenteral digestion there is no such protection offered.

Jobling and Peterson[23] have shown that blood-serum from which the antitrypsin has been removed or neutralized is poisonous to homologous animals. In this case the blood-serum digests the proteins normal to the animal and the poison thus set free manifests its effects.

Jobling and Bull[24] find that leukoprotease digests typhoid bacilli *in vitro* with the liberation of the poison. They say:

> Freshly washed, unheated typhoid bacilli intravenously injected into dogs cause the development of definite symptoms as early as twenty minutes after the injection. Boiling for ten minutes does not destroy the toxic effects of a freshly washed bacterial emulsion. Complete solution of the bacteria (in dilute alkali) of a fresh emulsion does not prevent the removal of the toxic substance with the coagulable proteins. The action of leukoprotease splits the toxic substance to a noncoagulable state, the digested mixtures being toxic after removing the coagulable portion. The mere presence of the leukocytic ferment is not responsible for the toxicity of the filtrate from the digested mixture, and continued digestion destroys the toxicity of a previous toxic mixture. From these observations it is concluded that the toxic properties of freshly washed typhoid bacteria are not entirely due to toxic bodies that are stored in the bacterial bodies, but that these properties are due largely to products formed by hydration of the bacterial proteins through the agency of ferments present in the circulation of the animal previous to the injection, or which become mobile subsequent to the entrance of the foreign bodies into the blood-stream. Since leukocytic ferments can attack the bacterial proteins *in vitro*, it is possible that the leukocytes are a source of the ferments which are active in experimental and natural cases of intoxication with the whole bacteria.

Thiele and Embledon[25] find protein split products in the blood of animals dying of acute infection and also that the blood-serum of such animals is fatal to healthy ones when injected intravenously. Such observations seem to show quite conclusively that in the infectious diseases the invading organisms are digested, and among the digestive products there is at least one highly active poison.

THE RELATION OF PARENTERAL PROTEIN DIGESTION TO IMMUNITY AND DISEASE

One of the most important facts developed in the study of protein sensitization or so-called anaphylaxis is that the nature and activity of cellular ferments may be modified and specific ferments developed. For instance, work in my laboratory[26] has shown that the blood-serum of a fresh guinea-pig has no digestive action *in vitro* on egg-white, while the serum of an animal sensitized to this protein does digest and lead to the liberation of the protein poison. The same is true of animals sensitized to other proteins, bacterial, vegetable and animal, all of which contain the protein poison. This offers a simple and satisfactory explanation of certain forms of immunity both natural and acquired. A man has yellow fever and recovers and is then immune to this disease. During the attack, the body-cells become sensitized and elaborate a specific ferment which destroys the virus of the disease. When subsequently the man is bitten by an infected mosquito the specific ferment destructive to this virus is promptly active, the virus is destroyed before it can multiply sufficiently to disturb health and the man is immune. The virus of vaccine, an attenuated form of the small-pox virus, is inoculated into the body, sensitizes the cells and subsequently there is for a time at least immunity to this disease. A similar explanation suffices for vaccination for typhoid fever and other diseases for which effective vaccines have been discovered.

The study of protein sensitization has done much to improve our understanding of the phenomena of infection. The pathogenicity of a given virus is determined largely by two conditions. First, the virus must be able by means of its enzymes to feed on the proteins of the animal's body. This condition determines whether or not the virus may be pathogenic to a given species. Even close kinship may exist between two species and a given virus be pathogenic to one and harmless to the other. Thus, the ordinary sheep is susceptible to the anthrax bacillus, while the Algerian variety is not. Second, the secretion of the body-cells must not immediately digest and destroy the invading organism. The small-pox virus is pathogenic to the man unprotected by vaccination or by a previous attack of the disease. To the protected man this virus is non-pathogenic because the enzymes supplied by the body-cells destroy it.

When a virus is able to feed on the proteins of the host, and the latter is not protected from the former by efficient destructive agencies, the virus multiplies within its host, converting the proteins of the latter into those of its own structure, and this continues until the body-cells becoming sensitized elaborate ferments which digest and destroy the foreign protein. This process marks the active stage of the disease. When the cleavage action of the enzymes of the body-cells proceeds too rapidly the protein poison is set free in amount sufficient to endanger life. This is a brief and incomplete statement of the relation of cellular digestion to immunity and disease.

We are only on the threshold of these studies. What further investigations may develop no one can predict. Undoubtedly theories will be modified by the further elucidation of observed phenomena and those at present held may be radically changed by the discovery of new facts.

I have recently[27] written fully on the phenomena of infection.

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[23] Jobling and Peterson: Jour. Exper. Med., 1914, xix, 480.

[24] Jobling and Bull: Jour. Exper. Med., 1913, xviii, 453.

[25] Thiele and Embledon: Ztschr. f. Immunitätsforsch., 1914.

[26] Vaughan, Vaughan Jr. and Wright: Ztschr. f. Immunitätsforsch., 1912, ix, 673.

[27] Vaughan, Victor C.: The Phenomena of Infection, The Journal A. M. A., Feb. 21, 1914, p. 583; Protein Split Products in Relation to Immunity and Disease, Philadelphia, Lea & Febiger, 1913.

LIMITATIONS OF THE DIALYSIS METHOD AS A PRACTICAL TEST FOR PREGNANCY*

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When Abderhalden first announced that he had discovered a laboratory method of detecting pregnancy based on the fact that a pregnant woman's serum has the power of digesting human placenta *in vitro,* the announcement was received by the medical profession with remarkably little skepticism. One reason for its ready acceptance in good faith was the recognized high standing of Abderhalden and the vast amount of work he had done on protein metabolism. A second and more important reason was that the medical world had already been made familiar with the basic principles involved in the Abderhalden test through the work of numerous investigators during the preceding ten or fifteen years on parenteral digestion, protein sensitization, and anaphylaxis. Theobald Smith's phenomenon, Pfeiffer's phenomenon, the work of Richet and von Pirquet, and the studies of Vaughan on protein split-products, all really anticipated the discovery of serum diagnosis, just as others before Columbus argued that the earth is round. In a recent controversy over the question of priority, Hamburger claims to have published the basic facts of serodiagnosis in 1903. To this Abderhalden replied that Huppert in 1896 published essentially the same line of argument. That the principle of serodiagnosis of pregnancy is theoretically correct is evidenced by its immediate and universal acceptance as reasonable and probable, and the wonder grows that someone had not thought of it sooner; for on *a priori* grounds, what is more logical than the inference that the maternal blood-stream, invaded by solid or soluble placental products, will develop ferments which are choriolytic? That the mother's serum does actually contain such ferments, capable of digesting parts of the cooked human placenta *in vitro,* must now be accepted as a fact proved by thousands of tests. As to the absolute specificity of these ferments for placental proteins, there is still some doubt in the minds of a few competent observers like Pearce and Williams, Kämmerer, Flatow, Fried, Plaut, and others. Inasmuch as the last word has not been said on this phase of the subject, the question as to whether the ferments are absolutely specific for placental proteins, must in my opinion, be left open for the present, notwithstanding the protests of Abderhalden and his co-workers to the contrary.

With the exception of Jellinghaus and Losee in New York, Schwarz of St. Louis, McCord of Detroit, and half a dozen others, the number of experimenters in America who have done extensive work on the serodiagnosis of pregnancy is insignificant, while in Germany and Austria the amount of work done along this line has been prodigious. Unfortunately, some reports of work done on the pregnancy test, especially the earlier ones, must be rejected as valueless, because in some instances the wish has been so obviously the father to the thought that the author has proved whatever he set out to prove.

I have been much interested in trying to discover why so many American workers of known ability have abandoned the test after a brief and unsatisfactory experience with it. Is the test really worthless, or is the technic too difficult for the ordinary trained laboratory worker? A majority of experimenters to whom these and similar questions have been put, honestly believe the test is too unreliable to be of any practical value. It is my opinion that some of the workers were influenced to lose their enthusiasm for the test by the reflection that, after all, the making of a positive diagnosis of early pregnancy is very seldom of vital importance to the patient, as it might be, for example in carcinoma and syphilis. "Time will tell" now, as it did for our grandfathers in medicine, whether or not the woman is pregnant. This would truly be a lame excuse for indifference on our part to a laboratory proof of pregnancy. Until the laboratory test has established a better claim to our confidence, however, American clinicians, it is maintained, cannot be expected to display much enthusiasm for it, and they will continue to rely on previously known signs and symptoms, in arriving at an early diagnosis of pregnancy.

It would be manifestly improper here to go into details as to the technic of the dialysis test. Those interested are referred to the numerous original communications of Abderhalden himself, or to the excellent descriptions of the technic of the test by Jellinghaus and Losee, and by Schwarz, which are perhaps the best descriptions of the test published in English. There are, however, a few minor points of technic which in my experience are sufficiently important to justify special mention. They are as follows:

1. If the dialyzing thimbles are threaded with a fine stiff bronze aluminum wire, instead of the silk thread usually recommended, they can be handled with much greater facility.

2. Since the dialyzing tubes are not uniform in thickness, it is well to mark the different tubes with indelible ink or pencil in such a way as to indicate their relative permeability to peptones.

3. Sterile cork stoppers for the containers are superior to cotton plugs, as they prevent the evaporation of the chloroform and toluene at incubator temperature.

4. The principal control should always contain the inactivated serum from the patient's own blood, rather than that from another patient. This point has been strongly emphasized by Abderhalden himself.

5. Boiling alters the permeability of the dialyzing tubes. I have found that "pasteurizing" them in water at about 180 F. for two or three minutes is satisfactory.

6. Whatever the method used in preparing the placenta, the point of great importance is to see that the placenta preparation contains no dialyzable substance reacting to ninhydrin.

7. Finally, the test and control must be treated exactly alike (except, of course, that the latter contains inactivated serum). It is of less importance to use just so much water, placenta, serum, and reagent, than it is to use exactly the same amounts in both test and control. In making the final tests, I always boil both diffusates simultaneously, over the same flame, at the same rate, and for the same length of time.

The importance of this last precaution will be appreciated when we consider that the final test is a relative one, based in some instances on intensity of color, and, therefore, the test and control must be treated exactly alike if the result is to be at all trustworthy.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Bearing in mind the preceding precautions, and also the other points of technic advocated by the author of the test, I have within the past fifteen months carried out the test on ninety-five subjects, about seventy of whom were women known to be pregnant. Nearly all these tests were made by myself in the laboratories of the Marquette University School of Medicine. This is a very small number of tests when compared with the hundreds made at the New York Lying-in Hospital, and some of the continental clinics. My series, however, has at least the advantage of having been begun late enough to enable me to profit by the mistakes of the earlier experimenters, and to avoid all that groping in the dark which made utterly unreliable all the early statistics on the dialyzation test. Without giving a complete tabulation, my results may be briefly summarized so as to bring out the two conspicuous features as follows:

First: The pregnant women of the series practically all gave positive reactions. In fact, the last fifty pregnant women of the series all gave positive reactions except one patient who was about two weeks pregnant (as proved by an abortion about two months later).

Secondly: In this series about 12 per cent. of non-pregnant persons gave positive reactions. These included several patients just operated on for acute or chronic appendicitis, pus-tubes, fibroids, and ovarian cysts.

The positive reactions in non-pregnant patients were at first attributed to errors of technic. Possibly that is the true explanation. But with the most painstaking care I have not been able materially to reduce the percentage of non-pregnant patients giving positive reactions. According to the results obtained in this series, it would appear that the test is of value in a negative sense only. That is to say, if a woman does not give a positive reaction to the test, it is safe to conclude that she is not pregnant. On the other hand if she gives a positive reaction, we can only say that she is probably pregnant. This limitation largely neutralizes the value of the test as it is now carried out.

Some of the contributory causes which in my opinion have limited the popularity and usefulness of the serum test for pregnancy are the following:

1. Although the test appears on paper to be comparatively simple, its proper execution is exceedingly difficult and time-consuming.

2. The test is not well suited for the general clinical laboratory, but should be made only by one who is doing the test every day, and always has the materials fresh and in perfect condition.

3. The presence in the blood of filterable substances reacting to ninhydrin has been noted by many observers and writers as occurring during the height of digestion, or in certain conditions of altered metabolism. These substances have been referred to as sources of possible error in the dialysis test for pregnancy. This fallacy can largely be eliminated by using for the control the inactivated serum from the patient who is being tested.

4. The presence in normal blood of non-specific proteolytic enzymes possessing feeble powers of digesting proteids parenterally is, I believe, generally conceded. It seems reasonable that these normally present enzymes might, under certain conditions other than pregnancy, cause sufficient digestion of placental albumin to vitiate the test, or at least make the result doubtful.

5. To procure for the test a sufficient quantity of serum entirely devoid of any trace of hemolysis is sometimes a matter of extreme difficulty, especially in those cases in which the blood must be transported for any considerable distance to the laboratory.

6. The use of parchment tubes or thimbles as filters, constitutes one of the intrinsically weak spots in the dialysis test. No matter how well they are made or how positively the manufacturer may guarantee them, we know that the parchment tubes are an unstable and inconstant quantity, and may be a source of well-nigh unavoidable error. Even after the tubes have been thoroughly tested and the imperfect ones thrown out, we have found that their permeability to peptones and amino-acids becomes altered by boiling, which is the only method of sterilizing them perfectly. We hold that no method of carrying out a biologic test can be an ideal one so long as it depends for its results on the integrity and constancy of a frequently boiled parchment membrane. Errors from this source need not be numerous, but the fact that they will occur now and then stands as an indictment against the absolute accuracy of the dialysis method.

A year ago I made the prediction before this section that in the course of time the Abderhalden test for pregnancy would take its place with the Widal and Wassermann tests in point of reliability. Further personal experience with the test and an observation of the experiences of other workers have convinced me that that time has not yet arrived.

SUMMARY

The dialysis test for pregnancy in its present stage of development is of value chiefly in a negative sense only; that is, if a woman fails to give a positive reaction, she is not pregnant. If, on the other hand, she gives a positive reaction, we can only say she is probably pregnant; for with our present technic, from 10 to 15 per cent. of non-pregnant persons will give positive reactions.

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VALUE OF ABDERHALDEN'S BIOLOGIC REACTIONS TO THE OBSTETRICIAN AND GYNECOLOGIST *

HENRY SCHWARZ, M.D.
ST. LOUIS

At the present state of the investigation it is possible with the aid of Abderhalden's dialyzation reaction and with his optic method to demonstrate the strict specificity of the so-called protective ferments, demonstrating thereby at the same time that the protoplasms of the various organs and tissues of the animal organism differ sufficiently from each other in chemical structure to be recognizable with the aid of these ferments, even after they have been boiled or after they have been reduced to the peptone stage. It is possible to prepare placental albumin and placental peptone which will be readily cleft by pregnancy

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

serum, but which will not be cleft by other serums and certainly not by serum from a cancer patient; on the other hand, it is also possible to prepare coagulated cancer tissue which will be cleft by cancer serum and which will not react with the serum of pregnancy.

Thus, by making a number of cross-examinations, examining the same cancer serum and the same pregnancy serum against the same placental albumin and the same cancer albumin in the same experiment, and finding under these conditions that cancer serum reacts with cancer tissue only, and that pregnancy serum reacts with placental tissue only, one proves the specificity of the protective ferments and the specific structure of the various protoplasms. This demonstration is constantly made in Abderhalden's institution; it has been made in a few other laboratories; it has been made time and again in the laboratory of the Department of Obstetrics of Washington University; my associates and I have taken great pleasure in making these demonstrations before the numerous visitors, including experienced laboratory men, who have come to St. Louis for the express purpose of studying certain points of technic.

Obstetricians and gynecologists have a certain advantage in this investigation, which should mean that they also have a certain obligation to assist in demonstrating the truth of this new doctrine. In the women's clinic pregnancy cases and cancer cases are always to be found; the material for preparing albumin or peptone can be obtained fresh from the delivery room or from the operating pavilion; the special precautions in obtaining and handling serum can be readily observed; the women's clinic, therefore, must become the training camp for those laboratory men, who wish to engage in research work in this new field.

It is a waste of energy and material to attempt investigation of other conditions and to work with other organs and tissues before the investigator has learned the fundamentals of this work and has tested the efficiency of his technic on the touchstone of the cross-examination of pregnancy and cancer.

Be it remembered that in these two examinations the material for the preparation of albumin or peptone can be obtained in perfectly fresh condition; while, when working with other organs and tissues, we must obtain the material from the necropsy room or else we must substitute animal organs and tissues, which substitution is not as yet justified on the basis of convincing experiments. The fact that we can prove that the protective enzymes found in pregnancy and in cancer are specific, does not mean that we are willing to use these biologic reactions for diagnostic purposes without the greatest reserve.

The serodiagnosis of pregnancy, even in expert hands, is subject to error on account of unreliable dialyzing thimbles; danger from this source is reduced, but not eliminated, by multiplying tests and controls. The optic method eliminates this source of error. We find, however, that peptone obtainable in the market is not always reliable and have therefore started to prepare our own peptone. It is true that the manufacturing chemist can do this work better and cheaper than we can, but we can start with a blood-free placental preparation, which is so essential a point that we are unwilling to entrust this work to the manufacturer; we also need other peptones which are not offered on the market.

Besides this source of error contained in the dialyzation method, it must be remembered that, even when the test works out correctly, a positive reaction simply means that the case in question harbors placental elements; usually it means that the patient is pregnant. Placental elements, however, are often harbored in the uterus or even in other parts of the body for long periods after delivery; this is especially true in cases of hydatidiform mole, in which the retention of syncytial cells is so apt to lead to the development of chorio-epithelioma.

These tumors, being of placental origin, naturally give a positive reaction with pregnancy serum. We have a case under observation, at present, of a woman who passed a hydatidiform mole over three months ago, who menstruates regularly, who is not pregnant and whose serum continues to react positively with placental preparations. It is for these reasons that we are unwilling to consider a positive reaction of serum with placental preparations a convincing proof of pregnancy, except in connection with the clinical history of the case and in connection with a thorough physical examination. Even with these limitations the serodiagnosis of pregnancy has been of real service to us in arriving at a correct diagnosis in a number of perplexing cases.

In the serodiagnosis of cancer we have likewise found various difficulties. The serum in a suspected case may give a negative reaction although the case is one of cancer; this seems to happen when the cancer tissue used in the test is of different histologic structure from the cancer on which the test is made. We also find difficulty in securing cancer material which can be rendered blood-free and which is free from infection; at other times, it is not possible to isolate the cancer tissue from the tissue of the affected organ. So far it has not been possible to prepare the desirable quantity and varieties of malignant albumins; as regards the preparation of cancer-peptones, this has been simply out of the question.

In the course of time we hope to have on hand coagulated preparations made of the various forms of malignant tumors, but until we are thus provided, we must expect to get negative reactions in cases which differ in histologic structure from the cancer material used in the test.

Eventually, it will be possible to test the serum of suspected cases against mixtures of cancer albumin and cancer peptones and, in case of positive reaction, to ascertain the histologic structure of the tumor under investigation by a second series of tests against the component albumins or peptones of these polyvalent mixtures. The serodiagnosis of cancer will be of considerable value in those cases in which it is not possible to obtain material for microscopic examination before a serious operation is undertaken. The following is a case in point:

A woman, aged 68, suffered with pain and swelling in the region of the gall-bladder, and with jaundice; the diagnosis pointed to malignant disease, but a stone in the common duct could not be entirely excluded and an exploratory operation seemed indicated. The serodiagnosis made the diagnosis of malignancy positive, for the patient's serum reacted positively with cancer albumin and negatively with placental albumin; there was no need for removing the patient from a comfortable home and from her family; she died several months later of cancer of the liver.

Serodiagnosis of cancer is of still greater value for controlling cases after radical operations and for watching for a return of disease; also for observing the effect of Roentgen-ray treatment and other therapeutic measures on cancer cells.

The difficulty of securing reliable cancer preparations for this control work has induced us to use the material obtained at operations, regardless of its fitness for general investigations. The serum of the patient is obtained on the morning of the operation; the material obtained at the operation is prepared as well as conditions permit; a small portion of it is used immediately against the patient's serum and gives, as a matter of course, a positive reaction; the rest of this preparation is preserved for the patient's individual benefit and will answer for the control of her own case, although usually unfit to be used in tests on other patients.

This work was started only a few months ago; it is too early to estimate its actual value. This much is evident; the serodiagnosis of pregnancy and cancer by these biologic reactions is already of considerable practical value, but, at present, these methods are not suitable for the routine work of commercial laboratories; the attempt to employ them outside of research laboratories, closely connected with a hospital service, must lead to disappointment and tends to retard real progress in this field.

The demand for easier and quicker methods of serodiagnosis has induced Abderhalden to make the attempt to demonstrate the action of proteolytic ferments by the method used by Gruetzner in demonstrating the action of pepsin. Gruetzner uses fibrin stained with carmin; when some of the fibrin is digested, the carmin is set free, the solution of pepsin is thereby stained pink. My associate, Dr. Newell, has used carmin-stained placenta according to Abderhalden's directions, placing about 0.25 gm. of this tissue and 2 c.c. of serum in small test-tubes; after approximately eight hours, the tests containing pregnancy serum turned pink, while the control serum was still yellow, later, as all serums turned more or less pink, it seems worth while to continue these attempts. Abderhalden is also experimenting with other stains, and he advises against the use of this method at present, except in the way of experiment.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. VAUGHAN, ECHOLS AND SCHWARZ

Dr. Herman J. Holdt, New York: I am in accord with what Dr. Echols has said concerning his clinical experience and the conclusions at which he has arrived from his studies. I am not in accord, however, with those who wish to entirely obliterate serodiagnosis, the test of Abderhalden for the purpose of making a diagnosis of pregnancy. That is an unjustifiable position to take, both scientifically and with regard to the work done by those who have paid attention to it. Would any one dare to make a diagnosis of any illness by a single symptom, be that objective or subjective? I believe not. I believe that we should therefore class the dialysis method as only an objective symptom in the chain of symptoms for the purpose of establishing a probable diagnosis, and as such I regard it. Three or four months ago I saw in consultation a woman who was supposed to have an intra-uterine pregnancy. When questioned she gave subjectively a typical history of an ectopic gestation, and objectively this was confirmed. We must remember that between uterine abortion and an ectopic gestation or tubal abortion, it is at times difficult to draw a dividing-line in diagnosis. Subjectively the patient showed the condition of an ectopic gestation, I thought there was a hematocele posterior to the uterus. Since she had no symptoms leading me to believe that she must be immediately operated on I thought it best to keep her under observation. Her condition did not change. For two weeks she was kept at the hospital, when I suggested operating. We found a soft incarcerated subperitoneal myoma, that she had been pregnant and had aborted. The Abderhalden reaction in that instance proved negative. I thought that here was an instance in which we could make the diagnosis by the dialysis method and that it had failed. It did not fail, because we did have a negative reaction. We know that the Abderhalden test is always negative a few weeks after expulsion of the fetus. Another case was that of a woman brought by a physician to have her uterus removed. The examination showed the presence of a myoma. She had been seen by a number of colleagues. All advised operation without further delay. The menstrual period had been last seen six weeks previously and she had some gastric disturbance; there was a slight lividity about the mucosa of the vagina. I concluded that there was probably a myoma present in connection with early pregnancy. The Abderhalden test gave a positive reaction. The woman was extremely anxious to have offspring. They had been married fifteen years. In connection with the subjective symptoms I believe I had a right to advise her to await conditions. Under these circumstances we have no right to discredit such a scientific sign of diagnosis if we regard it as only one of the conditions in connection with the case.

Dr. Charles S. Bacon, Chicago: The interest in this subject is not only that due to the question of diagnosis, but to the broader question of ferment digestion. Experiments in the University of Illinois comprise work done by the research fellow in this department. Our results conform almost exactly to those obtained by Dr. Echols, and we cannot agree with Dr. Schwarz in finding a specific ferment in these cases. In the number of observations made care is taken to follow Abderhalden's method exactly. The care that we have taken in the control and the amount of material we have used in making observations on other classes of cases make our conclusion worthy of consideration.

Dr. Philip F. Williams, Philadelphia: We have been working with the Abderhalden test for pregnancy at the University of Pennsylvania for the past two years. In our earlier work we confined our efforts to the dialysis method in pregnancy. Every pregnancy serum examined gave a positive reaction, but a number of serums from non-pregnant patients also responded positively. When we used uterine carcinoma tissue as substrate we found a digestion of this tissue as well as of placenta by the pregnancy serums. As the dialysis shells were found to be unfit for use after the preliminary tests in more than 50 per cent. we devised a method of coagulation and filtration. By this we also had an occasional positive reaction in a non-pregnant serum. Our animal experiments consisted in the injection of kidney tissue into dogs and rabbits. After a single injection, ferments were developed which digested liver tissue as well as kidney tissue; after multiple injections there seemed to be a tendency for a more definite digestion of kidney tissue. The commercial placental peptone was used with pregnancy serums in the polariscopic method. Our poor results may have been due to the peptone, for in but few cases did we obtain a change of more than 0.04 degree. We have tried to measure the amount of amino-acid in a mixture of pregnancy serums and various placental preparations, before and after incubation, using the Van Slyke deaminization apparatus, but have not obtained any definite data at present. In reviewing our work of the past two years we cannot feel that the pregnancy ferments are of a specific nature.

Dr. F. H. Falls, Chicago: In our work with the Abderhalden test in the University of Illinois we followed the technic absolutely as given by him. We found that fully 12 per cent. of normal persons gave a positive reaction, following exactly the same technic used in examining the pregnant patients. That led us to examine the serum of various pathologic conditions and in these also we found many positive reactions. It seemed important to find what pathologic condition would give positive Abderhalden tests. We investigated cases of pneumonia, nephritis, splenomyelogenous leukemia, acute articular rheumatism and other conditions. Many gave positive Abderhalden reactions when exactly the same technic was used as in the pregnancy test with the placenta as a substrate. This will to a certain extent vitiate the reliability of the Abderhalden test. I think the technic is not too difficult for a person to develop and use who has had experience in the serologic work. I might say that, so far as the cancer problem is concerned, it has been my experience that serum from cancer patients will digest placenta as a substrate. This is not true in every case, however, and there seems to be no definite relation between the extent of the cancer and the digestion that the serum will give. Concerning the boiling of the dialysis thimbles as given by Dr. Echols, we found that boiling No. 579 Schlicter thimbles for two minutes did not cause permeability of the thimbles within a reasonable length of time. I used the thimbles for a month or so and tested them repeatedly, and in no case was there the slightest trace of color. After using a set of thimbles for three months they were discarded, not because they let through albumin, but because their equivalent permeability to peptone had been altered. I think it important to run the inactivated serum control. Only so can we judge the reaction. If, as Dr. Echols said, the inactivated serum-control was negative in cases taken at the height of digestion, then it cannot be the amino-acids present in the blood, but ferment activity in the active serum that accounts for positive reactions under these conditions.

Dr. Charles Goodman, New York: During the latter part of last year it was my privilege to learn in Abderhalden's laboratory the technic of the dialysis test described by him. It was my intention to employ the test in seeking a method of overcoming autolysis in homotransplantation of organs. In a series of transplantations in fourteen dogs we were able to demonstrate the presence of a ferment capable of digesting suprarenal tissue in the presence of a transplant of the thyroid gland. In a series of cases of pregnancy, my assistant, Dr. Berkowitz, and I were able to demonstrate the presence of a specific ferment with a uniform degree of success by the Abderhalden dialysis test. In a series of cases of malignancy we have been able to demonstrate the presence of a specific ferment capable of digesting carcinoma or sarcoma in thirty-one out of thirty-two instances. We always used serum thimbles as a control. A negative result is of more value than a positive reaction. The test is exceedingly delicate, and false and divergent results may be obtained owing to slight errors in technic. The technic is complicated and difficult but not beyond the realm of possibility of being mastered by serious and diligent application. The fundamental rules of the test must be obeyed. We must not condemn the method because it requires careful working. Professor Abderhalden advised me and the other workers, after having made use of the thimble, to cleanse it in running water for thirty minutes and then drop it into boiling water for fifteen seconds and no longer, because if it boils it becomes thick. After the thimbles have been in boiling water for fifteen seconds they are put into a container of sterilized distilled water and toluene and kept for use.

Dr. Michael G. Wohl, Philadelphia: We forget that Abderhalden's reaction has its restrictions and we demand too much from it. The apparent simplicity of the test is responsible for the great inaccuracy of the results obtained through not paying strict enough attention to its technic. Among the errors pointed out I wish to emphasize the importance of boiling the dialysate. The reaction is more quantitative than qualitative. A definite amount of protein cleavage products present in the diffusate combine with a definite amount of ninhydrin giving the violet color. Now, if there is less of the protein cleavage products or less ninhydrin, you will either get a faint reaction or none. The unequal boiling, therefore, whereby you obtain in one instance a greater concentration of the diffusate, and in another a lesser, will be responsible for the divergent results. We count one minute from the time bubbles appear in the test-tube. The amount of water added to the beaker outside of the thimbles must always be uniform (20 c.c.). As Dr. Echols said, it is not necessary to pay much attention to the quantity of water added to the outside of the thimbles. I believe that this may account for the discouraging results. I hope that soon we may have a uniform color-scale by which each worker may determine the end-results of the reaction. On the specificity of the ferments the future of the reaction depends. From our work with this reaction in nervous diseases in the neuropathologic laboratory of Dr. Weisenburg and in the Samaritan Hospital, I believe that the reaction is organ specific.

In our cases we find that serums of male patients with dementia praecox digest testicular tissue, and serums of female digest ovarian tissue. Is this not sufficient evidence of the specificity of the ferments? True, we may, under certain conditions, get cleavage of placental tissue or of any tissue with serums of non-pregnant patients, when there is a leukocytosis. As is well known, leukocytes contain nonspecific proteolytic ferments and, consequently, serums from patients with an inflammatory condition might give a positive reaction when a negative reading was expected. We make a differential blood-count in all such cases. Another possibility of error lies in some hemorrhage, bruise or hematoma whereby through the hemolysis of the red cells a ferment is liberated which might possibly cause cleavage of protein substances. Do not condemn the reaction in an offhand manner if it has not met your expectations. Realize the qualitative nature of the test. Search for the cause of your wrong reading. Because you get the positive Wassermann in yaws or psoriasis you do not necessarily discard the reaction but govern yourself in accordance with the clinical picture. Why not apply the same rule to the Abderhalden?

Dr. Clarence F. Ball, Rutland, Vt.: I contradict the statement that cancerous and pregnant conditions will interact generally. I have a series of nearly 100 cases in only a very few of which has pregnancy given a cancer reaction or cancer a pregnancy reaction. Some of the cases have come to operation and I have not been able to demonstrate third-degree proliferation of the epithelium; there was a second-degree proliferation, however. My work in all of these cases has been done running four thimbles: one with activated serum, one with the serum and cancer tissue, another with either serum alone or the tissue—whichever I suspected, and the fourth with placental tissue. I use the cancer tissue for the primary test; placental for the secondary fundamental. The question of the validity depends on more than 90 or 900 cases: it depends on work which must be as extensive as that on the Wassermann has been. It may share the same fate as the Wassermann, or even worse. I believe, however, that there is a better future for the test. I have followed Dr. Schwarz' modification of the Abderhalden test, although I have not been to Dr. Schwarz' clinic. As to the question of cancer fundaments, obtain all your cancer tissue with as many cells as you can obtain free from the tissue invaded. The tissue that I have had the best results with has been that from a metastasis in which practically all of the tissue was cancer cells.

Dr. O. Lowy, Newark, N. J.: I have done considerable work in dialysis and have found that, as Dr. Wohl has brought out, the question of boiling is very important. To do away with some of the uncertainty I boil my solutions in a water-bath and instead of boiling for one minute I boil them for ten, using the four-thimble method and the activated serum. At the end of ten minutes I read the result. In using the flame a different heat is obtained according to the position in which the test-tube containing the serum is held, whether toward the center or end of flame. Another method to which I resorted to overcome error is: in a positive result I retest that same thimble at once against albumin. If the albumin gives a positive result my test is of no value. If it is negative I test against peptone. If that is positive I know that my test is right. As far as the value of the test is concerned, only the cumulative evidence of thousands of cases will do that. Up to the present we have tested 150 to 180 cases of cancer. In a number of cases of diabetes I have obtained a positive result; why, I do not know.

Dr. A. J. Carlson, Chicago: There is a fundamental discrepancy between one of Professor Abderhalden's statements and one of the main points in Dr. Vaughan's paper. Abderhalden takes the position that normal blood contains no polyvalent proteolytic enzymes, while Dr. Vaughan maintains that "the blood is a digestive fluid." Just there lies the main source of error in the practical utility of the Abderhalden test. I have had no personal experience with this test, but I have done some work on the ferments of the blood. I cannot accept Abderhalden's dictum as to the absence of polyvalent ferments in normal blood. I predict that normal blood will be found to contain polyvalent ferment or ferments, that when specific proteins are liberated into the blood, specific ferments are produced. That means that the Abderhalden test must be, not a qualitative, but a quantitative one. Of course I admit that the question whether or not normal blood-serum contains polyvalent ferments is a difficult one to decide. We have no means of obtaining serum identical with the plasma of the circulating blood. Dr. Vaughan emphasizes particularly that the leukocytes and the blood platelets are the source of some of these ferments. That may be partly true, but I wonder whether he is not unduly influenced by the distinguished gentleman across the water—Metchnikoff. In regard to many of the immune bodies I am confident on the basis of work by Dr. Hektoen and myself that tissues other than the leukocytes are the most important.

Dr. Henry Schwarz, St. Louis: I wish to say, since a great many men are influenced by the technic which I had given out, that there is one point about boiling the thimbles which was incorrectly stated in my paper read at Providence, R. I. I there stated that I boiled the thimbles five or six minutes. I do not. Such boiling spoils the thimbles, rendering them impermeable. We simply dip them in boiling water for not more than fifteen seconds, as Abderhalden suggests. A great many men with just as much training as Dr. Falls undoubtedly has, and with similar experience, have found when they published their results and their methods, that some little point of technic was wrong, which upset the whole matter. We are all willing to admit that the thing is not quite ready for everybody to work with; we are not quite ready to advise serodiagnosis of pregnancy or cancer, on a commercial basis at any price. We would not take any money for it, but we are all working in the same field and we are trying to make good. There are others who are not obtaining convincing results. Come to St. Louis, we shall be glad to show you in our laboratories the work that we are doing.

THE USE OF SALVARSAN IN NON-SYPHILITIC DISEASES*

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Although the use of salvarsan, first introduced as a *therapia sterilisans magna* in syphilis, has been somewhat of a disappointment as such, its influence on certain non-syphilitic diseases has been so pronounced that it is being used in an ever-increasing number of diseases, with the idea of enlarging its sphere of usefulness. So far as I know, however, no attempt has been made to use this drug on the basis of the relationship of the physiologic action of salvarsan to the etiology, pathology and manifestations of the disease treated. One can hardly call the treatment empiric. It has been used with the idea of what result *will* be obtained, rather than what result *should* be obtained.

In the fall of 1910, shortly after the introduction of salvarsan in the Kings County Hospital we noticed the coincident improvement of the tuberculosis in several cases of syphilis complicated by this disease. This rather unthought-of and unlooked-for result first stimulated our attention to the possibilities of salvarsan in non-syphilitic diseases.

For the past three years we have been conducting, on the service of Dr. J. M. Winfield at Kings County Hospital, a series of investigations with a view of establishing the underlying factors that govern the success or failure of salvarsan in the treatment of non-specific conditions. That some diseases respond as readily to salvarsan as does syphilis, that others are improved, that some act indifferently toward it, and still others are absolutely uninfluenced by it, can be readily seen by a quick survey of the literature; but it requires a close study of the relationship of the physiologic action of salvarsan to the etiology, pathology and manifestations of these diseases, before we can hope to explain these phenomena on a scientific basis.

The diseases treated by us include cases of anemia, chancroid, chyluria, elephantiasis, epithelioma, erythema multiforme, leprosy, lupus vulgaris, pityriasis rubra, psoriasis, tuberculosis and trichinosis. Realizing the limited scope of our cases, I have supplemented them with a review of the literature. The cases treated by us have been grouped with those taken from the literature for the purpose of obtaining a composite picture of what may be expected from salvarsan therapy in each individual disease.

EFFECTS OF SALVARSAN IN VARIOUS DISEASES

Acanthosis Nigricans.—One case was treated with three injections of salvarsan. The general condition improved and the skin lesions disappeared. This patient had a scar which resembled a healed chancre.

Aleppo Boil (Oriental Sore).—Of twelve patients treated, four were cured, one improved, five were uninfluenced, and in two the results were very doubtful. Most of the patients received two intravenous injections at ten-day intervals.

Petersen[1] declares, from his observation, that salvarsan is almost specific in this condition. Lubenau,[2] in 1912, asserted that salvarsan shows almost specific results in kala-azar.

It has been asserted that Aleppo boil and kala-azar are kindred affections. Sir P. Manson has advanced the theory that Aleppo boil bears the same relation to kala-azar as vaccinia does to variola. That is, the protozoan of Aleppo boil is in reality an attenuated Leishman-Donovan body, producing on the one hand merely the local lesions of Aleppo boil, while in its more virulent form producing the severer constitutional disease kala-azar. The camel he believes to be the attenuator of this parasite, as is the cow in the case of the germ of variola.

Petersen and Lubenau, however, stand alone in their declaration of the specificity of salvarsan in Aleppo boil and kala-azar. Their statements are not borne out by the results obtained by other investigators.

Amebic Dysentery.—Three cases of several years' standing were treated with intravenous injections of salvarsan. After the first injection the amebas, blood and mucous disappeared from the stools. Within a few days the stools lessened and became formed. One patient received a second injection and all three remained well.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Petersen: Russk. Wratschr., 1912, No. 43.
[2] Lubenau: Diss., Strassburg, 1912.

Anthrax.—Three patients are reported as having received several injections each. Improvement was noted after the first injection, the cases going on to recovery.

Experiments on dogs by Shuster[3] showed a killing of bacilli with salvarsan. Another investigator[4] reports curing dogs of anthrax, giving them 0.04 gm. per kilogram of weight. He feels assured that 0.6 gm. will effect a cure in man.

Anemia.—Here are considered only cases of the primary progressive type. Of thirteen cases, each receiving one or more intravenous injections, six showed remission (increase in red cells approximating normal, and improvement of general condition), two a marked benefit, two improved at first but relapsed, and two showed no benefit. The remaining case was too recent to venture an opinion.

Bilharziasis.—Out of five cases, the results in four were absolutely negative. In the fifth, there was a disappearance of ova and miracidia from the urine, but Fulleborn and Werner,[5] who report the case, argue that this does not necessarily mean a cure. According to them the best that can be said for salvarsan in bilharziasis is that it has an influence on the vitality of the miracidia.

Carcinoma.—Seven cases were treated with intratumoral injections of salvarsan in neutral suspension. Some of the patients declared that there was a lessening of pain, and in a few instances the mass seemed to become temporarily smaller; otherwise there were no favorable results noted.

Several cases of epithelioma were treated with local applications, but no improvement followed.

Chancroid.—One case in which the Ducrey bacillus was demonstrated received intravenous injections of salvarsan, and in thirteen days, it is asserted, the chancroid condition had healed. No local treatment was used.

This is not in accord with our results at Kings County Hospital, where a number of chancroidal conditions were treated locally with salvarsan in oily suspension, as a 10 per cent. ointment, and as a dusting-powder. We have never seen any influence on the chancroids that could be attributed to this local treatment. In a case of syphilis in which chancroids existed coincidently, an intravenous injection did not heal the local condition.

Sydenham's Chorea.—Some of the cases were of two years' duration. Thirty-five cases received from two to four doses of from 0.2 to 0.6 gm. each, some given intramuscularly and some intravenously. Without any exception these patients recovered in from two to four weeks.

Dermatitis Herpetiformis (Duhring's Disease).—Five patients have been treated with from one to three intravenous injections. Three responded quickly and completely, one responded more slowly, and the remaining case received quinin as an adjuvant with gratifying results.

Erythema Multiforme.—One case has been reported in which salvarsan had no apparent effect on the course of the disease. In another case (bullous type) of our own at Kings County Hospital, the patient received no benefit from an intravenous injection, and died within a couple of weeks after admission. This was the second attack within a year, the patient recovering from the first attack under ordinary treatment in about five weeks.

Some authorities have tried to create a relationship between dermatitis herpetiformis, erythema multiforme and urticaria, since the eruptions of all three are at times seen either at the same time or at different times in the same person. Judging from the response of dermatitis herpetiformis and erythema multiforme to salvarsan, it does not seem as if there is much in common underlying the diseases.

Filariasis.—Under this head are grouped the diseases caused by the *Filaria sanguinis hominis*. They are designated elephantiasis and elephantoid diseases. Of the latter, chyluria is the only one in which salvarsan therapy has been used.

Two cases of elephantiasis are reported as showing negative results after the intravenous injection of salvarsan. In one case treated by us the filaria could not be found in the blood after one injection of salvarsan, but of course the enlargement and induration of the lower extremities, which was the part affected, were not lessened. If it is necessary to reduce the affected parts to their normal appearance before we can pronounce a cure, elephantiasis must of necessity be incurable, since these changes are permanent. If, however, the disappearance of filaria from the blood can be taken as an index of the cure, the apparent disparity in the results may be accounted for by a difference of opinion as to what constitutes a cure.

Two cases of chyluria have been treated with one intravenous injection of salvarsan each. In one case the urine started to clear within seventy-two hours, but in the other case the urine persisted cloudy for some time. In both cases, however, repeated examination of the blood for two weeks disclosed no filaria.

Frambesia (Yaws).—Two thousand four hundred and thirty cases have been reported. The intramuscular and intravenous methods yielded equally good results. With a few exceptions a cure was effected in from two to three weeks. The few exceptions were improved and later cured by a subsequent injection. In only a few instances were three injections necessary. Even after boiling, the serum from patients who have recovered is reported to be as efficacious as salvarsan itself. Hospitals for the treatment of frambesia, with a daily census of several hundred patients, have been closed since the use of salvarsan.

Hodgkin's Disease.—Three cases were treated with injection of salvarsan into the accessible enlarged lymph-nodes. It made no impression, however, and the disease ran its usual course.

Keratosis Follicularis (Darier's Disease).—Temporary improvement was noted in one case, but a cure was not effected.

Leprosy.—Thirty patients have been treated, mostly with intramuscular and subcutaneous injections. Sixteen of the cases were uninfluenced. The remaining fourteen showed various degrees of improvement. Different observers report a lessening of the nasal secretions, disappearance of bacilli from the nasal secretions, retrogression and in some instances disappearance of nodules, and improvement in the abnormal sensations. They all agree, however, that these improved cases, even the most pronounced, were only temporary. Later new nodules formed and the disease progressed its usual course.

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[3] Shuster: München. med. Wchnschr., 1912, No. 7.
[4] Therap. Monatsber., December, 1912.
[5] Fulleborn and Werner: Deutsch. med. Wchnschr., 1912, No. 8.

Lichen Planus (Lichen Ruber Planus, Lichen Hypertrophicus).—Seven cases, in each of which two injections of salvarsan were given, have been reported. In one case, about an hour after the first intravenous injection, there was a reaction consisting of redness, burning, and swelling of the lesions, which soon subsided. Twenty days after the second injection the eruption improved, and although the observer could not report a complete cure, he felt certain that salvarsan was more effective than any other treatment he had used. Another case, after two intravenous injections at ten-day intervals underwent retrogressive changes which led to a complete cure. Two cases in which intramuscular injections were given showed slow disappearance of the lesions. The remaining three cases were not influenced by the treatment.

Lupus Vulgaris.—Of eighteen patients, twelve were treated with salvarsan alone, and six received tuberculin in conjunction with the salvarsan. Repeated injections were given at four-week intervals in most of the cases. It is noteworthy that after the first injection some of the cases showed local reactions much like tuberculin skin-reactions. Of the twelve patients treated with salvarsan alone, three, after several injections, showed improvement, and the remainder were uninfluenced. Of the six patients treated by the combined method, all were cured in a comparatively short time.

Mycosis Fungoides.—At the meeting of the New York Dermatological Society, December, 1912, Dr. Jerome Kingsbury presented a patient whom he had treated with repeated injections of salvarsan, with marked improvement.

Malaria.—Fourteen patients with either tertian or quartan type were treated with intravenous injections of salvarsan. In no cases were the plasmodia demonstrable after the injections, and the clinical symptoms disappeared.

Pemphigus.—Under this head are considered three allied skin-eruptions, pemphigus chronicus or vulgaris, pemphigus vegetans, and pemphigus foliaceus. These three affections are considered by some as distinct entities, but there is much in favor of their being merely different manifestations of the same disease.

One case of pemphigus vegetans responded well to salvarsan, while in a case of pemphigus foliaceus it was ineffectual. Neither did quinin in ascending doses produce any effect on this case. In another case of pemphigus foliaceus a better condition of the skin, less pruritus, less exudation, and more abundant exfoliation were noted. The patient died, however, having received only three small intravenous injections. Thirteen patients with pemphigus vulgaris were treated with one or more injections. Six of these have been reported cured (two requiring a second injection), and seven were treated without any benefit.

If we take into consideration that these cases are reported from different sections of the world, and remember the unsettled ideas prevalent concerning the bullous eruptions, and the fact that these patients sometimes recover spontaneously, we may find therein the reason for such diverse results.

Pellagra.—Seventy-four cases have been reported, most of the patients being treated with repeated injections, intravenously. Two of these cases had positive Wassermanns, so we shall exclude them from the discussion. Twenty-three cases showed no definite improvement. Forty-nine cases, four of which had mental symptoms, showed different degrees of improvement, the majority going on to recovery. It might be stated that twenty-one of the cases in which no results were obtained are all reported by the same observers,[6] while the cases in which there was improvement and recovery are reported by seven other observers from different parts of this country.

Pityriasis Rubra (Dermatitis Exfoliativa).—One case showed progressive improvement after the fourth day. Ultimate results were not reported.

At Kings County Hospital a case of exfoliative dermatitis which later assumed the Wilson type, and which had resisted treatment for several years, was treated with weekly intramuscular injections of 0.1 gm. salvarsan suspended in oil. The treatment was continued for ten weeks, at the end of which time, though some redness persisted, exfoliation ceased, and the skin approached normal. The patient left the hospital but returned six weeks later with the condition as bad as it had been. Salvarsan therapy was again instituted with the same gratifying results. The patient at present has an almost normal skin with only an occasional circumscribed area of redness and scaling developing. It is interesting to note that this patient, although only about 35 years of age, has an advanced arthritis deformans, the onset of which preceded the skin condition.

Psoriasis.—Ten cases reported were subjected to salvarsan treatment. In three patients, each receiving two injections, the eruption disappeared in from three to four weeks. In four cases the scaling increased and the eruption seemed to involute for a few days, but after that remained stationary. Three cases were absolutely uninfluenced.

We have treated ten cases of psoriasis with intramuscular and intravenous injections of salvarsan and with one exception have seen no encouraging results. The one exception had a most typical psoriatic eruption which responded beautifully to an intravenous injection, but to our dismay the laboratory report showed a positive Wassermann. On close questioning a vague history of syphilis was elicited. The three cases reported as cured may have been similar to this one.

Relapsing Fever.—One hundred and ninety-five cases received 0.2 and 0.3 gm. of salvarsan intravenously during the febrile stage. In the majority of the cases the organisms could not be demonstrated in the blood from four to ten hours after the injection, and the fever disappeared in from seven to fourteen hours. In none of the cases were relapses observed.

Rhinoscleroma (Scleroma).—Four cases have been reported in which the clinical picture remained unchanged after the patients had received a subcutaneous and an intramuscular injection.

Scurvy (Scorbutus).—Of ten patients treated, eight received repeated doses of 0.2 or 0.3 gm. of salvarsan until 1 gm. had been given. There was a rapid decline of symptoms and quick general improvement. In the other two cases the amount of salvarsan given is not recorded, but the results obtained were excellent.

Sarcoma.—Four patients received intratumoral injections. One patient received three injections and showed temporary improvement. In the other three cases there was no appreciable influence on the disease.

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[6] Cole, H. P., and Winthrop, G. J.: The Status of Salvarsan in Pellagra, Based on the Reports of Twenty-One Collected Cases, The Journal A. M. A., June 17, 1911, p. 1794.

Sticker, at a meeting of the Berlin Dermatological Society in February, 1911, exhibited a dog in which he had grafted sarcoma, which he subsequently destroyed with salvarsan.

Scarlet Fever.—Five cases, in some of which the prognosis was fatal, received injections, but without any effect. It would seem to me that salvarsan is a dangerous drug to use in scarlet fever. On account of the frequent kidney involvement, a dose of salvarsan might just be the factor in defunctionating the already damaged kidneys.

Tuberculosis.—Abulow[7] reported improvement following the administration of salvarsan in tuberculous patients; but the improvement was only temporary, no arrest of the disease being noted.

It was a similar initial improvement that first stimulated our attention to the possibilities of salvarsan in diseases other than syphilis. We have since made the same observations in other cases of tuberculosis, the results of our observations concurring precisely with Abulow's.

Tuberculides.—(These cases comprise three of papulonecrotic tuberculides, two of angiolupoid, two of lupus erythematosis, three of erythema induratum and three of lichen scrofulosorum).—The results obtained in these cases were various. Some showed quick and decided benefit, others showed improvement which may or may not be attributable to the salvarsan, and in some there was no response. The papulonecrotic tuberculides, angiolupoid and erythema induratum were the conditions that showed the most improvement.

Trichinosis.—At Kings County Hospital there were two cases simultaneously (husband and wife). Both received the usual purgative and supportive treatment. One received in addition 0.6 gm. of salvarsan. The course of the disease was not altered and both patients succumbed. At post-mortem the live trichinellae were demonstrable in the muscle-tissue.

Trypanosomiasis.—Of fifteen cases reported, eleven patients died (one immediately following the injection). One patient survived but was hemiplegic. One patient recovered and has had no symptoms for two years. Two patients received intraspinal injections of 10 c.c. of 1:100 solution of neosalvarsan, one of whom died after the first injection, and the other finally succumbed after the third.

Ulcus Tropicum (Ulcus Phagedaenicum).—Six patients have been treated with extremely favorable results. Three received intravenous injections, two intramuscular, and in one a 10 per cent. ointment was used. The intramuscular cases had been treated by various other methods for six months with no response, and in from seventeen to twenty-five days, respectively, the ulcers were healed. Two days after the intravenous injection improvement started and went on rapidly to a complete healing. The ointment healed the ulcers in ten days.

Verrucae Planae.—Four patients each received an intravenous injection of salvarsan. In one case the warts disappeared after a few days. In another case the lesions on the face disappeared by the sixth day, and on the hands by the nineteenth day. In the third case the lesions disappeared within a couple of weeks. In the fourth case the lesions disappeared, but there were recurrences.

Variola Vera.—Three severe cases of small-pox were treated with two intravenous injections of 0.1 gm. of salvarsan. The patients improved generally and recovered without any complications.

Vincent's Angina.—Of eleven cases, seven were treated with local applications (two as a dusting-powder, and five suspended in glycerin), and four received intravenous injections. Both methods gave equally good results. In each case there was an immediate improvement and a rapid healing.

Besides these eleven cases Assmay and Kyritz[8] report salvarsan very effective in ulcerations that are due to the symbiotic action of Vincent's organisms.

SUMMARY OF RESULTS

Viewing the situation from the results obtained, the diseases treated fall into one of three groups: first, those which were uninfluenced; second, those in which the results were indifferent, that is, showing different degrees of improvement in different cases of the same disease, or showing improvement or cure in some cases, with negative results in other cases of the same disease, and third, those in which a uniform improvement or cure was effected.

Group A. This group comprises bilharziasis, carcinoma, chancroid, erythema multiforme, Hodgkin's disease, psoriasis, rhinoscleroma, scarlet fever, sarcoma, trichinosis, trypanosomiasis.

There is nothing in the etiology, pathology or clinical manifestations of these diseases that would lead one to suppose that any response to salvarsan should be obtained. In those which are of bacterial or protozoan origin, the organisms by virtue of their protected location in the tissues are practically impregnable. With the exception of psoriasis, arsenic has never had a place in the treatment of any of them. In psoriasis, Fowler's solution in ascending doses has been used extensively, but with variable results; and apparently salvarsan, because of its more transient presence in the system, has not even the virtue of the other arsenical preparations in this very chronic condition. The mode of administration ought to be a factor in this and other chronic diseases. If small, often repeated, intramuscular injections be given over a long period, instead of one or two intramuscular or intravenous injections of 0.6 gm. at a monthly interval, more satisfactory results might be obtained. In Hodgkin's disease, it is a question how much absorption was obtained by the intratumoral injections; and since there is no parasite to be destroyed, it is difficult to say what benefit could be expected from this form of treatment. By small, intramuscular injections, judiciously repeated, one would be obtaining a more prolonged effect of the arsenic, thereby combating the anemia and probably giving the patient a longer lease of life.

Group B. This group may be divided into two subgroups, (1) those of supposedly non-parasitic, and (2) those of known parasitic origin.

1. Anemia, keratosis follicularis, lichen planus, mycosis fungoides pemphigus, pellagra, pityriasis rubra, and the tuberculides. Here are a group of diseases in which arsenic has always been recommended and extensively used but with no constant results; and we find that salvarsan affects them with the same irregularity. They are essentially diseases in which a

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[7] Abulow: Russian Jour. Skin and Venereal Dis., July, 1912.

[8] Assmay and Kyritz: Arch. f. Schiffs- u. Tropen-Hyg., 1913, No. 17.

depleted nervous system plays an important part either primarily or secondarily, and the good results that were obtained are due to the tonic, stimulating and alterative properties of the arsenic radical. In those cases which were influenced, the salvarsan seemed to act with more rapidity and decisiveness than other arsenic preparations.

2. Aleppo boil, leprosy, lupus vulgaris and tuberculosis. In these diseases salvarsan may have a certain germicidal effect on the invading organisms, but cannot reach them all on account of their more or less protected position in the tissues. It destroys such of them as it can reach and the disease is apparently improved or arrested, only to go on its regular course after the drug has been eliminated from the system. Here too must be admitted a certain tonic, stimulating and alterative effect from the arsenic. One cannot ignore the marked improvement, although only temporary, in leprosy. Salvarsan here is a valuable adjunct in its treatment. It should be used at intervals intravenously or intramuscularly, dependence being placed on chaulmoogra oil, nux vomica and tuberculin for the ultimate results. In fact, such a method has been carried out by us in one case with excellent results.

This patient, a Japanese and native of Singapore, was admitted to the hospital with his face covered with nodules varying in size from that of a lentil to that of a walnut. He was given chaulmoogra oil and nux vomica in rapidly increasing doses. The nodules resolved and the patient made steady improvement under this treatment. He left the hospital and after six months' absence returned with active signs of recurrence. Although the same treatment was instituted and the chaulmoogra oil increased up to 150 drops, no impression was made on the disease. He was then given 0.6 gm. of salvarsan by vein. The leprotic nodules became inflamed and he was very ill for a few days. Ten days later serial injections of old tuberculin were started, the patient receiving weekly injections. Three weeks later improvement was noted, which continued until at the end of six months all clinical symptoms had disappeared. Patient was seen April 16, 1914, ten months after dismissal from the hospital, and there was apparently no recurrence.

Undoubtedly the good results obtained in lupus vulgaris must be attributed to the tuberculin. Salvarsan here seems to be a valuable adjuvant, since cases treated by us with tuberculin alone have not responded so quickly or so completely as those receiving the combined method.

Group C. This group divides itself into two subgroups, according to a known or unknown etiologic factor.

1. Filariasis, frambesia, relapsing fever and Vincent's angina. In these diseases the causative factor in each is a spirillum, and it is here that the results obtained have been no less brilliant than those obtained in syphilis. In amebic dysentery, anthrax and malaria, the invading organisms are easy of access. Anthrax, if not primarily so, soon becomes a general infection, the bacillus invading the lymph and blood. Malaria is a blood infection, the parasites at one time in their life cycle occupying the red cells and at another time floating free in the blood. An intravenous injection of salvarsan would destroy these organisms "at one fell swoop," as it were. The amebas of dysentery are undoubtedly destroyed by the excretion of arsenic through the bowel, as well as by the germicidal action of the drug in the blood in the intestinal mucosa. The local stimulating effect causes a healing of the ulcers.

2. Acanthosis nigricans, chorea, Duhring's disease, scurvy, ulcus tropicum, variola and verrucae planae. This is a miscellaneous group in which the etiologic factors are obscure or unknown, and it is difficult to be exactly certain of the factors operative in bringing about the happy results obtained. As was before suggested, there was a suspicious scar present in the case of acanthosis nigricans. Darier thinks that the disease is due to the action of a malignant growth on the abdominal sympathetic. Assuming that a visceral gummatous infiltration might produce the same effect on the abdominal sympathetic as a malignant growth, the good result obtained in this case is readily understood, whereas the same disease caused by a malignant condition might not be influenced in the least. Since all other treatment has been unsatisfactory, salvarsan should be tried in every case and its status more definitely established. In chorea arsenic has been the sine qua non, and in salvarsan we have replaced the former preparations by one of far greater potency and celerity of action. The results obtained in Duhring's disease have not been equaled by any other form of treatment. The exhausted nervous system seen in most cases of this disease is undoubtedly the basis on which salvarsan produced its good results. The alterative properties of salvarsan in the cases of scurvy corrected the disturbed metabolism promptly. If, then, a proper diet is prescribed, there should be no recurrence of this condition. While variola is a general infection, the specific organism is contained chiefly in the cutaneous lesions. The blood-vessels show a distinct dilatation throughout the whole cutis, increasing the blood-supply to the lesions. If now salvarsan is introduced into the blood and brought to the lesions, a marked destruction of organisms must follow, thereby ameliorating the disease by lessening the toxic absorption from the less toxic lesions. In verruca and ulcus tropicum we shall have to be content with the knowledge that salvarsan has curative properties for both. In the latter condition, however, I believe that the future will disclose one of the various forms of spirillum as a causative factor, and as before stated, salvarsan has reached its highest efficiency in all forms of spirillum infection.

CONCLUSIONS

From the foregoing study we are justified in formulating the following rules for the use of salvarsan in non-syphilitic diseases:

1. Salvarsan is specific in diseases caused by any variety of spirillum.

2. Salvarsan has curative properties in those diseases in which the infecting organisms are found in the blood or lymph, or in other locations where they can be easily reached.

3. Salvarsan has great therapeutic value in those diseases in which arsenic has been successfully used.

4. Salvarsan, if used with caution in repeated doses over a long period, has a therapeutic value in those diseases in which previously arsenic gave indifferent results.

5. Salvarsan, used as an adjuvant to some other drug or drugs, is useful in those diseases in which a decided and quick tonic, stimulating and alterative effect is desired, depending on the other drug or drugs for the ultimate result.

6. The mode of administration is important, and should be as follows: intravenous in those diseases in which a specific action is desired; full dose intra-

muscular injections repeated once or twice at long intervals (eight weeks), in those cases in which the tonic, stimulating and alterative effect is desired, as well as a certain specific action; small, oft-repeated (week or ten days) doses, intramuscularly, over a long period of time, in those chronic diseases in which a purely tonic, stimulating and alterative effect is desired.

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ABSTRACT OF DISCUSSION

Dr. John A. Fordyce, New York: I have not used salvarsan systematically in non-syphilitic diseases, but I have seen its effects on the coincident diseases of syphilitic patients, and in a few instances I have used it for non-syphilitic conditions. I have never seen any effect from it in psoriasis. In a case of mycosis fungoides it was used systematically without apparent benefit, but subsequent Roentgen-ray treatment had an apparently marvelous effect on the eruption. In a case of filariasis it had no effect. In a case of chorea in a boy with endocarditis the chorea was temporarily benefited, but there was a relapse soon afterward. In lichen planus it was also used without result.

Dr. James M. Winfield, Brooklyn: I question whether salvarsan, aside from its simple tonic effect, has any value in tuberculosis. In the case of leprosy mentioned by Dr. Best the patient seemed to improve much more rapidly under the combined treatment of tuberculin with chaulmoogra oil and salvarsan. In another case we used tuberculin and salvarsan, and that patient recovered and remained well for a long time. In a case of elephantiasis and filariasis the patient made a complete recovery. In a case of Vincent's angina we used salvarsan without any effect. In connection with chorea the question always arises whether it is true chorea or a manifestation of inherited syphilis.

F. W. Cregor, Indianapolis: The marvelous results attained from salvarsan in the control of syphilitic skin lesions, coupled with the reputation which arsenic has so long enjoyed in the treatment of various dermatoses, has suggested the use of salvarsan to the mind of many, even though the spirillum is not known or even suspected of being the cause of the disease in which it has been thought advisable to try the remedy. I treated one case of dermatitis herpetiformis for forty days, during the last thirty of which the patient was given a subcutaneous injection of sodium cacodylate, 3 grains daily, with only indifferent success. The patient was then lost sight of, and when she returned, three months later, there was an exacerbation of the eruption. She was then given a full dose of neosalvarsan, intravenously, and at the expiration of a week there was marked improvement. Following the second injection the case rapidly went on to complete recovery. Six months have now elapsed, and while perhaps on three occasions the patient has had a few discrete lesions, there has been no general exacerbation. Her improvement has been more marked under this treatment than under any other form of medication with which we are familiar.

Dr. Howard Fox, New York: In a paper read before this Association at Los Angeles, Dr. William B. Trimble and I reported on our first one hundred cases of syphilis treated by salvarsan. In two of these cases there were also well-marked eruptions of psoriasis which cleared up in a most favorable manner after salvarsan injections. As a result of this experience, I later treated nine cases of psoriasis with one or two injections of salvarsan but failed to obtain any material improvement in any case.

Dr. William Thomas Corlett, Cleveland: A word of caution might well be given lest the general practitioner get too glowing an idea of the value of salvarsan in non-syphilitic diseases. I have given salvarsan to syphilitic patients who were suffering from various concomitant diseases without producing any effect on them. I have also given it in psoriasis and pemphigus foliaceus with negative results. The same was true in one case of Duhring's disease, while in one case of premycotic stage of mycosis fungoides the patient was given four intravenous injections of neosalvarsan with very marked improvement.

Dr. William H. Best, Brooklyn: This treatment is still in its infancy, and we hope by further study and by changing the method of administration to get more constant results in those diseases included in Group B, which up to the present time have responded indifferently to salvarsan. As to the case of Vincent's angina, to which Dr. Winfield referred, there are ulcerative and necrotic conditions of the mouth and throat which are not due to the symbiotic action of Vincent's organisms, and Dr. Winfield's case may have been one of these. I am not advocating the use of salvarsan indiscriminately, but have tried to place the limits of its usefulness. In a number of diseases in which it has been used, I do not see how any results could be expected. These I have specifically named. It is gratifying to know, however, that in other diseases salvarsan has great therapeutic value. These diseases also I have specifically named. If the rules laid down for its use are conscientiously followed, I have no fear that the use of salvarsan will be an abuse.

EXPERIMENTAL CHRONIC GASTRIC ULCER

A SECOND CONTRIBUTION TO THE EXPERIMENTAL PATHOLOGY OF THE STOMACH*

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It is comparatively easy to produce experimentally acute ulcers in animals, and as far as gross and microscopic examinations go they resemble the same conditions in man. Common to all ulcers so produced, however, is the fact that they heal rapidly, healing being complete in the great majority of cases in from two to three weeks. In the human chronic ulcer, however, hyperacidity is present in at least half the cases, and it seemed to us, then, that if we added this factor to experimental acute ulcer, chronicity might be induced. Furthermore, it is a well-known clinical fact that stomachs with partial pyloric obstruction generally show hyperacidity, or, what is probably synonymous, hypersecretion; consequently we might induce hyperacidity experimentally by partially obstructing the pylorus and later in the same animals cause acute ulcers. To this end we tied a heavy silk ligature around the pylorus of dogs, just tight enough to produce moderate tension and marked peristalsis and antiperistalsis. We found that if just the right amount of tension is used, such stomachs will show marked dilatation and hypertrophy in from two to three weeks. If the ligature is tied more loosely, no effect is produced; if it is tied more tightly, complete pyloric obstruction results, with sudden exitus in from forty-eight to seventy-two hours, and symptoms at times resembling tetany. In animals successfully operated on, test meals from two to three weeks later show both stasis and hyperacidity.[1]

The test meals employed consisted of 300 c.c. milk and 100 gm. chopped beef, the latter fed, the former introduced through a stomach-tube. Fifty minutes later 1/20 grain apomorphin was given hypodermically, and the vomitus caught in a vessel, measured and examined in the usual way. As far as possible, the test meals were given the dogs before and after each operative procedure.

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* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Nelson Morris Memorial Institute for Medical Research.

* Experimental Pyloric Stenosis, the first article of this series, will be published in the Archives of Internal Medicine.

[1] Dr. Hamburger will report elsewhere in detail on these and allied phases of our work.

The next step after producing a partial obstruction was to produce acute ulcers in these stomachs. This is comparatively easy, any number of methods having been previously successfully employed, and as far as the present work is concerned, any one of them might have been used. In general, the methods used have paralleled the clinical theories as to the etiology of ulcer, and may be divided broadly into (*a*) infectious, (*b*) toxic, both local and general, and (*c*) mechanical.

By infectious methods (*a*), acute ulcers have been produced by injecting various bacteria intravenously, such as streptococci, staphylococci, the *Bacillus coli*, pneumococci, etc., and by feeding bacteria. The toxic methods (*b*) have been either general, such as those observed by injecting diphtheria antitoxin, or local by injecting silver nitrate, epinephrin, liquor formaldehyd, nicotin, etc., into the walls of the stomach. The mechanical methods (*c*) include excising pieces of mucosa, tying off gastric arteries, and injecting various emulsions into gastric vessels. We selected the injection of silver nitrate into the submucosa as the surest method, using from 0.5 to 1 c.c. of a 5 per cent. solution. Each animal was injected in two or three places at the final operation, one injection being made near the pylorus, one near the middle of the lesser curvature, and one in the fundus.

These injections produce necrosis of the wall, and in from forty-eight to seventy-two hours the slough separates, being rapidly digested, and leaving ulcerated areas of varying depths and breadths, sometimes with smooth edges, as in Figure 1 *A*, sometimes with ragged edges, as in Figure 1 *B*. Perforations are frequent, hemorrhages much more seldom. Such ulcers, if produced in normal stomachs, heal in from two to three weeks. To return to the results of partial pyloric obstruction: These are shown in Tables 1 and 2, the first including cases in which post-mortems were done three weeks or more after the second operation, and unhealed ulcers found, the second, cases in which they had completely healed.

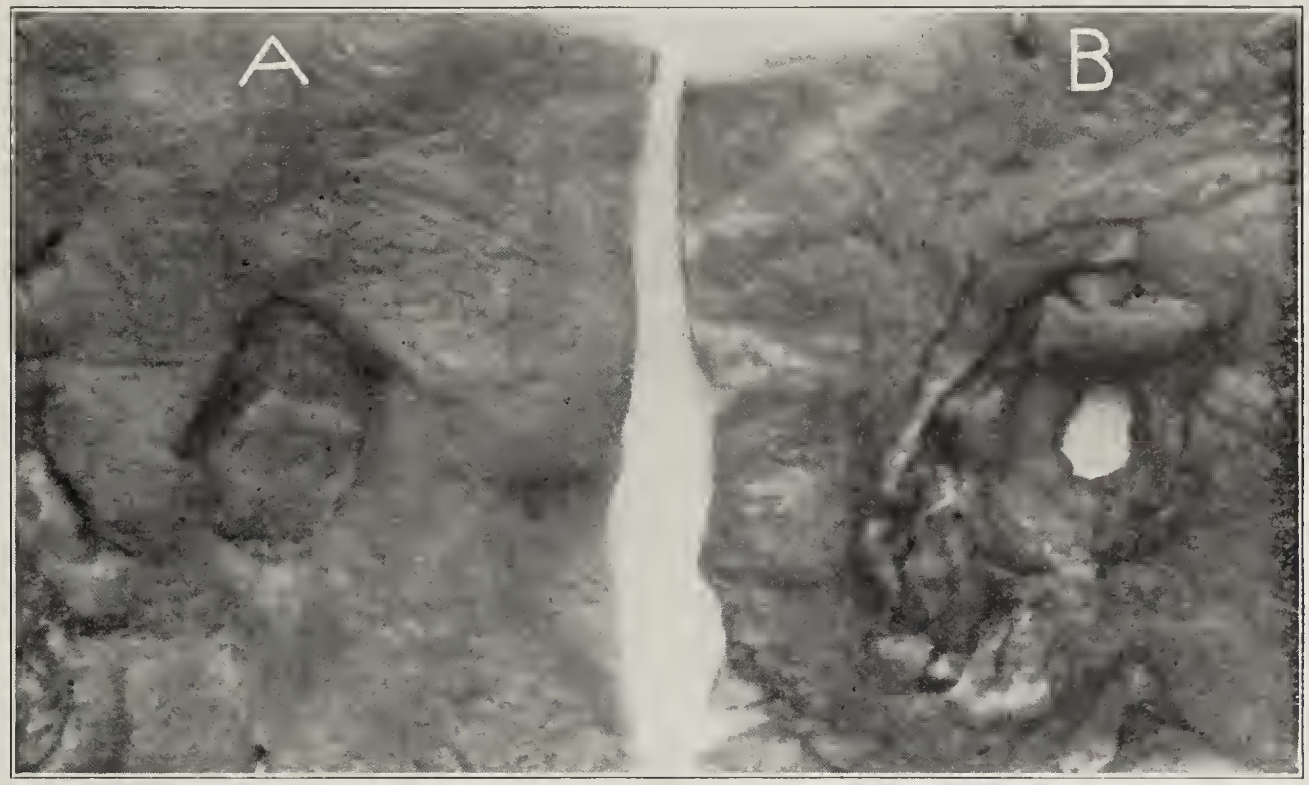

Fig. 1.—Acute ulcers, eight days after second operation.

Of sixteen animals successfully operated on, the average total acidity before pyloric obstruction was 34, the average of all our animals being 30, the average, from three to four weeks after such obstruction, 50. Such increase, however, was not necessarily permanent, as in some cases, four weeks or so later, the acidity had dropped again, as in Case 51, Table 2, in which it dropped from 54 to 30, and in Case 42, Table 2, from 55 to 36. Another point is the total quantity of stomach-contents removed. This quantity varied in normal animals from 100 to 350 c.c., averaging about 200 c.c. After successful obstruction operations, the amount rose to various heights up to 1,000 c.c., and in general it can be seen from the tables that hyperacidity is present only in those cases in which the total contents are excessive, and, furthermore, that in some cases in which the total quantity of stomach-contents rose, the acidity rose with it. So in Case 41, Table 2, in which the total contents rose from 200 to 425 c.c.,

TABLE 1.—CHRONIC ULCERS

Case No.	Duration of Ulcer, Weeks	Stomach Contents				Condition of Stomach at Necropsy	Ulcers
		Acidity after First Operation	Acidity after Second Operation	Quantity after First Operation, c.c.	Quantity after Second Operation, c.c.		
48	5½	26	50	450	550	Moderate dilatation, great hypertrophy.	Two chronic pyloric ulcers. Two spontaneous duodenal ulcers.
35	9½	..	38	...	150	Small, slight hypertrophy.	Two small healing ulcers.
36	7½	..	26	...	350	Slight dilatation.	Small chronic pyloric ulcer.
37	8	..	50	...	350	Great dilatation.	Deep pyloric ulcer, 10 by 12 mm.
43	6½	25	36	400	200	Slight dilatation, great hypertrophy.	Chronic pyloric ulcer, 6 by 15 mm.
22	3	..	..	...	...	Great dilatation.	Chronic pyloric ulcer, 2 by 1 cm.
5	6	23	..	...	...	Great dilatation.	Healing ulcer, lesser curvature, 4 by 4 mm. Chronic pyloric ulcer.
55	7	5,	42	950	1,050	Great dilatation.	Small chronic pyloric ulcer, .05 by 1 cm.
50	4½	75	64	300	250	Great dilatation and hypertrophy.	Superficial pyloric ulcer, 1 by 1 cm.

the acidity rising from 37 to 52 during this period, and in the cases mentioned above, Cases 51 and 42, Table 2, in which the acidity dropped to normal, the total quantities dropped also. The coincident variations of these two factors point to some relation between them, probably an identity. As stated at the outset, then, hyperacidity is probably simply a hypersecretion, and in many cases is dependent on impaired motility. We hope in the near future to work at this problem.

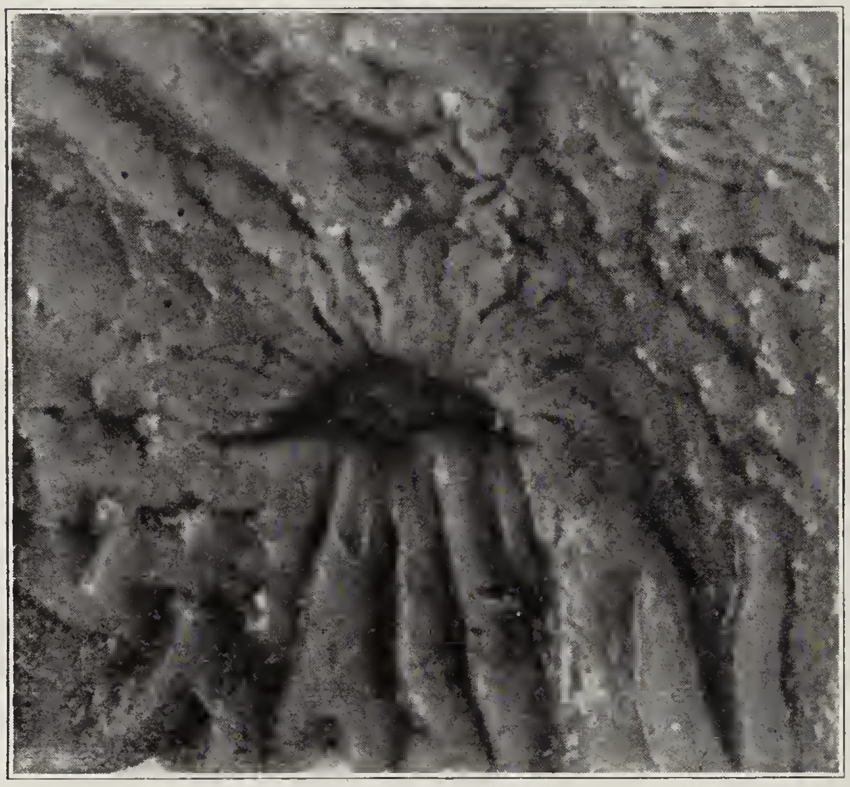

Fig. 2.—Chronic ulcer (delayed healing), three weeks after second operation.

To come now to the main problem, a comparison of these two tables shows the following facts:

In every case of Table 1 there was marked impairment of motility, as measured by the total quantity of stomach-contents recovered after test meals, and by the condition of the stomach found postmortem as to hypertrophy and dilatation. In each case a notation was made at necropsy, "greatly dilated," or at least "greatly hypertrophied," while only one case in seven of Table 2 (namely, of healed ulcers), was greatly dilated. The acidities varied, as stated above, and again it was in those cases in which the motility was most impaired, as measured by total stomach-contents and post-mortem dilatation, and the hyperacidity most pronounced, that the chronicity of the ulcer was most marked. So in Cases 48, 37, 22, 5, 55 and 50 (Table 1), from which our best specimens were obtained, the dilatation was very marked and the acidity high.

The types of ulcers which we have so produced can be divided into three classes: First, those which are apparently acute ulcers, in which healing is simply delayed. They have a puckered appearance, as though scar formation were slowly progressing (Fig. 2). These are similar to the ones described by Bolton,[1] who partially obstructed the pylorus in cats and considered this the only type so obtainable. Second, typical chronic ulcers, probably stationary, with rounded, overhanging edges and smooth fibrous bases (Fig. 3). Third, progressive chronic ulcers, as in Figure 4, in which the induration is not marked, but the evidences of autodigestion are evident, as indicated by the terracing at one end and the deep undermining at the other. No typical callous ulcers were found, the nearest approach being the one shown in Figure 5, in which the induration is limited to the base, which consists of excess of granulation tissue.

In two cases spontaneous duodenal ulcers were found at necropsy, just beyond the pylorus. In one case the thickened mucosa showed superficial ulceration. In the second case, Case 48, two typical round ulcers were present, one of which had perforated and caused peritonitis. These cases will be reported on later.

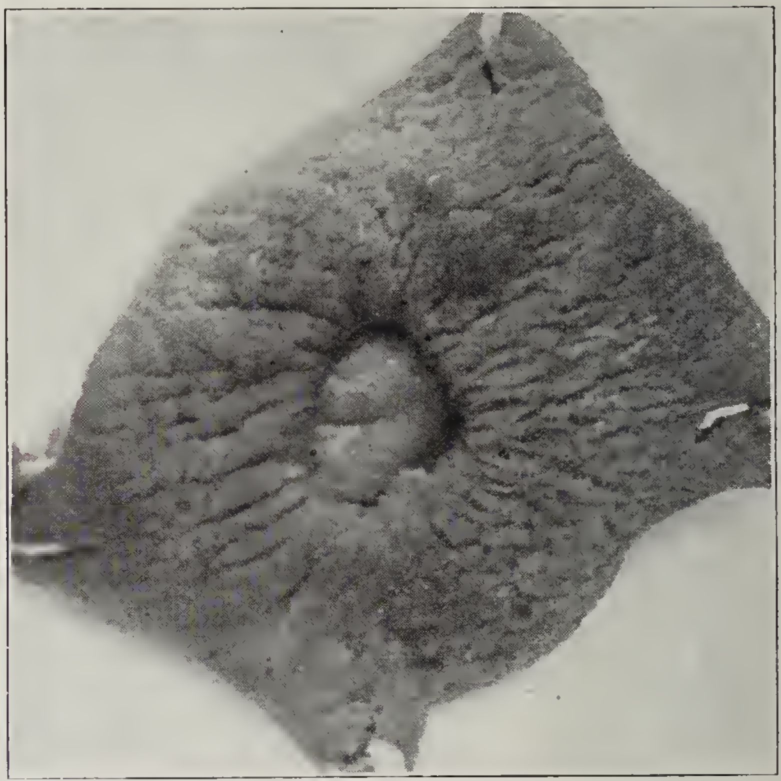

Fig. 3.—Chronic ulcer, five weeks after second operation.

TABLE 2.—HEALED ULCERS

Case No.	Duration of Ulcer, Weeks	Stomach Contents: Acidity after First Operation	Acidity after Second Operation	Quantity after First Operation, c.c.	Quantity after Second Operation, c.c.	Condition of Stomach at Necropsy	Ulcers
38	7	26	36	...	550	Moderate dilatation.	None.
41	7½	37	52	200	425	Small.	None.
51	4½	54	30	350	200	Small.	None.
39	?	..	62	...	800	Great dilatation.	None.
42	?	55	36	250	325	Slight dilatation.	None.
26	2	..	..	...	...	Small.	One acute pyloric ulcer. One acute ulcer lesser curvature.
28	3	..	..	...	...	Small.	Two healing ulcers.

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[1] Bolton: Further Observations on the Pathology of Gastric Ulcer, Proc. Roy. Soc., 1909-1910, lxxxii, B.

It will be remembered that each animal was injected with silver nitrate at the second operation in two or three different places, near the pylorus, lesser curvature and fundus. By reference to Table 1, it will be seen that in the majority of cases the pyloric ulcer alone remained unhealed, or in the cases in which two remained, the one near the pylorus was much larger in every way than the other. This is quite in accord with statistics in man, for instance, Fenwick's who states that acute ulcers are multiple in 50 per cent. of the cases, and situated irregularly throughout the stomach, while chronic ulcers are single in 80 per cent. of the cases, and situated near the pylorus in 75 per cent.

The simplest interpretation of these facts would be as follows: Acute ulcers tend to remain unhealed when exposed to the action of a very active gastric juice for an abnormally long period, and possibly the delay in healing is greater if the food and gastric juice are ground against the ulcers with unusual violence from hyperperistalsis. Consequently, at least three factors are necessary for the production of chronic ulcers in animals: first, a local destruction of the mucosa; second, an active or overactive gastric juice and third, prolonged or vigorous contact of the two (hyperperistalsis). This combination of chemical and mechanical factors results in either irritation of the floor and sides of the ulcers, with increased production of scar tissue, whence the callous ulcer, or further digestion of this inflamed, and, therefore, less resistant tissue, whence the progressive chronic ulcer and all its sequelae.

Such an interpretation accounts for the healing of ulcers of the fundus. Two factors are concerned in this. The first is the difference in peristaltic activity between the fundus and the antrum, the former acting simply as a reservoir in which the food is not thoroughly mixed with gastric secretion and from which the contents are slowly pressed out into the active right half of the stomach.[2] Secondly, it has been repeatedly demonstrated that food in the fundus is only faintly acid, or even alkaline, while always strongly acid in the antrum of the normal stomach, that is, the gastric juice is practically inert in the fundus, so that from this fact also fundal ulcers tend to heal.

To apply these facts to ulcer in man: As to the first factor, we need only say that normal mucosa is, of course, not digested, and that the tissue must first be injured in some way—whether by bacterial emboli, by toxic products, as in burns or uremia, by trauma, or by any of the processes which cause gastritis. As to the second factor, we have used the term "an active gastric juice" advisedly because there is no reason why chronic ulcers should not be produced by normally acid juice acting on diseased tissue, if the other factors are present, and such is the fact in some of the cases of our series, as in Cases 36 and 43 of Table 1, and, of course, in over 40 per cent. of clinical cases. In describing the third factor, we spoke of prolonged or vigorous contact, or both, because we can readily see why an abnormally vigorous peristalsis, even acting for a normal period, should produce the same results as a less active for a longer period. Of course, in our work the peristalsis is both exceedingly vigorous and prolonged, as we demonstrated fluoroscopically in a number of our cases. Clinically, such prolonged contact is certainly present in a majority of the cases of ulcer of the stomach. For instance, Smithies[3] reports on 404 cases of ulcer of the stomach verified at operation, in 65.3 per cent. of which there was definite abnormal food retention. The abnormally vigorous contact as a furtherance to autodigestion is supplied, first, by the hyperperistalsis due to pylorospasm, which is seen fluoroscopically not infrequently in injuries to the mucosa anywhere in the gastro-intestinal tract, and, secondly, by the hour-glass contraction (also spasmodic) found by Barclay,[4] also fluoroscopically, in ulcer of the body of the stomach in 90 per cent. of the cases. This spasmodic narrowing would, of course, increase the friction of the food particles. That such friction plays some part in human ulcer is shown by Stromeyer's[5] studies on the typical funnel shape of ulcer, with the proximal end deeper and the mucosa undermined, the distal end being shallowed and terraced, a fact which he explains by the progression of the stomach contents toward the pylorus, and its glacier-like, eroding (that is, digestive) action. This we found in a number of our ulcers, as in Figure 5 *A*, an ulcer of five and one-half weeks' duration, situated 4 cm. from the pylorus, in which one end was quite deep, with undermined mucosa, toward the pylorus. The shallowed and terraced end was nearer the cardia, the opposite of Stromeyer's statement, to be sure, but natural when we remember that the progression of food in the antrum is not in an uninterrupted straight line toward the pylorus, but oscillatory first in one direc-

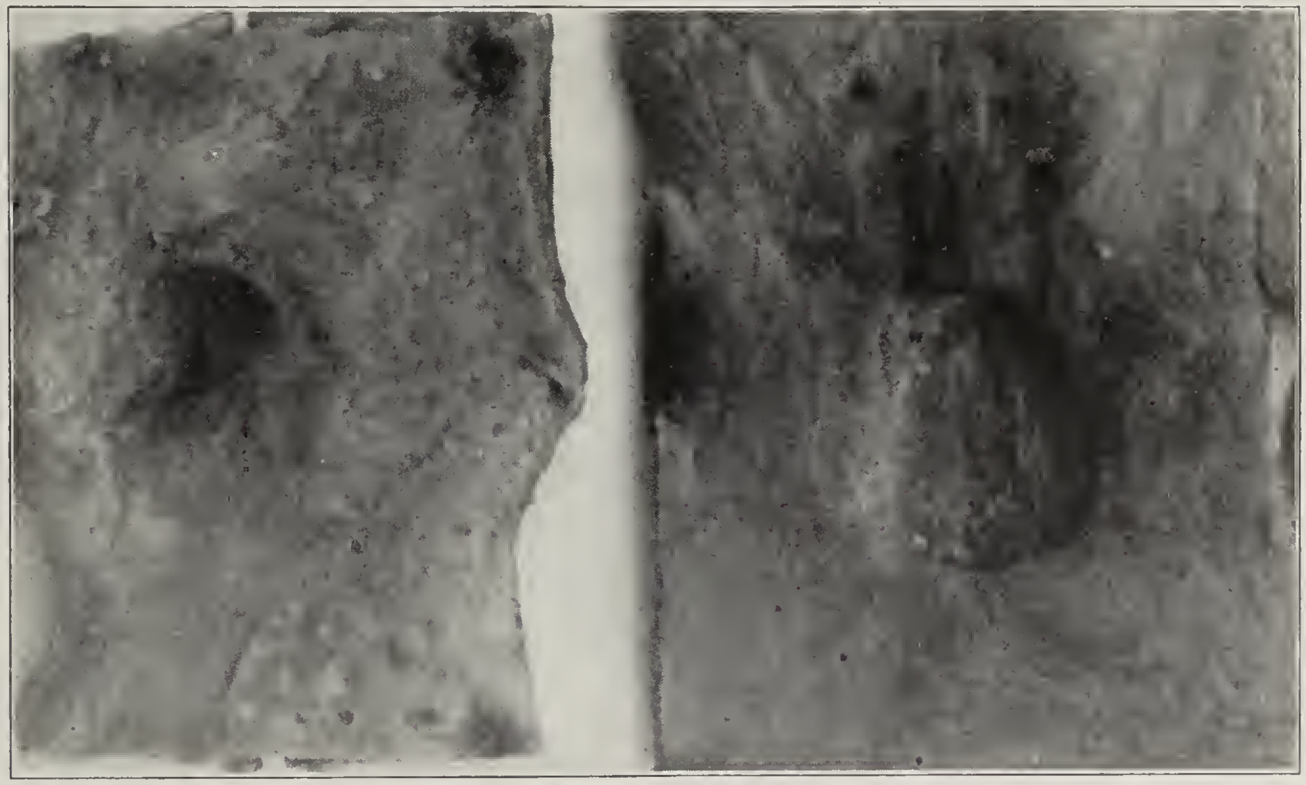
Fig. 4.—Chronic ulcers, five and one-half weeks after second operation; progressive.

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[2] Cannon: The Mechanical Factors of Digestion, p. 69.

[3] Smithies: Gastric Ulcer without Food Retention, Am. Jour. Med. Sc., March, 1913, p. 340.

[4] Barclay: The Stomach and Esophagus: A Radiographic Study.

[5] Stromeyer: Die Pathogenese des Ulcus Ventriculi, Beitr. z. path. Anat. u. z. allg. Path. (Ziegler's), liv, 1912, No. 1.

tion, then in the other, and that, therefore, the undermining by digestion may occur at either end.

As a working hypothesis consistent with these experimental data, we may suppose either that acute ulcerations arise in the stomach from some outside cause and result reflexly in a pylorospasm, which again causes impaired motility, hypersecretion and hyperperistalsis, thus inducing chronicity; or that various conditions in the gastro-intestinal tract, as septic conditions in the mouth, mucous colitis, appendicitis, cholecystitis, etc., reflexly cause spastic contractions of various parts of the stomach, and narrowing of the lumen. If an abrasion occurs at the narrowed portion, for instance, from a coarse particle of food, the same process of digestion causes chronicity and the ulcer then perpetuates the spasm; or, more broadly, those persons whom we formerly termed neurasthenics, but who are now classed as vagotonics, may have pylorospasms from reflex causes in any part of the nervous system, and so the chain of events be set in motion (Barclay,[4] von Bergmann[6]).

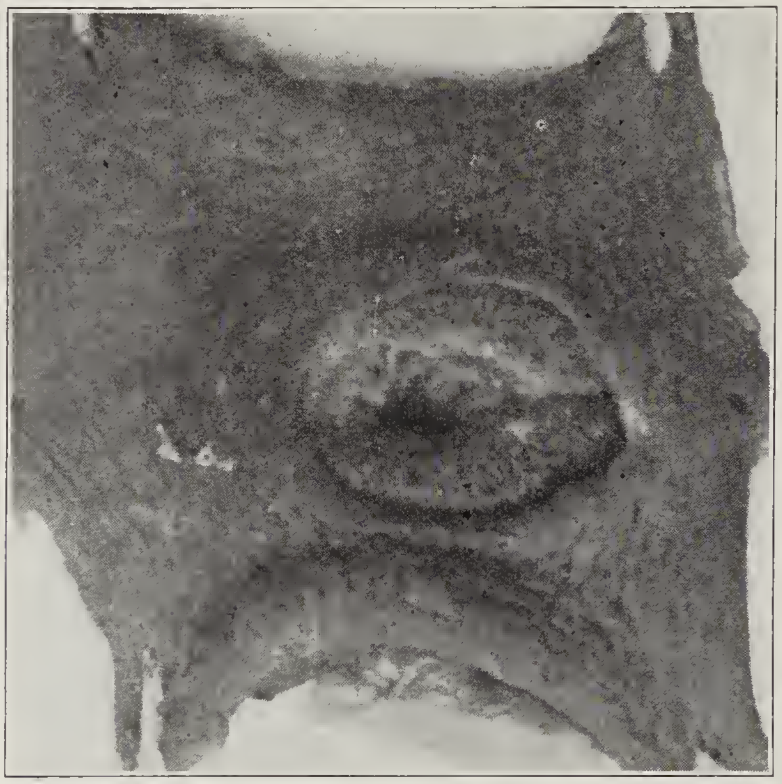

Fig. 5.—Chronic ulcer; markedly indurated base eight weeks after second operation.

SUMMARY

1. In the dog, chronic ulcers may arise from acute ulcerations, if certain factors are present, namely, prolonged and probably violent action of active gastric juice, that is, hypersecretion and hyperperistalsis, and that such ulcers may remain unhealed if the acidity later drops to normal. Other factors, such as anemia, absence of anti-pepsin, vascular obstruction, etc., are unnecessary presuppositions.

2. Stromeyer's theory of the digestive action of the gastric juice and the progress of food particles as determining the typical shape of ulcers is probably correct.

3. The majority of chronic ulcers are single and situated near the pylorus, because ulcers elsewhere tend to heal, the factors causing chronicity being usually present only near the pylorus.

29 East Madison Street—104 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Prof. A. J. Carlson, Chicago: I observed a couple of years ago that about 75 per cent. of the dogs in which experimental parathyroid tetany had been produced showed certain types of ulcers in the duodenum and the pyloric mucosa. I thought at that time it indicated some relation between the parathyroids and these ulcers, as has been suggested by one of the previous speakers with reference to the internal secretions in general, but in extending the observations to cats I was quickly disabused of that premature conclusion in that I have never observed that phenomenon in cats in parathyroid tetany. I am inclined to believe that, of all the experimental animals, the dog is the one most prone to develop ulcers in the duodenum and in the pylorus without direct experimental interference that will tend to produce such ulcers. I do not mean by this to throw any doubt on the actual facts so beautifully shown by Dr. Rosenow with his streptococci injection or those reported by Dr. Friedman here to-day, but conclusions as regards the connection between the internal secretions and duodenal ulcers cannot be based on experiments on dogs alone.

Dr. E. C. Rosenow, Chicago: How long were these ulcers observed and were any cultures made from the depths of the ulcers which were produced experimentally? The results show clearly that obstruction of the pylorus in dogs delays the healing of ulcers produced by injections of silver nitrate and emphasize the rôle which obstruction undoubtedly plays in delaying healing of some ulcers in man; but why might not this be due to secondary infection of the walls of the ulcer made possible by rather than due directly to the interference with the function of the stomach? This it seems to me is a possibility which must be considered in view of the fact that the ulcers which I have produced by intravenous injections of streptococci from various sources, but of a particular grade of virulence and commonly with streptococci isolated from the depths of typical chronic indurated ulcers of the stomach and duodenum in man, tend to persist for a long time, occur most often in the pyloric end or duodenum, become indurated, may perforate or produce fatal hemorrhage and yield streptococci often in pure form as long as fourteen weeks after a single injection. Moreover, persistence of ulcers in man is not so uncommon when little or no disturbance of motor or secretory functions of the stomach can be made out.

Dr. J. C. Friedman, Chicago: First, as to Dr. Rosenow's question, the oldest chronic ulcer that I have is of ten weeks' duration. Of course, it is difficult to keep the dogs alive for a much longer period in a closed space. They get mangy and die spontaneously if we don't kill them. Secondly, we didn't make any cultures because we did not think that this was an etiologic factor in our ulcers. The reason why in cats one cannot produce ulcers as easily as in dogs may be connected with the different varieties of food that they eat. Surely, in the human, hyperacidity is present in the majority of cases of ulcer. Statistics show that hyperacidity is found in from 50 to 60 per cent. of the cases, and when we work experimentally we must take this functional change into consideration, and it may be that in Dr. Carlson's work these cats did not have any hyperacidity, while the dogs in the same experiments did. Therefore, the ulcers healed in the one and did not heal in the other. Now it is a known fact that one can produce acute ulcers in dogs and it is equally certain that in two or three weeks these ulcers heal and that therefore there must be some different etiologic factor in the ulcers which do not heal. As far as cutting out the suprarenal is concerned, not only do we destroy the internal secretions of that organ, but we also cause a vast change in the sympathetic system. Now it may be that the changes in the sympathetic system caused the ulcers without aid from the internal secretions.

Successful Medical Inspection.—The success of the work of medical inspection is judged by the reduction of the number of cases of contagious diseases and the number of physical defects corrected.—E. A. Montague in *Northwest Med.*

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[6] Von Bergmann: Das spasmogene Ulcus Pepticum, München. med. Wchnschr., 1913, No. 4.

ADENOMYOMA OF THE RECTOVAGINAL SEPTUM*

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Prior to the publication, in February, 1913, of reports of Cuthbert Lockyer's cases of adenomyoma of the rectovaginal septum,[1] the occurrence of such growths in this region had apparently not been observed either by surgeons or by pathologists.

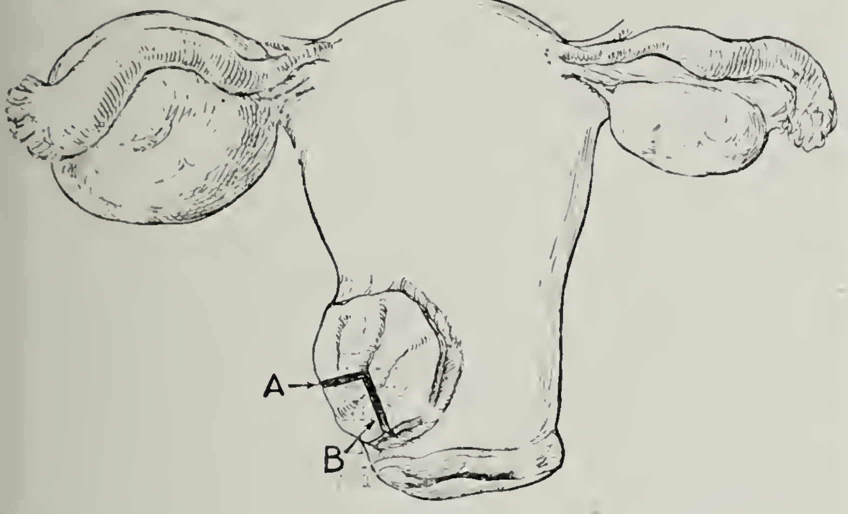

Fig. 1.—Adenomyoma of the rectovaginal septum, Case 1. A diagrammatic representation of the relation of the rectal tumor to the posterior uterine wall. Horizontal section taken at *A* is shown in Figures 2 and 3.

During the month of January, 1913, during which month Lockyer reported his cases, there were sent to me for diagnosis two rectovaginal tumors in which complete hysterectomy had been done. These proved to be counterparts of Lockyer's cases. It is through the courtesy of Dr. William S. Bainbridge, who operated on the patients, that I have the opportunity of reporting the cases.

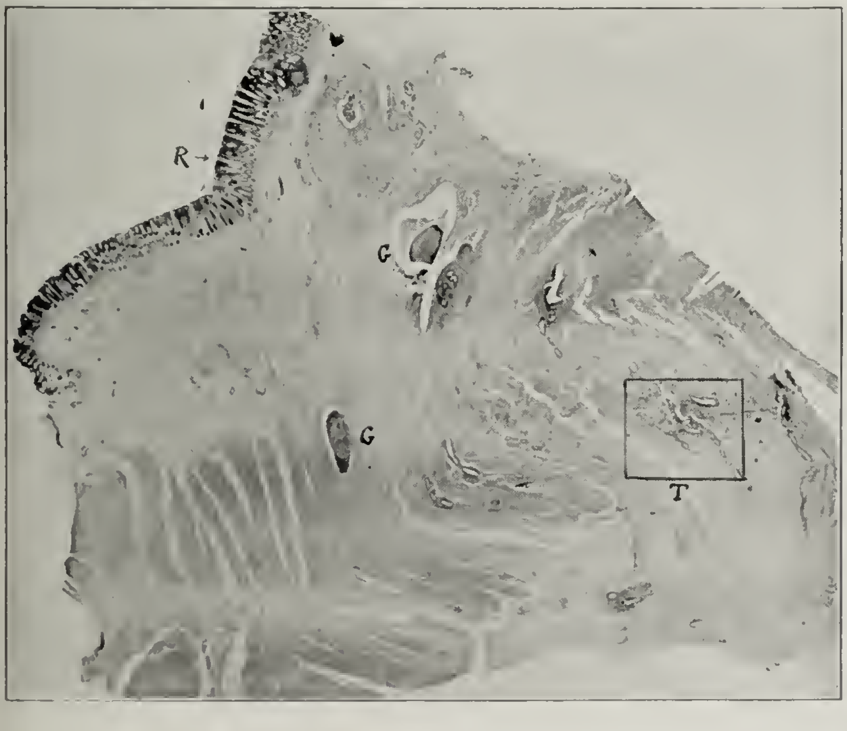

Fig. 2.—Adenomyoma of the rectovaginal septum, Case 1. Low-power view taken at *A*, Figure 1. At *R* is seen normal rectal mucosa. At *G* is an enlarged gland showing hemorrhage and exfoliation of epithelium into lumen. At *T* is a blocked-out area of glands and stroma shown in Figure 3.

Case 1.—Mrs. D., aged 36, was married but had had no children. There was no history of syphilis. One year previously she had been operated on for extra-uterine pregnancy. One small fibroid and the appendix were removed at this time. Menstruation had been regular up to three years ago, when she began to have dysmenorrhea and irregular flow. The present illness began two years ago with a gradual onset. The chief complaint was excessive menstruation, vaginal discharge and pain in the lower part of the abdomen. There had been loss of weight. Examination on admission to the hospital showed a mass between the uterus and rectum and attached to each. The uterus was enlarged and attached to the bladder and rectum. Cervix was ulcerated. The diagnosis was made of a "precancerous" uterus with probable malignant mass in culdesac.

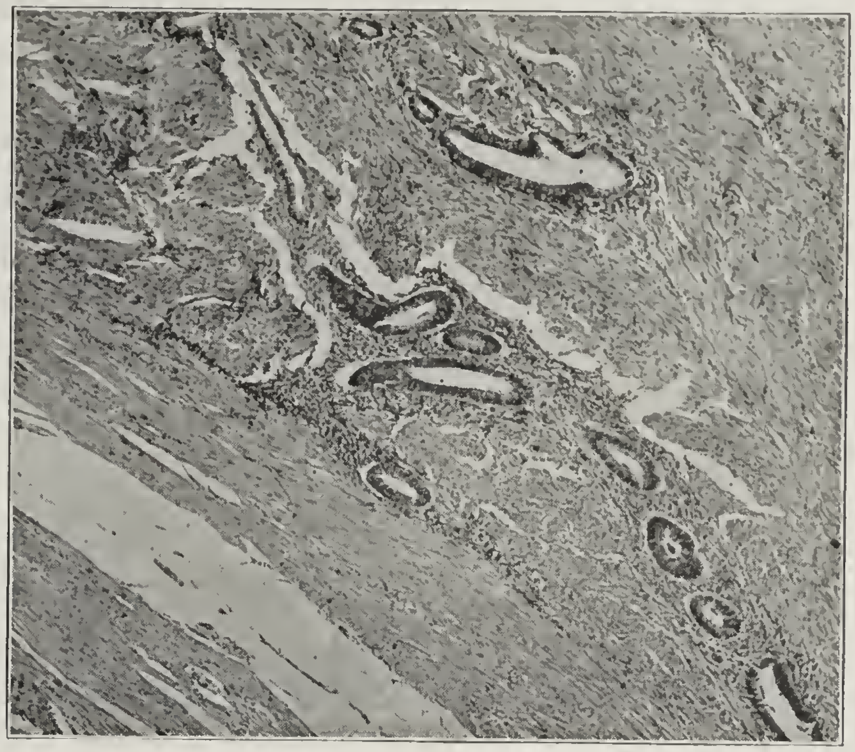

Fig. 3.—Adenomyoma of the rectovaginal septum, Case 1. High-power view of blocked-out area *T*, Figure 2. This shows islands of mucosa with the glands and stroma characteristic of uterine mucosa.

Operation was performed, Jan. 9, 1913. Many pelvic adhesions were found. Complete hysterectomy was done with removal of pelvic lymph-nodes and ligation of the right internal iliac artery. In the culdesac a bridge of carcinoma-like tissue was found extending from the vesicovaginal junction posteriorly to the rectum and so blended with the latter that a partial excision of the wall of the rectum was necessary. The patient made an uneventful recovery, going home in four weeks and has been well ever since.

Pathologic Report 2018: The tissues consist of the uterus, tubes and ovaries, portion of the rectum and pelvic nodes. The uterus is 8 cm. long and 6 by 5 cm. at fundus. The ovaries are enlarged and cystic, the largest 5 cm. in diameter. The uterine wall shows a fibroid 2 cm. in diameter. To the lower portion of the posterior wall of the uterus there is attached by a band of fibrous tissue a section of rectal mucous membrane measuring 3 by 2 cm. (Fig. 1). The rectal mucosa appears normal, but the tissue between it and the cervix is dense, and cuts like a fibroid.

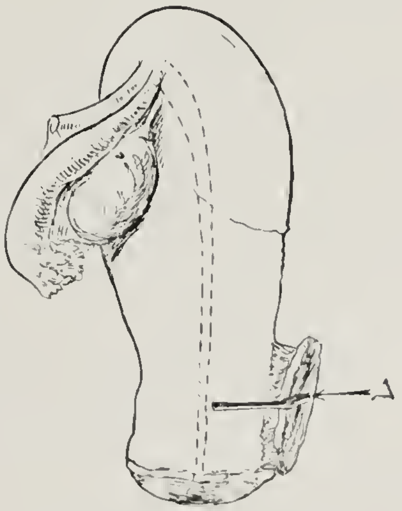

Fig. 4.—Adenomyoma of the rectovaginal septum, Case 2. A diagrammatic representation of the relation of the rectal tumor to the posterior wall of cervix. Horizontal sections taken at *A* are shown in Figures 5, 6 and 7.

Microscopic examination of the sections of the uterine body and cervix fails to show any malignant new growth. There is a chronic cervicitis and the pelvic nodes show chronic inflammatory changes. A horizontal section through the rectal tumor (Fig. 2) shows normal rectal glands and stroma and beneath this a broad zone of non-striated muscle. Scattered through the muscle are glands occurring singly or in groups, some lying within 1 mm. of the rectal mucosa. They are surrounded by a stroma of small round and oval cells. This stroma is more in evidence where there are several glands together. Some of the glands are enlarged or cystic and contain blood-cells and exfoliated epithelium, the result of hemorrhages into them. The epithelial cells lining the glands are cylindrical, and cilia can be demonstrated on the surface of some. The glands resemble those of the uterine mucosa rather than those of the rectum.

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* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Research Department of the New York Skin and Cancer Hospital.

[1] Lockyer, Cuthbert: Proc. Roy. Soc. Med., 1913, vi, No. 4.

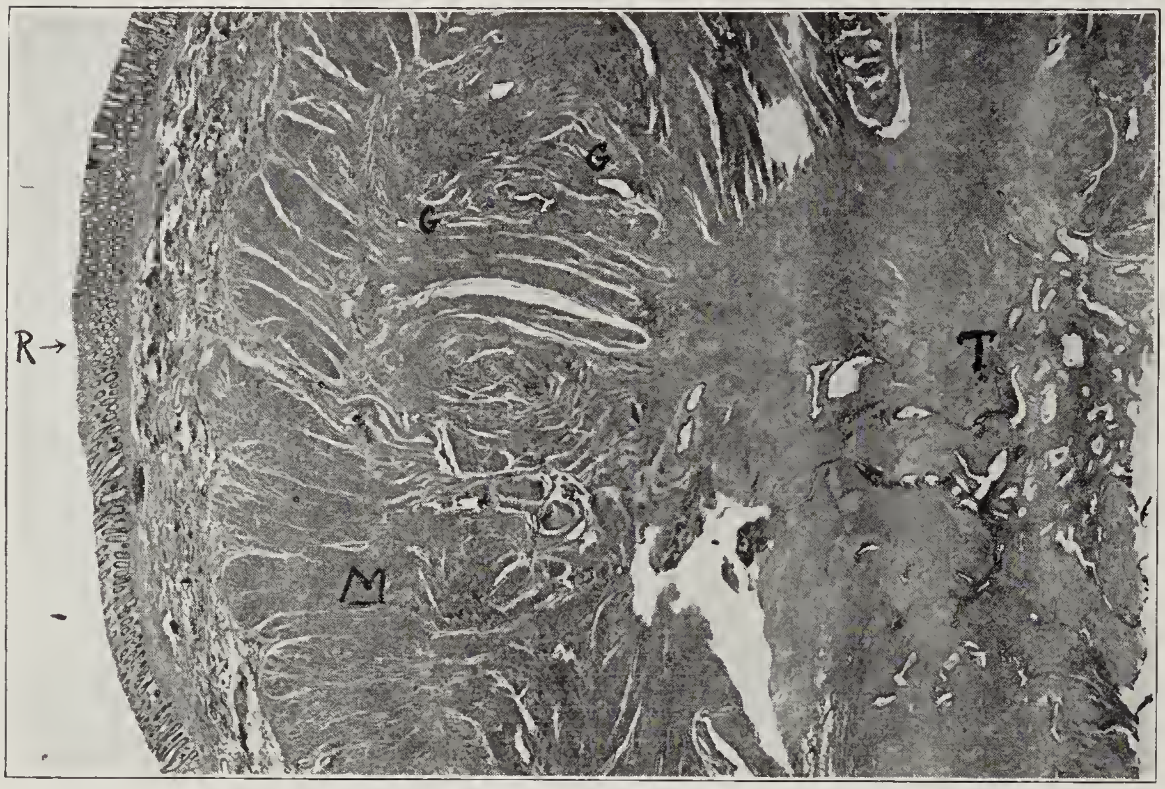

Fig. 5.—Adenomyoma of the rectovaginal septum, Case 2. Low-power photograph showing normal rectal mucosa at letter *R*. Beneath this is a growth of smooth muscle at *M*, with a few scattered glands at *G*, and a large group of them at *T*.

Case 2.—Mrs. F., aged 40, married, has two children, aged 17 and 13. She has never been seriously ill. The movements of the bowels have been irregular until three months ago when they became regular. She does not know what brought about the change. Ever since marriage there has been pain on the left side low down in the region of the ovary. This pain comes and goes without relation to the menstrual periods. Hemorrhoids have given her trouble for the past thirteen years and recently there has been bleeding from the rectum. Physical examination showed external and internal hemorrhoids, tenderness over the appendix and a large uterus with a lacerated cervix. A distinct hard mass was felt in the culdesac of Douglas, beginning to adhere to rectum. It was thought to be a uterine fibroid. Examination of this mass from the rectal side with a proctoscope showed an intact rectal mucosa but one which bled readily at the site of the tumor.

Jan. 21, 1913, hysterectomy was performed with removal of the tubes and ovaries and appendix and a portion of the rectum. It was found that between the uterus and the rectum attaching together their peritoneum and muscular coats was a nodule ¾ inch in diameter with contracted tissue around it strongly suggesting malignancy. It was necessary to excise a piece of rectum to remove the growth.

Pathologic Report 2042: The uterus is 9 cm. long and 5 by 4 cm. at fundus. The wall is 2 cm. thick and the mucosa roughened. Both ovaries are cystic and enlarged. Tubes are thickened at fimbriated end and adherent to ovaries. There is a small area of rectal wall attached posteriorly to uterus by a band of fibrous tissue (Fig. 4). On section there is a hard fibrous base from 0.5 to 1 cm. deep lying beneath rectal mucosa.

Microscopic examination of sections of the uterus shows a chronic cervicitis. There are moderate inflammatory changes in the tubes and appendix. Rectal mass: sections were cut horizontally through from the rectum to within 0.5 cm. of the canal of the cervix (Figs. 5 and 6). Here as in Case 1, the rectal mucosa is normal. Beneath it is a growth of smooth muscle which extends through and is continuous with that of the cervix. Glands appear within 2 mm. of the rectal epithelium. They occur singly at first with very little stroma, but further in there is grouping of large numbers of them and at a depth of 1 cm. they form a nodule from 1 to 1.5 cm. in size. The epithelial lining cells are cylindrical and of the uterine type and cilia can be demonstrated. Between this group of glands and the cervical mucosa there is a distance of 2 cm. in which no glands can be seen. There is not so much cystic dilatation of the glands as in Case 1, but some show blood and detached epithelium as evidence of hemorrhage (Fig. 7).

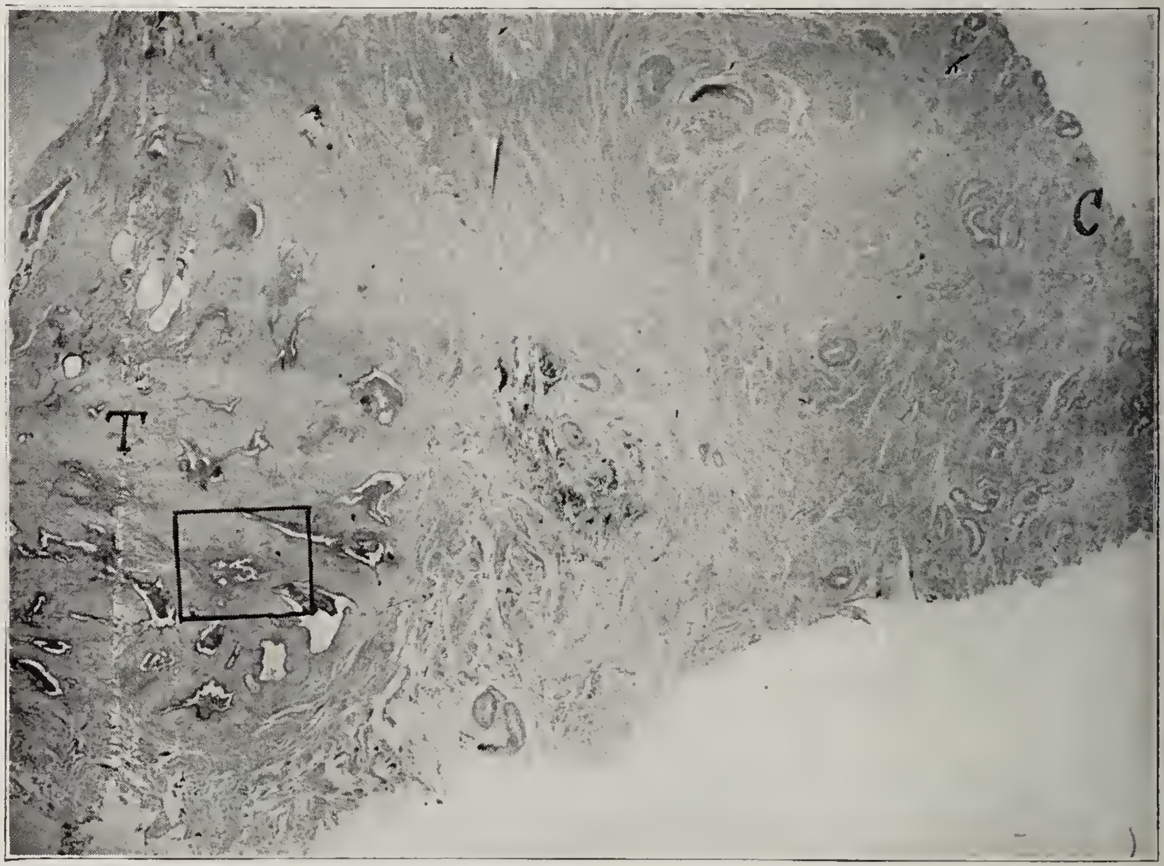

Fig. 6.—Adenomyoma of the rectovaginal septum, Case 2. Low-power view continuation of mass of glands and stroma seen at letter *T*, in Figure 5, and indicated here also by letter *T*. Blocked-out rectangular area is shown in the high-power view of Figure 7. Letter *C* is at the uterine edge of section at a point 0.5 cm. from the cervical canal.

DIAGNOSIS

These two cases presenting the same picture clinically and pathologically can be considered togethe from the point of view of diagnosis. While the microscopic picture was identical with that of cases of adenomyoma of the uterus which we had previously seen, the unusual location and the absence, at that time, of any records of such cases in the literature, led us to ask the opinion of Dr. Thomas S. Cullen, who on account of his well-known book[2] and other publications on the subject of adenomyomas, would be in a position to confirm our diagnosis if correct. Dr. Cullen very kindly examined the slides that I mailed him and wrote me very fully his opinion of the cases. Since then he has published reports of two cases of his own with a review and discussion of Lockyer's cases.[3] I cannot do better than quote a portion of Dr. Cullen's views with regard to our cases. He writes:

> There is not a shadow of a doubt but that we are dealing with adenomyoma of the uterus in both cases. From what I can gather the growth is undoubtedly of the uterine type and not of the rectal and the fact that the rectal mucosa is perfectly normal and in no way encroached on also favors the idea of the uterine origin. Furthermore, if we are dealing with an adenomyoma of the rectum then we should expect the glands scattered throughout the tumor to consist of rectal glands and not uterine. Both of these growths are essentially adenomyomas of the uterus and they have undoubtedly involved the rectum secondarily. As you know, a certain number of these adenomyomas are particularly prone to form adhesions. This would naturally be more frequent in the cervical portion because the uterus there lies in close contact with the rectum.

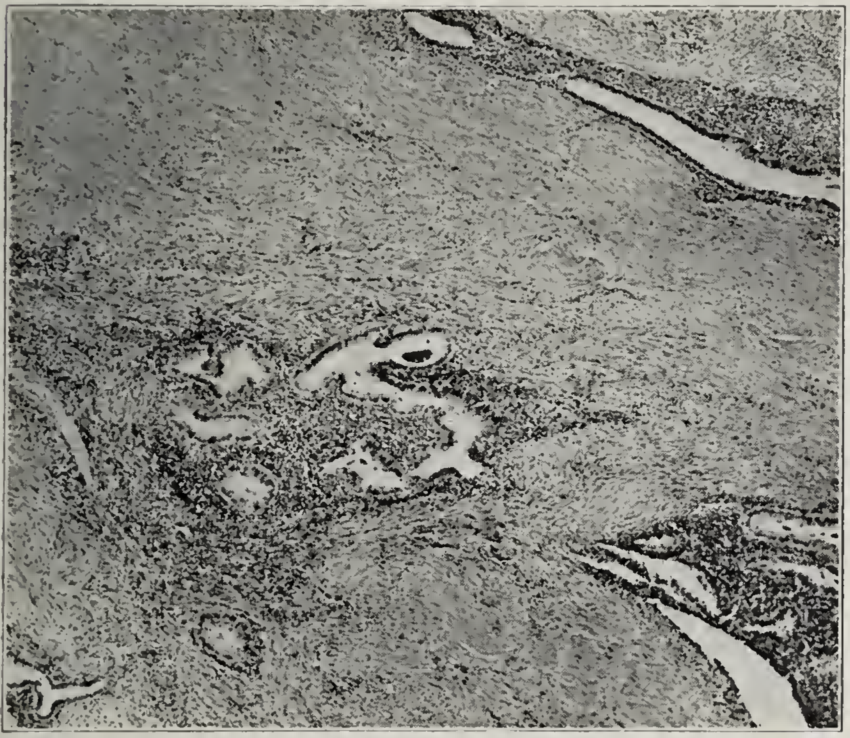
Fig. 7.—Adenomyoma of the rectovaginal septum, Case 2. High-power photograph of blocked-out area seen in Figure 6. Compare with the high-power view of the glands and stroma of Case 1, shown in Figure 3.

From the point of view of clinical diagnosis these tumors are of interest. Dr. Cullen has shown that some adenomyomas can be diagnosed by their increase in size at the menstrual period with accompanying pain and discomfort. This is doubtless due to congestion and hemorrhage such as is shown in our cases in which the glands contain blood-cells and epithelium. Examination of the histories, however, does not show that discomfort or pain if present was marked enough to be noted by the patients.

These tumors, while benign, have on physical examination the characteristic feeling of malignant growths on account of their density and tendency to form adhesions, and in both of our cases other surgeons had previously examined the patients and pronounced their condition inoperable on account of the apparent involvement of the rectum by a malignant growth.

That they may occur should be recognized by the surgeon, as the diagnosis can be made microscopically by a preliminary section. A simple excision of the mass would then cure the patient and there would be avoided the more serious operation of hysterectomy which would have been indicated if clinical diagnosis alone were relied on.

601 West One Hundred and Thirteenth Street.

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2. Cullen, Thomas S.: Adenomyoma of the Uterus, Philadelphia, W. B. Saunders Company, 1908.
3. Cullen, Thomas S.: Adenomyoma of the Rectovaginal Septum, The Journal A. M. A., March 14, 1914, p. 835.

A FEW PRACTICAL POINTS ON THE TREATMENT OF LEG-ULCERS*

A. RAVOGLI, M.D.
CINCINNATI

The ulcers of the legs, especially of the ankles, which are so frequently encountered in working-people, are of great interest on account of the difficulty of healing them. One of the characteristics of an ulcer is an open surface showing infiltration and necrotic process with no tendency to heal. The superficial molecular necrosis, or the disintegration of the connective tissues of the skin injured by long-standing infiltration, is the cause of the stubbornness of the ulcer. This molecular necrotic process is gradually produced, but sometimes is really a gangrene and the tissues are affected *en masse*.

In most of the cases the molecular necrosis is revealed by a yellowish coat on the ulcerated surface. As Kaposi[1] wrote, an ulcer is not a primary affection, but a secondary one, because it requires always a precedent inflammatory or neoplastic process, which has caused the molecular necrosis of the tissues and in consequence the prevention of healing.

Bell's classification[2] of ulcers as local or due to local causes, and symptomatic, due to constitutional systemic vice, still holds good. Yet considering the multiplicity of the causes which may act in one case in the production and continuation of the ulcer, we shall see that it is very difficult to accept this classification. In the production of the common ulcer resulting from varicose veins we may find traumatism, infection, phlebitis, periphlebitis, edema, eczema, all at the same time, as factors.

The division of ulcers into specific and non-specific is of great value in establishing the direct cause of their formation and maintenance. The ulcers which are known as constitutional may have syphilis or tuberculosis as their etiologic factor. Syphilitic gummas of the legs, when broken down, cause ulcers which are stubborn and difficult to cure. As Jadassohn[3] says, tuberculous ulcers of hematogenous origin are often localized in the legs, resulting from patches of erythema induratum. They have no indurated borders, and are of a peculiar bluish-red color. Tuberculous ulcers may also develop from cold abscesses in the legs, which, breaking down, cause ulcers.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914

1. Kaposi: Pathologie et traitement des maladies de la peau, Paris, 1891, p. 702.
2. Bell: Treatise on Ulcer, Edinburgh, 1778.
3. Jadassohn: Die Tuberkulose der Haut—Handbuch der Hautkrankheiten, Mracek, 1907, p. 251.

In our cases of common ulcers we see that traumatism, constant irritation, mechanical pressure, chemical, bacterial, dynamic, electrical action, all combined, may produce infiltration, which causes molecular disintegration of the tissues with the resulting ulcer.

In many cases the ulcer of the leg is caused by the occupation. It is often found in workingmen who are compelled to remain standing for many hours. On account of the vertical position the blood does not circulate easily; it remains stagnant in the veins, which become turgid and are seen superficially as bluish streaks under the thickened skin. This interference with the circulation often causes phlebitis; the tunics of the veins are infiltrated and broken, forming bluish dilatations or varicosities. The standing position renders more difficult the return of the blood which remains in the dilated veins. It causes a passive stasis, and as a result the lymph-vessels are involved, hindering the progress of the lymph. This causes an exudation to take place from the lymphatics; some coloring-matter of the blood, or even some blood escapes from the weakened tunics of the veins, causing edema, and a thickening of the derma and of the subcutaneous tissues (Fig. 1). It is not limited to the derma and subcutaneous connective tissues, but in some cases the infiltration goes deep to the fasciae and at times involves even the muscles.

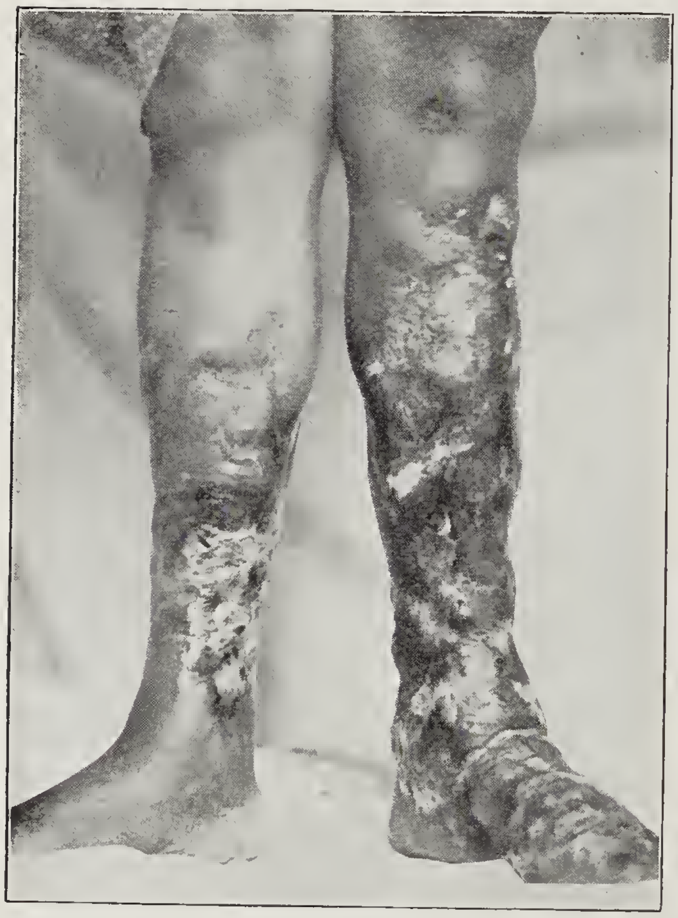

Fig. 1.—Infiltration of skin with edema from specific phlebitis.

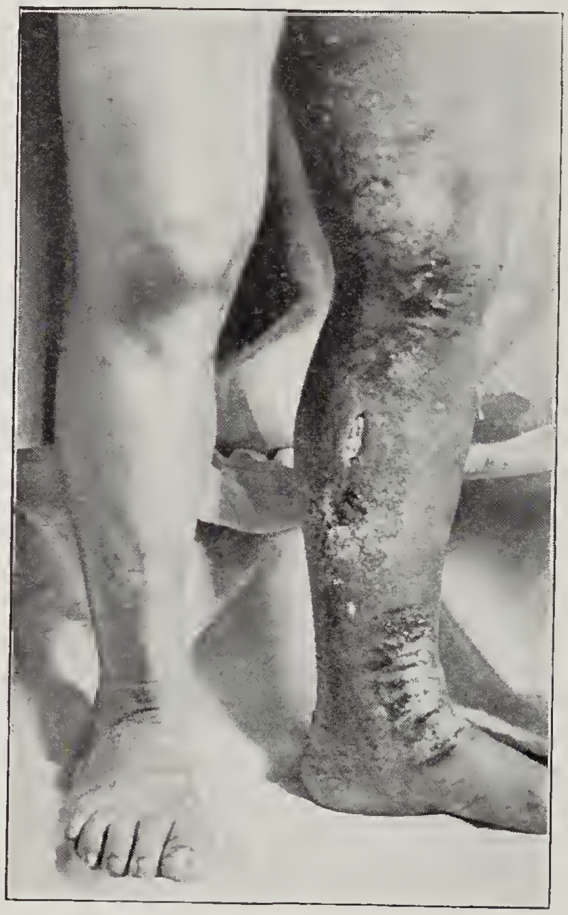

Fig. 2.—Ulcus cruris from phlebitis with intramuscular abscess.

The relation of the ulcer to varicose veins is yet a matter of dispute for the reason that many persons having varicosities do not suffer from ulcers. These considerations have prompted many authors to look for other causes.

Schreider[4] attributed the varicose veins and the leg ulcers to gouty diathesis, Quenu[5] and Silvy[6] to a neuritis secondary to the varicose veins as a trophoneurotic disturbance. As Douglas[7] says, however, it is easy to see the strict relation between varicose veins and the ulcer of the leg in phlebitis. Phlebitis and periphlebitis, in either the large or the small veins, in a thickened, hard and infiltrated skin is liable to produce abscesses (Fig. 2) which break down and form the starting-point of the ulcer. When the ulcer has been formed in a skin which has ceased to react, in persons usually neglectful of cleanliness, it will be a nest of bacteria, and a continuous source of infection. In my observations I have found, ordinarily, staphylococci, only rarely streptococci. The introduction of the streptococci in the lymph-spaces of the derma and in the lymph-vessels causes extensive erysipelas and cellulitis, which recurring leave a thickened skin and hard edema with swelling of the tissues, which often ends in elephantiasis (Fig. 3).

The possibility of trophoneurotic changes cannot be excluded, and there are some ulcers from local asphyxia of the tissues due to impaired trophic nervous action. This, however, cannot be maintained as a cause in the generality of leg ulcers. In the generality of the cases the enormous infiltration of the connective tissue elements and the diminished vitality of the skin are sufficient to cause the production of local necrosis and the formation of the ulcer. It is quite natural that when the skin has lost so much of its vitality, when it is thick and infiltrated, any contusion, pressure, scratch or rubbing is liable to start the molecular disintegration of the infiltrating elements and produce in consequence the leg ulcer.

On several occasions we have had examined, bacteriologically, the secretion and the detritus of the leg ulcers in the pathologic laboratory of the City Hospital. Bacteria have been found—staphylococci, streptococci, *Bacillus coli, Bacillus proteus* and most frequently *Bacillus pyocyancus.*

Before the rules for the treatment of leg ulcers can be pointed out, it is necessary to recall the pathologic alterations found in the tissues. A piece of the edge of an ulcer was excised, hardened and sections taken for microscopic study. The microphotograph was made by Dr. Charles Goosman of the pathologic laboratory. The photomicrograph (Fig. 4) shows epidermic cells increased in quantity and in size, with an enormous proliferation of the rete mucosum. Between the papillae of the derma, columns of epithelium are seen separating the enlarged papillae. The epidermic cells remain soft and are not subject to keratinization. There is no sign of a horny layer. As the epithelial cells are not susceptible of being keratinized, they are unable to form the natural horny protection to the underlying tissues. The papillae of the derma are greatly enlarged and elongated; they show an enormous quantity of infiltrating cells, with proliferation of the connective tissue cells. The photomicrograph, Figure 5, shows the infiltration and the proliferation of the connective tissues. Their fibers are enlarged and the connective-tissue corpuscles or fusiform cells contain several nuclei in process of proliferation. Plasma-cells are found showing some attempt at defense on the part of the connective tissues. The blood-vessels are greatly enlarged and are surrounded by extravasated blood-corpuscles. Newly-formed blood-vessels are produced by the existing capillaries, increasing the vascularity of the tissues.

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[4] Schreider: Thèse de Paris, 1883, quoted by John Douglas, Reference, Handbook of the Medical Sciences, New York, 1900, vii, 937.

[5] Quenu: Rev. d. chir., 1882, p. 887; quoted by Douglas, see Note 4.

[6] Silvy: Thèse de Paris, 1900.

[7] Douglas, John: Ulcer, Reference Handbook of the Medical Sciences, New York, 1900, vii, 938.

The exudation into the tissues causes their softening, and as a result of this pressure, the nutrition is cut off. Moreover, the presence of bacteria with their toxins, causes the death of the cells, which fall into necrosis. These dead tissues, disintegrated, are thrown off the surface together with the products of exudation. In some cases the process occurs in mass and then gangrene results with destruction of the skin. In other cases cellulitis and phlebitis occur from the bacterial infections with formation of deep abscesses as shown in Figure 2.

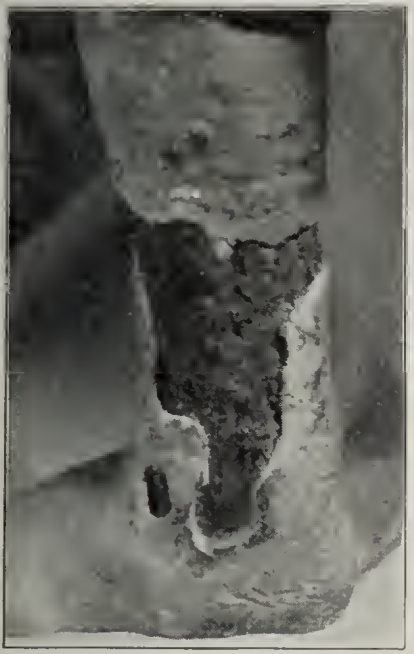

Fig. 3.—Ulcus cruris with edema and elephantiasis.

Examining the surface of an ulcer in gross, it appears covered with a yellowish-white film caused by the overproduction of round cells, together with the exudation of serum, fibrin and the detritus of the tissues. When the necrosis is extensive then croupous masses are adherent to the bottom of the ulcer over the connective elements. In the so-called callous ulcers the edges are considerably raised above the surface of the ulcer, owing to the epithelial proliferation (Fig. 6).

From the preceding considerations it is easy to see that in ulceration three periods occur: necrosis, sloughing and reparation. On these periods depend the selection of the treatment.

The first period is marked by acute inflammatory symptoms. Infection is shown in the whole area of destroyed skin, the base of the ulcer is depressed and covered with dirty grayish-yellow sloughs. The edges are usually clean cut and inflamed; the surrounding tissues are red, congested and swollen, discharging seropurulent and blood-stained fluid. These conditions are usually accompanied with severe pain. It is at this period that patients go to the druggist asking for some kind of salve to stop the pain. In my practice some of the patients had used one or another kind of salve or paste, which, consisting of resorcin or tar with cocain or other local anesthetics, increases the inflammation and the gangrenous process. The patient is delighted on account of the diminished pain with the result of the application of these salves, and at the same time the condition of the ulcer is always made worse. The application of pastes at this period is very injudicious, because it renders difficult the sloughing off of the gangrenous masses, retains the bacteria-laden secretion and consequently increases the inflammation. The best application at this period is water, usually hot, between 80 and 90 F., and containing some antiseptic preparation. In our practice, both hospital and private, we dissolve sodium bicarbonate or biborate in the water.

Sodium bicarbonate is purely alkaline, like normal salt but to a less degree, and in consequence is less irritant. Sodium borate on account of its alkalinity has slight antiseptic power but diminishes the irritation and the inflammatory symptoms through the removal of bacteria, foul secretions, detritus, etc. In case the ulcers are very foul we use solutions of mercuric chlorid from 1 : 5000 to 1 : 2000, either as a continuous bath or in moist compresses; but so soon as the odor has been eliminated we return to the sodium borate or bicarbonate bathing, because the use of the mercuric chlorid causes irritation of the surrounding skin. In some cases, especially when *Bacillus pyocyaneus* is present, we have found phenol useful in solutions of from 1 to 2 per cent. in warm water. If the patient can rest in a horizontal position with his leg somewhat elevated, the pain and the inflammatory symptoms will subside sooner. The gangrenous and necrotic detritus begins to slough off and a clean surface with healthy granulations appears.

When the surface of the ulcer has reached this condition it needs to be dressed with some remedy which will cover and protect the granulations, remove the secretion, and keep the surface sterile. A great many salves and liniments have been recommended for this purpose. One of the oldest standbys has been the mixture of castor-oil and from 10 to 50 per cent. of balsam of Peru. It has antiseptic power, keeps the surface protected, and promotes granulations. In some cases it is irritant and has produced dermatitis, and for this reason we use this dressing so long as it is useful, and then change it for a more suitable application. Unna[8] studied the different remedies that

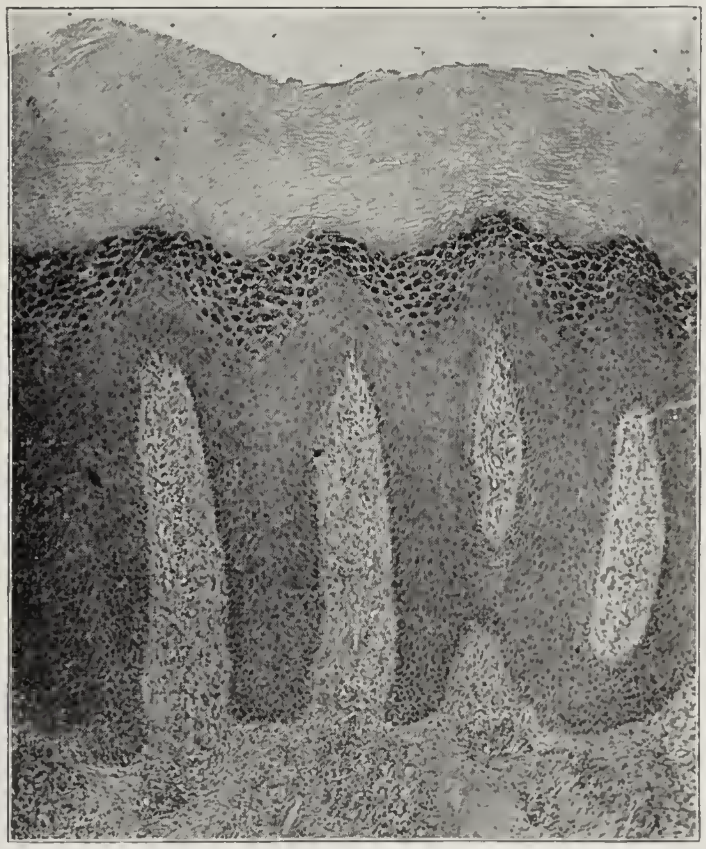

Fig. 4.—Increase of the epithelial layers, lack of horny layers, hyper trophic papillae and infiltration of the corium; from a photomicrograph.

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[8] Unna: Monatsh. f. Prakt. Dermat., 1891, xiii, 523; Weitere Versuche über die reduzierenden Heilmittel, Deutsch. Med.-Ztg., 1897, No. 69; ref. Monatsh. f. Prakt. Dermat., 1898, xxvi, 114.

favor or delay cicatrization. Indeed, in order that recovery may ensue, two processes must take place, one, the formation of granulations and the other, the formation of good, solid epithelium to cover the granulations and to protect the tissues beneath for the physiologic purposes of repair. It will be easily understood that many remedies which favor the granulations or dermatoplasia, delay or entirely prevent the formation of epithelium. For this last purpose the application of remedies capable of producing oxygen seems to be the best.

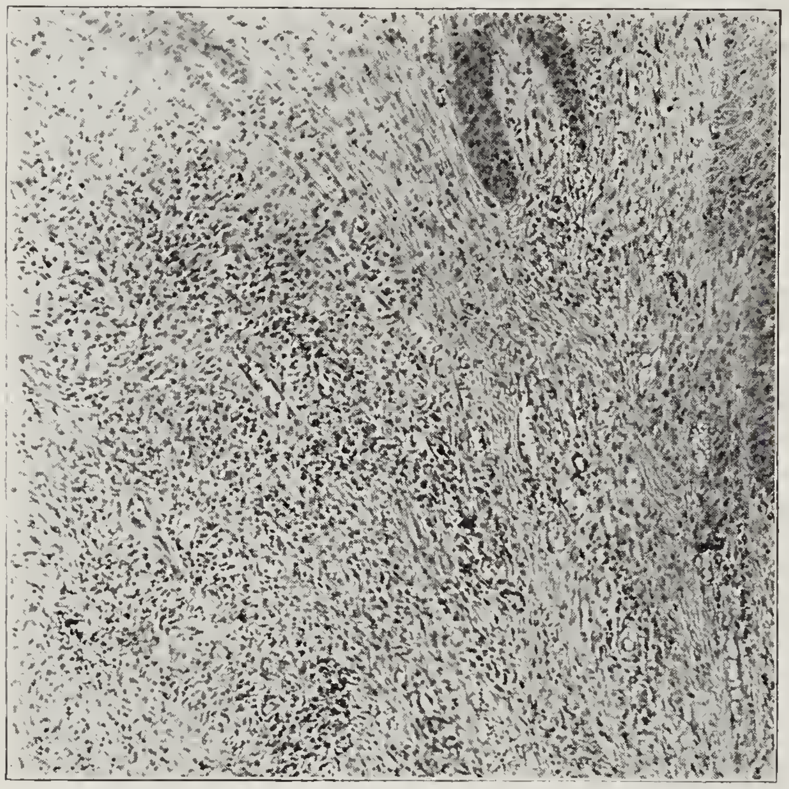

Fig. 5.—Infiltration of the connective elements with proliferation of the cells; from a photomicrograph.

Unna[9] praises pyrogallic acid and asserts that while it could destroy lupus nodules, at the same time by its oxygenating power it could hasten the formation of the scar. For the same purpose he recommends ichthyol, which he places among the reducent agents. For many years, to dress leg ulcers, we have used diachylon salve containing 1 dram of ichthyol to the ounce of ointment. We have obtained very good results and in many obstinate cases we are still using this dressing with beneficial effects. In ordinary cases we find useful the application of petrolatum with 2 per cent. of boric acid spread on a piece of lint, which is changed twice a day. In order to cause an exudate of serum, we have added lanolin, following the formula of Frank C. Carlton, as reported by Wade[10]:

Boric acid	8	ʒ ii
Lanolin		
Petrolatum, of each........	60	℥ ii

In many cases of painful irritable ulcers we have found of great benefit the application of a mixture of 20 grains of calomel to an ounce of benzoinated oxid of zinc ointment, Wilson.

Some time ago every leg ulcer was dressed with scarlet-red salve toluyl-azo-beta-naphthol. Von Schmieden and Hayward[11] assert that this highly-colored substance destroys the bacteria and promotes the formation of granulations, and of new epithelium. Scheele,[12] however, called attention to poisoning from the use of scarlet-red and especially to its dangerous action on the kidneys as revealed by albuminuria. Gurbski[13] reported a case of general poisoning with albuminuria after the application of this salve. Lombardo[14] referred to anaphylaxis as the cause of a case of generalized dermatitis from the use of scarlet-red salve. In our service in the city hospital it was used for some time on old, chronic leg ulcers without any perceptible benefit. In some cases the patients disliked the dressing on account of the irritation, and we were compelled to return to our borated ointment, or to our wet compresses to relieve the irritation.

May and Heidingsfeld[15] proposed basic fuchsin in place of the toluyl-azo-beta-naphthol asserting that it caused less irritation and better antiseptic action. Some use thick pastes with picric acid and other ingredients. In our experience we have found that the pastes have to be avoided. They form a thick, heavy crust, which prevents the discharge of the exuded serum, irritates the granulating surface, increases the suppuration and prevents the keratoplasia, which must form the regular solid cicatrix.

When the surface of the ulcer is free from necrotic detritus, when it is clean and the granulations begin to form, we must watch the process of reparation. The granulations must be protected from infection and from irritation, so that they do not proliferate. To hold the granulations within certain limits, we must paint the surface with silver nitrate solution of from 3 to 6 per cent., every two or three days, or, better, with tincture of iodin. Any salve or any dressing with gauze or salve, or a liniment having moderate antiseptic qualities, capable of removing the serum and protecting the surface from the contact of the air, from physiologic or pathologic discharges and from the contact of the clothes, will give good service. In case some syphilitic condition is suspected the application of mercurial plaster will be found always useful.

Massage of the leg with alcohol to promote circulation when the patient is in a recumbent position with the limb elevated has been highly recommended. Surgical treatment is often necessary. When the edges of the ulcer thicken from a superabundance of epidermic production and the formation of the cicatrix does not proceed regularly, the callous edge must be removed. In some cases the Nussbaum process, encircling the ulcer with incisions at a distance of half an inch from the edge, has given good results. When the

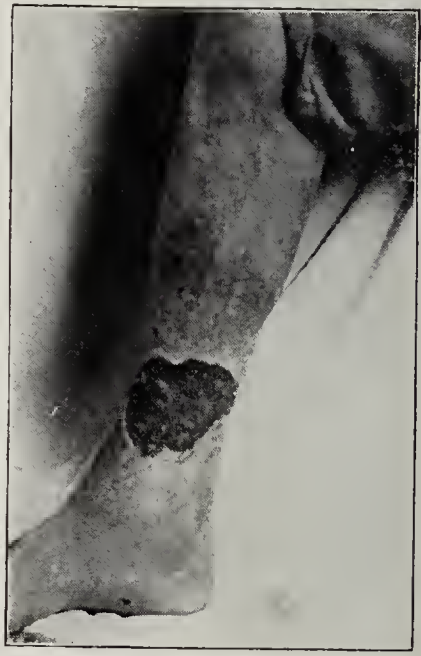

Fig. 6.—Ulcus cruris with superabundant granulations.

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[9] Unna: Ueberhäutung und Ueberhornung (Dermatoplasie und Keratoplasie), Berl. klin. Wchnschr., 1883, No. 35.

[10] Wade, Ben. N.: The Management of Chronic Ulcers of the Leg, New York Med. Jour., Feb. 1, 1913, p. 244.

[11] Von Schmieden and Hayward: Der heutige Stand der experimentellen und therapeutischen Verwertung der Scharlachfarbstoffe, Deutsch. Ztschr. f. Chir., 1911, cxii, Heft. 4 and 6.

[12] Scheele, Karl: Die klinische Bedeutung der Giftigkeit von Scharlach-Farbstoffen in Salben, Diss. Berlin, 1912, reference in Dermat. Wchnschr., 1912, lv, 1634.

[13] Gurbski, St.: Zentralbl. f. Chir., 1910, No. 49, reference in Monatsch. f. prakt. Dermat., 1911, liii, 42.

[14] Lombardo: Un case di anafilassi per il rosso scarlatto, Gior. ital. d. mal. ven., 1911,

[15] May, Eugene S., and Heidingsfeld, M. L.: Basic Fuchsin in Chronic Leg Ulcer, The Journal A. M. A., May 31, 1913, p. 1680.

thick epidermic layer has been removed by means of a thin scalpel the edges are detached and the ulcer may be strapped with adhesive plaster, to change its shape and to bring its edges as close together as possible. In many cases when the granulations are superabundant and a cicatrix is not obtained, the best method is to scrape the granulations thoroughly, making a regular wound, and to cover the surface with epidermic grafts, following the Thiersch method. In several cases of obstinate ulcers we have obtained very good results from this method. When large varicosities are present the veins must be tied or extirpated. In case of cellulitis the abscesses must be opened and the pus drained. The eczema which so often complicates varicose ulcers must be treated at the same time.

Internal treatment must be given, according to the condition of the patient. In my hospital and private practice I always advise the use of potassium iodid, from the knowledge that phlebitis is often originated, maintained and aggravated by a luetic condition. The use of an alkaline purgative is recommended when constipation is present and there is some gouty tendency. In case of anemia from poor nutrition, iron tonics, digitalis or nux vomica should be given according to the condition of the patient.

When recovery has been obtained, the patient must be protected from relapses. We advise our patients to bathe the legs twice a day, to rub and massage the affected leg with a 2 per cent. alcoholic solution of phenol and when dry, to dust it with rice powder or talcum powder; also, in the day time, to wear a well-fitted elastic stocking to prevent the swelling of the leg.

5 Garfield Place.

ABSTRACT OF DISCUSSION

Dr. Frank E. Simpson, Chicago: We usually treat these cases by the application of Unna's gelatin-zinc, covered with a bandage. Under this they heal rapidly, as a rule. The kind of local application, I think, is of secondary importance.

Dr. J. B. Kessler, Iowa City, Iowa: I am using the basic fuchsin paste, and find it less irritating than the scarlet red. More recently, in the treatment of these leg ulcers, I have come to regard the local application as comparatively unimportant and rely largely on elevation of the foot of the bed from 4 to 6 inches and the snug application of an open-mesh bandage during the day.

Dr. M. L. Heidingsfeld, Cincinnati: The results which Dr. May and myself obtained with basic fuchsin and noted by Dr. Ravogli, still obtain. The remedy, however, must be used with judgment and discretion with regard to strength of the remedy and frequency of application. In some a 0.25 per cent. to 0.5 per cent. ointment is too stimulating, while in others a 2 per cent. to 3 per cent. ointment is readily tolerated. The same is true of balsam of Peru, favorably mentioned by Dr. Ravogli. A 2 per cent. balsam of Peru ointment, applied every few hours, has answered admirably well in my personal experience. There must be a fundamental cause for every chronic leg ulcer. It may be syphilis in one case, varicose veins in another, tuberculosis in a third, etc., and ultimate success can only crown our efforts when the cause is definitely established and properly controlled.

Dr. Martin F. Engman, St. Louis: The majority of these leg ulcers are seen in middle-aged people with poor cardiac compensation, and it is sometimes remarkable to see the beneficial results following regulation of the condition of the heart by the administration of digitalis, etc. These patients are usually found among the working classes who are compelled to stand many hours daily; they are much less frequent among the idle class of women.

Dr. A. Ravogli, Cincinnati: In my published paper I spoke of the importance of constitutional treatment of leg ulcers, and the beneficial effect that often followed the administration of digitalis, potassium iodid and other drugs.

PELVIC VARICOCELE *

WILLIAM EDGAR DARNALL, A.M., M.D.
ATLANTIC CITY, N. J.

The subject of pelvic varicosities is little discussed, little understood and little written about. It is, however, of sufficient importance to be the cause of considerable suffering among women. Pelvic varicocele or varicocele of the broad ligaments consists of a more or less permanent dilatation of the veins of the pampiniform plexus. The condition is not so uncommon as has been supposed. There are few operators of long and extensive experience who do not come across cases of this kind in their gynecologic work, yet the literature on the subject is exceedingly meager. The first case reported in this country was that of Dr. Dwight of Boston in 1887. A. P. Dudley and Zinke of this country have written exhaustively on this subject. Dudley reported four cases, Malins of Birmingham found two more and to these Zinke adds two cases. Rousans states that it is quite common. Winkel, cited by Reed, found the condition present only ten times in 300 necropsies. I have operated in ten cases during the past year.

We must remember that there is a reason for almost every physical discomfort if we can but run it down, and there is a reason for the child-bearing woman who vainly goes from one physician to another with aching pains in the pelvis and back, dragging sensation worse on standing and walking and worse at the menstrual period, and suffering from all the symptoms of pelvic engorgement and pelvic irritation, although the examining physician may not be able to palpate anything on physical examination on which to base a diagnosis. By reason of a failure to find anything tangible, the woman is often assured that there is absolutely nothing the matter and is in the mind of her doctor consigned to that large class of neurotics with magnified imaginary symptoms which center in the pelvis.

The anatomy of the uterus shows that the uterovaginal plexus of veins extends over the walls of the vagina, and as an especially close plexus along the lateral margins of the uterus, collecting the blood from the uterine veins which surround the uterine artery, and forming broad anastomoses with the pampiniform plexus of the ovarian veins.

The causes of varicocele of the broad ligament are more or less obscure. These veins may become very much enlarged in pregnancy. This enlargement may be due to some form of obstruction to the return circulation due to the position of the organ, wearing tight clothing, etc. It was my rare privilege recently, during an operation for cesarean section, to observe just how large these veins may become. The patient was a young negress of 24 with a justo minor pelvis. The usual operation for cesarean section was done, and when the abdomen was entered, the right broad ligament presented a worm-like tortuous bunch of veins, the main trunk being as large as the index-finger. It is easy enough to imagine that after delivery when the involution of the uterus is not perfect there may be a failure on the part of these overdistended veins to regain their normal size and tone just as often is the case with the long saphenous vein of the leg.

The condition most often prevails in women who have borne one or more children, and especially if the

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

perineal supports from below have been impaired and the woman has suffered from a sagging down of the pelvic organs. It may, however, occur in single women who have retrodisplacements of the uterus and who have been compelled to be on their feet a great deal.

Other causes may be a relaxed condition of the tissues from a low state of health, heart- or liver-diseases, habitual constipation or uterine displacements. Some of the intestinal displacements, by angulation of the mesenteric veins, may materially interfere with the visceral circulation and be a cause. Dudley thinks that the left broad ligament is more frequently affected than the right by reason of the fact that the spermatic or ovarian veins being of such length, the weight of such a column of blood has a tendency to weaken the vessels. The left vein also empties into the renal vein at right angles to the blood-current of the kidney, and therefore obstructs the flow of the blood from the ligaments into the general circulation. It must also be remembered that there is an absence of valves in the uterine veins.

Zinke thinks correctly that intra-abdominal pressure from any cause should be added to the list and that often the condition results from some direct or indirect traumatism, such as external violence, frequent application of the forceps during labor, repeated abortions and operation on the cervix and pelvic organs, and to this Bandler adds infection.

Affections of the ovaries and other gross pathologic lesions of the pelvis are of course a very prolific cause of pelvic varicocele. It is not this class of cases I wish to discuss, but only the cases without such lesions. In these more serious conditions of ovarian cystomas and other palpable new growths, operative interference is indicated anyway, and as a matter of fact the symptoms are so masked by those of these serious conditions that diagnosis could not be arrived at, and can be made only in the absence of such lesions.

The kind of cases of which I wish to speak are those of the miserable women who come to you with dull irregular boring neuralgic pain in the abdomen and pelvis, which may sometimes reach a state of intense severity. The pains are usually aggravated by standing or walking and grow worse as the menstrual epoch approaches. There is a feeling of weight and dragging in the pelvis and all the manifestations that accompany pelvic engorgement and irritation. The women may menstruate profusely and sometimes every two or three weeks.

These patients suffer severely at times, and vainly seek relief at the hands of the physician, who on examination can find nothing to explain it. The result is that the symptoms are attributed to hysteria, which term covers a multitude of the sins of ignorance. Often the suffering of the woman assumes such proportions that in these days of kinks, pericolic membranes and displacements, the abdomen is opened for the purpose of finding out what is the matter and with a preconceived idea that there must be crops of adhesions or some undiscovered ovarian cause for the distress of the patient. Inspection of the pelvis, however, may show an entire absence of adhesions, kinks or membranes and that the appendages are without disease. If the veins of the broad ligament are not inspected, the abdomen may be closed without finding the real cause of the trouble, and without relieving it.

The diagnosis will depend on the symptoms outlined above combined with the *absence of any gross pathologic lesion* and the evidence of pelvic engorgement. It is necessary to elicit an accurate history of the character of the pain. If it is worse on standing or walking or as the menstrual period approaches, and particularly if the symptoms disappear as soon as the recumbent position is assumed, it is pretty apt to be due to varicocele, and especially so if the patient has borne a child. The mucous membranes of the cervix and vagina may assume a bluish tint similar to early pregnancy. If to these symptoms are added the loss of support from the perineum below with a certain amount of sagging of the organs, there can be little doubt about the diagnosis. The diagnosis of this condition must be made by exclusion, as must the diagnosis of all complaints which depend on clinical symptoms alone rather than on the tangible findings of physical diagnosis.

All medical treatment is only palliative at best. Temporary relief may be secured by raising the level of the organs by tampons or a pessary and rest in the recumbent position. Surgery, however, is the only means of cure in these cases. The abdomen is opened and the veins should be ligated at both ends and in the middle and freely cut across between the ligatures. Excision of the veins is essential to secure their collapse and to prevent their restoration after the absorption of the ligatures.

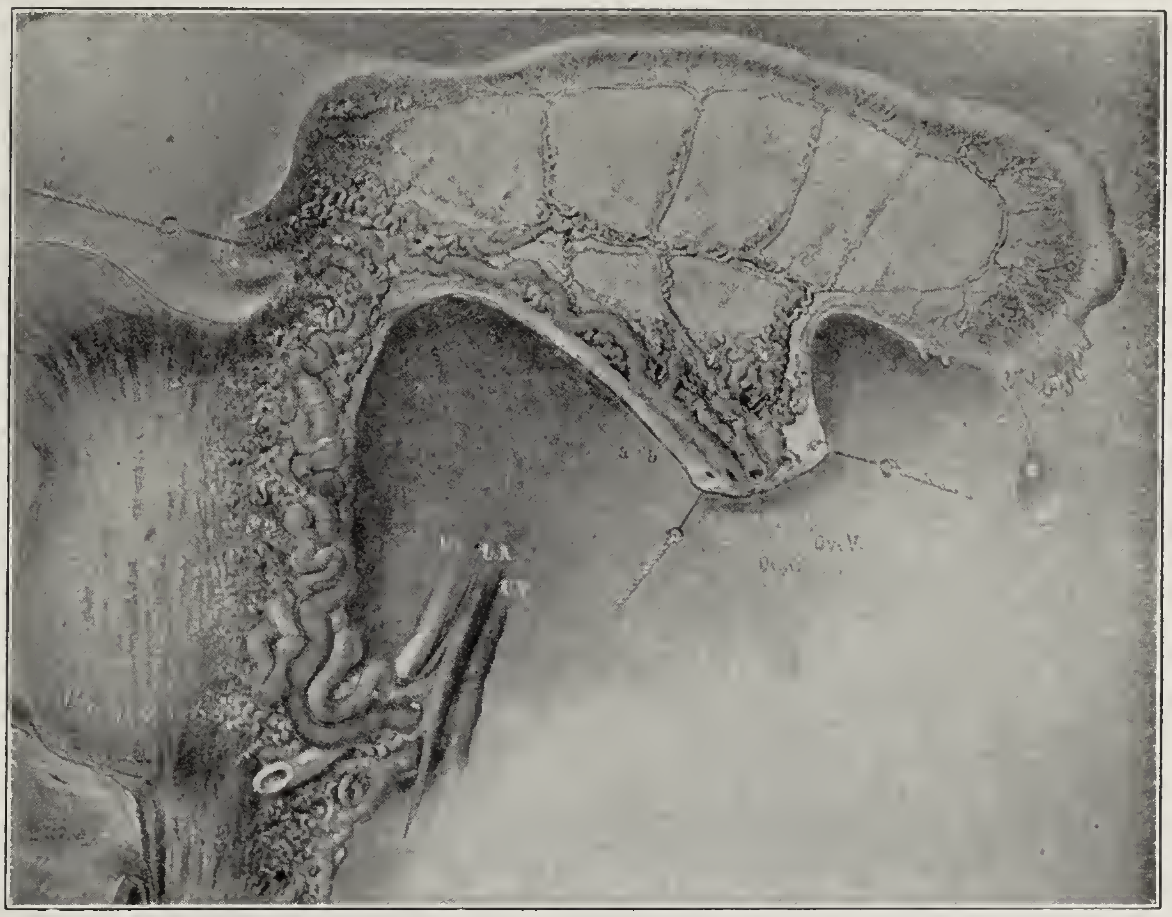
The following typical cases are reported. The diagnosis in each of these cases but one was made before the operation and confirmed at the operation.

Case 1.—Mrs. J. R. S., a young society woman aged 26, weight 150 pounds, well developed, was referred by Dr. H. T. Harvey. She was never sick until after her children were born; family history negative. She has had two children, no miscarriages, headaches are frequent and her present trouble dates back to the birth of her last child. Her menstrual periods are regular and painful, last four or five days, but her pain is very much relieved after her period. She has profuse leukorrhea. She sleeps well; appetite and digestion are good. Vaginal outlet slightly lacerated; bilateral laceration of the cervix. The uterus is normal; there is no ovarian or tubal trouble palpable and no bladder trouble. The appendix was removed some years ago by Dr. Joseph Price. She came seeking relief for most intense boring pain in both inguinal regions but worse on the left side. No diagnosis could be made on physical examination other than the lacerations of childbirth, but from the clinical symptoms a diagnosis of varicocele of the broad ligament was arrived at. The lacerations were repaired. The abdomen was opened and all of the pelvic organs were carefully inspected; there were no adhesions; the tubes and ovaries were absolutely perfect; but each broad ligament showed a knotty worm-like mass of varicose veins. These were ligated at both ends with linen and the abdomen closed. Eight months afterward she reports she never felt better in her life and has not a pain or ache.

Case 2.—Mrs. G. J. was operated on eight years ago for a cyst of the broad ligament on the right side. Her father and mother died of carcinoma. She is 41 years old; her appearance is anemic, her weight 105 pounds. She has had two children, no miscarriages. Leukorrhea present. She has headaches, sleeps well, appetite and digestion good, bowels regular. She complains of suffering boring pain on the left side, and menstruates profusely every two weeks. There is no palpable trouble with the remaining left ovary or tube. At operation a thorough inspection of the pelvis reveals no adhesions, no diseases of the tubes or ovaries, but a mass of varicose veins in the left broad ligament. Several weeks after her operation, she reports herself perfectly well and without her usual pain and discomfort and is gaining in weight.

Case 3.—Mrs. B. B. F., aged 30, married and referred by Dr. Mary Townsend. Father died of pneumonia. She is of a neurotic type, anemic, weight 115 pounds. She has had four children and one miscarriage. Leukorrhea present. Her menstrual periods began at 13 years of age and are painful and profuse, appearing two or three times a month. The vulva is normal; she sleeps well; appetite good and bowels regular. She has very severe lacerations of the vaginal outlet and cervix, the uterus is normal, ovaries normal, tubes normal, bladder normal and there is no palpable disease of the pelvis on physical examination. At operation the pelvis was thoroughly inspected and no palpable disease discovered except a small hydrosalpinx of the left tube, but she had present varicose veins in both broad ligaments. Three months after the operation, she reports herself free from pain and suffering and in good physical condition.

Case 4.—Mrs. M. L. H., referred by Dr. H. C. Monroe of Pleasantville, aged 24, anemic, weighs 119 pounds; father and mother living and well; patient has had two children and one miscarriage. Leukorrhea is present. Headaches are frequent, backache sacral. Patient sleeps well; appetite and digestion good, bowels regular. She began to menstruate at 13 years of age; periods are regular and without much pain; the vulva, vaginal outlet and cervix are normal. There is no palpable disease of the appendages and the uterus is in good position. She complains of severe pain, worse in the left side and more severe on standing or walking, but relieved on lying down, which is suggestive. The family physician feels that she has chronic appendicitis. When the abdomen is opened the appendix is fixed at the tip with a small adhesion and is slightly kinked but otherwise normal. There are in each broad ligament bunches of varicose veins. The tubes and ovaries are normal with the exception of a small graafian follicle cyst of the left ovary about the size of a hazelnut. The veins on each side were ligated and excised. This operation was only a month ago and too soon to report results.



Section of cervix and broad ligament, showing enlarged veins. *Ur.*, ureter; *U. A.*, uterine artery; *U. V.*, uterine vein; *O. A.*, Ovarian artery; *O. V.*, ovarian vein.

Case 5.—Mrs. O. S., referred by Dr. C. Garrabrant. Family history good, married, aged 41, never been seriously sick, general appearance anemic, has borne no children, no miscarriages, no leukorrhea. Has headaches, back aches, intensely neurotic in type, appetite fair, digestion poor, sleeps fairly well, constipated, vulva, vaginal outlet and cervix normal, there is no palpable disease on physical examination of the appendages, menstrual periods are regular and associated with very severe pain which is worse on the left side and worse when she is on her feet. Diagnosis, pelvic varicocele. Opening of the abdomen revealed no pelvic disease with the exception of a few adhesions between the left broad ligament and the sigmoid, but varicose veins more pronounced on the left side were found. On account of her age and the hysteric type of woman, it was thought better judgment to make assurance doubly sure, and a subtotal hysterectomy was performed. Eight weeks after operation, she reports herself relieved of her pains and is gradually getting her strength.

Case 6.—Mrs. L. S. aged 33, referred by Dr. E. C. Chew, family history negative, was never seriously sick; is anemic and thin and has been suffering for a year or more. She has had no children, no miscarriages, sleeps fairly well, appetite and digestion poor and is constipated. Headaches are frequent. Leukorrhea is present. The menstrual periods are intensely painful, the pain being much aggravated at that time. The vaginal outlet and cervix are normal; uterus, tubes and ovaries show no palpable disease on examination. There is some tenderness over the appendix and some irritability of the bladder. At operation the appendix is found to be normal. There is a graafian follicle cyst of the left ovary. The left broad ligament contains varicose veins. The ovary and the veins were removed. One year afterward she reports herself entirely well.

ABSTRACT OF DISCUSSION

Dr. Laura Branson, Iowa City: I believe that the importance of the broad ligament has long been underestimated. While I agree with Dr. Darnall that pregnancy is one of the most general causes of the lesion of the broad ligament designated "Varicosity," yet I also say that menstruation plays the same rôle in the formation of this varicosity although in a very much modified degree, because I consider menstruation a miniature pregnancy and although the aftereffects may take longer time to become known, yet they are really as important as those caused by pregnancy. I believe that the diagnosis is arrived at only by exclusion. Since giving a great deal of attention to the study of gall-stone lesions, and noting how surgeons in operations on the abdominal cavity for other conditions have discovered gall-stones, it has seemed to me that we have been furnished more effective means of diagnosing gall-stone lesions. I have felt that our best diagnosis of this lesion must depend on similar efforts by surgeons in their work on the pelvic cavity, and that therefrom, in the course of time, we shall have definite symptomatology by which we shall be able to diagnose these lesions more accurately. I observed the case of a nullipara aged 28. Her abdomen was opened for supposed adhesions five years after an operation for appendicitis. No adhesions were present, but when the surgeon was about to close the abdominal cavity, in the prolapsed broad ligament there was found a soft fluctuating mass 2.5 cm. long and 0.75 cm. in width where the vein with its undisturbed circulation should have been. This was dissected out, the abdomen closed and in the year following the patient suffered none of the symptoms which she had previously had, those of pain in the iliac region, distress on standing, pain and sensation of fulness lessened on assuming recumbent position, and menstrual disturbance. This patient never having been pregnant, the case confirms my opinion that these pelvic varicosities may follow pathologic menstruation, although it may take a long time for the accumulated effect to be known. This may also prove that the symptomatology may be arrived at through surgical work on the pelvis.

Dr. J. H. Carstens, Detroit: The cases I have seen have always been in connection with some pathologic condition. They do not seem to me to be very common. I have seen a couple which I found afterward without having diagnosed the trouble, but these cases all have some kind of trouble for which you operate; so really the end of the whole subject is that there are certain cases in which the symptoms are very obscure and in which you cannot find any enlargement of the veins in the vagina. Usually the only symptoms are pain and a sense of dragging and other symptoms, which require exploratory operation. I think the pathology is the same as in varicocele of the man; it is a matter of anatomy in which there is apt to be enlargement of the veins.

Dr. S. M. Miller, Peoria: This subject is far more important than we have considered it to be. I have run across the condition a number of times at operation when it has not been previously diagnosed. I have a number of times confirmed the condition at operation when only a tentative diagnosis had been made. I seldom have had the temerity to make such a diagnosis *per se* because the condition was accompanied by no definite symptoms except one mentioned in a German publication.

It has been remarked that, if the patient is examined in the upright position, the veins of the vaginal plexus may be felt as a doughy mass. Dr. Kanavel of Chicago and I brought this to the attention of the medical profession eight or nine years ago in the *American Journal of Obstetrics*, dividing it into two classes, the primary and the secondary. By secondary we mean those cases which follow other pelvic lesions and are commonly found accompanying the condition. In that event the treatment would not resolve itself into ablation of the veins, but would be applied to the primary condition. It is usually accompanied by other complicated conditions than the cause of the varicose veins. I have seen an almost hard, white, small, friable, cystic ovary which I believed to be the result of varicosity of the vaginal plexus. This is not proved but would seem to be the solution of the small cystic fibrous ovary with varicose veins in the vaginal plexus. The pain may be of two varieties: pain on standing, aggravated at the periods, and pain in the ovary itself. These small ovaries with cysts are painful; pain is present at any time; this is an end-result. The proportion of primary to secondary cases is one to ten. The large number of secondary is due to pelvic relaxation. In illustration, I operated on a primary case in a woman who had no pregnancy and who was sterile. These multiple cystic fibrous ovaries, the result of varicosity, will result in sterilization. I had been able to find nothing in examination of the woman. She had had a painful left ovary. At operation this was obliterated with the broad ligament. Pain and tenderness have now recurred in the right ovary. The condition I believe is very often overlooked at operation because it is more emphasized with the patient in the upright position than in the Trendelenburg position, and unless one is looking specifically for the condition it will in many cases be overlooked. I have treated the condition in two or three ways, in some cases entirely obliterating the ovary, tube and broad ligament; in others, I have sectioned the broad ligament; still others, I have quilted under the broad ligament and the fallopian tube, and then further down have repeated the quilting. Mere ligation at one point will not correct the condition. The treatment has been successful, but difficult because it cannot be accomplished without troublesome hemorrhage from these freely bleeding veins.

Dr. Hugo Pantzer, Indianapolis: I have found this condition dissociated from other active causes in two or three cases only; these impressed me with its importance. The first case, reported in the early nineties before our local gynecologic society, was that of a woman in whom I found a large doughy mass on the right side and felt that it was owing to some ovarian circulatory disturbance. When I next saw the patient in bed I failed to find anything. The next time she came to my office, and the mass was again found on examination. The diagnosis of pelvic varices was then made. The patient died of typhoid fever shortly afterward. I have not operated on any of my cases. I would regard the sclerotic ovary as rarely a cause, if ever, of pelvic varices.

Dr. Swithin Chandler, Philadelphia: Twelve years ago I examined a bladder and noticed on the left side much congestion. I was unfamiliar with this condition, and wrote to several men concerning it. I think it was Dr. Kelly of Baltimore, who suggested that probably there were enlarged veins on the left side, which would occasion this condition of the bladder. On that suggestion I opened the abdominal cavity and found the condition mentioned. There are three different phases of the question: diagnostic, complications during the operation, and the condition after an operation. The symptoms which Dr. Darnall has detailed are quite classical. It seems to me that this paper should go broadcast in order that the general practitioner may realize that this symptomatology is not merely a part of a woman's nervous and hysterical condition. I saw a man operate on a case in which the diagnosis had been made of a tear in the cervix and an enlarged ovary. The abdomen was opened, the cavity explored and nothing seen. The operator then sewed up the cervix and left an enlarged vein, which I am sure is going to give trouble. In the after result the cases should be carefully watched. In one case of enlarged veins I did a Baldy operation. That is the only operation I know that will hold up the uterus and the ovary and bring a perfect gravity situation into play. The woman was thoroughly relieved. Had the veins been larger I would have done what Dr. Darnall has described, and it might have been wiser, but the patient was entirely relieved. I believe so firmly in the Baldy operation that I took a chance and the operation was successful.

Dr. E. Gustav Zinke, Cincinnati: A peculiar circumstance happened a few weeks ago after I had written on the subject. The patient was about 35 years old, the mother of two children, both prematurely born, with a history of persistent bleeding throughout the entire period of pregnancy in each instance. When I was first called to see her she was pregnant apparently six weeks and she bled quite profusely, but because of her pregnancy I put her on her back. The os was not opened, the cervix not obliterated, and there was no evidence of any miscarriage except the hemorrhage. I was in hopes that by rest and the application of an ice-bag I might arrest the hemorrhage and prevent abortion. She continued to bleed, however. I therefore curetted and packed the uterus. After removing the gauze at the end of forty-eight hours she was apparently free from hemorrhage. Next day she was bleeding again and this continued in greater or less degree for four or five months. When she became gradually exsanguinated I said that something was wrong, we must open the abdominal cavity and see what the difficulty was. Of course I had no idea that she was pregnant again or I should not have opened the abdomen; but it was a good thing I didn't know she was pregnant, for when I opened the abdomen the entire pelvic cavity was filled with a mass of varicose veins, and out of the center appeared a flaccid, transparent cyst, which appeared to me to be parovarian. My first impulse was to remove that cyst. I pulled it out of the abdomen with a pair of forceps, when it contracted and became as firm as a cricket-ball. I removed the forceps, put a warm sponge on the place where I had had hold of it with the forceps, until the hemorrhage ceased, dropped it back into the abdominal cavity, sewed up the wound and she went to the end of her term, giving birth to a living child which was apparently perfectly well. She has not had a pain or ache since. I do not know what has become of the varicosities; they cannot be felt. Whether they existed merely because of the pregnancy, I do not know. The case is one which cannot be explained. I have never been satisfied concerning it.

Dr. W. E. Darnall, Atlantic City: Dr. Zinke's case is exceptional. Ordinary one would have expected his patient to have had much pain and discomfort. What became of the pelvic varicosities which he did not remove, it is hard to say. Dr. Carstens says he does not find these veins except with other gross pathologic lesions. Perhaps if he looked for them more carefully he would find them. I think we surgeons, particularly, get into the habit of neglecting clinical symptoms and depending too largely on what we can palpate, while the clinical symptoms are relegated to a remote corner of our diagnostic brain. I have a feeling that Dr. Miller is right about the complicating conditions being a result rather than a cause of varicose veins, but of course this is rather hard to prove. My experience coincides with his that the patient refers the pain to the ovary and is so firmly convinced that she has ovarian trouble that she will ask for an examination, and if the examiner tells her her ovaries are all right she will often go to some one else, feeling that from the pain she suffers she must have some affection of the ovary which the first physician could not discover. Varicose veins can rarely be palpated and then only in the standing position, but the diagnosis can be made from a careful study of the history and the clinical symptoms.

NOTES ON CASES OF SPRUE INVALIDED FROM THE TROPICS; WILL IT BECOME ENDEMIC HERE? *

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It has been shown by Price[1] that of the missionaries sent into tropical countries, a large percentage have to be invalided home; from India 46 per cent., from China 51.5 per cent., from Africa 79 per cent. The rate invalided home for sprue is available only from Central and Southern China, being 2.5 per cent. of those sent home from the former region and 4.5 per cent. from the latter. Harford,[2] a former physician to the Church Missionary Society (England), states that he regards bowel disorders as the most important cause of invaliding, and specifically mentions sprue as a common and serious cause.

To come nearer home, sprue is widely prevalent in Porto Rico,[3] which is being invaded at present by Americans in large numbers.[4] As people suffering with sprue are constantly returning to this country from the tropics, the profession will have to consider this disease both from a clinical and a public health point of view. Inasmuch as many eminent students[5] of tropical medicine consider sprue communicable and even infectious, it may very possibly become endemic in the Southern states. The comparatively recent introduction of pellagra into this country and its subsequent very rapid spread in the South, should be a warning to us to study our neighbors' diseases as well as our own.

The present observations are based on three cases of sprue from Porto Rico, two from China and one native case which was in all probability sprue; but, since the latter case passed from observation, it could not be studied at length. The clinical picture of sprue consists chiefly of gastro-intestinal symptoms — stomatitis, flatulence with great distention, diarrhea with large, pale, frothy, acid stools, atrophy of the intestinal mucous membrane with diminution in size of the liver and secondary anemia with loss of weight and strength; the course of the disease is chronic with a marked tendency to relapse.

The sprue stomatitis consists in a red, bald appearance of the tip and edges of the tongue, sometimes nearly all of it being involved. Aphthous ulcers are common. The edges and tip of the tongue become sensitive and the patient often complains of a burning, prickling sensation, even while the tongue is still apparently normal.

The diarrhea starts gradually; is of the early morning type until the case has progressed so far that bowel movements continue throughout the day. Straining and tenesmus are not common, but generally there is moderate pain and discomfort before stool and at other times from the passage of large amounts of gas along the bowel. The large gas production, combined with the atrophy of the intestinal wall and the thinning and weakening of the abdominal muscles, allow great distention, which is uniform over the whole abdomen and which remains constantly present.

The stools are the most characteristic part of the picture. Their bulk is great. The odor is very disagreeable. They may be watery or of the consistency of molasses, are putty-colored and have a strongly acid reaction. The fecal matter is intimately impregnated with fine bubbles of gas causing the stool to resemble ordinary apple-float very much in appearance, except for the color. Microscopically, the lack of fat digestion is striking; the numerous fat droplets may show a ring of varying thickness of fatty acid needles around the periphery, indicating that a slight amount of fat cleavage has taken place, but there seems to have been very little saponification. After the ingestion of meat, many meat fibers appear in the feces. Schmidt's hydrobilirubin test was very weakly positive in our cases.

The loss of flesh and strength may determine death from exhaustion. The blood shows a secondary anemia.

REPORTS OF CASES

Case 1 (W. A. 616).—A white man, American, aged 25, single, teacher, was referred by Dr. W. A. Glines of San Juan, Porto Rico, in September, 1911. He had been in the island five years. Family and past history were unimportant. The present trouble started in 1909, as sore mouth and diarrhea, following grip and tonsillitis. His weight dropped from 145 pounds to 100 pounds, and he became so weak and emaciated that he returned to New York state in August, 1910. By March, 1911, he had improved somewhat, had gained 14 pounds and returned to Porto Rico.

Present condition shows weight 95 pounds, temperature 97, systolic blood-pressure 94 mm. Hg. Patient very weak, thin, anemic, with edema of the ankles and with harsh, dry skin. Physical examination negative. Blood shows severe secondary anemia; normal differential count; no plasmodia; urine normal; feces liquid, acid, frothy, composed largely of fats and fatty acids.

He had at various times been on buttermilk, meat, whole milk, no starch diets, etc., and for the past several months has been living on artificially soured whole milk. He complains of numbness of any part of the body on which he lies, from the scalp down, and of cramps of the extremities, and says he cannot think about anything except something to eat. Tongue is sensitive with a raw tip; abdominal distention great. One stool is passed at 2 a. m. always, from three to four before midday, and from two to three between midday and midnight. He sleeps from 9 p. m. to 2 a. m. but rarely after the 2 a. m. stool.

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Price, G. B.: Brit. Med. Jour., Nov. 15, 1913, p. 1293.
2. Harford, C. F.: Brit. Med. Jour., Nov. 15, 1913, p. 1297.
3. Ashford, B. K.: Am. Jour. Trop. Dis., 1913, i, 146.
4. Census figures give 2303 in year 1910.
5. Manson, Bahr, Begg, etc.

The patient was put to bed on a milk and grape diet. Sodium bicarbonate enemas were tried but found too exhausting. Several attempts to feed raw eggs convinced us that proteins were harmful at that time. After two weeks in bed he suddenly collapsed, developing an acidosis with air-hunger and acetonuria, and was thought to be dying. Alkali was given by rectum, and after the acidosis subsided enough milk and lactose lemonade were given to supply 1,000 calories daily. The abdominal distention and discomfort were so extreme that we determined to give monosaccharids instead of disaccharids. The only available monosaccharid at the time was glucose from the candy-maker's shop, so this was fed in lemonade, tea, grape-juice and milk. Later, almost raw liver and pancreas soups were added. The patient was discharged from the hospital in November and by February, 1912, had reached 127 pounds. There has been no return of the trouble since.

Case 2 (W. A. 1071).—A white, American woman, aged 42, married, housewife, came to us from Porto Rico in September, 1913. Family history was unimportant. The patient had lived in Porto Rico since 1909. She had had acute rheumatic fever at age of 12, followed by chorea, and later had quinsy; has had joint pains either with or without fever and swelling, severe enough to put her in bed, off and on, for the past thirty years, except when living in the far south, Key West, or San Juan. Present trouble began in February, 1911, with a feeling of fatigue and weakness. Within a month the diarrhea started. The gums and lips became sore in May, 1911, and she lost weight. She took six weeks' milk and rest cure and was well again by July. The second attack started in February, 1912, with laziness, sore tongue and gums and later diarrhea of the early morning type, starting at 2 a. m. and subsiding by noon. She reached twenty stools a day with such abdominal distention that she could not wear some of her clothes. She dragged along in and out of bed until March, 1913, when she became too weak to feed herself and weighed less than 100 pounds. She was out of bed again in June. Since January, 1913, she has taken nothing but milk, except for three weeks in July when she tried a meat diet but without benefit. In March, 1913, she took the yellow santonin treatment until she "saw yellow" and vomited; she was unable to take more than 1 grain every second day; she has taken occasional doses ever since. Present weight is 129 pounds, which is only 15 pounds below her normal weight. Every two hours she is taking a pint of milk up to four quarts a day. Physical examination negative except for the tonsils, which are large and matted down by adhesions from both pillars. Blood shows moderate secondary anemia, normal differential count, no plasmodia. Urine is negative. While the case was under observation, worry or fatigue would precipitate diarrhea with the typical acid, frothy, fatty stools; at other times the bowels were normal. At first the patient was put to bed on a milk and monosaccharid diet of grapes, honey and bananas. After a few weeks toast, baked apples and potatoes were added, and later cereals, eggs and cheese. By the middle of November she could be up all day, weighed 135 pounds, was taking solid food three or four times a day instead of milk eight times and her menstrual cycle, which had shortened to three weeks, again became normal. She was advised to visit in the United States until perfectly strong again, but intense homesickness with the difficulty in leading a regular life while visiting from place to place, soon counterbalanced the benefit of a northern latitude, and she returned to Porto Rico in March. The excitement of homecoming precipitated several days' diarrhea again.

Case 3 (H. B. H. 20).—A white woman, aged 32, married, housewife, who had never been out of North Carolina, was seen in July, 1913. Her father had died four years previously of pneumonia superimposed on chronic pellagra. Past history was unimportant. Present trouble started in February, 1913, with a diarrhea which at first consisted of from four to five stools daily, but which, in spite of medication, soon increased to ten or twelve stools daily. The diarrhea started about a month before expected confinement, which occurred several weeks early. An intense burning in the mouth and esophagus was present. She grew steadily worse, and when seen in July, had stomatitis, burning in the esophagus, extreme flatulence, and a diarrhea of from fourteen to twenty stools daily, beginning in the early morning and lasting throughout the day until about 6 p. m., after which she was not troubled until the next morning. The diarrhea was painless and the stools were of a pale yellow, or putty color, very frothy and expelled with a great accompaniment of gas; they had never contained blood. The patient had lost considerable flesh and was much weakened. Examination of chest and extremities was negative. The abdomen was tightly distended with gas, puffed out like a small balloon, and gave a doughy sensation on palpation. The superficial veins were dilated. No skin symptoms have ever been present. The blood showed hemoglobin 65 per cent., red cells 3,200,000; white cells 8,000; smear showed some poikilocytosis, red cells otherwise normal; no plasmodia. Sputum and urine were negative. Feces show a very offensive, voluminous, nearly white acid stool, frothy from the intimate admixture of fine gas bubbles. Microscopic examination showed no ova, no protozoa, many fat droplets and fatty acid crystals, with some splitting of the periphery of the fat droplets.

The patient was immediately sent to the mountains for the remainder of the hot season. At first, following a careful diet, the improvement was marked. As she improved, however, she became careless in diet and grew worse again. Becoming despondent over this she returned home and placed herself in the hands of my colleague, Dr. Duncan, who advises me that at present she is much improved, having gained greatly in weight and strength. He states that his treatment consisted of a diet of milk and fruits, and that the only medicine to which he could ascribe any beneficial results was iron, given over a long period.

Case 4 (H. B. H. 25).—A white woman, American, aged 38, married, housewife, was referred by Dr. J. T. Burrus of High Point in August, 1913. Family history was negative; past history negative until the patient went to Porto Rico as a missionary in 1904. Within a few months she contracted malaria, which proved so severe she was forced to return to the States. She continued to have one chill a month for a time but finally recovered entirely and returned to Porto Rico in 1906, where she remained until 1909. During these three years she enjoyed good health. The present illness began in May, 1912, three years after she had left the tropics. The first symptoms were slight diarrhea, from three to four stools daily, with some flatulence and stomatitis.

In spite of constant treatment the patient had grown steadily worse during the past eighteen months until, when seen, she weighed only 75 pounds. There was no subcutaneous fat; the dry, harsh skin was drawn tightly over the bony prominences. Mucous membranes were pale, skin muddy, eyeballs prominent from loss of orbital fat, hair lusterless, mouth and tongue the seat of subacute stomatitis. The pharynx and esophagus were not involved; chest and extremities negative; vision and reflexes normal. The abdomen was tensely distended, with thin walls and dilated superficial veins, everywhere tympanitic, and liver dulness obscured; doughy sensation on palpation. Pulse was 80, temperature 98, systolic blood-pressure 94 mm. Hg. Stools from eight to twelve daily, beginning between 12:30 a. m. and 2 a. m., and continuing until noon, with several in the late afternoon. At this time the patient was spending all of her time out of doors on a cot, or walking for short distances; in spite of this full exposure to sunlight there had never been any erythema on the exposed parts. Blood

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showed hemoglobin 60 per cent., red cells 3,000,000, white cells 4,600, normal differential count, no plasmodia. Urine was normal. Stools large, acid, frothy, putty-colored, no parasites, no occult blood, Schmidt test positive. Microscopically, undigested food, fat droplets, and fatty acid crystals made up the picture.

The patient was put on a milk and monosaccharid diet, without any medication, and a month later eggs, cereals, baked apples, potatoes, butter, and white meat added. She was permitted to go home under observation in September, and finally discharged in December. At this time she weighed 136 pounds, had a systolic blood-pressure of 119 mm. Hg, felt perfectly well and was having one or two stools a day.

In the treatment of sprue a great number of remedies have been recommended, such as potassium chlorate with morphin and bismuth,[6] powdered cuttlefish bone,[7] colloidal silver,[8] phenyl salicylate (salol), betanaphthol, mercuric chlorid, cyllin, izal (cresol preparations), acetozone and ipecacuanha.[9] A few years ago Begg[10] brought forward yellow santonin as a specific remedy, but Rogers, Manson and Castellani, working in India, have all failed to confirm Begg's results, and Ashford[11] working in Porto Rico, says, "Santonin, therefore, if it has any such specific action as that intimated by Begg, does not seem to be superior to a carefully supervised diet, especially a milk diet."

Rest in bed is obviously essential. The use of any drug as a specific is at present purely empirical. Moderate use of alkali seems rational. In severe cases the exclusive meat diet, or exclusive whole milk diet seems to us irrational. The fruit diet is simply a monosaccharid diet, and this in conjunction with skimmed milk seems to us to be the best diet to use in severe cases. The advent of cold weather, particularly cold nights, has apparently been of greater benefit to our patients than any other single factor. We know that the best treatment for pellagra is removal to the mountains during the hot months, and for the same reasons we think that in active cases of sprue the patients should not attempt to remain in the tide-water or piedmont regions during June, July or August.

Stuart,[12] Burnet,[13] Jackson[14] and others,[15] maintain that sprue and pellagra are the same disease, or in other words that sprue is "pellagra sine pellagra." While our experience with sprue is very limited, our experience with pellagra has been considerable, and we see no reason to confuse these two diseases. They have in common sore mouth, diarrhea, secondary anemia, loss of flesh and strength. Sprue has none of the nervous, skin, uterine, vaginal and rectal symptoms of pellagra, while pellagra is not characterized by the distention, and usually not by the early morning type of diarrhea found in sprue. The stools in the two diseases are totally different; the pellagra stool is large and liquid but composed of food remains hurried through the intestinal canal; the intimate admixture of fine bubbles of gas, the intense acidity and the characteristic picture of partially split fats are entirely wanting. We have elsewhere warned against the diagnosis of pellagra on the grounds of sore mouth and diarrhea.[16]

SUMMARY

Cases of sprue are constantly sifting back into this country and should be recognized and treated as such. Sprue should not be confused with pellagra. Rest in bed, a monosaccharid and skimmed milk diet and cold weather seem to be the most important factors in the treatment. Sprue may very possibly be or become endemic in the Southern states.

ABSTRACT OF DISCUSSION

Dr. Roger S. Morris, Clifton Springs, N. Y.: Did Drs. Hiatt and Allen make gastric analyses in their cases or not? The diarrhea which the patients had is described as a morning diarrhea, and it occurs to me that this may have been associated with conditions in the stomach.

Dr. H. B. Hiatt, High Point, N. C.: We made gastric analyses in all cases and nothing in particular was obtained from them. Sometimes we met achlorhydria and sometimes the conditions were normal. The morning diarrhea we considered to be the result of the low blood-pressure. The object of reporting the cases was to call attention to this subject and to utter a warning. If sprue should become endemic in the South its spread might be as rapid and the disease become as common as pellagra.

THE BLOOD IN ACIDOSIS FROM THE QUANTITATIVE POINT OF VIEW*

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ST. LOUIS

Although the elimination of acetone bodies, found in the urine in various conditions, has been thoroughly investigated, we still lack reliable information as to the extent to which these substances may accumulate in human blood and tissues during life. Diminished alkalinity of the blood, such as may occur in acidosis, is a condition unfavorable to diuresis, so that it is quite possible to have only a moderately high excretion of acetone bodies in the urine of a patient who may exhibit symptoms of severe acid intoxication. It is in such cases that an analysis of the blood should yield data of diagnostic and prognostic value.

By a method, which is described elsewhere,[1] it is possible to determine acetone, aceto-acetic acid and beta-oxybutyric acid in small amounts of blood drawn directly from a vein. From 2 c.c. to 5 c.c. of blood is sufficient, and the analysis may be carried out in about the same time as is required for an analysis of the urine for the same constituents. When analyzed according to this method, normal blood from man, dog, pig and beef is found to contain less than 1.5 mg. of gross aceto-acetic acid (acetone preformed, plus aceto-acetic acid), and less than 4 mg. of oxybutyric acid per 100 gm. of blood, all results being expressed in terms of acetone.

A number of pathologic conditions associated with acidosis have been studied, including light and severe diabetes, febrile conditions of childhood, postoperative acidosis and experimental phloridzin and pancreatic diabetes in dogs. In all these conditions the acetone bodies were present in the blood in excess of the normal. The highest figures obtained were from the blood of a patient with severe diabetes at a time when he exhibited signs of impending coma. In this instance, the oxybutyric acid amounted to 45.2 mg. per 100 gm. and the gross aceto-acetic acid to 28.0 mg., both calculated in terms of acetone.

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[6] McDonald, W. C. C.: Australasian Med. Gaz., June, 1911.
[7] Cantlie, J.: Brit. Med. Jour., Nov. 15, 1913, p. 1296.
[8] Manson, Sir P.: Tropical Diseases, New York, William Wood & Co., 1908, p. 477.
[9] Rogers, L.: Dysenteries, Oxford Univ. Press, 1913, p. 320.
[10] Begg, C.: Sprue, New York, William Wood & Co., 1912.
[11] Ashford, B. K.: Am. Jour. Trop. Dis., 1913, i, 146.
[12] Stuart, C. E.: Abstr., Jour. Trop. Med., 1913, xvi, 287.
[13] Burnet, J.: Are Pellagra and Sprue One and the Same Disease? Abstr., The Journal A. M. A., Sept. 16, 1911, p. 1014.
[14] Jackson, T. W.: Tropical Medicine.
[15] Tyson and Fussell: Practice of Medicine, p. 1164.
[16] Allan, W.: New York Med. Jour., Dec. 18, 1909.

* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Marriott: Jour. Biol. Chem., August, 1914.

The accumulation of the acetone substances in the blood and the excretion of these substances in the urine did not always run parallel. Administration of alkali resulted in considerable alteration in the relative distribution of the acetone substances between the blood and the urine, the effect being to diminish very considerably the concentration of these substances in the blood, without at the same time bringing about any appreciable change in the total daily output in the urine.

Analyses of the blood for preformed acetone indicated that this substance may amount to more than 60 per cent. of the gross aceto-acetic acid, in conditions of severe diabetes. With alkali therapy, preformed acetone showed a relative diminution. That is to say, the alkali appeared to decrease the decomposition of aceto-acetic acid.

In the bloods examined the ratio of oxybutyric acid to total acetone substances ("beta ratio" or Kennaway, Pembrey and Poulton) varied from 50 per cent. to 80 per cent. The significance of this ratio is not, as yet, entirely apparent. It is possible that a high ratio may be an indication of partial asphyxia; for we know from the work of Embden, Friedmann, and Dakin and their collaborators that, with diminished oxygen supply, various organs of the body readily effect the reduction of aceto-acetic acid to oxybutyric acid, whereas the reverse change is favored by the presence of an abundance of oxygen.

So far I have spoken only of the accumulation of the acetone substances in the blood, and have said nothing of the tissues. The blood, however, appears to be a fairly satisfactory index of the extent to which acetone substances may accumulate in the tissues. For example, it was found that the blood and liver of a starved phloridzinized dog contained the same amounts of acetone bodies per 100 gm. and the muscles approximately one-half as much. The beta ratio, however, was higher in the muscles and liver than in the blood, and this would, of course, be expected as there would be relatively less oxygen in these organs than in blood.

It is not intended here to present a detailed discussion of acidosis but merely to indicate some applications of a method which I believe to be capable of throwing light on the subject of acetone body acidosis.

Washington University Medical School—Laboratory of Biological Chemistry.

ABSTRACT OF DISCUSSION

Prof. A. J. Carlson, Chicago: I should like to ask Dr. Marriott for the findings in the pancreatic diabetes in dogs. It has been my experience in this experimental diabetes that there is not in the urine or in the breath of these dogs the characteristic acetone odor that is found in advanced cases of human diabetes. Was there any indication of increase of acetone in the experimental dogs comparable to that in cases of human diabetes?

Dr. W. McKim Marriott, St. Louis: I was surprised to find that in pancreatic diabetes in the dog there was only the very slightest increase in acetone bodies, nothing at all comparable to that of human diabetes or even of phloridzin diabetes in the dog; the figures were just above the normal.

DIPHTHERIA OF THE SKIN OF UNUSUAL TYPES

REPORT OF TWO CASES *

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AND
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Diphtheria of the skin was first recognized by Chomel[1] in 1759, and by Samuel Bard[1] in an epidemic in New York in 1771. Although the diphtheria bacillus was not discovered until 1883 by Klebs[1] and 1884 by Loeffler[1] of Greifswald, working independently, as early as 1830 Trousseau[1] wrote extensively of cutaneous diphtheria. It was not, however, until 1891 that the integumentary outbreak of this affection was studied not only clinically but also bacteriologically by Neisser.[2]

The invasion of the skin by the Klebs-Loeffler bacillus is of infrequent occurrence, as shown by the report of the St. Anne's Children's Hospital of Vienna.[2] From 1894 to 1902, out of 2,217 clinical and bacteriologic cases of diphtheria the cutaneous surface was attacked in but twenty-three instances, and the most of these were of the false-membrane type. Mallory[1] has found in a series of 251 cases of diphtheria that the skin was attacked in but one instance and the lesion was then of the false-membrane type.

Trousseau's original contention that cutaneous diphtheria was preceded by some tissue loss, no matter how slight, is the view held by the present-day investigators, notwithstanding Daviot's[3] view to the contrary.

The bacillus gains entrance to the skin through some opening, in cracks, slight excoriations, erosions resulting from herpes, in the breaks in the continuity of the skin secondary to an eczema, an intertrigo or an impetigo, etc. Cutaneous diphtheria may be of primary occurrence and limited to the integument; the infection may be conveyed to the larynx, throat or nasal mucous membrane, or, as is usually the case, the skin is secondarily involved, the mucous membranes, just mentioned, showing the original lesions.

Inoculation of the skin with the Klebs-Loeffler bacillus occurs in one of three ways: by auto-inoculation, by means of some article of clothing, utensils, etc., containing the same, and from one person to another by close contact, as by kissing, coughing, circumcision, etc.

Numerous varieties of lesions have been reported in which the diphtheria bacillus has been found. The most frequent of these is the false-membrane type. The other types which have been recorded are the ulcerative, gangrenous, eczema-like, impetiginous eczema-like, pustular and impetigo-like, ecthymatous, vesicular and varicella-like, bullous, dermatitis herpetiformis-like, carbuncular-like, and the tumor and abscess.

False-Membrane Type.—The older writers on diphtheria of the skin affirmed that every case had a diagnostic false membrane. The break in the continuity of the skin attacked by the bacillus would become painful, puff up, there would be a profuse fetid discharge, a false membrane would form and the edge of the patch would become elevated and the bottom ulcerated. Not infrequently an attack of erysipelas would develop around the diphtheritic patch. It was not rare, however, to observe an attenuated form that consisted of grayish plaques, more dry than moist, discrete and slightly spreading. These plaques are detached in from about eight to ten days, some persisting for a longer period.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Quoted by Nuttall, G. H. F., and Graham-Smith, G. S.: The Bacteriology of Diphtheria, New York, G. P. Putnam's Sons, 1908.

[2] Quoted by Marschalko: Arch. f. Dermat. u. Syph., 1909, xciv, 379.

[3] Quoted by Jack: Brit. Jour. Child. Dis., 1913, x, 456.

Bernard and Jacob[1] found diphtheria bacilli in gray ulcerating patches on the thigh of a soldier. Bolton and Brewer[1] cultivated the organism from a sore, showing a black central scab surrounded by sloughing portions of dirty white skin, on the groin of a girl. Williams[1] isolated virulent diphtheria bacilli from a membrane on the finger and from the throat of the same patient. Other instances are too numerous to mention.

Wound Diphtheria.—Wound diphtheria, so-called, is of fairly common occurrence, developing either secondary to nasal, throat or laryngeal diphtheria of the afflicted person or from some one else with the disease. Several instances of cutaneous diphtheria have occurred in insignificant wounds (Park,[1] Pitts[1] and others). Tavel[1] mentioned a case of infection in the operation for spina ventosa; Bruner,[1] three cases of wound infection, in one of which virulent, and in the other two non-virulent, diphtheria bacilli were found; Sponck,[1] three examples of infection of tracheotomy wounds. Treitch and Abel[1] (quoted by Flexner) and Scheller[1] also mentioned examples of wound infection. Further instances of this type of affection have been cited by Paterson,[4] and Abel[2] of the finger; Sowade,[5] of the right deltoid; Place,[6] on and surrounding the vulva; Gerloczy[2] found the infection in the left inguinal region and Schwab,[2] in the genital region.

Ulcerative Type.—Although most of the cases of this variety have developed false membranes, there have been some exceptions. Jack[7] had a patient, the mother of a child with nasal diphtheria, who developed at the site of a trauma above her left elbow a red spot which ulcerated. The diphtheria organism was found in this lesion. Heelis and Jacob[3] found diphtheria bacilli in an ulcer on the dorsum of the right hand. The latter infected the outer canthus and from this the disease spread to the conjunctiva. Kanthack and White[1] found the bacillus in phagedenic ulcers of the neck.

Gangrenous Type.—Gangrene of the skin has been reported by Bolton,[8] Dawson[9] and Marschalko[10] by the implanting of the diphtheria bacillus. Pernet[11] had an infant with gangrenous lesions on the side of the anus. The little patient developed difficulty in deglutition and finally died of paralysis of the diaphragm. Virulent diphtheria bacilli have been found by Steffens[1] in a case of gangrene of the eyelid. Freymuth and Petruschnky[12] have found the Klebs-Loeffler bacillus in cases of noma.

Eczema-Like Type.—Richard[11] had a young girl with a patch of eczema for some years below the left ear, which spread and attacked the commissure of the left lip. The bacillus of Loeffler was found. Her sister developed a typical case of diphtheria. Glucksmann[1] found the diphtheria bacillus in five cases with an eczema-like outbreak. Baginsky[2] has reported cases of cutaneous diphtheria developing on patches of eczema.

Tumor and Abscess Types.—Müller[13] described the cases of two children, a brother and sister. The girl had a tumor on the left labium majus extending to the inguinal region; there was also throat diphtheria present. The brother also developed diphtheria of the throat and a swelling at the root of the nose. Both children died and microscopic examination showed numerous diphtheria bacilli in the tumors. Deutschlander[14] has collected reports of forty-eight similar diphtheritic tumors from the literature.

Hála[1] found virulent diphtheria bacilli in an abscess of the eyelid. Councilman, Mallory and Pearce[1] found diphtheria by culture in four out of ten cases of cervical abscesses developing in the course of diphtheria. Schottmüller[1] isolated non-virulent diphtheria bacilli from the pus of an inguinal abscess and from the throat of a boy suffering with diphtheria. Tavel[1] has found the Klebs-Loeffler bacillus in abscesses. Leary discovered the diphtheria bacillus in an abscess which developed about a hair-follicle two days after a necropsy in a case of diphtheria.

Unclassified Types.—Bokay[2] has recorded instances of skin diphtheria and diphtheritic balanitis and vulvitis. G. C. Garratt[3] has written on acute diphtheritic whitlow. Heelis and Jacob[3] found the diphtheria bacillus in broken chilblains in children associated with faucial diphtheria.

Pitts[1] recorded an instance of diphtheria of the umbilicus in a child 4 days old, and Caddy,[1] a case of diphtheria of the nipple and areola of a woman suckling an infant, which shortly afterward developed diphtheria.

Wright[1] found the Klebs-Loeffler bacillus in a case of anal fistula.

Impetiginous Eczema-Like, Impetiginous, Ecthymatous, Pustular, Vesicular and Bullous Types.—These vesicular, bullous, pustular and crusted types constitute varieties of diphtheria of the skin which have only recently been recognized as such and are of rare occurrence. In all intractable cases in which these lesions are present, careful cultural tests should be carried out.

Todd[15] recorded the occurrence of six cases, out of fifty-one of external rhinitis due to the Klebs-Loeffler bacillus, in which secondary pustules developed on the skin. These pustules when examined at an early stage contained the diphtheria bacillus.

Slater[16] reported a case in a girl of 13 with a large number of vesicles, resembling varicella, some of a crescentic arrangement and with a profuse discharge. The condition had lasted for three years. The diphtheria bacillus was isolated from cultures. Antitoxin cured the patient.

Dawson[9] recorded a case in a man of 58 who showed groups of bullae on an erythematous base, resembling dermatitis herpetiformis, from which virulent diphtheria bacilli were recovered.

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4. Paterson: Med. Times and Gaz., 1866, ii, 608.
5. Sowade: Arch. f. Dermat. u. Syph., 1912, cxiii, 1039.
6. Place: Boston Med. and Surg. Jour., 1910, ii, 730.
7. Jack: Brit. Jour. Child. Dis., 1913, x, 456.
8. Quoted by Dawson: Brit. Med. Jour., 1910, ii, 859.
9. Dawson: Brit. Med. Jour., 1910, ii, 859.
10. Marschalko: Arch. f. Dermat. u. Syph., 1909, xciv, 379.
11. Quoted by De Verbizier: Ann. de dermat. et de syph., 1912, p. 82.
12. Quoted by Kautlack, following Todd's article (Lancet, London, 1898, i, 1458).
13. Müller: Deutsch. Arch. f. klin. Med., March 1, 1913.
14. Quoted by Müller (Footnote 13).
15. Todd: Lancet, London, 1898, i, 1458.
16. Slater: Lancet, London, 1908, i, 15.

Place states that he has had cases in which impetigo-like lesions developed on the face and the hands, in which diphtheria bacilli were found, associated with diphtheria of the respiratory tract.

Labbé and Demarque[11] recorded an instance of disseminated impetiginous eruption in a child of 4, accompanied by several sharply marginated ulcers. The Klebs-Loeffler bacillus was present. They also reported a second case, in a child of 2½, with diphtheritic impetigo-like lesions on the face and the scalp and excoriations on the lips.

Goodall and Washbourn[3] have cited instances with diphtheritic pustules yielding thin pus and producing ulcers, slow to heal and often free from membrane.

Eddowes and Hare[17] recorded a bullous and pustular case in a girl of 11. The lesions were found on the arms, the hands, the lips, and one lesion on the left anterior pillar of the fauces. There was no false membrane present. Klebs-Loeffler bacilli were found. They reported another case, in a woman of 41, of three years' duration, with lesions of an impetiginous aspect.

Douglas Heath[11] observed a somewhat generalized diphtheritic eruption of an impetiginous type.

Brandal, Herley and S. Edin[11] recorded a lesion of a pustular carbuncular type in which they found the diphtheria bacillus.

Jéz[1] found virulent diphtheria bacilli in the fluid from the vesicles of herpes labialis in a patient suffering with diphtheria. Dávelos[1] discovered the organism in the fluid of impetiginous lesions covering the face and the neck of a baby.

Prescott[1] reported a case of a child in which a blister was raised by the application of a plaster, a false membrane formed and the diphtheria bacillus was found; no bacilli were found in the nose and the throat although the child had recently recovered from diphtheria.

Waelsh[1] described diphtheria-like bacilli, pathogenic for rabbits and guinea-pigs, in a pustular eruption of the skin of the trunk. Müller found diphtheria bacilli in a pustule on the nates.

Schucht[2] recorded an instance of infantile ecthyma, with sharply marginated ulcers, and a purulent discharge from the ear, in a child of 3, in which the organism was found.

Verbizier[18] cites ten cases, in which nine did not have the membrane or other usual manifestations of diphtheria. All but two of the cases occurred in infants. Four of the cases ended fatally. Seven among those recorded were of the impetiginous eczema type, and in three, vesicles and bullae gave rise to an abundant discharge. Four showed a grave conjunctivitis. The most common form, and, therefore, the most typical type observed in infants, had the appearance of an impetiginous eczema, affecting almost always the head and the face, and associated with a grave conjunctivitis, sometimes also an otorrhea and rhinitis, the whole forming a distinct clinical entity.

The two following cases were first seen by us Sept. 5, 1913.

Case 1.— Lillian J. W., aged 4 years, had always been healthy and well nourished, and is plump and well built. Three days before she came under observation the outbreak appeared on the body, with an accompanying sore throat. There were observed on the trunk, the extremities and the buttocks two dozen pustular and bullous lesions varying from a pea to a pigeon's egg in size. The lesions were discrete and of a whitish-yellow to an orange-yellow color. The large bullous lesions had an inflammatory areola, and on rupture were found to be multilocular and filled with a thick, cheese-like, yellow pus. The throat was swollen, the glands of the neck enlarged, the patient restless and there was a high temperature. Examination showed membranous, white patches on both tonsils. Cultures were made from an unruptured lesion on the lower abdomen and also from the throat. Diphtheria bacilli were obtained from each location, the one of Type D and the other of Type C, according to Wesbrook's classification. Staphylococci were also found in the cultures. The patient was given 3,000 units of antitoxin and was sent to the Municipal Hospital. Death ensued two days later.

Case 2.—Mary W., sister of Patient 1, aged 8 years, who had been unusually free from sickness, developed, the day previous to our visit, sore throat and an eruption on the skin. The right tonsil was covered by a white membrane. The temperature was moderately high. Scattered over the trunk and the extremities were about a dozen lesions, mostly pea in size but a few with the proportions of a hazelnut. They were of the same character as her sister's; the inflammatory areola, however, was less marked and the contents were of a thinner consistency. Cultures were made from the tonsil and from an unruptured lesion on the leg. Diphtheria bacilli were found in each, corresponding to the C type of Wesbrook. Staphylococci were also found. The patient was given 1,250 units of antitoxin and was transferred to the Municipal Hospital. Although the little patient developed scarlet fever while in the hospital, she finally recovered.

The Klebs-Loeffler bacillus varies considerably in regard to its virulence both in the patients attacked and in the animal experiments. Abel, Neisser and Marschalko obtained positive results in their animal inoculations. The diphtheria bacillus obtained from Slater's case killed the guinea-pig. A pure culture of the Klebs-Loeffler bacillus obtained from Leary's case was inoculated into a guinea-pig and killed the animal in forty-eight hours. Eddowes and Hare inoculated 2 cm. of the serum suspension of the culture of the Klebs-Loeffler bacillus found in their case into a guinea-pig, and death occurred in twenty-seven hours. The organism was recovered from the guinea-pig.

Extensive cultural experiments made by numerous investigators demonstrated the fact that other pathogenic organisms are almost invariably associated on serum cultures with the diphtheria bacillus; although the streptococci are the most frequently associated, pyogenic cocci, staphylococci and pneumococci may also be found. Eddowes and Hare found in their case the *Staphylococcus aureus* and streptococci associated with the diphtheria bacilli. We found staphylococci in addition to the diphtheria bacilli in our cases.

DIFFERENTIATION OF THE DIPHTHERIA BACILLUS AND THE PSEUDODIPHTHERIA BACILLUS (BACILLUS OF HOFMANN)

In an unusual type of lesion in which a diphtheria-like bacillus is found it is always essential to distinguish the true diphtheria bacillus, or the Klebs-Loeffler bacillus, from the pseudodiphtheria bacillus, or the bacillus of Hofmann.

The pseudodiphtheria bacillus is generally much shorter than the common forms of the diphtheria bacillus; it usually is a short, straight, oval bacillus, with rounded ends, and one median, lightly stained transverse septum. The former in proportion to its length is much broader than the latter, and the widest part, which is about equal to one-eighth of the length, is at the middle. Some of the forms of the Hofmann's bacillus are clubbed and often slightly curved but take the stain more deeply than the diphtheria bacillus. Sometimes after forty-eight hours' growth on the culture-medium the bacilli are even shorter than at an earlier period.

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[17] Eddowes and Hare: Lancet, London, 1908, i, 282.

[18] Verbizier: Ann. de dermat. et de syph., 1912, p. 82.

Metachromatic granules (polar bodies) are rarely found in any of the forms. In young cultures of Hofmann's bacillus, in those thirty-six hours or older, polar bodies are occasionally found, especially in the larger forms, but they are seldom so sharply defined as in diphtheria bacilli and are frequently ovoid and elongated. In Klebs-Loeffler bacilli, according to Denny,[1] polar granules are first seen as very minute objects after eight hours' growth, but do not become abundant until cultures have been growing for fifteen hours. They are found most frequently produced in cultures incubated at from about 34 to 36 C. (93.2 to 96.8 F.). Clubbing and segmentation are marked features.

Neisser's special stain should be used in the demonstration of these granules.

NEISSER'S SPECIAL STAIN[1]

Solution 1:	
Methylene blue (Grübler), 1 gm., dissolved in alcohol (96 per cent.)	20 c.c.
Distilled water	950 c.c.
Glacial acetic acid	50 c.c.
Solution 2:	
Bismark brown	2 gm.
Boiling distilled water	1,000 c.c.

Solution 1 is used for from one to three seconds and solution 2 for from three to five seconds. The polar bodies are stained dark blue and the protoplasm brown.

Hofmann's bacillus begins to develop at a lower temperature (18 C. or 64.4 F.) than the diphtheria bacillus and the growth is more luxuriant. The former shows a whiter, softer, larger, and usually flatter growth than the latter on Loeffler's serum. The growth being more rapid, the colonies attaining considerable dimensions in the first twenty-four to forty-eight hours.

Hofmann's bacillus also shows a larger and whiter growth on alkaline serum; is more abundant on nutrient agar and glycerin-agar; shows a larger growth both on the surface and along the needle-tract in stab-cultures, more abundant on gelatin; on broth causes an earlier diffuse clouding of the medium and a greater alkalinity (acid is never produced); in glucose broth neither gas nor acid is produced, and there is an increase in the alkalinity; it does not produce acid even after prolonged growth in broth or Hiss' medium containing glucose, lactose, maltose, galactose, saccharose, levulose, dextrin, mannite or glycerin.

The diphtheria bacillus, in cultures from 36 to 48 hours old, shows the polar bodies much enlarged and occupying a large part of the club-like dilatations of the organisms; the polar bodies appear to be increased in number as well as in size, so that several are found in each bacillus.

The diphtheria bacillus in broth splits the meat-sugar contained in ordinary broth, producing acid, and thus changes the reaction of the medium, making it less alkaline, or even slightly acid. Roux and Yersin were the first to demonstrate these changes.

In glucose broth the diphtheria bacillus makes the culture-medium acid. This phenomenon was observed with glucose (dextrose), galactose, levulose and glycerin.

Lubowsky[1] suggested the differentiation of the two organisms by an immunization of animals with the non-virulent bacilli and tested the agglutinating properties of their serum to the diphtheria bacillus and Hofmann's bacillus, the former alone causing agglutination.

As a last resort in differentiating the two organisms, animal inoculation may be carried out, the diphtheria bacillus causing the death of a guinea-pig within from one to four days, while the bacillus of Hofmann proves innocuous.

CLASSIFICATION OF DIPHTHERIA BACILLI

Diphtheria bacilli have been classified in various ways. The one followed in the laboratories of the Philadelphia Board of Health was devised by Wesbrook.

Wesbrook, Wilson and McDaniel[1] classify the organism according to its morphologic types, three main groups being used.

Group 1, Granular Forms: There are distinct spherical, ovoid or markedly rounded granules present. They label the forms from A to G. In each variety, excepting B, the granules show metachromatism. The granules are fairly uniformly found at one or both poles of the bacilli. The protoplasm not included in the granules stains with a much less intensity than the latter bodies.

Group 2, Barred Forms: These are distinguished by their irregularity of staining; bacilli present a distinct barred appearance as if segments of protoplasm had been actually removed. The darkly stained portions vary considerably in staining reaction both in different bacilli of the same variety and even in the individual bacillus. They vary in size and shape; metachromatism is not suggested. The number of dark segments varies from three to nine. Types A^1 to $G.^2$

Group 3, Solid Color Forms: The organisms are of a solid or uniformly staining shape and size, and also some have the appearance of diplococci. Types A^2 to $G.^2$

In the cases which we have reported above, Type C was present in one and Types C and D in the other. In other words, the organisms corresponded to Group 1, the granular form; Type C is of a curved shape, in which the protoplasm stains lightly excepting at the poles and occasionally at one point between the poles, where rounded, rarely ellipsoid metachromatic granules occur. This is the most common form encountered in the clinical cases. Type D is similar in most respects to C, but shorter, thicker and apparently straighter; the former is from 0.75 to 1 micron in thickness and from 2 to 3 microns in length, showing metachromatic granules at both poles and none in the center, and the latter is from 3 to 6 microns in length and from 0.5 to 1 micron in thickness, with both central as well as polar metachromatic granules.

CONTAGIOUSNESS OF DIPHTHERIA

It is extremely important to recognize diphtheria of the skin because of its contagiousness. Loeffler[1] found that bacilli from cultures dried on silk threads were viable for from three to four weeks; from small dried pieces of membrane he was able to obtain living bacilli in large numbers at the end of from four to nine weeks, and isolated colonies after thirteen to sixteen weeks; after sixteen weeks they could never be cultivated. From membrane dried on pieces of linen and kept in the dark at room temperature, Roux and Yersin[1] were able to obtain numerous colonies at the end of three and four months. Abel[1] demonstrated living bacilli on a toy six months after the child was infected. The latter also has found bacilli sixty-five days after the disappearance of the membrane. Diphtheria bacilli have been found on pillows and bedclothes (W. H. Park[1]), on a sweeping-broom (Wright and Emerson[1]), on a drinking-glass in common use (Forbes[1]), and on a sucking-bottle (Weichard[1]).

SUMMARY

Diphtheria of the skin may occur in several forms, in addition to the false-membrane type, the ulcerative, gangrenous, eczematous, impetiginous eczema-like, pustular, impetiginous, ecthymatous, vesicular (varicella-like), bullous, dermatitis herpetiformis-like, tumors and abscesses. Our two cases were of the bullous impetigo type, one terminating fatally.

Inoculation of the skin occurs by auto-inoculation, by means of infected articles, and from one person to another. It may occur primarily on the integument, remain limited to it, spread to the mucous membranes, or, more commonly, is secondary to throat, nasal or laryngeal diphtheria.

In cases of diphtheria of the skin the Klebs-Loeffler bacillus always has to be distinguished from the pseudodiphtheria bacillus (Hofmann's bacillus).

These two organisms differ somewhat morphologically, culturally and in animal inoculations. The diphtheria bacillus is particularly distinguished by the metachromatic granules (polar bodies), as shown best with the Neisser stain, by the acid-producing qualities, and by the fatal results on inoculating animals.

Diphtheria bacilli are grouped according to the Wesbrook, Wilson and McDaniel classification.

These diphtheritic skin-lesions are a constant source of contagion, because they are frequently unrecognized for a considerable period. They may last over a long period or run a rapidly fatal course.

We wish to express our thanks to Dr. C. Y. White for assistance in the bacteriologic study and to acknowledge our indebtedness to the excellent chapters of G. S. Graham-Smith, in "The Bacteriology of Diphtheria," by G. H. F. Nuttall and G. S. Graham-Smith.

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ABSTRACT OF DISCUSSION

Dr. Henry C. Baum, Syracuse: In a case bearing on this subject, the patient, a boy 11 years old, was admitted to our orthopedic ward with a discharging sinus of the hip-joint, near which were a number of vesicles and vesicopustules. When my attention was called to the case, a few days after admission, there was some elevation of temperature, and a culture made from the contents of the vesicles showed the Klebs-Loeffler bacillus. Throat cultures were negative, but we learned that the boy had been taking care of his little brother, who was suffering from laryngeal diphtheria. A number of cases of diphtheria subsequently developed among the children in the orthopedic ward. I have never made a search of the literature with regard to this subject, but have no doubt that diphtheria of the skin is of more frequent occurrence than is generally supposed, and probably some of us have overlooked such cases in the past.

Dr. Martin F. Engman, St. Louis: The subject of diphtheria of the skin is very important when one considers the number of cases that probably occur after diphtheria. Not only immediately, but possibly some little time after an attack of diphtheria the patient is probably a diphtheria bacillus carrier, and various methods have been devised to destroy the local foci in these carriers. I have seen several cases of impetigo-like and eczema-like eruptions after diphtheria in which the bacilli were found in the skin lesions. Some years, ago possibly ten, a very sad case came under my observation. A child had recovered from diphtheria and shortly afterwards developed an aural discharge, with some eruption about the ear. A child played with this patient, was stricken with diphtheria and died. The discharge from the eruption about the ear was then examined, and was found to contain the Klebs-Loeffler bacilli. These eruptions are observed not only after diphtheria, but also after many catarrhal conditions of the nose and throat, and after measles and grip, and it is well to examine bacteriologically any eruption about the mouth or ears. This bacillus varies so widely in its morphology and virulence, that the subject is really important from many points of view.

Dr. M. Haase, Memphis: What was the duration of the skin lesions in the two cases reported? If they occurred immediately after an attack of diphtheria, it was not surprising to find the bacilli in the skin eruption.

Dr. A. Ravogli, Cincinnati: Before the introduction of Behring's antitoxin, I frequently saw cases of diphtheria eruption of the skin, especially about the lips and mouth, and sometimes near the genitals, but since the use of antitoxin I do not recall a single case of this kind. In the cases I formerly saw we used Monsell's solution with excellent results.

Dr. H. N. Cole, Cleveland: Drs. Knowles and Frescoln justly laid much stress on the presence of the pseudo-diphtheria bacillus in a number of cases. In a series of several hundred routine cultures in cases of eczema, impetigo and dermatitis of the skin, this organism was encountered a number of times and it is very important to differentiate it from the diphtheria bacillus. The Neisser stain is the only one by which the distinction can be made.

Dr. Leonard D. Frescoln, Philadelphia: The cultures from the throat and from the skin were practically identical and one could not tell which was which. In connection with this subject of properly diagnosing possible infective lesions of the skin, three classes of skin infections should be kept in mind: First, those due to the Klebs-Loeffler bacillus; second, chancroidal infections in various parts of the body, and, third, deep ring-worm lesions. The possibility of a patient being a diphtheria carrier should not be lost sight of. In one case that came under my observation, the patient, a hospital nurse, made some complaint of her nose, and with the postnasal mirror a patch of diphtheritic membrane, typical in appearance and containing Klebs-Loeffler bacilli, was found. That nurse was certainly a diphtheria carrier.

Dr. Frank Crozer Knowles, Philadelphia: In one of the two cases we reported, the lesions had been present for four or five days before the patient came under our observation and in the other case only one day. We recently had an interesting pseudodiphtheria case at the Pennsylvania Hospital. The patient had an eczematous eruption on the back of the neck and shoulders, and on taking a culture, we found a pseudodiphtheria bacillus. An autogenous vaccine was made and injected and the patient recovered within a week.

Price of Radium.—According to Thomas Stephenson (The *Prescriber*, July, 1914), the price of radium, which has recently stood at about £20 (about $100) per milligram, has shown signs of being reduced. Stephenson states that he was informed on good authority quite recently that radium salts could be obtained at £13 (about $65) per milligram, but the strength of these is not stated. As the value of radium salts depends on the amount of the element radium they contain, the price must be reckoned not only on the degree of purity of the salt but also on the combining weight of the element with which the radium is combined. Thus pure radium bromid is worth less per milligram than pure radium chlorid because the bromid contains a smaller percentage of radium because of the greater atomic weight of bromin as compared with chlorin.

LEAD-POISONING WITH PARALYSIS OF THE EXTERNAL OCULAR MUSCLES

EDWARD MERCUR WILLIAMS, M.D.
SIOUX CITY, IOWA

Paralysis of the extra-ocular muscles is a condition very rare in lead-poisoning. I recall seeing it in only one other case, that of a male attendant at the East Oklahoma Hospital for the Insane. He had to give up his work as a painter several years previously on account of his illness. When I examined him he had, as residual signs of the disease, a partial double wrist-drop and bilateral ptosis, more complete on one side, on which side also the internal rectus muscle was partially paralyzed, sufficiently so to interfere with his accommodation.

In the present case in addition to the paralysis of the right external rectus there were unusually widespread and intense atrophic muscle-changes and absence of basophilic degeneration and of the characteristic lead-line on the gums.

While the external rectus was only partially paralyzed, the paralysis was sufficient to cause double vision when the patient worked in a poor light. I have had several patients with slight or partial ocular paralysis in whom the double vision occurred only in dim light. I have never seen this referred to. Possibly it is due to the extra impulses necessary to accommodation in a poor light, causing a proportional overworking of the healthier muscles.

The usual symptoms of lead-poisoning are so well known and have been so ably described by a recent writer[1] that their repetition is hardly necessary. It might be well, however, to emphasize the fact that insidious cases of plumbism may go for a long period unobserved. Particularly when the occupation and life of the patient is of such character (as in this case) as to necessitate very little muscular exertion.

History.—Woman, single, aged 36, typesetter for last six or eight years, has not had any abdominal pain since an acute attack of doubtful character two years ago. Also she did not notice any weakness of her muscles until the present acute attack, beginning three weeks before the examination. She then complained of rheumatism, had severe pains in all her limbs, and her leg- and arm-muscles became weak. These increased until she became bedfast in a couple of weeks.

Examination.—Pupils were equal, regular in outline and reacted promptly to light and accommodation. The right abducens was very weak and the patient said that she had often noticed double vision when working in a poor light. At time of examination she had double vision on being tested in extreme lateral field. Almost all the muscles of the body seemed weak and wasted. Fibrillary tremors were present in the thigh- and shoulder-muscles. The arms were both very weak, the right more than the left. The forearm extensors were completely paralyzed on the right, but on the left the patient retained the power of extending the index-fingers and little fingers. The supinator longus was slightly impaired on the right. The right upper arm, biceps, triceps and shoulder-muscles were paralyzed. Reflexes were absent on right and very weak on the left. The left upper arm- and shoulder-muscles, while decidedly atrophied, still retained some power. The forearm flexor groups on each side were only slightly affected. Both legs were very weak, the patient being able to bear her weight with great difficulty and only when assisted. She could not rise from a sitting posture. There was double toe-drop and the atrophy of the leg-muscles, with the exception of the greater involvement of the foot extensors, seemed to affect all the musculature about equally. Reflexes present, but greatly diminished; no Babinski; no sensory changes nor tenderness of the nerve-trunks.

The blood examination did not show any basophilic degeneration.

The characteristic blue line on the gums was not present, though there was a peculiar blackish discoloration of the lower decayed portion of one or two of the teeth.

The patient's mental condition showed some deterioration.

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[1] Linenthal, Harry: The Early Diagnosis of Lead-Poisoning, The Journal A. M. A., June 6, 1914, p. 1796.

FOREIGN BODY IN THE SUBMAXILLARY GLAND

William H. Smith, M.D., and Norman T. Kirk, M.D.,
Captain and First Lieutenant, Respectively, Medical Corps, United States Army
Washington, D. C.

W. C. C., a soldier of the Twenty-Second Infantry, was on a maneuver problem near Texas City, Tex., Sept. 11, 1913. He plucked a piece of grass from along the roadside and put it in his mouth. A small piece of the grass, about ¾ inch long, consisting of the bearded seed-tufts, got under his tongue and entered the orifice of the left Wharton duct. The soldier felt a slight sticking sensation under his tongue, but did not realize what had happened, at the time. The submaxillary gland began to swell in about an hour, and in twenty-four hours it was twice the normal size. There was no acute pain.

The condition remained about the same from Sept. 11 to Nov. 27, 1913, the patient being free of pain in the interim. During this time he had been treated occasionally for a mild inflammation, with local applications of iodin, etc. Nov. 27, 1913, he began to suffer with pain and pressure symptoms, and was transferred to Field Hospital No. 3, for observation and treatment. Here his history was gone over carefully and he was observed for a few days. He suggested that the grass was the obstrusive agent, but the possibility of it having traversed the duct seemed so remote that we attached no credence to the soldier's statement.

The duct was explored for calculi and stenosis, but was found patent throughout its course. We were unable to determine what was the cause of the glandular involvement.

Dec. 3, 1913, the glandular tumefaction became more marked and there was extensive periglandular cellulitis, accompanied with fever and pain. We decided to excise the gland before suppuration ensued.

The gland was removed *in toto*, and when it was excised, a piece of grass (seed-tufts) ¾ inch long was found embedded in one of the ramifications of the excretory duct. There was slight necrosis of the glandular tissue, where the grass was imbedded. The concomitant cellulitis of the neck subsided in forty-eight hours, and the wound healed by first intention.

Plum-Stone in Rectum Causing Inability to Micturate on Account of Pain.—I was called to see a man, aged 34, who said that on the morning of the day on which he was seen, although he had frequent desire to urinate, he was unable to do so and the attempt produced sharp pain in the anus. in the anus became more severe with each attempt to void urine. There was no history of similar trouble. Abdominal examination showed a distended bladder and on rectal examination a plum-stone was found, lying point down between the sphincter internus and the sphincter externus, with the point embedded in the sphincter externus. Removal of the foreign body gave immediate relief and in a few minutes the patient voided over 30 ounces of urine. The plum-stone had been swallowed forty hours prior to the onset of symptoms.—W. F. Dey, M.D., La Grange, Ill.

Anthropologic Research in Portugal.—The facial index as studied on 585 craniums is discussed from various points of view in the big quarterly, the *Revista da Universidade de Coimbra*, 1914, iii, 314.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, AUGUST 1, 1914

THE NUTRITION OF THE NEW-BORN

During the first few days after birth the human infant experiences a well-known decrease of body weight, which is generally regarded as an entirely physiologic consequence. The average weight of the new-born male approaches 3,500 gm. (8¾ pounds); that of the female infant 3,200 gm. (8 pounds). The initial loss of weight which continues for two or three days as a rule may amount to 250 gm. or over, ranging usually between 150 and 200 gm. In explanation of the phenomenon it is ordinarily conjectured that the natural supply of nutriment soon after birth generally is inadequate. The discharge of the meconium, which may not take place until some interval after birth, is an added reason for a drop in body weight. Under normal conditions the original weight at birth is regained again by the child at the end of from eight to fourteen days; and subsequently the increments in size characteristic of growth proceed in health without interruption. Continued loss of weight or even cessation of growth with stationary conditions at this period must be looked on with suspicion. Frequently they are indexes of some pathologic condition; but when they occur in comparatively early life they merely represent a sort of inanition attributable to inadequate secretion of milk by the mother.

In a series of observations made in the maternity wards of Bellevue Hospital in New York City, Bailey and Murlin[1] found that the initial weight loss there averages over 250 gm., and that this loss is increased by lengthening the interval of feedings and lessened by the supplementary feeding of a milk mixture similar to colostrum. The infants were able to take the extra feedings without any disturbances of digestion. This has raised the question whether it would be desirable from a physiologic standpoint to furnish some artificial food together with the colostrum during the first three days of life. Analyses of second- and third-day colostrum show that its utilizable heat value averaged 65 calories per hundred cubic centimeters. To offset this pronounced food value, it appears that the average amount of breast secretion is only 14 cubic centimeters on the first day, 77 cubic centimeters on the second day, 173 cubic centimeters on the third day and from that time on gradually increasing to 372 cubic centimeters on the sixth day, hardly, in the first three days at least, an amount that would give the infant much nourishment.

Bailey and Murlin have determined the actual energy requirement of the new-born by means of a respiration incubator. The respiratory quotient reaches as high as 1.0 on the first day of life and indicates the combustion of carbohydrates. Thereafter it drops to 0.67 on the second day and remains in the neighborhood of 0.70 for the following two days indicating a condition of starvation and the combustion of fat. After the milk secretion is well established, the quotient reaches 0.90, which is the normal for a mixed diet. The average food requirement for combustion alone during the first four days of life for a large infant weighing 4.5 kg. is 1.7 calories per kilogram per hour; and for a small infant weighing 3 kg. is 2.0 calories per kilogram per hour.

Comparing the calories per hundred cubic centimeters of samples of colostrum with this requirement, the New York investigators make it evident that the infants would have to suckle at least 30 cubic centimeters at ten feedings. This is an amount that the breast does not secrete, at least until the fourth day. They conclude that feeding the new-born infants for the first three days, in addition to the breast secretion, a formula of about the same composition as colostrum would appear to be a logical proceeding not only to fulfil the energy requirement but also to supply the water lost. Even after the breasts are secreting a considerable quantity of milk, it would seem to be rational to feed these babies as often as every two or two and one-half hours during the day or eight or nine feedings in all. The suggestions here raised may seem radical to those who have looked on some of the earliest unfavorable nutritive experiences of infants as inevitable and physiologic. Perhaps they will now inaugurate a useful departure in the practical aspects of infant nutrition at this beginning of the period of growth.

UROBILIN

A group of derivatives of blood and bile pigments, containing the pyrrol nucleus, has become familiar in medical literature under the name "urobilin." That these substances have proved unsatisfactory as an aid in diagnosis and prognosis is no more than has been found true of many other supposedly characteristic functional tests in the disorders of individual organs. Many of the facts elicited by the study of abnormal conditions in the body are of decided value in diagnosis; the limitations are found when attempts are made to render certain reactions specifically and unreservedly applicable to some special pathologic situation. Even the variations in the secretion of a substance so specific as the hydrochloric acid of the gastric juice cannot always be charged to local organic or functional defects of the stomach mucosa; for not a few failures of proper secretory performance on the part of the gastric mechanism are caused by remote factors such as perverted nervous states.

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[1] Bailey, H. C., and Murlin, J. R.: The Energy Requirement of the New-Born, Proc. Soc. Exper. Biol. and Med., 1914, xi, 109.

The theories which have been advocated with respect to the origin and clinical significance of urobilin have been reviewed in elaborate detail by Drs. Wilbur and Addis[1] of the department of medicine in the Leland Stanford Junior University. There is at present no common agreement on all the points involved. The theory long maintained by Friedrich von Müller that urobilin originates from the bacterial decomposition of bile in the intestine is generally accepted. But whether urobilin may also at times have a non-enterogenous origin — whether or not it may be formed in the liver itself, or can be produced in the tissues directly or indirectly from hemoglobin — these and other questions have been raised and tentatively answered again and again. As the California clinicians remark, when such variable factors as the bacterial changes within the intestine, the absorption from it, the activity of the liver, the elimination of bile, the secretory power of the kidneys, the rate of destruction of the red blood-corpuscles, the activity of the spleen, etc., have been taken into account, it is not surprising that difficulty should arise in interpreting the findings and in correlating the ideas obtained in the laboratory with those gained at the bedside.

The formation of urobilin from the decomposition of bile within the bowel is admittedly the usual mode of origin of urobilin and urobilinogen, which may then be absorbed into the portal system and thus reach the liver. If this organ is normal the major portion of the urobilin is either destroyed or resynthesized to bile or blood pigment. When the liver parenchyma is damaged, these changes in the urobilin may not occur, and consequently the substance passes into the general circulation and is eliminated by the kidneys. On this ground the existence of pronounced urobilinuria has been interpreted as indicative of severe hepatic disorder. In the complete closure of the common duct caused by carcinoma, for instance, there is usually absence of urobilin from the urine, bile and stools.

Wilbur and Addis further accept the evidence that the diseased liver may originate urobilin either directly as a product of its cells, or indirectly from decomposition of bilirubin within the bile-passages. Patients in whom no bile is reaching the intestine may nevertheless show urobilin in large amount in the bile, and to some extent even in the urine and stools, if the liver itself is diseased or functionally deficient. The urobilin excreted in the urine and stools of such patients must be derived by the blood from the liver. Again, an increased quantity of urobilin in the stools indicates increased blood destruction. In such cases the excessive amount of urobilin in the urine is not caused by any obvious disease of the liver; but from the increase of urobilin carried from the intestine to the liver, enough reaches the kidneys to lead to an obvious urobilinuria.

The primary feature to be emphasized is that there is a close association between increase of urobilin in the urine and a disturbance of liver function. But, Wilbur and Addis conclude, even if increased blood destruction is excluded by estimations of urobilin in the stools, it is not at present possible to regard the amount of urobilin in the urine as an approximate guide to the functional efficiency of the liver. The occasional occurrence of large amounts of urobilin in the urine of patients in whom there is no reason to suspect damage to the liver, the great and irregular fluctuations of urobilin excretion from hour to hour and from day to day in cases of liver disease, and the want of knowledge as to the fate of urobilin in the blood and tissues, make it necessary to recognize that other factors than the condition of the liver and the amount of blood destruction may influence the excretion of urobilin in the urine. To evaluate these correctly for purposes of diagnosis still remains as a worthy task for the workers in clinical medicine to accomplish.

MILITARY SURGERY IN THE BALKANS

Octave Laurent, surgeon of St. John's Hospital, Brussels, who followed the troops in the Balkans for eleven months, has issued a volume[1] on the war in Bulgaria and Turkey from the point of view of a surgeon which is interesting as the most recent evidence on the fatality of modern arms and the problem of care for the wounded which follows modern battles. It contains a discussion of most of the unsettled problems as to whether the artillery or the infantry is most deadly and which is the more crippling for the moment. Laurent emphasizes above all the fact that military surgeons cannot be improvised out of the ordinary surgeons of civil life, but to be really life saving in their efforts they must have seen special service and had particular experience with gunshot wounds and military conditions.

At the beginning of the Balkan war, Bulgaria had a population of about 4,300,000, and put into the field more than 500,000 soldiers. In the first war 30,000 were killed and about 53,000 wounded. In the second war 16,000 were killed and 62,000 wounded. Thus one third of the effective force of the entire army, or 3 per cent. of the population of the country, were either killed or wounded. The deaths reached one in twelve of the whole army, one in four of the wounded and one in a hundred of the entire population. These figures serve to give some idea of what modern war means.

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[1] Wilbur, R. L., and Addis, T.: Urobilin: Its Clinical Significance, Arch. Int. Med., February, 1914, p. 235. An elaborate bibliography is appended to the paper.

[1] Laurent, Octave: La guerre en Bulgarie et en Turquie, Paris, Maloine, 1914.

In spite of the thorough training of the soldiers and the years of service to which they had been subjected, the old proverb that it takes much more than his own weight of lead to kill a man in battle held true during this Balkan war. Altogether Bulgaria used during the last war 32,000,000 rifle-bullets and 27,000,000 shrapnel balls, so that scarcely more than 1 in 200 bullets found, in the expressive phrase, its human billet. The artillery was responsible for more than half of the deaths, but less than one fifth of the wounded.

Owing to their high velocity, bullets from the modern rifle often make wounds with surprisingly few serious consequences. Laurent reports cases in which a ball traversed the brain, pierced the chest or penetrated the abdomen, with comparatively mild results. In some of these apparently dangerous cases the wounds healed promptly without any disturbing consequences or symptoms. Sometimes bones were perforated with only insignificant traces of the passage of the bullet, especially when it traversed the epiphyses. On the other hand, the fractures of the large bones were numerous and complicated and deserve special study. The mortality was distributed as follows: 55 per cent. due to wounds of the head; from 35 to 40 per cent. to wounds of the trunk, and 5 per cent. to wounds of the limbs.

Quite contrary to the usual supposition, there were extremely few serious wounds of the abdomen which called for laparotomy in the hospitals. There was a much larger proportion than might have been expected of aneurysms and especially of nerve-lesions of various kinds. Direct rifle-bullet wounds were often almost absolutely innocuous, and wounds of the head as a striking feature were followed with extreme rarity by serious deformities of the face. Amputations were rare, less than 1 per cent. of all the cases treated in the hospitals requiring it, while trephining was relatively much more frequent. The results of a second operation under chloroform of wounded soldiers whose wounds had become infected were always very discouraging.

Summing up the results, Laurent says that during the single month of July, 1913, 150,000 men were killed and wounded on both sides, and of these more than half, at least 80,000, fell on the banks of the Bregalnitsa in the six days from June 30 to July 5. He quotes with approval the remarks of a commentator on these figures who says:

> If you put a zero behind each of these numbers you will have some idea of the effective strength of the armies and the losses that must be presumed to take place in any war which would to-morrow set the armed forces of any two first-class powers of Europe on the fighting line before each other. There would be not less than 1,500,000 dead and wounded in the course of the first month.

This summary of the deadliness of modern war and prophecy as to the immediate future might very well be thought the expression of some sensational notoriety seeker, did they not occur in the midst of the story of the authoritative experiences of a distinguished Belgian surgeon, whose treatise on clinical surgery has now reached its third edition and who is an honorary and corresponding member of a number of foreign medical societies. He has given many details of the unusual cases seen in his eleven months of campaign, and a series of 300 illustrations which serve to show how serious are the conditions that develop especially from wounds of the bones and of the nervous system in modern military surgery.

THE ISLANDS OF LANGERHANS AND DIABETES

Although the correspondence is by no means complete in all the symptomatic details, it is nevertheless admittedly true that ordinary types of human diabetes quite closely resemble experimental pancreatic diabetes. Opie, in particular, has shown that diabetes in man is frequently associated with lesions of the islands of Langerhans, whereas extensive pancreatic lesions which do not involve the islands do not cause diabetes. It is frankly admitted, however, that many cases of diabetes occur in which no anatomic changes whatever can be detected in the pancreas, and that in other cases the lesions of the parenchyma plainly preponderate over those of the islands of Langerhans.

We may well admit that carbohydrate metabolism in the body is in some way bound up with the functions of the pancreas, without being able to give a final verdict whether the acinous tissue or the islands of Langerhans are the most important epithelial elements concerned in this rôle of the gland. The conflict of opinion has sometimes seemed extremely uncompromising. Some writers have insisted on including the islands, along with the parathyroids, the epithelial portions of the hypophysis and the adrenal cortex, in the category of the "glands of internal secretion." On the other hand, from among investigators of long experience in this field, we may quote the recent conclusions of Swale Vincent.[1] "Despite whatever future study may disclose in respect to the real functions of the islands of Langerhans," he writes, "their intimate anatomic relation with the zymogenous tubules, the numerous transitional forms found in all classes of vertebrates, and the transformation of alveoli into islands and vice versa—all these facts appear to furnish conclusive evidence that the islands are not organs *sui generis*, but merely an integral part of the ordinary pancreatic tissue. Whether temporary modifications into the islet tissue represent a peculiar specialization of function cannot be regarded as demonstrated at the present time."

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[1] Vincent, Swale: Ergebn. d. Physiol., 1910, ix, 489.

It would be an easy task to present a large number of opinions of both earlier and later investigators dealing pro and con with the fundamental question here at issue. In such a problem negative evidence, that is, the failure to observe anatomic lesions, is as a rule less significant than concordant positive signs of disease; for doubtless alterations which are not revealed by our present microscopic technic may occur in cells and yet cannot be discovered in the usual manner of examination. The proper attitude of the passing moment, therefore, would seem to be that of an open mind ready to receive any new evidence based on the results of investigation which bears the marks of efficiency and adequate criticism. It is not enough to repeat the experimental procedures of the past and accumulate further statistical histologic evidence. Every new research must go a step farther than its predecessor, must subject every case to suitable rigorous control, must exclude known interfering factors or complicating agencies.

In many of the earlier experiments the external secretion was prevented from escaping from the pancreas. It has been thought that the sclerosis which always follows the conventional procedure of ligation of the ducts might affect not only the acini, but also the islands. Homans[2] of the Laboratory of Surgical Research in the Harvard Medical School therefore concluded to cut down very considerably the amount of pancreatic tissue, without interference with the portions adjacent to the duct of Wirsung. Under these circumstances sclerosis and atrophy would be prevented and the animal would have preserved for digestive functions a considerable though diminished amount of pancreatic juice. It was believed that the physiologic functions of the pancreatic fragment would, though unimpaired, be taxed to their maximum; that sufficient pancreas could be removed to render the animal permanently but mildly diabetic, and that at various periods following operation, the remaining portion of the gland would show some evidence of physiologic strain.

Homans concludes that the islands of Langerhans must be deeply concerned in experimental pancreatic diabetes for the following reasons: The removal of more than three-quarters of the pancreas, leaving the main duct *in situ*, usually leads to a disappearance of secretory granules in the islands, with suggestive evidence of overactivity, without the production of diabetes. The same procedure occasionally causes a degeneration of the island of Langerhans accompanied by fatal diabetes without disturbance of the remaining acinous tissue. Whatever may be the explanation of the discrepancy between the results of duct occlusion and duct patency on the islands when only a small fragment of pancreas is retained, the fact remains that if in such a fragment the external secretion is allowed to escape freely into the intestine (as it does in most cases in man) the effect on the islands of Langerhans of diminishing the pancreatic tissue is nevertheless profound. Perhaps it is not an unfair conclusion to say that the burden of proof is beginning to fall on those who fail to see in lesions of the island tissue anything pathognomonic of diabetes.

THE TREATMENT OF CYSTINURIA

Cystinuria may fairly be classed among the rarities of medical practice. Presumably the perversion of metabolism whereby cystin, one of the amino-acid fragments of the protein molecule, is not destroyed in the body as it is in a normal person, is not so uncommon as statistics might lead one to believe. As the metabolic disorder may exist for very long periods without revealing itself by any easily detected symptom other than the presence of the unutilized cystin in the urine, the discovery of the cases becomes more or less fortuitous. Only when urinary concretions arise to direct attention to their cause, or when the presence of cystin is detected by chance in a routine examination of the urine, does the anomaly come to the knowledge of those who are interested in its cause and treatment.

From the point of view of the patient the chief problem in connection with cystinuria is either to decrease the output of cystin or to increase its solubility in the urine—or both—with the aim of avoiding the impending danger of calculi. The pronounced insolubility of cystin in urine of the usual reaction makes the possibility of attacks of "kidney colic" and related consequences an ever-present one. It has long been known that the output of cystin can be decreased by a diminution of the metabolism of its mother-substance, protein. In the entire absence of any intake of albuminous foods, the urinary excretion of cystin is reduced to an endogenous level, represented in an illustrative case in the literature by 78 mg. a day.

The fact that cystin is soluble in alkalies led Klemperer and Jacoby[1] of the Krankenhaus Moabit in Berlin to study the results of alkali administration in cystinuria, precisely as it is sometimes practiced in urate "diathesis." In a suitable case it was observed that the deposited cystin sediment promptly decreased in amount and soon completely disappeared from the urine following the daily ingestion of from 6 to 10 gm. of sodium bicarbonate. From the point of view of preventing the precipitation of cystin and consequent formation of calculi, this treatment was evidently successful. Incidentally, it further developed that even dissolved cystin entirely disappeared from the urine as the result of the alkali therapy. The explanation of this most unexpected result is by no means clear. It is known, of course, that cystin is unstable in alkaline fluids and decomposes therein. One can hardly assume, however, that the alterations, small at best, which the body-fluids can undergo with respect to alkalinity as the result of such dosage[2] are adequate to account for the profound effect noted. As yet the data are limited to a single patient and should not be made the basis of an unwarranted hypothesis. The rarity of the cases of cystinuria, however, and the prominence of the clinician and chemist who have reported the findings, are taken as a justification for the record of this seemingly unique outcome of alkali therapy.

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[2] Homans, John: Degeneration of the Islands of Langerhans Associated with Experimental Diabetes in the Cat, Jour. Med. Research, March, 1914, p. 49.

[1] Klemperer, G., and Jacoby, M.: Zur Behandlung der Cystinurie, Therapie der Gegenwart, 1914, lv, 101; abstr., The Journal A. M. A., April 11, 1914, p. 1207.

Current Comment

RAILROAD WATER-SUPPLY IN MINNESOTA

The United States Public Health Service has just issued a most interesting report designated as Reprint 191, containing a summary of the inquiry into the character of railroad water-supply in Minnesota, made by the director, the assistant director and the chemist of the laboratory division of the Minnesota State Board of Health. Under the act of Jan. 25, 1913, common carriers engaged in interstate traffic are required to furnish water for the use of passengers which shall be certified to by the state or municipal health authority within whose jurisdiction it is obtained. This provision made it necessary for the state authorities to secure accurate information regarding the sources and character of the railroad water-supplies. In undertaking this investigation, each railroad in Minnesota was asked to submit a list of localities from which water was taken for drinking purposes on its trains. As the replies were received, the different localities were listed and the state divided into districts. Suitable methods for inspection of the source of the supply and analysis of the water itself were then devised. It was found that the railroads secured water for their trains from sixty-one different localities in the state. Of these, there were eleven dug wells, twenty-nine drilled wells and two driven wells. Water was taken from springs in five cases and from mine drifts or shafts in two, making a total of forty-nine cases in which the water is taken from underground sources. In nine cases surface water was used, five of the sources being lakes, three rivers and one creek, while in three cases the source was a combination of drilled wells and river, lake or spring. Regarding the results of the field investigation, in thirty cases the source of supply was found satisfactory and in thirty-one unsatisfactory, while the results of the water analysis showed the water itself to be satisfactory in forty-three cases and unsatisfactory in seventeen. This brought out the interesting fact that neither field survey nor water analysis can be relied on alone to determine the sanitary value of a water-supply. The report says: "If analytical results alone were depended upon to determine the sanitary value of these water-supplies, forty-three would have been found satisfactory and seventeen unsatisfactory. On the other hand, when the field investigation is also taken into consideration, only twenty-nine are satisfactory while thirty-two are unsatisfactory." The explanation of this apparent discrepancy is that in many cases, endorsement of the water-supply was withheld, not because the water was polluted at the time of the investigation, but because the inspection showed avenues by which pollution might easily occur. The summary of the report shows that over 50 per cent. of the supplies investigated (thirty-two out of sixty-one) could not be endorsed and that of these, thirty-one were found to be unsafe by the field investigation, while only sixteen showed analytical evidence of pollution. The report, therefore, concludes that "a careful and adequate field investigation in addition to the analytical investigation is required before a satisfactory opinion should be ventured concerning the safety of a given water-supply." An encouraging feature of the report is the final statement that practically all of the condemned water-supplies can be converted into safe supplies at a relatively small cost by following out the specific recommendations made in each case. This statement leaves no room for evasion of responsibility on the part of the railroads. Practically every railroad water-supply in Minnesota that is not already safe can be made so at a small expense. Pure water should be demanded by the public, not only on all of the railroads of Minnesota, but also on those throughout the country.

SEEING OURSELVES AS A MEDICAL PUBLISHER SEES US

To the public all medical journals are medical journals — to the intelligent, thinking doctor, they are not. The *Medical Standard* is one of those that are not. It is published by George P. Engelhard of Chicago, a gentleman who looks at the medical profession from two angles: one, as a means of making money for Engelhard; another, as something on which to vent his spleen when defending the "patent-medicine" interests. When the "patent-medicine" men's organization—the Proprietary Association of America—met a few weeks ago in New York at its annual convention, Mr. Engelhard, as usual, was on hand and delivered an address. This address has been reprinted and is being distributed. We give some choice excerpts for the purpose of letting physicians know just what Mr. Engelhard thinks of them:

> "Go once to the doctor, and you will go a dozen times. (Applause.) If you are not sick when you go, you are pretty sure to be sick before you get through."
>
> "What high and holy character attaches to the men of the medical profession that their seal must be upon everything pertaining to the health and life of the people before it is safe?"
>
> "It is a part of the medical ethics that a consulting physician shall never question the infallibility of the doctor who has called him in. You never find outside the sacred precincts of the medical meeting room the truth told about the doctors. They will tell the truth about themselves among them-

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[2] Some Newer Aspects of Acidosis, editorial, The Journal A. M. A., May 30, 1914, p. 1726.

selves but they want no hearing by or of reform from outside agencies. Anything to deify the medical man, anything to deify the function of the physician."

"The menace to American life and health to-day, I repeat, is not in the proprietary ["patent medicine"] industry . . . but the crowning menace to the health and life of the people of America to-day is incompetency or worse in the regular medical profession. (Applause.)"

And this, gentlemen of the "regular medical profession," is what George P. Engelhard, publisher of an alleged medical journal, the *Medical Standard*, and of an alleged drug journal, the *Western Druggist*, thinks of you.

ADVERTISING BUSINESS PURIFIES ITSELF

In the news columns of a recent issue,[1] reference was made to the *"Printers' Ink* bill" for the regulation of advertising. This bill prepared originally by the *Printers' Ink* Publishing Company has now been passed by twenty states, eight of which (Ohio, Washington, Rhode Island, Minnesota, North Dakota, New Jersey, Nebraska and Louisiana) have adopted the model bill verbatim. In the other twelve (Connecticut, Indiana, Iowa, Maryland, Massachusetts, Michigan, New York, Oregon, Pennsylvania, South Dakota, Utah and Wisconsin) the model bill has been amended by the addition of the word, "knowingly," or "willingly," which materially weakens the measure. The bill has been passed by the legislature but vetoed by the governor in Maine and Colorado, defeated by the legislature in Virginia, Missouri, California, Kansas and Illinois and unfavorably reported by the committee in South Carolina. This bill was endorsed by the House of Delegates of the American Medical Association in Minneapolis in 1913. It is short but effective, providing that any person or organization making any false statement in advertising any goods for sale shall be guilty of a misdemeanor. A bill similar in intent but different in phraseology has been introduced into the House of Representatives by Mr. Kreider of Pennsylvania. This bill, known as H. R. 11016, makes it a misdemeanor for any person or organization to knowingly make or disseminate any statement concerning the quantity, quality, value, merit, use, present or former price, purpose or motive of a sale of any securities, merchandise, articles, commodity or services, or concerning the method or cost of production or manufacture of such articles or the manner or source of purchase of such articles that enter into interstate or foreign commerce which is untrue or calculated to mislead. Mr. Kreider's bill also includes the weakening word, "knowingly," presence of which makes it necessary to prove actual knowledge on the part of the advertiser in order to secure conviction. The adoption of the *Printers' Ink* bill or its equivalent by Congress and by all of our state legislatures will mean a new era of business honesty. The Journal of the American Medical Association is, of course, primarily interested in securing honest methods and products in its own peculiar field, namely, that of medicinal preparations offered for sale either to the profession or to the public. Honesty in business, however, is not readily divisible into classes. The leaven of sincerity must permeate the entire mass. The most far-sighted and progressive business men have recognized that honesty and truthfulness are indispensable assets for the successful conduct of any business. The strongest force for the purification of advertising to-day is the growing determination on the part of advertising men themselves to put an end to the deception and fraud which have so long characterized some phases of this business.

IODIN IN SPECIFICALLY INFLAMED TISSUES

The detection of iodin as a normal constituent of the animal body and its peculiar localization in the thyroid glands was the fortunate outcome of an accidental observation by Baumann in 1895. The credit for such "lucky strikes" in science is not to be minimized because they represent unexpected findings. Keen observers have contributed quite as much to the advancement of knowledge as have the more systematic routine investigators. A recent instance of a chance discovery is reported by Lewis and Krauss[1] from the Henry Phipps Institute of the University of Pennsylvania. In examining the relative distribution of iodin-yielding drugs in healthy and diseased tissues, respectively, they ascertained that tuberculous tissue derived from animals to which no iodin preparation had been knowingly administered may contain amounts of iodin very appreciably higher than the normal control of the same animal. For example, the tuberculous cornea of rabbits inoculated in one eye with tubercle bacilli was found to have as much as 2.67 mg. of iodin per gram of dry tissue, whereas the healthy cornea was iodin-free. This apparent deposition of an element of supposed physiologic potency in specifically inflamed tissue raises some novel questions in pathologic chemistry, among others the influence of various articles of diet and conditions of various organs, particularly of the thyroid, on the content of iodin in the tissues.

Medical News

ARIZONA

Personal.—Dr. Frank W. Randall, Douglas, has tendered his resignation as city physician. He is serving as lieutenant colonel in the Mexican Constitutionalist Army, under Cabral.

ARKANSAS

Personal.—Dr. William C. Tipton, Mountain Home, has been appointed by the State Board of Charities to be physician at the Confederate Soldiers' Home, Little Rock, to relieve Dr. Mason, who will go to Eagle Springs for his health.——Drs. Isaac N. McCollum, Joseph S. Westerfeld and Cecil H. Dickerson have been appointed members of the Conway Board of Health, the first two being respectively chairman and secretary.——The appointments of Drs. J. Hal Neal, Jr., Fort Smith, and John T. Perry, Greenwood, as health officers of their respective districts, have been confirmed by the state board.

CALIFORNIA

Personal.—Dr. Alexander S. Kelly, Oakland, has been reelected president of the Board of Education.

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[1] Model Vital Statistics Bill, Medical News, The Journal A. M. A., July 18, 1914, p. 251.

[1] Lewis, P. A., and Krauss, R. B.: The Iodin Content of Tuberculous Tissue, Jour. Biol. Chem., 1914, xviii, 313.

City Relief Home to be Enlarged.—Superintendent O. M. Wallenberg of the City Relief Home, San Francisco, having complained of the congested condition of that institution, plans for enlarging it have been ordered prepared.

Action to Protect Water.—The San Diego city council has been notified by the members of the county medical society that filtration of the city water is necessary to protect the city against communicable diseases. Samples of water from various localities have shown dangerous conditions.——The San Francisco Board of Health is considering a protest made against the contamination of the watershed in Pleasanton Valley by a real estate company, which plans to sell the watershed to the city, and the land to farmers.

Escape of Lepers from Hospital.—The escape of five lepers from the Los Angeles County Hospital is to be made the subject of grand jury investigation, according to the county health commissioner, Dr. Edmund O. Sawyer. One Japanese and four Mexican lepers escaped during April and June, owing, it is said, to the inability to maintain proper supervision. There are now four lepers in the hospital colony, but it is said to be utterly impossible to keep a satisfactory watch over them. The occurrences are considered additional reason for the establishment of a national leprosarium.

ILLINOIS

Personal.—Dr. Claude B. Higby, Eureka, has sold his practice to Dr. Robert H. Smith of Seaton, and will leave soon for Los Angeles, with his family.——Drs. Robert C. Bourland, John E. Tuite and Dudley W. Day, Rockford, have been appointed medical examiners of the pension board.

Health Inspection of Railroad Depots.—The State Board of Health field inspectors are to begin a tour of inspection of railroad depots. They will consider especially sanitation of toilet-rooms, water-supply, cleanliness of waiting-rooms, cuspidors, sanitary conditions of restaurant kitchens and eating-places, ventilation and disposal of waste, and conditions of the stock-loading pens in the vicinity.

INDIANA

Model Tuberculosis Cottage Erected.—A portable cottage for tuberculosis patients has been erected in Goshen by the Elkhart County Anti-Tuberculosis Society. A second one has been donated by the manual training school of Bristol and will be erected soon.

Howard County to Issue Book on Care of Babies.—Dr. Burton A. Thompson, county health officer, is about to issue a book on the care of infants—their food, clothing, baths and common diseases—for free distribution among mothers, with the purpose of cutting down the death-rate among children.

Training School for Nurse-Maids.—Dr. Eugene B. Mumford, who has recently returned from postgraduate work in the East, and director of the milk clinic of the Children's Aid Association, Indianapolis, has started a training school for nurse-maids. They expect to train girls of good character to keep babies well, but not to take care of sick children.

Violation of Medical Practice Law Charged.—Affidavits against Mrs. Ada Converse and Miss Edith Cloyd, Christian Science practitioners, charging them with violating the state law for practicing medicine without a license, have been filed at Richmond, Ind., The reason of this was the death of Dorothy Murray, a 5-year-old girl, who died of diphtheria and had been treated by them.

Personal.—Dr. Harry S. Mackey, Indianapolis, has been appointed physician for the new inebriate ward at the Marion County workhouse, which has been opened at a cost of $1,800.——Drs. William F. Clevenger, Thomas Hood and J. Rilus Eastman, Indianapolis, have sailed for Europe to spend the summer.——Dr. Charles H. Loomis, Laporte, who has been ill in Christ Hospital, Cincinnati, for several weeks, has returned to his practice.——Dr. Darmon A. Rhinehart of the department of anatomy of the University Medical School, Bloomington, has resigned his position to accept that of head of the department of anatomy in the Medical School of the University of Arkansas, Little Rock.

IOWA

Tuberculosis Hospital Opened.—The Scott County Tuberculosis Hospital, which cost $75,000, was opened July 4. It is intended to give fresh-air treatment.

Health Officers Given More Power.—The State Board of Health, July 9, adopted a new rule giving health officers absolute power in handling cases of quarantine for contagious diseases.

New Officers.—Austin Flint Cedar Valley Medical Society, at Cedar Falls, July 14-16: president, Dr. George Kessel, Cresco; vice-president, Dr. Thomas U. McManus, Waterloo; secretary, Dr. Charles F. Starr, Mason City (reelected), and treasurer, Dr. Will L. Hearst, Cedar Falls. The next meeting of the society will be held in Waverly, November 10.

Changes in Fee-Bills.—The Clarke County Medical Society, July 2, made the following changes in fees, which became effective July 15: day calls in town, $2; day visits in country, $2 with mileage as follows: first mile $1 and each additional mile 50 cents; night visits (9 p. m. to 6 a. m.) 50 per cent. additional; confinement cases (normal), $15 in town, with mileage as shown in country; consultations in town, $10, with mileage as above in country; life-insurance examinations; $5, anesthetics in town $10, with mileage as above in country.

Personal.—Dr. James R. Guthrie, Dubuque, dean of the College of Medicine of Iowa University, and member of the faculty during twenty-five years, has resigned from the Iowa Board of Education, and has been made dean emeritus of the College of Medicine. Dr. Lew Wallace Dean, Iowa City, has been elected to succeed Dr. Guthrie.——Dr. Henry F. Steinle, Burlington, is in Europe.——Dr. Roscoe P. Carney, Davenport, has been selected as temporary head of the Scott County Public Hospital.——Dr. Edward E. Dorr, Des Moines, has resigned from the executive committee of the Associated Charities.

KANSAS

Personal.—Dr. Wilson R. Priest, Concordia, has been appointed consulting surgeon to St. John's Hospital, Salina.

Sanitary Survey of County Schools.—Dr. Jacob L. Everhardy, Leavenworth, health officer of Leavenworth County, has been personally inspecting all school houses in the county, and has addressed circular letters to the clerks of the schools instructing them as to the keeping of the schools in a sanitary condition.

MARYLAND

New Health Offices Open in September.—The new city health offices to be occupied by the Health Department, in charge of Health Commissioner Nathan R. Gorter, will be ready for occupancy by September 1. All the subdepartments except those of bacteriology and chemistry are now located in the new building. The general public will be offered an early opportunity to view the facilities for work of the department.

Health Survey for Dorchester County.—Surgeon Leslie L. Lumsden, Public Health Service, and Dr. John S. Fulton, secretary of the State Board of Health, are to make a thorough inspection of health conditions in Dorchester County. It is expected ultimately to cover the entire state in this manner. Recommendations will be made as to general improvements in sanitation. Dr. William H. Welsh, president of the state board, in now in Europe. On his return the board will take up the matter of appointments for six additional health officers. At the last session of the legislature, the state was divided into ten sections, and provisions made for a health officer for each district. So far but four officers have been appointed.

MASSACHUSETTS

New Heads for Boston Dispensary.—Drs. Henry M. Chase and Hilbert F. Day have been appointed surgeons in charge of the Boston Dispensary, by the board of managers of that institution, to fill the vacancies left by the retirement of Drs. Benjamin Tenney and John Homans, who will continue as consulting surgeons.

Floating Hospital Celebrates Bennet H. Nash Day.—One hundred and four beneficiaries were taken on the floating hospital recently, in honor of Bennet H. Nash day, named by Mrs. Nash in memory of her husband, who was the friend of that philanthropy. Several other days have been named for the gifts of various philanthropic citizens. By this method the work of the floating hospital has been considerably extended. There are sixty-nine nurses on the staff of the hospital this season, more than ever before.

Dr. A. G. Rice to Preside at Open Air School Association Session.—Preparations are being made for the Philadelphia meeting of the American Open Air School Association, of which Dr. Allen G. Rice of Springfield, Mass., is president and chairman of the board of directors. The session will be held in conjunction with that of the Fourth International Congress on Home Education and the efforts of the committee on program just now are directed in securing papers from teachers, investigators, physicians and others dealing directly with results secured through fresh-air class rooms.

Association for Prevention of Infant Mortality to Meet in Boston.—The first program of the National Conference of the American Association for the Study and Prevention of Infant Mortality, to be held in Boston during November, 1914, has just been announced. All of the general meetings are to be open to the public; the first will be held at the Harvard Medical School, Thursday afternoon, November 12. This meeting will be a joint session with the Massachusetts State Conference of Charities, which has moved the date of its convention forward in order to cooperate with the first named association.

MISSISSIPPI

Toxins and Vaccines to be Supplied at Cost by State Board.—The State Board of Health has voted to distribute to the public at cost vaccines and toxins, including diphtheria and typhoid toxins and vaccines.

Personal.—Dr. Charles A. Sheely, Gulfport, has resigned as a member of the school board.——Dr. Noel C. Womack, Jackson, has been appointed a member of the State Board of Health to succeed Dr. Giles S. Bryan of Amory, who has resigned.——Dr. Joseph M. Ware has been appointed to perform the duties of city physician during the absence of Dr. James P. Wall, who left for Europe, July 7.

Campaign for Free Tuberculosis Dispensaries.—The Mississippi Anti-Tuberculosis Campaign committee, in cooperation with the Federation of Woman's Clubs, is carrying on a crusade for the establishment of local free dispensaries and visiting nurses for each town in Mississippi. Large signs, moving-picture slides, literature and lectures are to be provided, and the expenses of the campaign are to be paid for out of the proceeds of the sale of Red Cross Christmas stamps in the state.

MONTANA

Montana State Medical Association Holds Thirty-Sixth Session.—The thirty-sixth session of the Montana State Medical Association convened in Lewistown, July 8, 1914. President W. P. Mills presided and in his opening address reviewed recent progress in medicine and surgery. The scientific discussion which was of unusual interest included papers on every phase of medical study. Special addresses were delivered by Dr. Justus Matthews, Rochester, Minn.; Dr. J. F. Golden, Chicago, Ill., and Dr. C. E. Sears, Portland, Ore. During the session entertainments were numerous, including a 70-mile auto ride over the beautiful Judith Basin and a banquet. The following officers were elected: president, Dr. J. H. Irwin, Great Falls; vice-presidents, Dr. J. C. Schapps, Butte; Dr. C. F. Jump, Bozeman, and Dr. P. L. Greene, Livingston; secretary-treasurer, Dr. E. G. Balsam, Billings. Bozeman was chosen as the next place of meeting.

NEBRASKA

Personal.—Dr. J. S. Butler, Superior, has filed an announcement of his candidacy for state senator.——Dr. George Tilden, Omaha, for over forty years alienist of the county board of insanity, has resigned owing to ill health following the death of his wife. He has notified the directors of the Old People's Home that he will endow it with a fund of $5,000, in accordance with the wishes of his wife.——Dr. Samuel K. Spalding has been appointed to fill Dr. Tilden's place on the board of insanity.

NEW JERSEY

Hospital Officials Elected.—The Camden County Tuberculosis Commission elected Dr. Lee J. Hammett, Glen Gardner, as superintendent of the county tuberculosis hospital.

Paterson Building New Hospital.—Ground was broken July 20, in Paterson, for the new institution to be known as the Nathan and Miriam Barnert Hospital. The plot consists of sixteen city lots in the finest section of the city, and is the gift of former Mayor Barnert, who will finance it completely. Brief exercises were held in connection with the inauguration of the first work on the institution. The complete outlay approximates $250,000.

Tuberculosis Sanatorium Nearing Completion.—The new tuberculosis sanatorium of Camden County at Ancona is now being fully equipped with sun porches and approaches, and it seems that no more beautiful or healthful spot could have been chosen than the eleven acres of land which are now being used. The furnishing and equipment of the various buildings are being purchased, and it is expected that the building will be occupied in a short time.

NEW YORK

Reciprocity between New York and Virginia.—Virginia and New York have drawn up a reciprocity agreement for the mutual endorsement of each other's medical licenses, providing the applicants have complied with all the specified requirements.

New York City

Personal.—Dr. and Mrs. John Hammond Bradshaw, Drs. James B. Conant, Joseph Sheehan and G. Randolph Manning have sailed for Europe.

St. John's Guild Asks Aid.—The Seaside Home and the Floating Hospital of St. John's Guild, which last summer cared for 57,887 babies, children and mothers, is sending out a strong appeal for financial assistance in carrying on its work.

To Study Ptomaine Poisoning.—The Department of Health announces that as it is very difficult to learn how prevalent ptomaine poisoning is in this city since the only opportunity the city has to study the subject is when there are a considerable number of cases and the newspapers call attention to them. The department will welcome reports of suspected cases of bacterial food poisoning from private physicians, and if requested will gladly undertake special investigations, both epidemiologic and bacteriologic.

Free Health Topics Movies.—The Department of Health has begun its moving picture exhibitions in the parks and on the recreation piers of the city. In all twenty shows will be given, ten in Manhattan, two in the Bronx, six in Brooklyn, and one each in Long Island City and Flushing. In Manhattan and the Bronx the department will be assisted by the Tuberculosis Committee of the Charity Organization Society; in Brooklyn and Queens by the Tuberculosis Committee of the Brooklyn Bureau of Charities. On the occasions of the exhibitions many pamphlets on the prevention of tuberculosis are circulated.

Bureau of Child Hygiene Asks Increased Appropriation.—The plans of the Bureau of Child Hygiene of the Department of Health for the year 1915 are now being formulated and the bureau will request a budget allowance of $554,670, or $123,780 more than this year. The increase asked for is to provide for nine additional medical inspectors, three surgeons, nine dentists and eighty-four nurses. The Bureau of Welfare of School Children of the New York Association for Improving the Condition of the Poor is supporting the Department of Health in this request.

Planning a Bureau of Public Health Education.—The Board of Health is to include a Bureau of Public Health Education as soon as a director for the bureau has been selected through examination by the civil service commission. The director, in order to qualify, must have a degree from a medical school, must have been engaged in public health work and should have some experience in editorial work. The position will pay $5,000 a year. It is said that New York is the first municipality in the world to employ a director of public health education.

To Investigate the Patent Medicine Business.—Dr. Sigismund S. Goldwater, commissioner of health, has announced that he has discovered an old section of the sanitary code which forbids the sale of fraudulent proprietary articles and that a systematic investigation of the patent medicine business would be begun at once. It is proposed to insist that the manufacturer of a patent medicine name the ingredients in the mixture and it is believed that public opinion is sufficiently enlightened to support this movement and to drive useless nostrums out of the market when their ingredients become known.

Insurance Company Opens Sanitarium.—The Metropolitan Life Insurance Company dedicated its new sanatorium at Mt. McGregor, 9 miles from Saratoga, on June 20. The plant consists of a group of cement buildings, including several open-air wards, an infirmary and several other buildings necessary to the administration of the institution. The sanatorium was built under the direction of Dr. S. Adolphus Knopf and Dr. John H. Huddleston, and cost $1,000,000. Among the speakers at the dedication services were Dr. Abraham Jacobi, Senator Brackett of Saratoga, Dr. Haven Emerson and L. P. Cox, president and manager of the Association of Life Insurance Presidents. The fact that 20 per cent. of all the mortality on the company's books was due to tuberculosis led the officers to establish this institution, which it is hoped will act as a lesson to policy holders, the employees of the company and to the public, and it is believed that merely as a business stroke it will prove one of the most valuable assets of the company.

Increase in Rabies Arouses Health Department.—During the first five months of 1914 there has been a decided increase in the number of cases of rabies in this city. In this time there have been 40 cases of rabies in the Bronx against 45 for the entire year 1913; in Manhattan there were 73 cases against 110 for 1913; in Queens there were 28 cases against 35 for the entire year of 1913; Brooklyn is the only borough not showing an increase and here there have been 19 cases reported for the first five months of 1914 against 73 for 1913. Thus far this increase has not caused a corresponding increase in the number of cases among human beings, but Dr. Sigismund S. Goldwater is working for an amendment to the present city ordinance which provides that dogs must be either muzzled or kept in leash during June, July, August and September. The objection to this part of the ordinance is that it limits the control of dogs to the hot months. The ordinance further states that dogs found at large may be taken up by the police or poundmaster and taken to the city pound, but this part of the ordinance is a dead letter because the city has no pound and no poundmaster. The new ordinance will provide for the establishment of a pound. Last year 60,000 dogs and 200,000 cats were taken up by the Society for the Prevention of Cruelty to Animals and it is stated that this is ten times the number taken up and disposed of in any previous year.

NORTH DAKOTA

Dedication of Tuberculosis Cottage.—A fully equipped cottage for the use of tuberculosis patients was dedicated at the State Sanatorium, Fargo, June 13, by the Arch Masons and Grand Chapter of the Order of the Eastern Star.

OHIO

Personal.—Dr. Ernest Crockett, Ashtabula, has been appointed coroner of Ashtabula County to succeed Dr. R. J. Baxter, Conneaut, resigned.

Leper to be Deported.—Salvatore Paluso, the leper at the Cleveland City Hospital, was deported to Italy by the United States government, July 20.

Health Board Resigns.—At the monthly meeting of the Adelphi Board of Health, July 16, four members of the board presented their resignations, to become effective August 1. The other member resigned some time ago. The resignations are said to be caused by no grievance, but were presented merely for personal reasons.

State Sanitation Statutes Supersede Those of Municipalities.—According to the ruling of Attorney-General Hogan, while Ohio cities with home-rule charters are exempt from some state laws, they are subject to all health laws involving police power, and are without authority to make and enforce regulations inconsistent with them. Orders of the state board are held to supersede those of city boards in all matters pertaining to the quarantine of individuals and public conveyances and against other cities. The attorney-general holds that if the city were threatened with an epidemic, the state board and not the city board has the right to impose quarantine on vessels, railroads, street-cars and private conveyances. Such quarantine ordered by the city board is ineffective unless approved by the state board.

OREGON

Personal.—Dr. Julius F. Neuberger, Portland, has been appointed assistant surgeon in the navy and assigned to duty on the *Colorado* to relieve Assistant Surgeon Percy F. McMurdo, also of Portland, who now returns to civil life.

PENNSYLVANIA

Reading Visiting Nurse Report.—At the July meeting of the Visiting Nurse Association of Reading, the report of the supervisor for the year showed that 803 visits had been made; 97 new patients enrolled; 8 discharged as cured; 52 as improved, and 13 sent to hospitals. The total number of deaths reached 7.

New Quarantine Hospital.—A new hospital for the care of immigrants suffering from the less serious contagious diseases is to be erected at the State Quarantine Station at Marcus Hook. The old building, where small-pox and cholera patients are now confined, will continue for that use and the new building will accommodate about 100 beds.

Philadelphia

Hospital News.—A contract has been awarded for the erection of a ward dispensary for the Germantown Hospital. The addition will be one story high, of structural steel and will cost about $30,000.

Baby-Saving Stations.—To aid in the summer campaign of baby-saving settlements, hospitals and private charities have established baby clinics and bureaus of information for mothers, all under the control of the Babies Welfare Association, the central bureau being in City Hall.

Personal.—Dr. John H. Girvin sailed for Europe July 21. ——Dr. George de Schweinitz has resigned as ophthalmic surgeon at the Philadelphia General Hospital.——Dr. Edward A. Shumway has been appointed by Dr. Richard Harte, the director of public health and charities, as honorary ophthalmic surgeon to the Philadelphia General Hospital.

Sale of Beer Decreasing.—According to the report of the Internal Revenue Department for the First District for the year ending June 30, Collector Lederer was in receipt of taxes amounting to $3,249,358.75 as compared with $3,318,061.50 in 1913, making a decrease of $68,702.75. The tax on spirits, however, showed an increase of $276,049.37, due principally to the use of alcohol in industry and arts. The tax on cigars and cigarettes for 1913 was $2,699,091.57 and for 1914, $2,763,884.58; that on tobacco for 1913 was $1,403,665.20, for 1914, $1,679,714.57.

UTAH

State-Wide Clean-Up Contest.—The Utah Development League is conducting a clean-up contest among the various cities of the state. The scoring is to begin the week of August 17 and will be on fourteen different points. The league sends public speakers to local committees to arouse interest, when desired.

Building Out-Door Tuberculosis Ward.—An open-air tuberculosis ward has been conducted during the summer on the roof of the Salt Lake County Hospital. A tent colony was established with fourteen patients. The experiment has proved so successful that the county commissioners have voted to erect a large wooden building on the plan of a portable summer house, to replace the tents, the upper portions being open and screened but equipped with windows to be raised or lowered as desired. The building is to be constructed as soon as possible.

VIRGINIA

State Board of Health Appointments.—Governor Stuart has appointed the following members of the State Board of Health: first district, Dr. Samuel W. Hobson, Newport News; second district, Dr. Otho C. Wright, Jarratt; eighth district, Dr. William M. Smith, Alexandria.

WASHINGTON

Personal.—Dr. Deshler F. Sells, Spokane, has been reappointed county physician.——Dr. Frank C. Robinson has been appointed temporary physician of the Walla Walla prison, vice Dr. Lawrence R. Quilliam, resigned.

Prohibition of Street Sale of Ice-Cream and Soft Drinks.—After investigating the conditions under which ice-cream and soft drinks are sold by street venders, Dr. John S. McBride, health commissioner of Seattle, has prohibited all such sales, except those of soft drinks in bottles.

WEST VIRGINIA

Honor Veteran Physician.—Over a hundred persons of Moundsville and surrounding towns united recently in giving a banquet in honor of Dr. George W. Bruce, on the occasion of his eighty-seventh birthday. Dr. Bruce has been practicing in West Virginia for sixty-five years.

WISCONSIN

Public Comfort Stations to be Established.—As a result of a survey of Milwaukee, made by Health Commissioner Ruhland to determine the need of the establishment of public comfort stations, Dr. Ruhland has recommended the establishment of fifteen stations at various points throughout the city.

Medical Inspection in Fond du Lac.—Final measures are being taken to provide for the medical inspection of the public schools of Fond du Lac. Information is now being secured concerning methods used in other cities, and the local medical society will take steps to provide physicians for this important work.

Milk Ordinances Won by Milwaukee Health Department.—The last opposition to the efforts of Health Commissioner George C. Ruhland to enforce the ordinance for the tuberculin test of milk in Milwaukee was overcome at the last meeting of the common council judiciary committee, and an ordinance was submitted by Alderman W. C. Wehe which provides not only for the tuberculin testing of all cattle producing milk for use in Milwaukee, but also requires pasteurization. The ordinance has been referred to the city attorney by a vote of three to two. This action kills the ordinance introduced to provide for the pasteurization as an alternative for the tuberculin testing, and gives the Health Department a free hand for the enforcing of the tuberculin ordinance.

Conference of Health Officers.—Over seven hundred health officers of the cities, towns and villages of Wisconsin convened recently in the capitol to consider questions of disease prevention. Dr. Cornelius A. Harper of the State Board of Health presided. One of the subjects which received considerable attention was that of the milk-supply and its relation to tuberculosis, the assembly being almost unanimously of the opinion that this disease might be contracted by the use of contaminated milk. The subject of trachoma was treated by Surgeon Taliaferro Clark, Washington, D. C., of the Public Health Service. The whole-time health officers were generally approved especially in their work in the towns of Milwaukee and La Crosse. Rural sanitation and the relation of health officers to infant mortality had conspicuous places in the valuable discussion.

GENERAL

Trachoma in the Carolinas.—The Public Health Service following up its work in Kentucky, West Virginia and Virginia, has made a trachoma survey in the mountain sections of North and South Carolina. In the report of Surg. Albert D. Foster in *Public Health Reports* July 10, 1914, the results of this work are given. It was found that trachoma exists in North Carolina in three different localities, although the disease is not widespread. At Cherokee, N. C., measures had already been taken to determine the presence of the disease and to control its spread. Foreign immigration was not found to be a factor in the introduction of the disease. The negro race in the two Carolinas is practically free from the disease.

The Plague Situation.—Up to time of going to press of The Journal for July 25, there had been reported seven cases of plague in New Orleans. Since that date, six additional cases have been discovered. Case 8 is that of C. J. Seaman, white, a man 28 years old, who lived at 2845 Baronne Street, and worked in a clothing store at 629 Canal Street, between Exchange and Royal. He sickened July 16, with a left femoral bubo and was removed to the Isolation Hospital, July 20. Case 9 is that of Regina Schmitt, white, a German woman, aged 73. She is a grandmother to Helen Soell, Case 6. She sickened July 20 and was seen July 21. Death occurred July 23, and the diagnosis was confirmed at necropsy. Case 10 was William Ernst, a white man aged 50, who lived at 4528 Constance Street and worked in a saloon at Lafayette and Fulton Streets. Case 11 was that of Joseph Schmitt, a white male aged 41. He worked as janitor at 532 Camp Street, whence came also human cases 6 and 9. He sickened July 24. Case 12 was Joseph C. Williams, a colored male aged 24, residing at 1523 Arts Street, and working at 611 Commerce Street, between Lafayette and Girod Streets. He sickened July 23 with right femoral and inguinal buboes. Case 13 was Rosie Southern, a colored girl aged 16, residing at 1800 Bienville Street and who does housework at 1904 Bienville Street. She sickened July 22. There have been four deaths in the thirteen reported cases.

The following table shows the addresses from which rodent cases have been taken. Over 9,000 rats have been examined:

Case No.	Address	Date
1	1904 Magazine Street	July 16, 1914
2	Burgundy Street	" 16, "
3	1529 Religious Street	" 16, "
4	525 So. Peters Avenue	" 17, "
5	424 So. Rampart Street	" 17, "
6	Dumain St. Wharf	" 21, "
7	819 Antonine Street	" 22, "
8	511 St. Ann Street	" 24, "
9	1531 Magazine Street	" 25, "
10	117 North Liberty St.	" 26, "
11	1171 Annunciation St.	" 26, "
12	518 Barracks Street	" 26, "
13	Stuyvesant Docks	" 27, "
14	1823 Second Street	" 27, "

The fight against the plague is continuing, and practically every measure known for securing wide publicity in education has been taken. The various ordinances previously reported have passed the committee of the Board of Health, and there is every indication of their final passage. Display cards are being used in the street-cars, and in moving-picture shows. Garbage collection service has been improved and permanent incinerators have been ordered.

Addresses have been made this week before the following bodies: Hotel and Restaurant Men's Association; Y. W. C. A.; White Long Shoremen's Union; Master Bakers; Transportation interests; LaSalle School; Brewery Workers; New Orleans Funeral Directors' Association, Street Car Employees, New Orleans policemen, and various other bodies.

Outgoing maritime quarantine stations have been established at West End and Spanish Fort for the purpose of fumigating vessels from Old and New Basins.

Inspection of overland outgoing freight has been very greatly increased and covers about two thousand cars per week. All cars are first inspected to determine whether or not they are rat-free and rat-proof, all freight is inspected and that which is packed in such a manner as to harbor rats is repacked. Freight is loaded under the direction of an inspector, the car is sealed with a lead seal bearing the government mark and the car is labelled to show that it has been inspected and passed.

The following is a copy of an order issued by the superintendent of schools:

> TO JANITORS:
>
> All trash accumulated in or under school buildings, in yards or janitors' lodges must be collected and burned.
>
> Piles of lumber or old desks must be raised two feet from floor or ground. Metal garbage cans must be in good condition and kept tightly covered at all times.
>
> Rat traps to be baited with a small piece of bacon, the bacon to be tied on. Place traps near rat holes, and in places where rats come and go in their nightly excursions for food. Traps must be visited morning and evening.
>
> When rats are caught, pour kerosene over the rat to kill the fleas. Wrap body of rat in paper with tag attached thereto giving date on which rat is caught, name and location of school, and bring to Headquarters, Marine Hospital Service, 163 University Place.
>
> The above instructions are given by authority of the Board of Directors of New Orleans Public Schools.
>
> Edmund Moss, M.D., Medical Director.

The school authorities have 1,000 traps set in various parts of the city.

The overland freight inspection service has been placed in charge of Acting Assistant Surgeon Oscar Salomon of the Public Health Service. Acting Surgeon Fred Turney has been added to the oversea outgoing quarantine service. Passed Assistant Surgeon Hugh DeValin has reported for duty and has been assigned to Sanitary District No. 4, bounded by Canal, Claiborne, Elysian Fields and the River. Acting Assistant Surgeon H. McG. Stewart has reported for duty and has been assigned to the inspection of outgoing waterborne freight. United States quarantine steamer *Neptune* arrived in New Orleans July 27, in command of Passed Assistant Surgeon Norman Roberts, and was assigned to disinfection of outgoing vessels by the carbon-monoxid method. More than 320 men are now on the pay-roll of the Public Health Service and engaged in New Orleans.

On July 24, the city of Shreveport, La., placed a restricted quarantine on freight and passengers from New Orleans.

Posters have been prepared of which the following is a copy:

> Fasten this up in your kitchen. To make New Orleans the city sanitary get rid of rats by taking away their food supply. Kitchen rules: Keep all supplies in rat proof bins. Keep meats in safes or in refrigera-

tors. Keep uncooked vegetables in crates or shelves. If cooking is done with wood or coal fire, burn all garbage as fast as it is created. Put only small amounts into the fire at one time. If cooking is done with a gas fire, keep all garbage in water tight, metal garbage cans or buy a gas incinerator. Keep the cover on the garbage can. Clean your premises now and keep your premises clean. United States Public Health Service, W. C. Rucker, Asst. Surgeon General, Commanding.

CANADA

Personal.—Dr. Herbert A. Bruce is returning to Toronto from a trip to England.——Dr. John L. Chabot, M. P., Ottawa, has sailed for Europe. Dr. Chabot is likely to be appointed a member of the Canadian Senate.——Dr. Edith Brown, the founder and principal of the Women's Christian Medical College, Ludhiana, India, is on a visit to Toronto, the guest of Dr. Margaret Patterson.

University News.—Dr. Donald A. Campbell, Halifax, N. S., sometime professor of medicine in the medical department of Dalhousie University, has intimated to the governors of that institution that he will provide $60,000 to endow a chair of anatomy in memory of his son, the late Dr. George Campbell, who some ten years ago fell a victim to pneumonia while away on his wedding tour.——Again the governors of the University of Toronto have approached the provincial treasurer, stating that their requirements in the near future will be $1,500,000. The increasing deficit in the maintenance account, which is now nearly $130,000, including the estimates for 1914-15, was fully discussed with the treasurer. An urgent request was also preferred for an immediate grant of $200,000 for new gymnasium and athletic equipment.——More new regulations will become effective this coming session at McGill University, Montreal. The age limit of 17 years for entrance to any department has been reduced to 16 years. A student will only be allowed to miss three-quarters of a session's lectures instead of seven-eighths as formerly, except under a physician's certificate for illness.

Fee-Splitting and the Ontario Medical Association.—One year ago the Ontario Medical Association appointed a special committee on this subject, consisting of Drs. Harry B. Anderson, Frederick N. G. Starr and the general secretary, Dr. F. Arnold Clarkson, all of Toronto, to inquire into the whole subject as it affected the medical profession of Ontario, and to report at the meeting just held in Toronto. They brought in a report the substance of which is as follows: that such practices are unfair to the large majority of the profession; that they are inimical to the recipients as they mostly mean the receiving of payment in an underhand way; that they are not in the best interests of the patient, whose welfare should be of first importance; that there should be an educational compaign to teach the public that the physician who makes the diagnosis should be adequately paid for his services; that the surgeon should make no visits except those consistent with the case after the operation and that the physician's duties should not be minimized nor the operation over-estimated; that in fixing his fees the surgeon should consider the ability of the patient subsequently to pay the physician; that a standing committee of the association should be in existence to consider matters of this character from time to time with a view to safeguarding both the interest of the public and the profession.

LONDON LETTER

London, July 17, 1914.

A Leper Home

In his will the late Lord Strathcona has left $25,000 to Mr. John Burns, president of the Board of Trade, for the provision of a home and the maintenance of fifty lepers. The number of lepers in England is estimated at about twenty. The money is now invested in trust administered by private persons who conduct a home or refuge where the identity of the lepers is kept strictly private in order to avoid criticism. Its existence accordingly is known to very few persons. There appears to be no danger whatever of contagion.

Sir William Osler on the Control of Tuberculosis

In an address at the annual conference of the National Association for the Prevention of Consumption, Osler said that the tuberculous might be divided into three classes: (1) persons who have somewhere a small area of tuberculosis (90 per cent. of all persons); (2) those in whom the disease is active enough to produce symptoms, but in whom there is the possibility of arrest or cure, with restoration to working health, and (3) those who are doomed; in whom the disease progresses week by week, month by month, and year by year, and in whom from one year up to five sees the end. When the workers had a living wage, when the house became a home, when the nation spent in food what it now spent in drink, then there would be millions practically immune, continued Osler. There were three essentials in the cure—education, control and rigid regimen. As there was room for only one-third of the present cases in sanatoriums, much must be done in the homes. The splendid efforts of officers of public health had in fifty years cut in half the mortality from tuberculosis. They had tracked the enemy and knew his every stronghold and they knew his three allies, poverty, bad housing and drink. But the disease remained the most powerful among man's innumerable enemies. Before them was a long, slow hundred years' war, or even longer, in which coordination, cooperation and enterprise would win just as surely as it had done against typhus and typhoid.

Sir Clifford Allbutt on the Medicine of the Future.

In distributing prizes at St. Thomas' Hospital, Sir Clifford Allbutt said that he was glad to see that the young men were still like a pack of hounds following a breast-high scent in full dash after the subtle quarry of truth. It was a great joy to all those of the older generation to feel that the splendid results of the last half century would be carried forward even more brilliantly by the great men of the rising generations. The advance was largely due to that analytic reason known as science. It would not, however, be all for the best if the men of science had had it all their own way. Practical men said that there was something very much more in practice than scientific and analytic knowledge. Why was it that the practical man had so much contempt for the young men who came from the training-schools? The fact was that in the art of medicine there was something much more than science could give. The training of the hand and eye gave a certain facility and power that could not be obtained by any amount of school training. The young man was apt to look on the older practitioners as duffers, but the young and the old were necessary to each other. Even in the laboratory the skilled technical hand knew that he could do more by his own instinct than one who had only a theoretic training. The practical men were, however, under the disadvantage that they had no grip of principle. Their mind was not flexible; it was all right for the work of to-day, but not for the work of to-morrow. Small revolutions in practice meant the scrapping of old methods.

SPECIALIZATION IN MEDICINE

There was now no lack of men who were going out into general practice into the towns and villages. That would lift up the whole scheme of general practice. Much more than this, however, was wanted, especially in the specialties of medicine. The only possible outcome of the present tendency could be that foreshadowed in the recent budget, which contained a scheme for establishing in such available centers as the country town special departments where the panel (insurance) practitioner should have it in his power to command any specialist services that he needed. That would lift English medicine to a level that it had never yet attained. The time of medicine was coming. With the scientific centers to exhilarate the practitioners, medicine would be seen reaching the social value and social consideration it so thoroughly deserved. A great career was thus opened to a man, both in general practice and in medical science. Cambridge had been the first place in this country to establish a research hospital. The Committee of National Research was setting up another, while St. Thomas' Hospital was bringing into existence what would be the second research hospital in the country. In conclusion Sir Clifford Allbutt spoke of the need of establishing a ministry of health, an office for which he had insisted ever since he had spoken in public and which the Chancellor of the Exchequer had the other day said was necessary. There was a need, too, for a study of comparative medicine. Medicine was to-day in the position occupied by astronomy in the days before Copernicus. Everything was centered in man-medicine, whereas, if great progress was to be made, the medicine of the gooseberry-bush should be studied.

Investigation of Mumps

A report by Dr. M. H. Gordon of the Local Government Board on an experimental investigation in relation to mumps or epidemic parotitis has been issued. During the twenty years, 1891-1910, the annual mortality from mumps in England and Wales varied from a minimum of 54 in 1895 to a maximum of 118 in 1907; and during the last ten of these years the death-rate was constant at about 3 per million living. The recorded deaths from mumps were practically equal for the two sexes. The disease was most fatal in children under 5, especially in infants under 1 year of age, and least fatal between the ages of 15 and 25. On comparing the number of deaths from mumps before and after 5, in the two sexes, respectively, a remarkable difference is seen. Whereas 50 per cent. of the total male deaths took place in children under 5, only about 37 per cent. of the female deaths occurred within the first lustrum, equalization being effected by a relatively higher mortality among females between 55 and 75 years of age. Ten monkeys were inoculated with filtrates taken from ten cases of mumps; four died, one developed an illness from which it recovered, and five appeared to be unaffected. To obtain the material for these experiments, patients with mumps in the acute stage gargled thoroughly about 100 c.c. of a sterile 0.9 per cent. salt solution. The mixture of saliva and saline was passed through a Berkefeld filter, and this filtrate was injected into the monkeys. The experiments seem to justify the view that in a proportion of cases of mumps a virus occurs in the saliva that passes through a Berkefeld filter, and is capable of producing in the monkey by intracerebral injection a lymphocytic meningitis together with hyperemia of the central nervous system and acute degenerative changes in a proportion of the neurons. Furthermore, if the animal lives long enough, acute interstitial parotitis may be produced. It would thus appear that mumps is due to an ultramicroscopic virus comparable to that of poliomyelitis, small-pox, typhus and a number of other acute specific fevers.

PARIS LETTER

Paris, July 10, 1914.

The Sixth French Conference on Public Assistance

The sixth national conference on public and private assistance has just taken place at Montpellier, under the presidency of M. Emile Loubet, former president of the French republic. The question of most importance was that of the assistance of physically abnormal infants. The meeting voted that the government should enact the most rigorous measures against alcoholism, that prolific producer of psychically abnormal, feeble-minded and delinquent children; that it should complete and perfect the existing laws regarding those psychically abnormal, especially the laws of June 28, 1903, on intractable and vicious wards of the Assistance publique; that of April 15, 1909, on the creation of classes of correction, to be affiliated with the elementary public schools, and autonomous schools of correction for feeble-minded children; and that of July 22, 1912, on courts for children and adolescents, giving the courts the obligatory character which they lack, particularly from the point of view of the creation of necessary establishments and medical examinations of young delinquents, and reuniting them all under a juvenile code, to facilitate their combined action.

As regards the physically abnormal children, the congress asked that the administration encourage the work which the Association orthopédique scolaire française is pursuing: the special annual examination, with a view to hunting out physical deformities. Special classes for teaching children with physical infirmities should be established, nor should such children be allowed to attend schools.

On the motion of M. Chausse, professor at the Faculté de droit de Montpellier, the meeting asked that the law should place a heavy fine on condidates for charity who misstate their resources by false declarations, and that the sentences in these cases be given an effectual publicity.

Personal

At its meeting, July 7, the Académie de médecine elected an honorary member, Dr. Menetrier, in the section of pathologic anatomy, to replace Dr. Empis, deceased. Pierre-Eugène Menetrier was born in 1859 and received his doctorate in 1887. He was successively head of the chemical department of the medical clinic of the Pitié, of the anatomic department of the same clinic, and of clinical medicine; he was named *agrégé* at the Faculté de médecine de Paris in 1892, and physician to the hospitals of Paris in 1894. His best work was given to research in pathologic anatomy, and, more specifically, to the study of tumors. He framed the chapter on "Tumors" for Bouchard's *Traité de pathologie générale*, and his book on cancer made part of the *Traité de médecine*, edited by Gilbert and Thoinot. In collaboration with Pierre Delbet and Dr. Herrenschmidt, he presented a classification and an international nomenclature of cancerous tumors at the Second International Conference for the Study of Cancer (The Journal, Oct. 29, 1910, p. 1568, and Feb. 11, 1911, p. 437).

Dr. Pinard, professor of clinical obstetrics at the Faculté de médecine de Paris, has retired.

The recently incorporated cabinet includes two physicians among its members: Dr. Augagneur, deputy, former professor of the clinics of cutaneous and syphilitic diseases at the Faculte de médecine de Lyon, former governor of Madagascar, was elected minister of public instruction and the fine arts; and Dr. Cauthier, senator, is in the department of marines.

Death of Dr. Duguet

Dr. Jean-Baptiste Duguet, *agrégé libre* at the Faculté de médecine de Paris, has just died, aged 77. He was a clinician of the old school, who, while accepting the progress brought by the introduction of laboratories, always preferred the clinical examination from the diagnostic point of view. Beside his work on pultaceous and ulcerous anginas and on the treatment of certain forms of goiter by the interstitial injection of tincture of iodin, we are indebted to him for his demonstration of the parasitic nature of "blue spots," formerly considered characteristic of typhoid fever.

The French Anti-Opium League

From the cosmopolitan ports of the Mediterranean, opium has reached France, and opium-dens abound to-day as much in our military stations, where they are the gravest peril that the young marines must face, as in the large centers. The danger seems grave enough to make the consideration of means of fighting it imperative, and a league has been formed for this purpose, with Dr. Charles Richet, professor at the Faculté de médecine de Paris, and M. Le Myre de Vilers, former governor-general of Cochin China, as honorary presidents. The league will endeavor with all its strength to obtain the discontinuance of the opium traffic. It asks, moreover, for most effective injunctions against drug-dealers of all sorts who swarm in the metropolis, and states that light fines do not hinder them from repeating the offense. The league purposes by conferences and tracts to put public sentiment on guard against the danger of the use of stupefacients, such as opium, cocain, hashish, etc.

BERLIN LETTER

Berlin, July 11, 1914.

Proposed Board of Public Health for Berlin

Since it has been shown, as was to be expected, that the health officer, the Stadtmedizinalrat, who was appointed about a year ago, found the duties which the city of Berlin demands of its chief medical officer too exacting, the city government is contemplating the appointment of a number of assistants so as to form a board of health. Such an office, which corresponds somewhat to the local boards of health in large cities in the United States, is not known in Germany at present except in Hamburg. There to be sure it has not merely a municipal character since Hamburg is one of the German federal states. The board of health, therefore, constitutes in Hamburg the highest national authority on matters affecting the health of the public at large. The foundation which the city government has worked out for this department shows what a large field is included in the public hygiene of the city of Berlin, namely, water-supply and drainage, school hygiene and the medical care of the poor, the hygienic care of orphans, the insane, the control of epidemics and much else. The hospitals are included in another department. There is little doubt that if the Board of Health performs its functions successfully, the hospitals and other medical institutions, which so far have not been put under the health officer, will be included in this department, and so finally the centralization of the Berlin public health service, which has been demanded by physicians for many years, will be attained.

Boarding Out the Insane in Families

The introduction of insane persons into families under medical supervision is a form of public care which has become quite general in Europe of late. In the Berlin Insane Asylum at Dalldorf it was introduced soon after the opening of the institution under the direction of Privy Councilor Sander. Dr. Paul Bernard, an attending physician at Dalldorf, recently discussed this method in the Society for Social

Medicine, Hygiene and Medical Statistics but confined himself in his address to the method as applied to insane women.

With about 165 men and 158 women in 1913 thus boarded out in families, Dalldorf probably takes the lead in this respect among all German insane asylums. Under all circumstances acute psychoses and patients with serious delusions, conditions of excitement and habitual criminals are excluded from this form of care. It is suited for those who have become quiet and harmless but are moderately confused and are no longer in need of institutional care, the higher idiots and senile cases that are not yet decrepit. Also convalescents after acute mental disturbance who cannot yet maintain themselves independently and those cases in which the attempt is made to secure improvement by the transition to conditions of greater freedom are also included in this class. A notable institution was established two years ago by Moeli at Herzberge, which consisted in a station for advice for discharged mental cases who are given both advice and actual assistance.

The selection of the boarding-out home is a very difficult and responsible matter; the majority of homes available are totally unsuitable. Thorough investigation which must be verified personally by the attending physician, must precede the assignment of a patient. The majority of the homes are found in Berlin and Charlottenburg. A fifth of the female wards are placed in private asylums, a third in the care of their own family or with relatives. Often these places prove to be inferior because in the selection account must be taken of the kinship. In general the value of a home is in the reverse relation to the rent of the house; the nearer to the center of the city and to the aristocratic districts, the less it is adapted for this purpose.

The best caretakers are quiet people of kindly dispositions who are grateful if they find a companion in the person for whom they are caring and can pay their rent with the board money. It is at most $7.50 (30 marks). A contract is made between the caretaker and the directors of the asylum. The boarded-out wards are visited by attending physicians as often as necessary and receive treatment in case of sickness if the district physician for the poor does not attend. Twice a month the wards with their caretakers present themselves at Dalldorf. Frequently the asylum is imposed on as the caretakers do not keep the insane ward at their own house but have them cared for by others. Often indeed it is the relatives, as has been shown by many instances, who treat their wards in this way. Sometimes also the female wards get married, and still more frequently, unfortunately, illegitimate pregnancy occurs in weak-minded young women if they are not entirely crippled and repulsive.

The boarding-out system occasionally permits a patient without friends to work her own sewing machine and become capable of earning something under the protection of the asylum. Most of the wards are not employed on account of physical disability. On the other hand, a large number especially the wards in private asylums are occupied to a slight extent in household duties. Many knit stockings for the asylum and so earn a few pennies. Five help the caretakers in commercial work on the sewing machine. Six female wards took care of the poultry and one milked the cow. Although this patient was entirely imbecile and needed constant oversight, yet the private asylum kept her without charge, for milkmaids are rare articles in Berlin. Four went out to mend or to sew; one went out sewing on her own account. To balance off a fairly competent working ward, it is often feasible for the private institutions to take a helpless imbecile as compensation. The private institution is fully equipped and licensed to enforce the strict regulations of the government but in this way can utilize space which is not required for patients.

A third of the female patients had to be taken back into the asylum again. These were not the patients who really needed no care but only assistance. They were those who seemed well on superficial acquaintance although their uncertainty and liability to relapse were known to the asylum. This class includes certain patients who suffer from periodic mania or periodic melancholia, on whom the experiment is always being made again to determine whether this isolated stage of the disease is past. Also physical diseases which last a long time make a return to the asylum necessary.

To determine by figures the success of this system of care in families with reference to the recovery of economic independence is difficult on account of the fluctuation of the population in a large city. However, in several cases, it has been possible to render self-supporting some who passed many years of their youth in the asylum and then were placed under care outside.

Marriages

P. A. SURG. ROBERT CATHCART RANSDELL, U. S. N., Washington, D. C., to Miss Dorothy Abbott Layman of Indianapolis, Ind., in New York City, July 15.

JAMES MALCOLM THOMPSON, M.D., Los Molinos, Cal., to Miss Maud Le N. de Bretteville of Lihue, Kauai, T. H., at San Francisco, July 8.

FRANCIS BERGER TRUDEAU, M.D., Saranac Lake, N. Y., to Miss Eleanor Helen Garretson of Morristown, N. J., July 8.

WILLIAM O. DEYER, M.D., Marshfield, Wis., to Miss Nettie Nickerson of Oxford, Wis., at Stevens Point, Wis., May 30.

PAUL HENRY ANTHONY, M.D., Morris, Ill., to Miss Mary Wendolyn Fitzgerald of Chicago, at Chicago, June 30.

HARRY WILLIAM BAGENSTOSE, M.D., West Reading, Pa., to Miss Margaret E. Foster of Camden, N. J., recently.

J. KERSEY DAVIS, Conshohocken, Pa., to IDA Z. ANDERSON, M.D., of Phoenixville, Pa., in New York, recently.

GEORGE EMERSON BAKER, M.D., Odell, Ind., to Miss Alice Corbin of Louisville, Ky., at Trimble, Ky., July 3.

HARRY MELCHOIR, M.D., College Point, N. Y., to Miss Catherine Manigan of Brooklyn, N. Y., recently.

WILLIAM P. BUFFUM, M.D., Boston, Mass., to Miss Constance Arnold of Providence, R. I., July 29.

LOGAN CLENDENING, M.D., Kansas City, Mo., to Miss Dorothy Hixon of La Crosse, Wis., July 22.

WALKER HALIBURTON POWE, M.D., to Miss Helen Dunbar Mauldin, both of Greenville, N. C., June 30.

ALBERT SMILIE HAGUE, M.D., Fairfield, Ia., to Miss Pearl Wire of Kinsley, Kan., at Kinsley, July 6.

CHARLES ROBERT BLAKE, M.D., Dillon, Mont., to Miss Elizabeth Groeneveld of Butte, Mont., recently.

HERBERT F. TRUE, M.D., Los Angeles, Cal., to Miss Ruth Arnold of Long Beach, Cal., July 15.

WALTER CARY, M.D., Cleveland, Ohio, to Miss Laura Latiner of Dubuque, Ia., July 6.

CLYDE WILLIAM BICE, M.D., Ritzville, Wash., to Miss Wolfe of Iowa, at Vancouver, recently.

CLARENCE W. COOK, M.D., to Miss Carrie Stallard, both of Los Angeles, Cal., June 27.

Deaths

Augustus Barton Knowlton, M.D. Medical College of the State of South Carolina, Charleston, 1893; a Fellow of the American Medical Association; formerly president of the Columbia Medical Society, and vice-president of the South Carolina and Tri-State Medical Societies; founder of the Knowlton Hospital, Columbia, S. C.; died at his home in that city, aged 46.

Henry Clay Eno, M.D. College of Physicians and Surgeons in the City of New York, 1864; a specialist in diseases of the eye and ear; formerly attending surgeon at the New York Eye and Ear Infirmary; a member of the Medical Society of the State of New York; died at his home in New York City, July 16, aged 74.

Albert Ferdinand Boretti, M.D. Harvard Medical School, 1911; a Fellow of the American Medical Association; head of the department of pathology and bacteriology at Marquette University School of Medicine; aged 29; died at a hospital in Milwaukee, July 13, after an operation.

John B. Armstead, M.D. Kansas Medical College, Topeka, 1900; a Fellow of the American Medical Association and of the Kansas Medical Society; formerly of Winchester, Kan.; district surgeon for the Union Pacific Railroad; died at his home in Topeka, Kan., July 9, aged 36.

William Edward Howard, M.D. St. Louis College of Physicians and Surgeons, 1890; Bellevue Hospital Medical College, 1898; of Ohio, Ill.; a Fellow of the American Medical Association; was instantly killed by the overturning of his automobile, May 20, aged 49.

Benjamin Moody, M.D. Geneva, N. Y., Medical College, 1868; Jefferson Medical College, 1869; a veteran of the Civil War; and a well-known practitioner of Mansfield, Pa.; died at his home in that place. June 24, aged 73.

Henry Kremers, M.D. University of Michigan, Ann Arbor, 1876; a Fellow of the American Medical Association; for thirty-two years a practitioner of Holland, Mich., and formerly mayor of that place; died at his home in Holland, July 15, from nephritis, aged 64.

Joseph Warren Hilliers, M.D. University of Pennsylvania, Philadelphia, 1860; a member of the Medical Society of the State of Pennsylvania; for more than fifty years a practitioner of West Middlesex, Pa.; died at his home in that place, recently, aged 75.

Edward Wilson, M.D. Hahnemann Medical College, Chicago, 1897; hospital steward of the Eleventh Michigan Infantry during the Civil War; and a resident of Elmhall, Mich., for forty-three years; died at his home in that place, July 9, aged 84.

Clement A. Jennings, M.D. University of Pennsylvania, Philadelphia, 1857; a member of the Missouri State Medical Association; for more than thirty years a practitioner of Salisbury, Mo.; died at his home in that place, June 9, aged 76.

James J. Knott, M.D. Atlanta, Ga., Medical College, 1859; said to have been the youngest surgeon in the Confederate service during the Civil War; for nearly half a century a practitioner of Atlanta, Ga.; died at his home in that city, July 12.

Sheldon Fitch Davis, M.D. State University of Iowa, Homeopathic Department, 1879; a Fellow of the American Medical Association and of the Southern California Medical Society; died at his home in Pomona, Cal., June 28, aged 60.

Rufus Pitts, M.D. University of the South, Sewance, Tenn., 1901; for several years secretary of the Rutherford County Medical Society; died recently at his home in Murfreesboro, Tenn., from suppurative disease of the lungs, aged 40.

Lemuel Conant Grosvenor, M.D. Homeopathic Hospital College, Cleveland, 1864; for thirty-seven years a practitioner of Chicago, and for seven years a resident of Taunton, Mass.; died at his home in the latter place, July 17, aged 82.

James Orrin Emmett, M.D. New York Homeopathic Medical College and Flower Hospital, 1865; for nearly half a century a practitioner of Fonthill, Ont.; died at his home in that place, April 30, from heart disease, aged 71.

William Edward Magruder, M.D. University of Maryland, Baltimore, 1854; a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Sandy Spring, Md., July 13, from cerebral hemorrhage, aged 80.

William Dee Bollinger, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1867; for forty-five years a practitioner of Lancaster, Pa.; a veteran of the Civil War; died at his home in Lancaster, Pa., July 13.

Joseph Van Kirk, M.D. Jefferson Medical College, 1891; a member of the Medical Society of the State of Pennsylvania; of Elizabeth, Pa.; died at Uniontown, Pa., June 18, aged 44.

Aaron Herring, M.D. Ensworth Medical Collegee, 1890; a member of the Kansas Medical Society; formerly of Highland Station, Kan.; died at his home in Sparks, Kan., July 9, aged 61.

John Mason Brown, M.D. University of Buffalo, 1864; for more than thirty years a resident of Westfield, N. Y.; died at his home in that place, July 12, from the effects of a fall, aged 72.

John Wing Brown, M.D. University of Michigan, Ann Arbor, 1873; for nearly forty years a practitioner of Skaneateles, N. Y., died at his home in Mottville, N. Y., July 9, aged 62.

Henry William Webner, M.D. Hahnemann Medical College, Philadelphia, 1875; for nearly forty years a practitioner of Baltimore; died at his home in that place, July 14, aged 62.

Atherton B. Stevens, M.D. Jefferson Medical College, 1880; for two terms a member of the state legislature from Wayne County; died at his home in Scranton, Pa., July 11, aged 57.

Caleb Wakefield Clark, M.D. University of Vermont, Burlington, 1889; a member of the Massachusetts Medical Society; died recently at his home in Melrose, Mass., aged 60.

Michael Joseph Ahern, M.D. Laval University, Quebec, Que., 1868; professor of practical anatomy in his Alma Mater; died recently at his home in Quebec, aged 70.

Alexander L. Morris, M.D. University of Tennessee, Nashville, 1883; a practitioner of Gulfport, Miss.; died at his home in that place, July 13, from heart disease, aged 54.

Walker Aylett Hawes, M.D. University of Virginia, Charlottesville, 1866; a Confederate veteran; for many years a practitioner of New York City, but since 1906 a resident of Charlottesville, Va.; died at his home, July 5, aged 74.

John Merritt Lewis, M.D. Bellevue Hospital Medical College, 1880; a Fellow of the American Medical Association; for thirty years a practitioner of Minneapolis, Minn., died at his home in that city, July 1, from uremia, aged 56.

Mason O. Wert, M.D. Columbus Ohio Medical College, 1878; for twenty-five years a practitioner of Wyandot and Holmes counties, Ohio; died at his country home in Sycamore, July 3, from arteriosclerosis, aged 65.

P. C. Sutphin, M.D. Philadelphia College of Medicine and Surgery, 1850; for many years a practitioner of Canmer, Ky., but recently a resident of Cave City; died at his home, July 6, from senile debility, aged 88.

Carroll Everett Proctor, M.D. Dartmouth Medical School, Hanover, N. H., 1881; from 1894 to 1902 superintendent of schools of Weld, Maine; died at his home in Weld, May 13, from chronic lead poisoning, aged 55.

James C. Rippard, M.D. College of Physicians and Surgeons, Baltimore, Md., 1881; a member of the Medical Association of Georgia; died at his home in Waycross, Ga., July 4, from heart disease, aged 56.

David L. Talkington, M.D. College of Physicians and Surgeons, Baltimore, 1907; died at his home in Jacksonburg, W. Va., May 22, from the effects of poison accidentally self-administered, aged 37.

Samuel Hodgens Ralston, M.D. Western Pennsylvania Medical College, Pittsburgh, 1896; prominent as a dentist of Pittsburgh; died at his home in Avalon, Pittsburgh, July 3, aged 45.

Arthur Francis Eife, M.D. New York Homeopathic Medical College, New York City, 1881; formerly a practitioner of New York City; died at his home in Elmhurst, L. I., July 9, aged 52.

Omer P. Phares, M.D. Starling Medical College, Columbus, Ohio, 1884; formerly of Connersville, Ind.; died at his home in Liberty, Ind., May 26, from cerebral hemorrhage, aged 59.

Harold T. Houg, M.D. Marquette University, Milwaukee, 1910; for two years a member of the faculty of his Alma Mater; died at his home in Racine, Wis., July 6, aged 28.

Knud Martin Teigen, M.D. New York University, New York City, 1882; of Minneapolis; after shooting his wife, shot himself through the head and died, July 4, aged 59.

William McD. Amos, M.D. College of Physicians and Surgeons, Keokuk, Ia.; a pioneer practitioner of Lordsburg, Cal.; died at his home in San Dimas, Cal., July 2, aged 72.

Milan Theron Ward, M.D. Albany, N. Y., Medical College 1894; a Fellow of the American Medical Association; died at his home in Toulon, Ill., July 1, aged 55.

C. E. Kinsey, M.D. Medical College of the State of South Carolina, Charleston, 1877; died at his home in Williams, S. C., July 3, from heart disease, aged 59.

J. W. Montgomery (license, Tennessee, 1889); for more than a quarter of a century a practitioner of Thurman, Tenn.; died at his home, July 2, aged 58.

George S. Morgan, M.D. New York Homeopathic Medical College New York City, 1879; died at his home in New London, Conn., July 5, aged 59.

Shadrach Burton, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1871; died at his home in Dallas, Texas, July 6, aged 83.

Landon Aubry Woodson, M.D. Medical College of Virginia, Richmond, 1860; of Coal Valley, Ala.; died in Oakman, Ala., June 11, aged 78.

John H. Redding, M.D. Southern Medical College, Atlanta, Ga., 1881; died at his home Waycross, Ga., July 7, from pneumonia, aged 56.

Edward W. Delcher, Jr., M.D. Kentucky School of Medicine, Louisville, 1891; of Baltimore; died at Shadyside, Md., July 6, aged 51.

James Morris Watson, M.D. New York University, New York City, 1886; died at his home in Falmouth, Mass., June 7, aged 54.

William S. Jones (license, W. Va., years of practice, 1881); died at his home in Central Station, W. Va., May 31, aged 78.

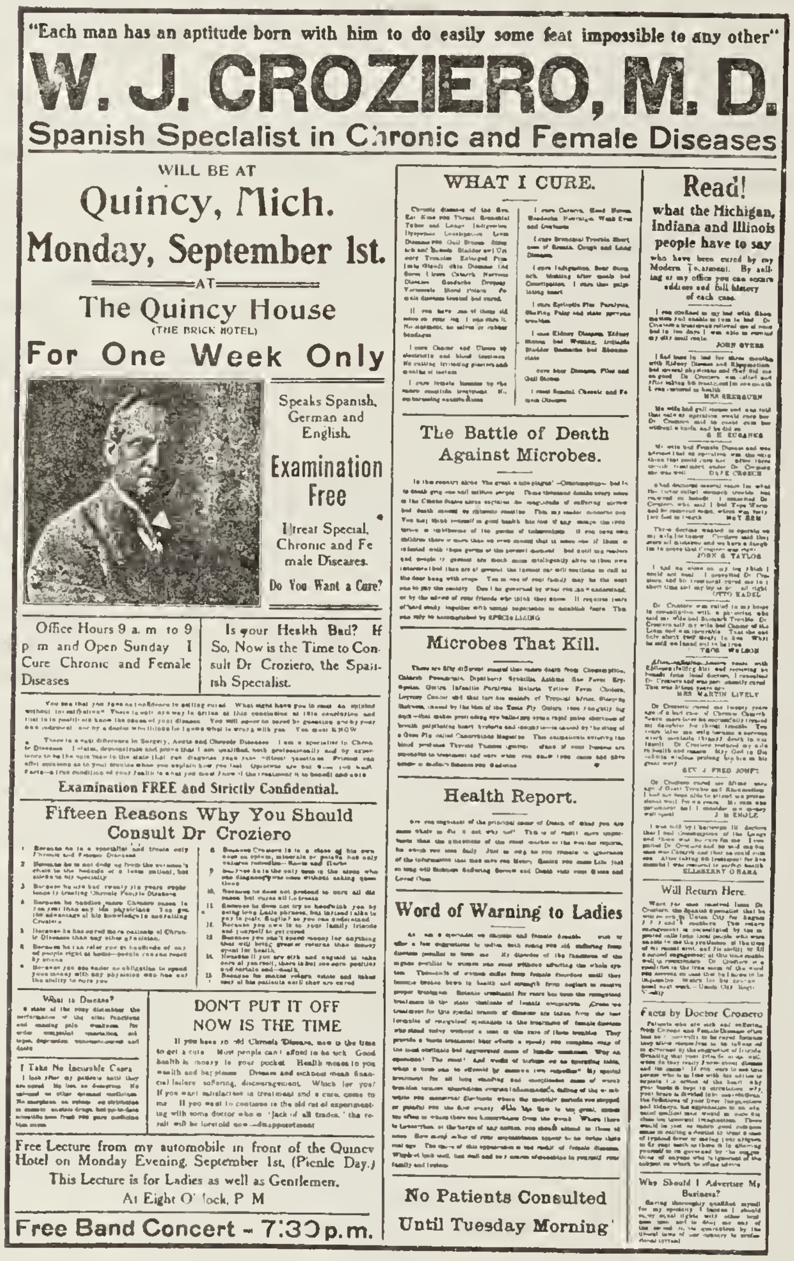
Webster M. Dyas, M.D. Rush Medical College, 1896; died at his home in Arlington Heights, Ill., July 2, aged 52.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

W. J. CROZIER—QUACK

A Mount Morris, Ill., physician sends us a full-page advertisement from the *Mount Morris Index,* which we reproduce in miniature. The advertisement is one of a traveling quack, W. J. Crozier, M.D., who calls himself "A Spanish Specialist in Chronic and Female Diseases." The physician who sends the advertisement writes:



"Each man has an aptitude born with him to do easily some feat impossible to any other"

W. J. CROZIERO, M. D.

Spanish Specialist in Chronic and Female Diseases

WILL BE AT

Quincy, Mich.

Monday, September 1st.

AT

The Quincy House

(THE BRICK HOTEL)

For One Week Only

Speaks Spanish, German and English.

Examination Free

I treat Special, Chronic and Female Diseares.

Do You Want a Cure?

Office Hours 9 a. m to 9 p m and Open Sunday I Cure Chronic and Female Diseases

Is your Health Bad? If So, Now is the Time to Consult Dr Croziero, the Spanish Specialist.

Examination FREE and Strictly Confidential.

Fifteen Reasons Why You Should Consult Dr Croziero

What is Disease?

I Take No Incurable Cases

DON'T PUT IT OFF NOW IS THE TIME

Free Lecture from my automobile in front of the Quincy Hotel on Monday Evening, September 1st, (Picnic Day.) This Lecture is for Ladies as well as Gentlemen. At Eight O'clock, P M

Free Band Concert – 7:30 p.m.

WHAT I CURE.

The Battle of Death Against Microbes.

Microbes That Kill.

Health Report.

Word of Warning to Ladies

No Patients Consulted Until Tuesday Morning

Read! what the Michigan, Indiana and Illinois people have to say who have been cured by my Modern Treatment. By calling at my office you can secure address and full history of each case.

Will Return Here.

Facts by Doctor Croziero

Why Should I Advertise My Business?

A typical full-page newspaper advertisement of Quack Crozier when he was operating in Michigan. At that time he was going under the name "Croziero." After Michigan was made too hot for him he migrated to Indiana and later to Illinois where he now plys his trade as "CroZier." Size of original 13 in. by 21 in.

"I am enclosing a copy of an advertisement which appeared in our local paper last week. I should like if possible to learn this man's standing in the profession, and whether he is licensed to practice in the State of Illinois.

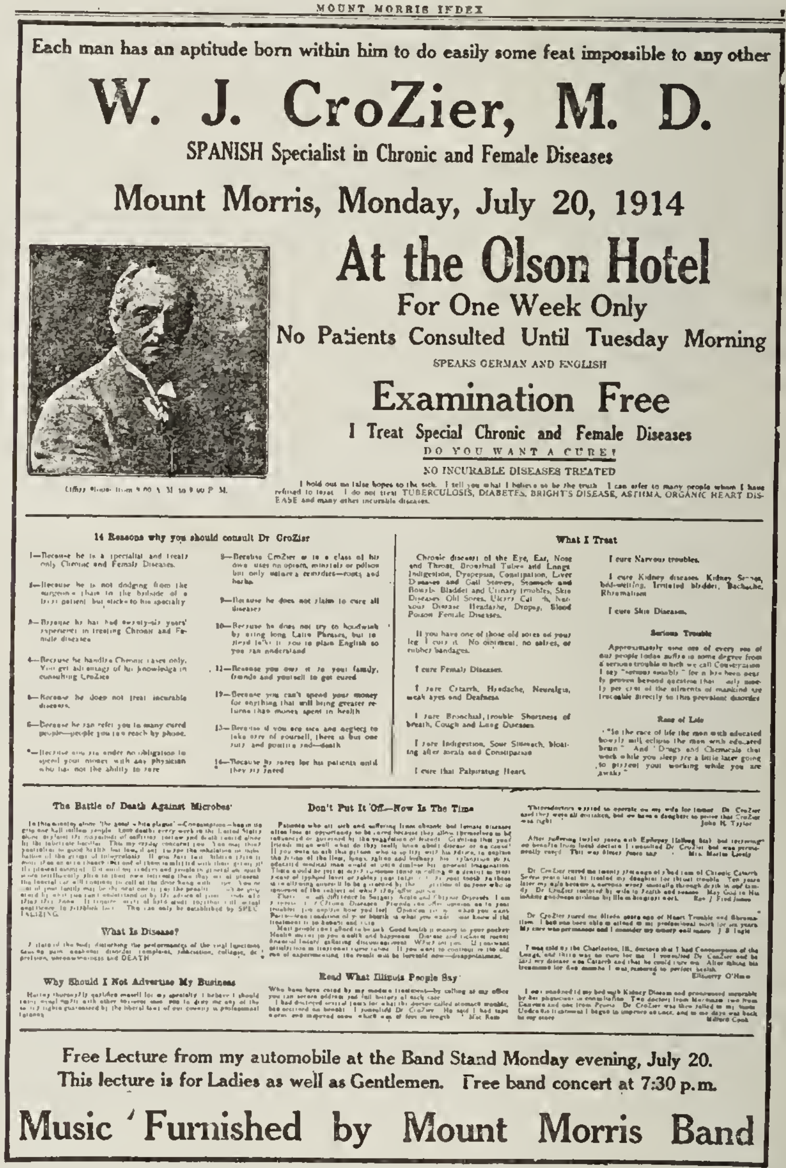
"If you can assist me in this I shall be much obliged."

W. J. Crozier holds a diploma granted by the Missouri Medical College in 1881. In 1888 he received a license to practice in the State of Missouri and, according to the Missouri State Board of Health, at that time stated that he was a native of France. In 1910 he applied for a license to practice in the State of Michigan on the basis of his Missouri license. He applied not as W. J. Crozier but as William J. Croziero and, according to the Michigan State Board of Registration, at the time of his application said that he was born at Evansville, Ill. He is licensed also in Indiana and Illinois.

Of course Crozier's business, like that of all quacks, depends wholly on his ability to find newspapers which are willing to carry his advertisements. Fortunately for the Michigan public, that state has a law that protects, to some extent, the sick from vultures of the Crozier type. In October, 1913, W. J. Crozier, alias W. J. Croziero, was arrested in Paw Paw, Mich., and fined $50 for illegal advertising. The action on the part of the local authorities was due, largely, to the fact that Michigan has a wide-awake secretary on its State Board of Registration.

Finding Michigan too hot for him, Quack Crozier slid over the line into Indiana, in which state he continued his previous tactics. Crozier's method of getting victims is well described in a letter from a Williamstown, Mo., physician.

"He [Croziero] came to this town preceded by full-page advertisements in the weekly newspapers, large posters distributed over the community telling that 'Dr. W. J. Croziero, the Spanish Specialist, would soon visit Williamstown, speaking four languages, having twenty-one diplomas from the largest schools in the United States, Germany and all over the world; able to diagnose any disease without asking the patient a single question,' etc.



MOUNT MORRIS INDEX

Each man has an aptitude born within him to do easily some feat impossible to any other

W. J. CroZier, M. D.

SPANISH Specialist in Chronic and Female Diseases

Mount Morris, Monday, July 20, 1914

At the Olson Hotel

For One Week Only

No Patients Consulted Until Tuesday Morning

SPEAKS GERMAN AND ENGLISH

Examination Free

I Treat Special Chronic and Female Diseases

DO YOU WANT A CURE!

NO INCURABLE DISEASES TREATED

I hold out no false hopes to the sick. I tell you what I believe to be the truth. I can refer to many people whom I have refused to treat. I do not treat TUBERCULOSIS, DIABETES, BRIGHT'S DISEASE, ASTHMA, ORGANIC HEART DISEASE and many other incurable diseases.

14 Reasons why you should consult Dr CroZier

What I Treat

The Battle of Death Against Microbes

What Is Disease?

Why Should I Not Advertise My Business

Don't Put It Off—Now Is The Time

Read What Illinois People Say

Free Lecture from my automobile at the Band Stand Monday evening, July 20. This lecture is for Ladies as well as Gentlemen. Free band concert at 7:30 p.m.

Music Furnished by Mount Morris Band

A greatly reduced photographic reproduction of a full-page advertisement of "Crozier" in the Mount Morris (Ill.) *Index.* The original advertisement measured more than one and one-half square feet.

"The first night in town he gave a free lecture, everybody invited. His prices were from $35.00 to $75.00, payment strictly in advance, and if check was given, his wife cashed checks immediately before any medicine was given. Dressed conspicuously, and did everything that you would expect the advertiser to do."

And now, it seems, Michigan, Indiana and Missouri have passed W. J. Crozier, M.D., Spanish Specialist, on to Illinois. In Illinois, Crozier has dropped the final "o" previously tacked on to his name and has capitalized the "z".

Crozier's advertisements are typical of the traveling quack. Lying claims regarding his ability, testimonials, and the usual farrago of nonsense relative to the mysterious methods alleged to be used.

> "I cure Cancer and Ulcers by electricity and blood medicine."
>
> "I cure Epileptic Fits, Paralysis, Shaking Palsey and other nervous troubles."
>
> "I cure Skin Diseases, Boils and Gall Stones."
>
> "I cure Female Diseases by the latest scientific treatment; no embarrassing examinations."
>
> "I cure that palpitating heart."

Here is a testimonial served up to the Mount Morris public, presumably in the hope of catching other victims:

> "I had doctored several years for what the doctor called stomach trouble, but received no benefit. I consulted Dr. Crozier. He said I had tape-worm and removed same, which was 42 feet in length.—Matt. Rem."

Why Crozier left Indiana, we do not know, but we have a theory. Some of the country newspapers in that state that are particular about the class of advertising they carry, wrote to The Journal some months ago asking for information regarding Croziero, who apparently was applying for advertising space. Such information as we had was sent to these publishers. About the same time *Collier's* had something to say about Crozier and added: "Indiana newspapers will do well to think twice before accepting this impostor's advertising."

The amount of advertising space that Crozier purchases makes the acceptance of his advertising "copy" a great temptation to a struggling country newspaper. The Journal's experience has been that the average country newspaper stands for decency and that, when its publisher can be convinced of the evident fraudulence of such individuals as Crozier, he will refuse to sell space to the quack. It is for this reason that The Journal takes the present opportunity of stating definitely:

1. W. J. Crozier, alias W. J. Croziero, is a quack.
2. The claims made by W. J. Crozier, alias W. J. Croziero, are false and fraudulent.
3. The newspaper that has the interest of its readers at heart should give the same short shrift to quacks of the Crozier type that they would give to "thimble riggers," "green goods" artists, "gold brick" dispensers, or any other individuals who make it a business to prey on the community and obtain money under false and fraudulent pretenses.

Correspondence

The Psychic Factors in Aviation

To the Editor:—I have read with some interest the abstract of the article by Loewy and Placzek on this subject (The Journal, July 11, 1914, p. 203). I do not know how much this subject interests the medical profession, but I cannot allow a notice like this to pass without giving my views as a practical aviator.

I have repeatedly flown at heights in excess of 4,000 meters (about 2½ miles). When I won the Tri-State Race going from Boston to Nashua, N. H., to Worcester, Mass., to Providence, R. I., and back to Boston I flew at practically this height during the entire distance.

I have always believed in high flying. I am convinced that it is far less dangerous than flying low. In the first place the vertical air-currents which annoy the aviator at low altitudes have no effect at great heights. The horizontal air-currents, corresponding to the winds on the surface of the earth, have little effect on the machine, as once the aviator is off the ground his speed with respect to the air passing him is constant. His speed with relation to the surface of the earth of course varies with the velocity of the horizontal air-currents.

The parties who made the tests under consideration put themselves in a cabinet with the atmospheric pressure corresponding to that of an altitude of 4,000 meters. Probably neither of them had ever been in the air. They, therefore, imagined all sorts of things that might happen. But let me tell you there is a great difference between two men cooped up in a little cabinet under artificial conditions and the same men flying free through the clear atmosphere at a height of 2 miles. The physiologic conditions may be the same in both cases, so far as the air-pressure is concerned, but the psychologic conditions are entirely different. The former must be depressed by the very nature of the trial, while the latter would be exhilarated in the highest degree.

As a rule, when a person goes into the air for the first time, the earth seems to be falling away from him while he remains stationary. At a height of perhaps half a mile the earth assumes a concave appearance. It is interesting to note that the only way you can tell the difference between woodland and grass is that the latter is lighter in shade than the former. This is no doubt due to the fact that the sunlight is reflected more readily from grass than from dense woods.

The fields in an open country give the appearance of a checker-board stretched out beneath the aviator. At the height of a mile ordinary roads have the appearance of a thin brown thread laid on the surface of the earth. If you happen to look at a railroad so that the rays of the sun are reflected into your eyes, the railroad appears like two piano-wires stretched on the ground.

This recalls an interesting time I experienced in the Tri-State Race mentioned above. The glass roofs of the greenhouses reflected the light into my eyes and I mistook many of these greenhouses for small ponds. A pond reflects the sunlight into the eye just as does the glass roof of a greenhouse. It is almost impossible to tell the difference between a very small pond and a large greenhouse at considerable height when the sun is shining so that the incident rays are reflected into the eyes.

I do not know why, but it seems to be a general impression that an aviator has difficulty in breathing, owing to the high speed of his machine and the rarefaction of the air. This is not the case. I have been with Bruce-Brown at a speed of 109 miles in an automobile on the Florida beach; I have driven my own car at a speed of 86 miles at Atlantic City, and I have been in an aeroplane at the speed of over 150 miles an hour (with the wind of course) and I had no difficulty whatever in breathing in any case. Furthermore, an aeroplane, properly designed, is so constructed that a great deal of this wind is done away with.

I have not found that the rarefaction of the air interferes with breathing, owing, I believe, to the fact that the aviator climbs so slowly that he has plenty of time to get used to the diminished atmospheric pressure. Another point which makes aviation different from mountain-climbing in this regard is that the mountain-climber is exercising and necessarily would notice rarefaction of the air before an aviator would who is sitting still.

In coming down, however, it is a different proposition. If I cut off my engine at a 2-mile height and drop suddenly to a mile from the ground, it seems as if some one were standing behind me and poking red-hot pokers into my ears. I had no difficulty whatever in going up because I went up slowly, but in coming down quickly I did not have time to become accustomed to the rapid change in atmospheric pressure. My usual practice, when I wished to avoid this inconvenience, was to drop a thousand feet as slowly as possible with the power off, turn on the power and circle around at that level, swallowing vigorously. I would then drop another thousand feet. In this way I could get to the ground from a height of 2 miles without any inconvenience.

As far as the rarefied air paralyzing the action of the subjective mind is concerned, I do not think that there is anything in this report. My experience has been that the objective mind, at least, is stimulated by the excitement of rushing through the air at high speed, the great purity of the air at great height, and possibly by the greater actinic power of the sunshine.

I found that I burned very much easier at great height than I did on the ground. This is probably due to the fact that the ultraviolet rays, which are of course the shortest in wave-length, are less reflected by the particles in the air at a height of 2 miles than at the surface of the ground. In other words, the dust-particles intercept these ultraviolet rays, which are of course the most important in affecting the skin.

With regard to the death of Chavez: At Columbus I thought I would do a little grandstand work and drop from the height of a mile straight to the ground as rapidly as possible. I stepped out of the machine with everything swimming before my eyes and just as my foot touched the ground I became unconscious and remained unconscious for five minutes or so. This was no doubt due to the rapidity of my descent and this may have caused Chavez to lose control of his machine when only 100 feet from the ground. This, as I said before, is the only time when an aviator is inconvenienced.

I think my experience is not unusual compared with that of all aviators who fly at all high. The monoplane I used was the French Bleriot with a 70-horse-power Gnome motor. My flying speed was 72 miles an hour, and I could not remain in the air unless I drove my aeroplane at least 60 miles an hour. In five months I made 107 flights, which does not count the flying I did in Europe and while learning. I have also flown the Farman biplane and the Curtis biplane and, hence, my experience has been such as to warrant me in saying that my impressions are probably those of most aviators who have flown at all extensively.

If you think this matter is worth a discussion, I should be glad to answer any inquiries through The Journal which may be put to me.

Earle L. Ovington, Newton Highlands, Mass.

[Comment.—There seems to be a discrepancy between experimental and actual conditions in this matter. Many observations have shown the ability of the body to accomodate itself to much higher altitudes than 2¼ miles. Apparently the difficulty in aviation (as in work in caissons) is, in part at least, due to the suddenness of the changes.—Ed.]

"Butter-Fat in Infant Feeding"

To the Editor:—In The Journal (July 18, 1914, p. 246) occurs an editorial on "Butter-Fat in Infant Feeding," which attributes the discovery of the remarkable influence of butter- and egg-fats on growth as contrasted with certain other fats of both animal and vegetable origin, to Osborne and Mendel. Foot-Note 4 states that McCollum and Davis have also pointed out this property for egg-fat, but makes no other reference to our work on this line. The facts in the case are as follows:

In the *Journal of Biological Chemistry*, 1912, xii, 81, Osborne and Mendel discussed the importance of lipoids in the diet during growth, and concluded that their data demonstrated that all lipoids were dispensable from the diet during growth (p. 88). One year later McCollum and Davis (*Jour. Biol. Chem.*, 1913, xv, 167) described for the first time that rats could grow for from eighty to 120 days on fat-free diets (Osborne and Mendel's experiments covered only sixty days), but invariably growth became suspended. We called attention to the fact that the addition of lard or of olive-oil would not induce a resumption of growth nor would lecithin or cholesterin, but that the addition of either butter-fat or egg-fat to the diet of purified food substances caused a prompt resumption of growth—a thing which never occurred unless fatty substances were added. One month after the appearance of our paper Osborne and Mendel published another paper (*Jour. Biol. Chem.*, 1913, xv, 311), in which they showed that the addition of *unsalted butter* to their "synthetic diet," which was not made up of purified food substances but contained "protein-free milk," would induce growth far longer than the same diet without the butter addition. It was in this paper that they first called attention to the fact that a suspension of growth always took place when a fat-free diet was fed. They admit that their butter contained about 15 per cent. of all the constituents of milk other than the fat, so that the results of their work as reported in this paper cannot be accepted as proof that the renewed growth was the result of the fat or some other constituent of the butter, for Hopkins had already pointed out that almost insignificant amounts of milk added to a diet of purified foodstuffs induced growth, when without it none was attained. It was not until four months after the appearance of our paper that Osborne and Mendel published work with purified butter-fat, fully confirming our own observations (*Jour. Biol. Chem.*, 1913, xvi, 423). They have not added to our results but have fully confirmed them.

I am presenting this history of the case to make it clear that the writer of your editorial has overlooked the actual discovery concerning both butter- and egg-fats, and gives the impression that we have confirmed Osborne and Mendel, whereas the reverse is true. It is a matter of injustice to give this false impression in an editorial of a journal having so wide a circulation among scientific men as does The Journal. I therefore ask that you request the writer of your editorial carefully to go over the literature cited and verify the statements I have made. I am sending you enclosed a copy of our papers on this subject. I hope you will find an opportunity at an early date to rectify this mistake in your editorial column.

Thanking you for giving this matter your attention, I am,

Yours very truly,

E. V. McCollum, University of Wisconsin, Madison, Wis.

[Comment.—We are glad to add the foregoing comments to supplement and correct the editorial referred to.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FRUIT ACIDS AND THE BLOOD—TYPHOID VACCINE AND CARRIERS—VERACOLATE A PROPRIETARY NOSTRUM

To the Editor:—1. What is your opinion of the use of fruit acids in the treatment of gouty and rheumatic conditions? Do fruit acids enter the blood or tissues as acids or alkalies?

2. What is your opinion on the use of typhoid vaccine in typhoid carriers?

3. What is your opinion on the use of Veracolates, Marcy Company, Boston, in gall-stone and gall-bladder affections?

4. What is your opinion of ox-bile pills covered with salol in gastric ulcer?

J. W. Hopkins, M.D., Melrose, Mass.

Answer.—1. The fruit acids are neutralized in the intestines, forming salts. Such salts become oxidized in the tissues with the production of carbonates. This is a general statement but it does not apply to tartrates to so great an extent as to the citrate and other salts. The tartrates are not completely oxidized to carbonates and in large doses may exert an unfavorable influence on the kidneys. Fruit acids tend to decrease the alkalinity of the blood temporarily by withdrawing the bases by which they are neutralized. This effect is slight in ordinary cases so that it is commonly but incorrectly considered that the fruit acids are converted into alkaline carbonates. They can become converted into carbonates only by combination with a base and subsequent oxidation. An excess of a fruit acid tends to lower the alkalinity of the blood and to increase the acidity of the urine. The purpose of giving compounds of the fruit acid is to secure the effect of alkalies and this is best obtained by administering not the acids themselves, but their salts. The salts of the ordinary fruit acids are useful whenever it is desired to increase the alkalinity of the blood and diminish the acidity of the urine. Important investigations indicate, however, that it is scarcely feasible to produce any marked effect on the alkalinity of the blood in this manner. If the physician believes, as many do, that the alkalinity of the blood is an important factor in the recovery from conditions like gout and rheumatism, the administration of the salts of the fruit or vegetable acids is very appropriate if large quantities of tartrates are avoided.

2. Typhoid vaccine is suitable in the treatment of typhoid carriers, although in some obstinate cases it does not prove effective.

3. Veracolate is said to consist of the salts of the essential bile acids, sodium glycocholate and sodium taurocholate with cascara and phenolphthalein. Bile salts have the effect of increasing the secretion of bile. It is very doubtful whether this increase in the secretion of bile is of any special value in the treatment of gall-bladder affections. In any case there is no occasion for a proprietary mixture of the bile salts with fixed quantities of cathartics, as it is perfectly easy for a physician to prescribe such doses of cathartics as a patient needs without giving them in a proprietary mixture in which they will be frequently given when not needed. The advertising literature of Veracolate shows a tendency to extravagant statements which no physician ought to encourage. For instance, the statement is made that "Veracolate is a biliary disinfectant." Slight antiseptic action has been attributed to the bile salts, but there is no warrant for saying that they have disinfectant power.

4. Ox-bile pills may be of service in gastric ulcer if it is desired to increase the flow of bile. They are hardly to be regarded as an important medicament for this condition. The coating of pills with salol is a common practice to prevent the action of the gastric juice. It should be remembered that if the coating exceeds a very thin layer, a large amount of salol may be given.

CONGENITAL ABSENCE OF AN EXTRINSIC OCULAR MUSCLE

To the Editor:—Please inform me if the congenital absence of an ocular muscle (extrinsic) has ever been noted.

Wesley Bishop, M.D., Regina, Saskatchewan.

Answer.—Although the occurrence of this anomaly is exceedingly rare, it has been observed and reported a number of times. Perhaps the most recent case is that of Mittendorf (*Manhattan Eye, Ear, and Throat Hosp. Rep., February,* 1914), who reports the case of a man aged 52 with a congenital absence of the right inferior rectus, and also the absence of Tenon's capsule over practically the lower portion of the eyeball. The family history in this case is somewhat significant. The patient is the fourth of a family of ten children, among whom four show marked congenital ocular defects. In this case the right eye was in a position of marked sursumvergens, pointing nearly directly upward, so that on elevating the lid, the lower border of the cornea was all that could be seen. During the operation to correct the faulty position of the eyeball, no trace of the inferior rectus tendon could be found. Up to the present time only about fourteen cases of congenital absence of an extrinsic ocular muscle have been reported in ophthalmic literature.

USE OF LEAD AND OPIUM WASH

To the Editor:—1. Why is lead and opium wash used on external surfaces, for sprains, trauma, etc.?

2. Is lead absorbed through the unbroken skin?

3. Is opium absorbed through the unbroken skin?

4. Is the combining of the two drugs attended by the formation of a new compound, which is absorbed through the unbroken skin?

W. S. Cozart, M.D., Boston.

Answer.—1. The application of lead is thought to allay inflammation.

2. Yes, to some extent.

3. No.

4. There is no new compound formed.

EISENZUCKER

To the Editor:—Please inform me about Eisenzucker. Where can I look up articles or references about it—dose, applicability in children, etc.?

H. Trossbach, M.D., Colorado Springs, Colo.

Answer.—Eisenzucker or saccharated ferric oxid is official in several pharmacopeias, but not in the United States Pharmacopeia. It consists of a ferric hydroxid made soluble by the addition of sugar and a small amount of sodium hydroxid. It is said to be an efficient ferruginous preparation. The adult dose is 0.6 gm. or 10 grains. This may be dissolved in equal parts of water and syrup.

Typhoid and Tuberculosis.—Antityphoid vaccination has not increased other diseases, but, on the other hand, tuberculosis, the disease suspected of being increased, has decreased in the Army since 1908.—Will Shimer, *Jour. Ind. State Med. Assn.*

Medical Education and State Boards of Registration

RULES GOVERNING DRUGLESS THERAPY IN PENNSYLVANIA

According to a report received from Dr. J. M. Baldy, the Bureau of Medical Education and Licensure has adopted the term "drugless therapy" under which to license certain practitioners of medicine and has defined drugless therapy specially to include the following:

1. Any treatment having the spine for a base, including (a) chiropractic, (b) Napravit, (c) Spondylo-Therapy, (d) Chiropractic Spondylo-Therapy, (e) Neuropathy, (f) Any other treatment having the spine for a base not here specified.

2. Any treatment having the mind for a base. (a) Suggestive Therapeutics, (b) Metaphysics, (c) Vita-Therapy, (d) Magnetic Healing, (e) Any other treatment having the mind for a base not here specified.

3. Any system, method, science or art of treatment based on 1 and 2 which is in existence or may come into existence and not already specified under the above-named divisions.

The license issued to those practicing any branch of drugless therapy, will not confer the right to use the title of "Dr." Nor will it authorize the holder to practice pharmacy, dentistry, osteopathy, nor to treat persons sick with quarantinable diseases, nor to practice surgery, midwifery or medicine by the use of drugs administered internally or applied externally.

After July 1, 1914, no person will be admitted into Pennsylvania for the purpose of practicing any form of drugless therapy without having first fulfilled the following requirements:

(A) A preliminary education prior to entering on the study of drugless therapy equal to that required of medical students prior to entering on the study of medicine, these requirements to be passed on by the Bureau of Professional Education of the Department of Public Instruction.

(B) The satisfactory completion, at an approved school, of a course of study consisting of the following:

1. The first two years of study prescribed by the medical schools of this commonwealth excepting those portions relating to materia medica, pharmacy, pharmacology, toxicology and surgery.

2. A third year of study, including hygiene, preventive medicine, symptomatology, diagnosis, pathology and therapeutics relating to drugless therapy.

3. The satisfactory passing of a licensing examination conducted by the Bureau of Medical Education and Licensure, after having qualified on the requirements of 1 and 2, as well as on character and moral standing.

At the present time there is no school teaching drugless therapy in the United States which can fulfill these requirements. The Bureau of Medical Education and Licensure has, therefore, made arrangement by which students desiring to pursue these courses may obtain the required education in the following institutions:

University of Pennsylvania, Philadelphia.
University of Pittsburgh, Pittsburgh.
Temple University, Philadelphia.
Women's Medical College, Philadelphia.

The following is the method of procedure which must be adopted in order to obtain access to the courses of these schools:

1. The preliminary requirements equal to the medical students admitted to the school chosen must be fully satisfactory to the institution.

2. The applicant desiring to take the course required by the state will apply for admission as a special student to the institution he or she selects, asking the privilege of electing such course as they desire. The courses the applicant must elect are those specified under Section B, Subdivision 1, namely, the full and complete course as given to the medical student with the exception of those branches which are not necessary for the practice of drugless therapy, namely, materia medica, pharmacy, pharmacology, toxicology and surgery.

At the completion of each examination held by the institution, a notification is issued to the applicant that he or she has passed satisfactorily the given examination. These notifications must all be submitted eventually to the Bureau of Medical Education and Licensure, as proof of having satisfactorily completed each course elected, before the applicant will be admitted to the state examination for drugless therapy.

3. During the third year the student will elect, in the institution in which he is enroled, the courses bearing on Hygiene, Preventive Medicine, Symptomatology, Diagnosis and Pathology. The same procedure as to certificates of having passed examinations and submission of the same eventually to the Bureau are to be followed.

In the meanwhile, the Bureau of Medical Education and Licensure will arrange to approve certain schools of drugless therapy in which the student may matriculate, in order to obtain the necessary instruction in the branch or branches of drugless therapy he may elect during his third year.

4. Eventually, as any schools of drugless therapy are brought up to the above requirements, they will be inspected by the Bureau of Medical Education and Licensure and approved, as sources from which drugless therapists may obtain their full course of instruction. Until such time comes, no applicant will be admitted to the Pennsylvania examinations for drugless therapy without having fulfilled the above requirements.

Any further information desired by any individual in regard to these matters will be furnished on application to the Bureau of Medical Education and Licensure, at Harrisburg.

Book Notices

Renal Diagnosis in Medicine and Surgery. Being a Handbook of the Theory and Practice of Functional Testing of the Kidney. By Dr. Victor Blum, Tutor in Urology of the University of Vienna. English Translation by Wilfred B. Christopherson. Cloth. Price $2.00 net. Pp. 144, with sixteen illustrations. New York: William Wood & Co., 1914.

So much discrepancy exists between our urinary findings and those noted post mortem that one cannot help wondering whether he is ever justified in placing great reliance on variations in the urinary output. The fact that albumin and casts may or may not mean a pathologic lesion of the kidneys has increased our uncertainty regarding diagnosis. This situation has led to the introduction of various tests of the functional activity of the kidneys. "The aim of recent advances in modern functional renal diagnosis is to substitute a diagnosis based on physiology for empirical rules, to complete the general judgment of the renal functions by 'topical' tests of the various separate functions of the kidney." Many of the tests advocated have been shown to be absolutely useless and unreliable. This is especially the case when these tests are used to decide the question of competency or incompetency of one kidney to do the work of two in cases in which surgical intervention is contemplated. Thus we find, for instance, that cryoscopy, both of the urine and blood, for which much is and has been claimed, shows little beyond the fact that the concentration of the urine or blood is within normal limits; but "the assumption of a satisfactory renal function from a normal freezing-point of the blood is only admissible as long as we do not identify 'satisfactory function' with anatomical intactness. As in diseases of other organs, so also in affections of the kidneys—diffused and surgical renal complaints—we find a certain capacity for compensation: i. e., the excretory function of the kidneys may, in spite of extensive disease, prove adequate, since the functional deficiency of the diseased part can be supplied either by compensatory hypertrophy of other parts of the kidney or by other means, such as hypertrophy of the heart in chronic nephritis. The osmoregulatory activity of the kidneys in such a compensated case need have suffered no harm, and the freezing-point of the blood may remain normal in spite of definitely proved anatomical lesions of the kidney." It is clear, therefore, that little reliance can be placed on this test, especially regarding prognosis or advisability of surgical intervention. The same criticism applies to many of the other tests introduced. Space does not permit a review or criticism of the various methods discussed by Blum, but it suffices to say that he advocates the following procedures as especially serviceable: (1) method of experimental polyuria as advanced by Albarran; (2) administration of indigocarmin as advised by Völcker and Joseph, and (3) use of phenolsulphonephthalein as originated by Rowntree and Geraghty. The latter test is fast becoming the most popular and reliable test at our disposal for the determination of renal incompetency or disease.

This little monograph is written in a clear and concise style. The translation is, for the most part, smooth and excellent. The book is to be recommended as a reliable guide to the methods of functional renal diagnosis and the reliance to be placed on them, as well as concerning the physiologic and pathologic principles on which such diagnosis is based.

Diseases of the Heart. By James Mackenzie, M.D., F.R.C.P., LL.D., Physician to the London Hospital. Third Edition. Cloth. Price, $5.50. Pp. 502, with 264 illustrations. New York: Oxford University Press, 1913.

In this edition Mackenzie has added much new material, and there has been a genuine revision and liberal rewriting. More emphasis is laid on the findings of the electrocardiograph, and there is more clearly brought out the relation of symptoms and signs to altered physiology. Therapeutic measures, as the use of digitalis in auricular fibrillation, are explained on scientific principles rather than on the ground of empiricism. The book is up to date, well written, and from the publishers' point of view of printing, illustration and binding, all that could be desired. An appendix of nearly one hundred pages contains instructive records of a large number of illustrative cases. No one familiar with the literature of diseases of the heart will question Mackenzie's right to speak with authority, especially on questions connected with pulse-tracings and the use of the polygraph. At the same time there is uttered once in a while a note that is somewhat irritating in that it seems a little too dictatorial and fault-finding. The reader wishes to be instructed but does not care to be put in the class of "most physicians," or to be told that he will persist in not understanding a certain thing even though plainly told, etc. And in the earlier pages we cannot help resenting his intimations that teachers and writers as well as general practitioners have failed to grasp the importance of the heart-muscle and are still devoting a large part of their energies to the refinements of auscultation. We agree with most of what Mackenzie says in this connection, but we also agree with what some of his friends have told him, that much of what he says is "common knowledge" (p. 18), and we resent his imputation that writers and teachers and the best of the general practitioners are still hopelessly ignorant on these matters. To the student of heart disease the book is indispensable as embodying the riper views of a pioneer investigator. It is in no sense a text-book for the undergraduate, and is not so intended.

Diagnostics of the Fundus Oculi. (Comprising One Volume of Text with 238 illustrations and Two Portfolios Containing 79 Stereograms and 8 Diagnostic Cards; also Hand-Scope.) By Edward L. Oatman, M.D., Surgeon Manhattan Eye, Ear and Throat Hospital. Cloth. Price $25. Troy, N. Y.: The Southworth Company, 1913.

This is one of the noteworthy works on diseases of the eye printed in English during the past year. It consists of one volume, which may be regarded as the textual description of two large portfolios containing seventy-nine stereograms and eight "diagnosis cards" illustrating all the common and many of the unusual appearances of the ocular fundus. In addition to these stereoscopic views of the background of the eye, the volume of text is further illustrated by 234 cuts and four colored plates. Many of the former are reproductions of microscopic sections, and both artist and publisher, have succeeded in portraying the minute tissue-changes in a fashion not often attained in similar works. The same may be said of the stereograms. These stereographic views admirably reproduce the originals, and they certainly ought to be of great assistance to the student of ophthalmoscopic conditions. Although these carefully prepared volumes will be of service to the ophthalmologist, the neurologist and the general practitioner, yet we believe that they are of particular value in teaching. The employment of the stereoscope to bring out the details of ocular fundal lesions has in these instances proved a great success, and the views cannot fail to interest as well as instruct the student. Each stereogram has conveniently printed above it a good description of what the observer ought to see, and this arrangement will, we believe, meet a demand for undergraduate and postgraduate teaching of ophthalmoscopy not covered by any other work. Every college in which a study of the alterations in the fundus oculi forms a part of the curriculum will surely need and will be much benefited by the use of these admirable adjuncts to teaching.

DIE ALBUMINURIE. Klinische und experimentelle Beiträge zur Frage der Orthostatischlordotischen und der Nephritischen Albuminurie. Von Dr. Ludwig Jehle, Privatdozent für Kinderheilkunde in Wien. Paper. Price 4 marks. Pp. 109, with thirty-seven illustrations. Berlin: Julius Springer, 1914.

In this monograph Jehle presents the clinical and experimental evidence on which he bases his conclusion that the so-called "orthostatic" albuminuria is always a "lordotic" albuminuria. During the period of development about the age of puberty, many persons acquire an inability to assume a proper carriage of the body. This leads not only to a lordosis, but also to various circulatory changes in various parts of the body. Those in the kidney are sufficient, in the mind of Jehle, to cause the albuminuria which is evident when the patient is erect (that is, when the lordosis is present). As the lordosis disappears when the subject is lying down, so also must the albuminuria, as the circulatory disturbances are not apparent under these conditions. Jehle further shows that albuminuria may be produced with a normal patient by inducing a lordosis in the recumbent position. It would seem, therefore, that the erect (orthostatic) position is not the essential feature of this type of albuminuria but, rather, the lordosis, as Jehle assumes. This monograph is commended to those interested in the causation and differentiation of the various types of albuminuria. The views presented are worthy of consideration, and the clinical evidence produced merits more than passing mention.

A HISTORY OF LARYNGOLOGY AND RHINOLOGY. By Jonathan Wright, M.D., Director of the Department of Laboratories, New York Post-Graduate Medical School. Second Edition. Cloth. Price $4.00 net. Pp. 357, with illustrations. Philadelphia: Lea & Febiger, 1914.

The author presents a chronicle of the growth of the specialty indicated in the title. As specialization in practice has led to development of detail and technic, so in the description of the advance of this specialty, much detail and description are necessarily included. This specialty is not, however, too greatly isolated. In each section of the book the relations to general medicine are traced and the subjects are closely linked together. Etymology, literature, religion, economics, etc., as they have contributed to the study of laryngology and rhinology, are woven into the thread of the story. The book is interesting, readable and instructive. If there be any adverse criticism it is that many sections seem too short.

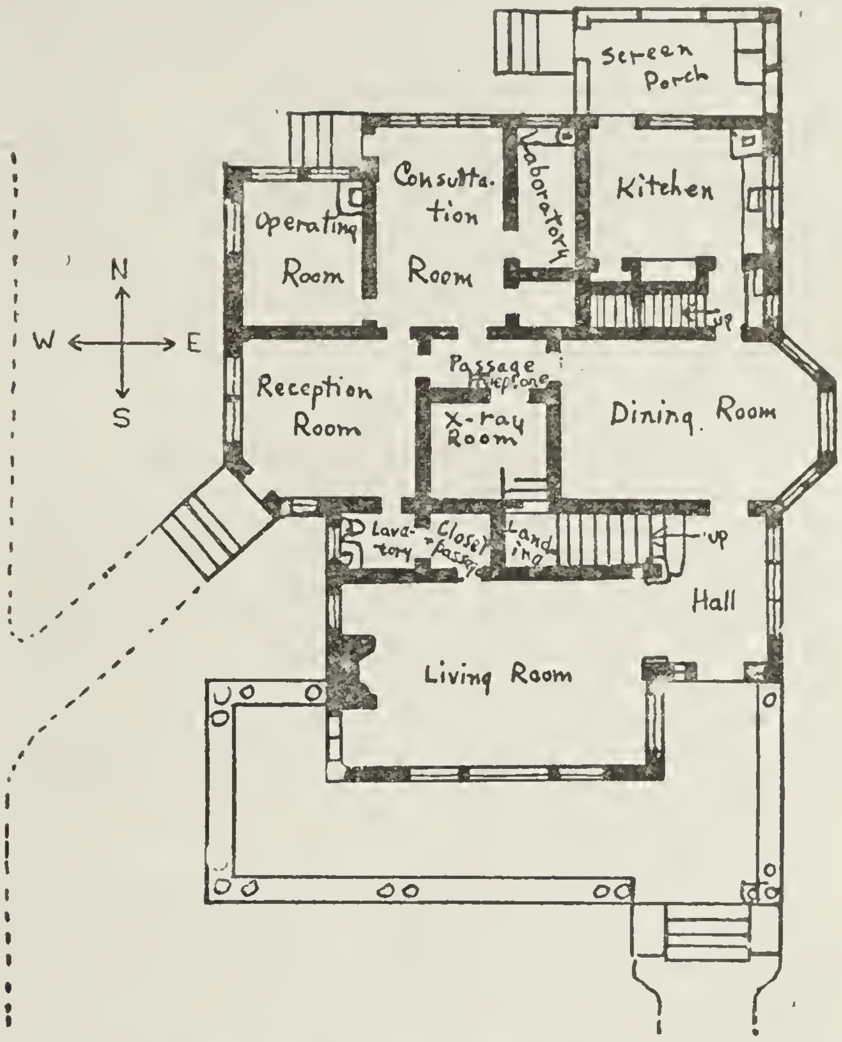
ABBAU UND ENTZÜNDUNG DES HERZKLAPPENGEWEBES. Von Professor Dr. Paul Grawitz, Direktor des pathologische-anatomischen Instituts der Universität Griefswald. Paper. Price, 2 marks. Pp. 32, with five illustrations. Berlin: Richard Schoetz, 1914.

This brochure relates the results of a study made by Grawitz of the growth of pieces of the heart-valves in culture-mediums. The conclusions which he reaches are confirmatory of views which he expressed several years ago, and emphasize the part played by the fixed tissues in processes of growth, repair and inflammation. The development of small, round wandering cells in hanging-drop cultures, the transformation of one type of tissue into another, and the bearing of these and other experimental observations on problems of biology and pathology are clearly stated, and the understanding of the subject made easier, by several excellent illustrations.

Miscellany

Combined Office and Residence

To the Editor:—I am sending the drawing of the main floor of my combined office and residence. It has proved very satisfactory. The idea was to keep the office and residence entirely distinct. The center of town is to the southwest, which accounts for the location of the entrances, the office entrance being first seen, though the other entrance is on the more important street. The south and east exposures are 45 feet and 68 feet, respectively, including the porch.



Plan of main floor of combined office and residence.

H. W. OAKLEY, M.D., Porterville, Cal.

The House-Fly and Infant Mortality

For a long time the house-fly has been accused of various criminal activities, the most serious of which in northern climates, is the transmission of diarrheal disease or summer complaint. In an effort to determine by means of social research with human beings as the subjects, the exact importance of the insect in this connection, the Department of Social Welfare of the New York Association for Improving the Condition of the Poor, through its Bureau of Public Health and Hygiene, conducted an experiment in New York City in the summer of 1913, involving the sanitation of an area in the Borough of the Bronx, the elimination of fly breeding in the neighborhood and the protection of the infants in the homes. A striking reduction in morbidity among the protected infants was obtained, and the work is described in detail by Dr. Donald B. Armstrong, director of the Department of Social Welfare (THE JOURNAL, Jan. 17, 1914, p. 200).

It was realized by the workers in this investigation that several complicating factors and uncontrollable variables threw considerable doubt over the statistical results, and consequently the study is being continued this summer. In order to ascertain the exact significance of the prevention of infection of the infant's food by flies, unsupplemented by the results of the generally improved sanitary environment, the work this year is being confined strictly to the homes where the children spend most of their time. Widely separated Irish, Italian and Jewish neighborhoods have been chosen in Manhattan Borough, to ensure a geographical and racial balance, and about 1,200 infants selected and separated into protected and unprotected groups. The infants are Department of Health cases and the most generous cooperation of the Bureau of Child Hygiene of the Department of Health is being given to the experiment, half of the twelve nurses employed being supplied by the department. All cases are visited regularly and morbidity recorded, together with any factors possibly of influence in the causation of diarrheal disease. This is true of the unprotected babies as well as of those for whom everything is being done to eliminate fly dangers from their lives.

Is it necessary to screen the house for the protection of the infant? Is it worth while to take unusual care to protect the food of the infant from flies? Are netting, fly paper, fly traps, etc., worth what they cost? On the grounds of decency we may always answer "yes." Is it, however, a health measure of prime importance? This can only be answered by research such as is now being carried on in New York City.

Sanitary Conditions in Turkey in Asia

The report of the American Hospital at Talas, Cesarea, for 1913 indicates that much good work is being done by the small American force there, assisted by the native physicians and nurses. The hospital, which is well equipped, has as its chief surgeon Dr. A. R. Hoover, and is under the supervision of the American Board of Foreign Missions. A total of 864 surgical operations was done during the year. There is need for another volunteer American physician and a trained nurse. An epidemic of typhoid fever occurred in Cesarea and the vicinity with about 300 cases and a death-rate of about 25 per cent. Speaking of sanitary conditions, the report, written by Dr. Hoover, says:

> "The sanitary condition of Cesarea being as it is, the marvel is not that frequent epidemics attack the inhabitants; rather we wonder that the whole populace is not wiped out by disease. For instance, each summer and continuing into the fall months the chief industry of Cesarea is the manufacture of 'basdirma,' a kind of dried beef, which is mixed with spices and garlic and eaten raw. Many thousands of cattle are slaughtered for this purpose every year, and this without the slightest attempt at system or order. All through the city, in the streets or in open places, the cattle are slaughtered, and, the drainage being abominable, the resulting stench and the myriads of flies may be imagined better than written. With the breaking out of the typhoid epidemic the city officials gave orders to cease the manufacture of basdirma, but within a few days, on the plea that the business of the city was being ruined, the work was resumed and went on as usual. I was called to a case of typhoid; the patient having been sick for six weeks, developed meningitis and was in a hopeless condition. The house was that of one of the well-to-do basdirma manufacturers, house and factory being in the same stone-walled enclosure. While I examined the patient, the relatives left their work and came in to sit around and discuss the case with me, while the swarms of flies had free communication between patient and the great piles of exposed dried meat waiting shipment to Constantinople. The great need seems to be some means of spreading a more general knowledge of the common facts of healthful, hygienic living among the people, that they may come to realize their lack in this respect."

Mutations in Bacteria

Experimental evidence which indicates that a given type of bacterium may be transformed into another and quite distinct type with altogether different cultural and infective characteristics has been brought forth by several authors within the past few years. R. T. Hewlett (*Nature*, April 23, 1914, p. 193) cites examples of mutations in bacteria and gives a brief summary of the recent work of Mme. Victor Henri (*Compt. rend. Sc.*, 1913, clviii, 1032).

Various alterations in the morphology and in physiologic characters of certain bacteria have been obtained by many observers. Thus, *Bacillus coli*, the plague bacillus and other organisms show considerable variation in the size of the cells on different culture-mediums; *B. prodigiosus*, which forms a brilliant red pigment when grown at ordinary temperatures, completely loses the power of pigment production after cultivation at blood heat, at which temperature (98 F.) it grows as luxuriantly as at 65 F. Twort and Penfold have educated the typhoid bacillus to ferment sugars which ordinarily it does not attack, and Revis has obtained marked varieties of *B. coli*, morphologic and physiologic, by prolonged culture in various mediums. Minchin holds that if there be no syngamy (sexual reproduction, that is, conjugation) among bacteria, as seems to be the case, the so-called species of bacteria are to be regarded as mere races or strains, capable of modification in many directions.

A marked instance of artificial production of mutations of *B. anthracis*, a particularly well-defined and stable bacterial species, is described by Henri. The method employed was to expose an aqueous suspension of sporing anthrax in a quartz tube to ultraviolet radiations for times varying from one to forty minutes, and afterward subculturing.

Whereas the majority of the organisms were killed by this treatment, the ultraviolet rays being markedly bactericidal, a few survived. Of the latter, while most presented a normal aspect, a few showed characters decidedly different from the typical anthrax bacillus. The principal of these were (*a*) coccoid forms which remained stable during a period of two months; (*b*) thin filamentous forms not taking Gram's stain, not liquefying gelatin, or curdling milk, and producing an infection different from anthrax on inoculation. This form remained absolutely fixed after daily subculture for more than eighty days; but, though stable *in vitro*, *in vivo*, after passage through an animal, Gram-positive coccoid forms made their appearance, and subsequently, after subculture in broth, a certain number of bacillary forms, approximating to typical anthrax, were obtained. These experiments open wide possibilities in the transformation of micro-organisms.

Epidemiology of Buffalo Outbreak of Poliomyelitis

Frost and Leake of the Public Health Service have made an epidemiologic study of the epidemic of poliomyelitis which occurred in Buffalo and vicinity in 1912. The report of their work is given in a pamphlet issued by the New York State Department of Health. After giving in detail the method and the findings of their study, they summarize their conclusions about as follows: Nothing new or distinctly unusual in the epidemiology of poliomyelitis was found. In general characteristics and course this epidemic was similar to those studied in other cities. An infection probably present for years became progressively more prevalent without discoverable specific cause. It probably started from an ill-defined focus among the Italian population in June and July, extending practically over the entire city between that time and October, attacking about 1 in 1,400 of the population, chiefly children. In those groups in which the disease developed early, it died out early, while progressing in other groups. This indicates that the infection was independent of weather conditions, and gives the impression that the infection was universal throughout the city, but attacked only those susceptible and then died out in that particular section. The fact that only a small proportion of the patients had been in contact either directly or indirectly with any previously recognized case of poliomyelitis does not disprove the contagiousness of the disease or its direct transmissibility from person to person. It does prove quite conclusively, however, that if it is commonly so transmitted, the clinically recognized cases of poliomyelitis are relatively unimportant sources of infection. Mild, unrecognized cases or human carriers must be more important. The wide scattering of cases indicates that if transmitted by biting insects they must derive the infection from sources other than human cases, and that only a small proportion of persons bitten by such insects develop the disease in recognizable form. While it is possible that domestic animals or insects may be natural sources or reservoirs of the infection, there is at present no proof of this.

Medicolegal

Non-Validity of Law Authorizing Revocation of Licenses for Advertising Relative to Diseases of Sexual Organs

(*Chenoweth vs. State Board of Medical Examiners et al.* (*Colo.*) *141 Pac. R. 132*)

The Supreme Court of Colorado reverses a judgment of the district court which sustained the State Board of Medical Examiners in revoking the license of Dr. Chenoweth to practice medicine for having published in a newspaper an advertisement relative, as was alleged, to a disease and diseases of the sexual organs. The supreme court holds unconstitutional the statute of the state authorizing the board to refuse to grant, or to revoke, a license to practice medicine in the state for "causing the publication and circulation of an advertisement relative to any disease of the sexual organs." The court says that the only statute of similar import brought to its attention was one of Nebraska, in which, however, were found the qualifying words, "tending to injure the morals of the public," not in the Colorado statute.

Advertisements by physicians may be regarded by certain members of the profession as contrary to professional ethics, but with that legislatures and courts may not be concerned. The legislature has no power to confer the authority on a board of medical examiners to deny to a physician the right to advertise his business. Doubtless, however, a physician might publish an advertisement which would in itself be so grossly immoral as to constitute dishonorable conduct. To say that an advertisement which may possibly refer to resultant effects of diseases of the sexual organs, but just as possible to be produced from other causes, injuriously affects the public morals is both prudish and absurd. The court can but take notice of the trend of the times and of the fact that societies and large numbers of respectable and moral people, including physicians, are urging that sex hygiene be taught in our public schools, in the interest of the public good and public morality.

The statute is clearly so indefinite as to render it invalid for that reason alone. Besides, the penalty provided is so grossly excessive and unconscionable as to make the statute repugnant to every sense of justice, if not to render it void for such reason. Because the statute makes the act an offense only when committed by a physician, it is for that reason clearly discriminatory, in that it applies to a class of citizens only, and for such reason alone is void.

The court must not be understood as in any sense declaring for the restriction of the exercise of the police power as heretofore announced, in cases in which the purposes are plainly for the public good, for it is the tendency of courts to make such new and other application of this doctrine as the ever-changing conditions and protection of society may seem to require. But there is a necessary limit to the invasion of the inherent and constitutional rights of the citizen beyond which legislative restriction may not go, if stable government is to remain.

Exemption from Vaccination of those Conscientiously Opposed to it

(*Williams et al. vs. Wheeler et al.* (*Cal.*), *138 Pac. R. 937*)

The District Court of Appeal, First District of California, says that, as the titles of the two Acts of 1889 and 1911 indicate, it is the policy of the state of California to encourage and provide for a general vaccination as the most effective method known to medical science for preventing the spread of an infectious and dangerous disease, and as such is a reasonable and proper health regulation, but it would [rather] seem to be the very opposite of a health regulation for a law, whose title declares its purpose to be "to encourage and provide for a general vaccination," to have embraced within it a proviso exempting from such vaccination those whose mental attitude is that of opposition to the avowed object of the law. The object and effect of such an exemption in such a case, as in this involving the question of exemption from vaccination, would be to defeat the very intent of the law itself, by an exception, not founded on considerations of health, destroying that generality within the sphere of its operation which would be essential to its effectiveness as a health regulation.

In the opinion of the court, therefore, the provision of the Act of 1911, which seeks to exempt those persons who are conscientiously opposed to the practice of vaccination from the operation of the law, otherwise general in its terms, requiring vaccination of persons seeking admission to educational institutions, is not in the nature of a health regulation. That being so, it is not such a proviso as would come within the general police powers with which the legislature is invested. Hence it cannot be availed of by those seeking enrollment in the University of California to nullify and avoid the operation and effect of the existing rule of the authorities of the university on the subject of vaccination.

Construction of Statute with Reference to Privileged Communications

(*Booren vs. McWilliams* (*N. D.*), *145 N. W. R. 410*)

The Supreme Court of North Dakota says that the statute of that state prohibits a physician from being examined as a witness, without the consent of his patient, as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient. These provisions are most wholesome and salutary when applied to cases coming within the reasons for the enactment of the statute, but, if construed too strongly in favor of the patient, the beneficent effects intended to result from this enactment will be far more than overcome by the injustice which must in many cases result. To hold that any conversation, had by a patient with his physician while attending him as such, is privileged would be to render the phrase "which was necessary to enable him to prescribe or act for the patient" totally ineffective. In this case, an action for breach of promise of marriage aggravated by seduction, an offer was made to prove that the physician who attended the plaintiff during confinement, on a subsequent visit to her, was told by her that she did not have intercourse with the defendant until about six and one-half months prior to the birth of the child, that she never had had any talk with the defendant about marriage, and that the reason she let him have intercourse with her was that she thought, if she became pregnant, he would marry her. Under the circumstances surrounding the visit, it was apparent that such information, if given the physician, was not necessary to enable him to prescribe or act for the plaintiff, and therefore it was not privileged under the statute.

Malpractice Liability of Surgeon Employed by Company

(*Hoffman vs. Watkins* (*Wash.*), *138 Pac. R., 664*)

The Supreme Court of Washington reverses a judgment obtained by the plaintiff for alleged malpractice in the treatment of an injury to one of his shoulders. The court says that the allegations were that the defendant carelessly and negligently failed to examine the shoulder properly and to ascertain its true condition, but improperly diagnosed the injury as a sprain, and treated it accordingly, when as a matter of fact the shoulder was dislocated. It was not necessary to establish a contractual relation between the defendant and the plaintiff, for it is clear that, whether the relation was that of physician and patient alone or whether the services of the defendant were engaged because of his contract with the lumber company, his duty to the plaintiff would have been the same. The authorities all agree that, so long as the relation of physician and patient exists, however that relation was formed or whether the service was gratuitous or for an expected fee, the physician owes his patient the same measure of duty and the same degree of care and skill and is to the same extent answerable for the failure of its exercise to the injury of the patient.

It is the duty of the court to make a plain and concise statement to the jury of what the triable issues are, to aid them in determining the only controversy they are called on to determine. The defendant was entitled to have the jury instructed to the effect that negligence could not be inferred nor presumed from the failure to effect a cure, and that the condition of the plaintiff's shoulder subsequent to the defendant's treatment did not of itself establish an inference that the defendant had been negligent in his treatment.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Electro-Therapeutic Association, Battle Creek, Sept. 15-17.
American Roentgen Ray Society, Cleveland, Sept. 9-12.
Colorado State Medical Society, Boulder, Sept. 8-10.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Michigan State Medical Society, Lansing, Sept. 11-12.
Oregon State Medical Association, Portland, Sept. 10-11.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

July, VIII, No. 1, pp. 1-112

1 *Respiratory Exchange of Infants. F. G. Benedict and F. B. Talbot, Boston.
2 *Case of Acute Chylous Ascites (Non-Fatty, Pseudochylous, Lactescent or Milky Type) in Boy Eight Years Old. F. Huber and H. M. Silver, New York.
3 Review of Literature on Feeding and Gastro-Intestinal Diseases of Infants, for Year 1913-1914. G. Meigs, Chicago.
4 Review of Syphilis with Especial Relation to Hereditary Syphilis. H. P. Towle, Boston.

1. **Respiratory Exchange in Infants.**—If, Benedict and Talbot state, it is maintained that the total metabolism is proportional to the body-surface, it should be stated that this is not due to the fact that there is a loss of heat from the body-surface and that Newton's law of cooling determines the intensity of the metabolism, but that with normal persons the body-surface, blood-volume, the area of the trachea and aorta, and probably the active mass of protoplasmic tissue, are all in simple mathematical relation to the body-weight. Thus the apparent relationship which has previously been observed between the heat-output and the body-surface with normal or nearly normal persons has an explanation in that with such persons a simple relation exists between the body-surface, blood-volume, body-weight, and the mass of active protoplasmic tissue.

In their series of observations Benedict and Talbot attempted to eliminate completely all muscular activity, to make the experiments under approximately the same conditions as to nutriment, to select such a diet as was least stimulating to the catabolism and to have the subject for the most part in deep sleep, thus eliminating psychic disturbances. They believe that their evidence points strongly and conclusively to the fact that the active mass of protoplasmic tissue determines the fundamental metabolism. The absence as yet of a direct mathematical measure of the proportion of active protoplasmic tissue does not, they believe, in any wise affect the convincing nature of our evidence.

2. **Acute Chylous Ascites.**—Aside from the presence of the chylous fluid, the case cited by Huber and Silver was interesting in many other respects. For instance: (1) The small amount of urine passed. Though only 8 or 9 ounces were excreted in twenty-four hours, there was no evidence of any systemic disturbances, as headache, nausea, vomiting, etc. (2) The general well being of the patient. Excepting the discomfort due to the distended abdomen, the boy did not make any complaint. The appetite was good and bowels regular. Pulse and temperature normal. (3) The rather unusual type of ascites with edema of the back, abdomen, thighs and genitals (ankles, legs and chest, not involved) and no edema of the face at any time throughout the course of the disease. (4) The rapid return of the fluid after tapping, presumably explained by the fact that a collateral circulation had not been established, as condition was rather acute. (5) The marked diminution in the amount of edema of abdomen, genitals, etc., after the tapping, and its rapid return when the puncture had healed. (6) The rapid subsidence of the external localized edema after operation. (7) The decided increase in the urinary excretion soon after operation, evidently the direct results of the removal of the intra-abdominal pressure and the establishment of peritoneal drainage. (8) The brilliant success of the surgical measure adopted.

Internal drainage was carried out as follows: Six strands of No. 7 white silk 4 inches long were caught in the grasp of a narrow-bladed dressing forceps, carried into the abdomen and thrust through the peritoneum to the outer side of the femoral vessels into subcutaneous tissues of the thigh, only half an inch of the silk remaining within the peritoneal cavity. This was repeated on the opposite side. At the upper angle of the wound six more strands of silk of the same length as used below were thrust into the subcutaneous tissues of the abdominal wall above the umbilicus, the lower half inch remaining within the abdominal cavity. Great care was taken to allow only a very little of the silk to project within the abdominal cavity, as it has been found by actual experiment that long silk strands may cause intestinal obstruction by forming attachments to the omentum or any organ within reach. The patient reacted well and his convalescence was rapid and uneventful. The dressings were removed at the end of a week and the wound was found completely healed, with no edema of its edges. There was some edema in the upper part of the right thigh, very little in the left thigh, and none over the upper portion of the abdomen. Five months after operation the boy was found to be in excellent health; the fluid had not returned. Abdomen lax, no masses could be felt on a most careful examination, nor could any thickening be made out in the neighborhood of the silk drains.

American Journal of Medical Sciences, Philadelphia

July, CXLVIII, No. 1, pp. 1-156

5 Ninety Cases of Acute Epidemic Poliomyelitis. F. R. Fraser, New York.
6 Gall-Stones Viewed from Surgical Standpoint. N. Jacobson, New York.
7 *Lange's Colloidal Gold Reaction in Cerebrospinal Fluid. R. I. Lee and W. A. Hinton, Boston.
8 *Effect of Extracts of Sheeps' Thyroid and of Pathologic Human Thyroid on Fatigue Curve of Voluntary Muscle. C. K. Drinker and K. R. Drinker, Philadelphia.
9 *Treatment of Imperfectly Descended Testicles. E. M. Corner, London.
10 Wassermann Reaction. B. A. Thomas and R. H. Ivy, Philadelphia.
11 Involution of Nasopharynx, and Its Clinical Importance. W. S. Bryant, New York.
12 Metabolism Studies in Case of Myasthenia Gravis. T. Diller and J. Rosenbloom, Pittsburgh.
13 Serum Diagnosis of Pregnancy and Its Underlying Principles. J. S. McLester, Birmingham, Ala.
14 Complement Fixation Test in Typhoid; Its Comparison with Agglutination Test and Blood Culture Method. A. L. Garbat, New York.
15 Relation of Lesions of Small Intestine to Disorders of Stomach and Cap as Observed Roentgenologically. L. G. Cole, Boston.

7. **Gold Reaction in Cerebrospinal Fluid.**—The authors' experience confirms the findings of other observers that the gold test is delicate, and that the margin of error is exceedingly small. A gold reaction typical for syphilis is nearly constant in cases of syphilis of the central nervous system.

8. **Effect of Thyroid on Voluntary Muscle.**—Desiccated sheeps' thyroid containing 0.2 per cent. of iodin was macerated by Drinker and Drinker in Ringer's solution isotonic for the frogs, and the filtrate contained the substance used in the experiments. By such a method only a small amount of the original material is represented in the filtrate, as the dried gland is but slightly soluble. The authors term filtrations which resulted from the use of 5 gm. of dried thyroid per 100 c.c. of Ringer's solution, 5 per cent. solutions; those

which before filtration contained 1 gm., 1 per cent. solutions, and so on throughout the entire series. They found that Ringer's solution extracts of dried sheep's thyroid caused depression in 3 per cent. solutions. The depression gave way to slight stimulation between 1 and 2 per cent. of strength. At 1 per cent. there was usually no effect distinguishable from pure Ringer's solution. Similar material from cases of Graves' disease gave no equal amount of depression. Clinical observation on myasthenia gravis and exophthalmic goiter is suggestive in this relation. In addition there was irregularity in the strength of contractions, but the series is much too small to call this a specific attribute. Extract from cases of colloid goiter gave in most cases no depression; and in all less depression than was obtained with either the sheeps' thyroid or with extracts of parenchymatous goiters. There is no irregularity in the strength of contractions such as was noticed with the latter type.

9. **Imperfectly Descended Testicles.**—Corner is convinced that the operation of orchidopexy more frequently fails from atrophy of the gland than by not retaining that gland in a good position. The treatment suggested by Corner for the condition of imperfectly descended testicles is summed up from the point of view of the age of the patient, as the condition is a congenital one. At birth and up to the age of about 5 years of age he advises to watch the case to decide if the testicle is merely late in its descent or not. If a hernia is seen to be present, operate and conclude by doing an orchidoplasty. From 7 to 20 years of age, operate if a hernia is present or not; do either an orchidoplasty, an orchidectomy or an orchidocoelioplasty. Above 20 years of age, do an orchidectomy.

Boston Medical and Surgical Journal

July 16, CLXXI, No. 3, pp. 89-136

16 *Salpingitis—Results of Treatment by Abdominal Approach. C. L. Scudder, Boston.
17 Case of Supposed Progeria (Premature Senility) in Girl of Eight Years. C. W. Rand, Boston.
18 Mushroom Poisoning. E. S. Bagnall, Hartford, Conn.

16. **Salpingitis — Results of Treatment by Abdominal Approach.**—In the series of 74 cases analyzed by Scudder there were 69 operations. There were 3 deaths following the operations, or an operative mortality of 4 per cent. One of these deaths was from shock following a right salpingectomy and an appendectomy, with drainage. There was 1 death due to a septic abortion, the operation being a dilatation and curettage. There was 1 death, evidently due to shock, following a right salpingectomy with drainage of pelvic cellulitis and an appendectomy. A report was received from 40 to 71 living patients out of the 74 total. Of the 5 treated without operation, only 1 reported and she was unrelieved. Thirty-six of the 39 operative results were reported relieved, or 92.3 per cent. Three of the 39 operated results were reported unrelieved, or 7.6 per cent. There were no extra-uterine pregnancies reported in the remote result of any case. Out of 9 cases having had a right salpingectomy and 3 cases havińg had a left salpingectomy, there were reported four subsequent pregnancies. In this series there was 1 salpingostomy. No pregnancy has resulted in this case.

Of the 39 operative results 2 cases reported a further operation, both of which followed a double salpingectomy. There were five patients who developed hernia in the operation scar, four following a double salpingectomy with a partial oophorectomy, and 1 following a left salpingo-oophorectomy with drainage. Of the 39 operated patients from whom a report was received 2 had double salpingo-oophorectomies. Both of these patients were relieved and there were no sequelae excepting a hernia in the scar in one case. Of the total 42 operations of double salpingectomy a report was received from 24 patients, 22 of which were relieved, 91.6 per cent. There were no operative deaths. Two patients were unrelieved by the operation. A double oophorectomy was done in 3 cases and a single oophorectomy in 18 cases, 5 patients had a curettage, and 12 patients had an appendectomy.

Of the 16 total operations of right salpingectomy a report was received from 9 patients, 8 of whom were relieved, 88.8 per cent. There were two operative deaths. One patient was unrelieved by the operation. A right oophorectomy was done in 8 cases, and an appendectomy in 4 cases. Of the 8 operations of left salphinectomy a report was received from 3 patients, all of whom were relieved. There was 1 operative death. A left oophorectomy was done in 4 cases and a right oophorectomy in 1 case; a ventral suspension was done in 1 case, and a curettage in 1 case. Of the 2 operations of division of adhesions a report was received from both, both being relieved, 100 per cent. An appendectomy was done in connection with one case. An exploratory laparotomy was done in one case in which nothing was found to account for the symptoms. The patient recovered and has no acute symptoms since. Of the 5 patients treated by hot douches, the symptoms in all rapidly subsided, and they were discharged relieved from the hospital. One of the 5 patients made a later report complaining of chronic symptoms. Four patients were not heard from.

Bulletin of American Academy of Medicine, Easton, Pa.

June, XV, No. 3, pp. 119-180

19 Physical Bases of Crime. Z. R. Brockway.
20 Resumé and Recommendations of Committee to Investigate Teaching of Hygiene in Public Schools. H. C. Putnam, Providence, R. I.
21 Larger Meaning of Medical Missions. J. A. Melrose, Minneapolis.
22 Modern Medicine in China. E. D. Vanderburgh, Siangtan, Hunan, China.
23 Mount Lebanon Sanatoria at Juneh and Chebanin, Syria. M. P. Eddy, Syria.
24 Caroline A. Ladd Hospital. J. H. Wells, Pyengyang, Korea.
25 American Presbyterian Mission, Canton, China. H. W. Boyd, China.
26 Work in Wei-Hsien. C. K. Roys, Wei-Hsien, Shantung, China.
27 Habit Producing Drugs and Crime. R. W. Wilcox, New York.
28 Head Injury and Syphilis as Cause of Crime. B. Glueck, Washington, D. C.

California State Journal of Medicine, San Francisco

July, XII, No. 7, pp. 263-302

29 Fundamentals in Teaching Sex Hygiene. J. C. Hollister, Pasadena.
30 Treatment of General Paralysis of Insane. C. W. Mark, Agnews.
31 Swift-Ellis Treatment of Cerebrospinal Syphilis. P. K. Brown and W. T. Cummins, San Francisco.
32 Prostatic Carcinoma in Youth of Seventeen. S. J. Gardner and W. T. Cummins, San Francisco.
33 *Relation of Localized Tenderness to Site of Causal Lesion in Perforative Peritonitis. R. T. Stratton, Oakland.
34 *Butyric Acid Test (Noguchi) as an Aid in Diagnosis. F. F. Gundrum, Sacramento.
35 Tabulation and Differential Diagnosis of Liver Cases Occurring in Stanford Wards of City and County Hospitals During Past Few Months. R. W. Harbaugh, San Francisco.
36 Uncomfortable Babies. L. Porter, San Francisco.
37 Death Following Ant Bite. T. C. Edwards, Salinas.
38 Intracranial Pressure. H. C. Naffziger, San Francisco.
39 Echinococcus in California. J. R. Snyder, Sacramento.
40 Registration Law and Requirements for Accrediting Schools for Nurses. A. C. Jammé.

33. **Relation of Localized Tenderness to Perforative Peritonitis.**—As the result of personal observation Stratton is disposed toward the following conclusions bearing on the relation of localized tenderness to the site of the causal lesion. 1. The site of the perforated ulcer, as indicated by moderate abdominal palpation within several hours after the onset, is not uniformly intensely sensitive. 2. Neither is it always the most sensitive area. 3. In addition to the well recognized local symptoms referable to the region of the perforated ulcer and the appendix, other parts of the abdominal viscera may, exceptionally, be the seat of confusing sensitiveness.

The following is offered as a possible solution: The portion of peritoneum at the site of perforation in certain instances being subjected to continuous, prolonged irritation from an unusually concentrated and irritating extruded gastric contents, to which the tissues of some individuals may react differently than those of others, may after a time, lose something of its sensitiveness and fail to respond to increased stimulation by palpation. This condition would only be analogous to the well-recognized depression of nerve function, even paralysis, resulting from overstimulation in other parts of the body of motor and special sense nerves. Or as a result of local toxic and inflammatory influences, actual changes may take place in the delicate peritoneal nerve terminals that prevent the conduction of pain impulses. Coincidentally, other areas coming within the zone or spreading irritation, either for some reason naturally more sensitive or having been subjected to a less overpowering degree of irritation, by reason of their distance from the ulcer, may at this later period and at least temporarily, be relatively more keenly alive to pressure than is the original focus from which the irritation has come. That the greatest abdominal wall protective rigidity should then be over these now more sensitive parts does not seem to be strange or unreasonable; or that, as these new peritoneal areas are involved, symptoms referable to the newly affected part may stand out, at least for a time, with conspicuous boldness and attract and unduly hold the surgeon's attention.

At times the approximate site of perforation is susceptible of fairly close determination. But again, with an incomplete antecedent and recent history, a knowledge of which the sufferings of the patient or the ignorance or nervousness of his associates prevent the surgeon from gaining; with an atypical symptomatology; with other symptoms resulting from almost necessary complications of the primary disease pressing to the front and obscuring the original state; with the usual signs of morbidity dissipated or altered by injudicious narcotic medication, the clinical picture may be so changed, that the diagnostic skill of the well-informed surgeon may be overtaxed.

34. **Butyric Acid Test as Aid in Diagnosis.**—In a series of 43 cases examined by Gundrum the butyric-acid test was positive in all instances in which marked inflammation or degeneration was going on in the cerebrospinal system. It was absent in diseases in which, although there seemed to be spinal involvement, no actual organic nervous lesion was present. In all doubtful cases simulating inflammatory diseases of the brain or spinal cord, spinal puncture is indicated. If the fluid is turbid, the butyric-acid test is superfluous. If the fluid is clear, the butyric-acid test enabled him to tell whether or not inflammatory or degenerative changes are taking place. In other diseases in which symptoms of meningeal irritation arise the obtaining of a clear spinal fluid which fails to show the butyric-acid test of Noguchi is of considerable moment, particularly in the matter of prognosis.

Illinois Medical Journal, Chicago

July, XXVI, No. 1, pp. 1-76

41 Needs and Purposes of State Medical Society. C. J. Whalen, Chicago.
42 Simple Goiter Compensatory Hypertrophy; Its Symptoms and Relation to other Clinical Types. C. G. Buford, Chicago.
43 Rheumatism in Children. J. Brennemann, Chicago.
44 Considerations of Blood-Pressure. G. S. Bower, Galesburg.
45 Autogenous Vaccines in Treatment of Chronic Pus Infections. M. L. Mendel, Chicago.
46 Trichinosis and Typhoid. Report of Case. P. Chester, Chicago.
47 Value of Blood-Pressure in Interpreting Some Clinical Manifestations. H. A. Cables, E. St. Louis.
48 Hydrotherapy in Treatment of Insane. A. H. Dollear, Hospital.

Journal of Experimental Medicine, Lancaster, Pa.

July, XX, No. 1, pp. 1-91

49 Present Condition of Strain of Connective Tissue Twenty-Eight Months Old. A. Carrel, Boston.
50 *Patching and Section of Pulmonary Orifice of Heart. T. Tuffier and A. Carrel, Boston.
51 *Experimental Operations on Sigmoid Valves of Pulmonary Artery. A. Carrel, Boston.
52 *Relation of Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. Changes in Bone Marrow after Splenectomy. R. M. Pearce and O. H. P. Pepper, Philadelphia.
53 *Mechanism of Anaphylatoxin Formation. J. W. Jobling and W. Petersen, New York.
54 *Complement Fixation Tests in Chronic Infective Deforming Arthritis and Arthritis Deformans. T. W. Hastings, New York.
55 *Polyvalent Antigen for Complement Fixation Test for Streptococcus Viridans Infection. T. W. Hastings, New York.
56 Technic and Accuracy of Method of Douglas and Haldane for Calculating Dead Space in Breathing. E. P. Carter, Saranac Lake, N. Y.

50. **Patching and Section of Pulmonary Orifice Heart.**—The purpose of the experiments conducted by Tuffier and Carrel was to develop a technic by means of which the pulmonary orifice could be enlarged. The operation consisted in suturing to the anterior side of the orifice a venous patch which permitted an increase in the circumference of the orifice after the arterial wall had been incised. Although these operations were in the developmental stage, nevertheless only two animals died of the eight that were experimented on. One of these died on the operating table from fibrillary contractions, probably due to the fact that a branch of the coronary artery had been taken up by one of the stitches. A second dog died of pericarditis a few days after the operation. In the six other instances the animals sustained no shock after the operation, remained in good health, and were still normal more than six months after the operation. These experiments show that it is possible to perform an operation, the object of which is to increase the circumference of the pulmonary orifice without involving much danger to the life of the animal. The authors suggest that operations of this type may come to be employed in the treatment of stenosis of the pulmonary artery in man.

51. **Operations on Sigmoid Valves of Pulmonary Artery.**—Incision, suture and cauterization of the sigmoid valves of the pulmonary artery have been performed successfully by Carrel in dogs. In the first series of ten animals, there were only three accidents, probably from largely preventable causes, leading to the death of the animals.

52. **Blood-Destruction and Regeneration.**—The bone-marrow of splenectomized dogs has been examined by Pearce and Pepper with a view to determining the compensatory or other changes following the removal of the spleen. The material consists of marrows representing periods varying from three weeks to twenty months after splenectomy. During the early periods, one to three months, the change in the marrow is slight and either focal or peripheral; after six to twenty months the replacement of fat by marrow cells is complete or nearly so. Exceptions were, however, seen in four animals representing the eighth, ninth, tenth and twenty-second months, respectively. The evidence at hand does not support the theory that this hyperplasia is compensatory either to the anemia caused by splenectomy or to an increased hemolysis in the lymph-nodes. The authors suggest that it may be a concomitant of the activity of the bone-marrow in taking over, in the absence of the spleen, the function of storing and elaborating the iron of old blood-pigment for future utilization by new red cells, but their studies do not fully support this view.

53. **Mechanism of Anaphylatoxin Formation.**—The unsaturated lipoids (serum antitrypsin) Jobling and Petersen state can be absorbed from guinea-pig serum, rabbit-serum and horse-serum by kaolin, starch, agar and bacteria. Diphtheria toxin and cobra venom also reduce serum antitrypsin, possibly because of their affinity for lipoids. Anaphylatoxins represent sera rendered toxic by partial removal of serum antitrypsin. The matrix of the protein split products lies in the serum proteins so exposed. The amount of removal of serum antitrypsin depends on definite quantitative relations; very large amounts and very small amounts of absorbing substances are least effective (kaolin, starch and bacteria). Bacteria previously treated with serum or with oils do not absorb antitrypsin. Bacteria treated with serum become more resistant to the action of trypsin.

54. **Complement-Fixation Tests in Arthritis.**—From a comparison of the results with arthritis deformans and with control cases Hastings believes he is justified in concluding that *Streptococcus viridans* is an infectious agent and excites the production of a complement-fixing substance (fixateur) in the organism in cases of arthritis deformans, and, therefore, *Streptococcus viridans* is the probable causative agent of the disease in many cases of arthritis deformans. He claims that probably 40 per cent. and more of cases of arthritis deformans should be considered as chronic infective deforming arthritis. Rarely the clinical manifestations of arthritis deformans may be due to gonococcus infection. The

serum from one case may react positively to two different organisms, most frequently to *Streptococcus viridans* and to gonococcus, when the reaction to the former should be considered the indicator of the causative agent, since with the latter infection is often latent in the genito-urinary tract. Incidence of gonococcus infection is high and the clinical manifestations of arthritis deformans are rarely produced by gonococcus infection.

55. **Polyvalent Antigen for Complement-Fixation Test.**—Hastings states that the technic of complement-fixation tests for infection with *Streptococcus viridans* is so laborious and difficult that the method will not be available for general clinical work.

Journal of Outdoor Life, New York

June, XI, No. 6, pp. 160-191

57 Tuberculosis and Road to Eldorado. E. L. Trudeau, Saranac Lake.
58 Week from Diary of Lazy Man. C. R. Flannigan, Colorado Springs, Colo.
59 Exhibit that Really Exhibits. L. W. Hine, Saranac Lake.
60 Comparative Cost of Maintenance of Sanatoria and Hospitals for Tuberculous in United States. M. Collins, Denver.

July, No. 7, pp. 192-223

61 Hemorrhage in Tuberculosis. A. A. Pleyte, Wales, Wis.
62 Day and Night Camp "Rutherford." R. M. Mills, Brooklyn.
63 Putting Courage into Crusade. E. M. McCormack, Grand Rapids, Mich.
64 Incidence of Tuberculosis Among Physicians and Nurses. L. I. Dublin, New York.
65 Without Camp. H. Shigley, Colorado Springs, Colo.

Kentucky Medical Journal, Bowling Green

July, XII, No. 13, pp. 339-434

66 Health Problems of Kentucky. D. P. Curry, St. Charles.
67 Tuberculosis. W. L. Heizer, Bowling Green.
68 Extra-Uterine Pregnancy. C. A. Fish, Frankfort.
69 Vaccine Treatment of Pertussis. J. A. Kirk, Louisville.
70 Uses of Roentgen Ray as Diagnostic Agent. J. B. Mason, London.
71 Appendicitis. J. H. Parker, Corbin.
72 Country Practitioner and Cut Fees. W. Pennington, Bertha.
73 Tumors of Breast. T. C. Nichols, Morgan.
74 Trachoma. R. I. Kerr, Belmont.
75 Case of Mercury Bichlorid Poisoning with Recovery. H. G. Herring, Lexington.
76 Pleurisy. H. T. Morris, Greenup.
77 Diagnosis of Pregnancy. A. E. Threlkeld, Wheatley.
78 Hookworm Arthritis. B. F. Van Meter, Lexington.

Lancet-Clinic, Cincinnati

July 4, CXII, No. 1, pp. 1-24

79 Operations for Cure of Chronic Ear Suppuration. N. H. Pierce, Chicago.
80 Prolapse of Uterus and Its Treatment. A. D. Willmoth, Louisville, Ky.
81 Sex Problems. (To be continued.) I. O. Allen, Metamora, Ind.

July 11, No. 2, pp. 25-60

82 Treatment of Syphilis of Nervous System by Means of Salvarsanized Serum in Vivo: Ninety-One Injections in Twenty Cases. R. B. H. Gradwohl, St. Louis.
83 "Business" of Keeping Insane. Is There Better Way? B. Holmes, Chicago.

Laryngoscope, St. Louis

June, XXIV, No. 6, pp. 565-644

84 Corrective Rhinoplasty. L. Cohen, Baltimore.
85 Histopathology of Faucial Tonsil. T. E. Carmody, Denver.
86 Treatment of Accidental Wounds of Dura During Operations on Mastoid Process. E. B. Dench, New York.
87 Anesthesia in Aural Surgery. W. G. Doran, New York.
88 Asepsis in Office Practice. C. G. Crane, Brooklyn.

Medical Record, New York

July 18, LXXXVI, No. 3, pp. 95-140

89 Diagnosis and Treatment of Gastric and Duodenal Ulcers. M. Einhorn, New York.
90 Roentgen Rays and Radio-active Chemicals in Treatment of Gynecologic Conditions. E. H. Grubbé, Chicago.
91 *Treatment of Toxemia of Pregnancy of Duodenal Enema. E. McDonald, New York.
92 Value of Eugenics in Hunting's Chorea. C. R. McKinniss, Norristown, Pa.
93 Carbon Dioxid Bath and Its Uses. A. W. Ferris, Saratoga Springs.
94 General Diagnosis and Treatment of Diseases of Pancreas. I. W. Held, New York.

91. **Treatment of Toxemia of Pregnancy by Duodenal Enema.**—McDonald has treated twelve cases of toxic vomiting of pregnancy by means of a duodenal tube, which is a modification of the Jutte tube. The procedure is as follows: A small rubber tube about the caliber of 12 F, is thrust into the stomach after the pharynx has been anesthetized by a local anesthetic spray. Most patients are able to swallow the tube themselves after the first treatment, but at the first attempt, in order to maintain the patient's confidence, it is better to cocainize the throat and insert the tube with the patient sitting up in a chair. The tongue is depressed with the forefinger while the tube is thrust down with the other hand, the patient being advised to breathe deeply and slowly, in order to prevent any nausea. When the tube is down about 22 inches, 8 ounces of a solution of sodium chlorid in amount a trifle stronger than the physiologic solution, is injected by means of a syringe through the tube into the stomach. This usually effectually neutralizes the tendency to vomit. The tube is then thrust further down to about the length of 28 inches. The patient is then placed on her right side in a semiprone position. The waistbands are loosened. After a few minutes, suction is made by means of a vacuum bottle and syringe to withdraw some of the contents through the tube. When bile or intestinal juice is obtained, it is considered that the tip of the tube has passed the duodenum. The stomach should be empty for several hours before the treatment is given. It is usually possible to pass the pylorus within five to seven minutes.

An injection is then made by means of a gravity can of a liter of a solution containing from 4 to 6 gm., by measure, of granular sodium sulphite. This solution has the effect of precipitating itself through the intestines; within thirty minutes from the time the last of the sulphate solution is introduced into the tube the first of it appears at the anus. No patient has required more than a single treatment, as after the first general hygienic measures can be instituted, such as regulation of the bowels, drinking a large quantity of water, and a simple diet. Among the twelve cases no patient, save one, has had any vomiting after the treatment. In the beginning several patients had a number of treatments because McDonald did not believe it possible that one treatment would cure them.

Military Surgeon, Chicago

July, XXXV, No. 1, pp. 1-100

95 Identification of Two Unknown Dead Soldiers by Finger Prints. A. W. Williams, U. S. Army.
96 Surgeon's Division in Naval Militia. How Can It Best Fit Itself and Men It Serves for Service of Nation in Time of War. M. W. Houghton, R. I. N. B.
97 Venereal Prophylaxis, from December, 1913, to April, 1914, at Fort Washington, Md., for Purpose of Showing Its Efficacy. M. Ashford, U. S. Army.
98 Medical Survey of Indian Village, Haines, Alaska. H. M. Craig and J. S. Lambie, U. S. Army.
99 Sanitary Officer in Field. F. Schavoir, Conn. N. G.

Mississippi Medical Monthly, Vicksburg

July, XIX, No. 3, pp. 45-64

100 Clinical Significance of Ammoniacal Urine in Infants and Young Children. R. A. Strong, Pass Christian.

New York Medical Journal

July 18, C, No. 3, pp. 109-156

101 Biochemical Function of Endometrium in Etiology of Metrorrhagia and Menorrhagia. J. R. Goffe, New York.
102 Mensuration and Projection of Posterior Urethra and Vesical Floor by Means of Posterior Urethral Calipers and Roentgenography. V. C. Pedersen and B. C. Darling, New York.
103 Prevention of Cancer. A. C. Wood, Philadelphia.
104 Instrument for Direct Application of Radium to Neoplasms of Bladder. W. Ayres, New York.
105 Valvular Disease in Infancy and Childhood. R. Abrahams, New York.
106 Three Cases of Acute, Double Optic Nerve Atrophy. H. F. Hansell, Philadelphia.
107 Bone Complications in Renal Tuberculosis. H. Neuhof, New York.
108 Alkaloids. A. C. Reed, Changsha, China.
109 Case of Purpura Hemorrhagica. Morbus maculosus, Werlhofi. G. Parker, Burin North, Newfoundland.

Northwest Medicine, Seattle, Wash.

July, VI, No. 7, pp. 189-220

110 *Prevalence of Goiter in Northwest. D. C. Hall, Seattle.
111 Problems in Gastric Diagnosis. F. Epplen, Spokane.
112 Chronic Pyelitis. W. J. Pennock, Spokane.
113 *Twenty Cases of Renal Tuberculosis. A. H. Peacock, Seattle.
114 Kefir, Fermented Medicinal Milk. A. Tilzer, Portland, Ore.
115 Internal Secretion of Sexual Glands. C. E. Eaton, Seattle.

110. **Prevalence of Goiter.**—The series of students in the University of Washington examined by Hall consisted of 2,086 men with the average age of 20 years and 5 months, and 1,253 women with the average age of 19 years and 3 months. Of the 2,086 men, 374 were affected as follows: 272 classed as perceptible, or 13.03 per cent.; 92 classed as medium, or 4.43 per cent.; 10 classed as large, or 0.48 per cent. Of the 1,253 women, 388 were affected as follows: 294 classed as perceptible, or 23.45 per cent.; 85 classed as medium, or 6.79 per cent.; 9 classed as large, or 0.7 per cent. Of the nineteen classed as large, four had a marked exophthalmos, one man and three women. They were strikingly of the plethoric type, large, full-blooded and verging on the obese. But one, a girl, showed signs of a toxemia and that only on exertion or especially during excitement, at which time tachycardia sweating and tremor became apparent. The exophthalmos was such in two other cases, one man and one woman, that complete closure of the eyelids was impossible. The enlarged gland was symmetrical as a rule, but when asymmetrical the enlargement was always on the right side. Careful observation was made of the examinations of 582 men, of whom 96 had either a medium or perceptible enlargement. Of this number nine, or 9.4 per cent., were on the right side. It was attempted to determine the incidence of heredity, but this was unreliable. In a series of 343 women of whom 83 were affected, ten, or 2.9 per cent., gave a history of the malady in the family. The direct hereditary quality here is not such that much credence can be placed in it.

113. **Renal Tuberculosis.**—In summing up his study of twenty cases of renal tuberculosis, Peacock is impressed with several very clear conditions. First, the uniform consistency with which the tubercle bacilli were demonstrated in the urine, being found in all but one case. Second, hematuria that was noticed by the patient in 60 per cent. of the cases. It usually occurred early and was not associated with pain. Third, that sex makes little difference, nine cases being females and eleven males. Fourth, age at the time of consultation was 26 years, the youngest being 14 and the oldest 43. Fifth, 60 per cent. were demonstrated to be bilateral, that is, the tubercle bacillus was so found at the first catheterization. With such a finding there should be considerable hesitation before he resorts to nephrectomy. Again, we should remember the origin of renal tuberculous infections, and that if one organ has become involved it is reasonable to suppose that if the other one is not also infected, the possibility of breaking down later is great, as in cases 5 and 7. Sixth, in 65 per cent. of these cases were found other tuberculous lesions and it is safe to assume that the remaining ones there must have been tuberculous processes that escaped the physical examination.

Philippine Journal of Science, Manila

February, IX, No. 1, pp. 1-133

116 *Cockroaches and Ants as Carriers of Vibrios of Asiatic Cholera. M. A. Barber.
117 Reappearance of Plague in Philippines after an Absence of Six Years. V. G. Heiser.
118 *Experiments of Cultivation of Virus of Rinderpest in Vitro. W. H. Boynton.
119 Atypical Case of Rinderpest in Carabao. W. H. Boynton.
120 Experiments on Transmission of Rinderpest. A. R. Ward, F. W. Wood and W. H. Boynton.
121 *Intestinal Parasitism, Particularly Entamebiasis, in Patients of Philippine General Hospital, Manila. D. G. Willets.
122 *Treatment of Entamebiasis with Ipecac, Emetin and Neosalvarsan at Philippine General Hospital, Manila. D. G. Willets, C. R. Stanley and P. Gutierrez.
123 Nerve Degeneration in Fowls Fed on Unhusked Rice (Palay). R. B. Gibson and I. Concepcion.
124 Simultaneous Method of Inoculating Cattle and Carabaos with Serum from Animals that have Been Recently Immunized. A. R. Ward and F. W. Wood.

116. **Carriers of Asiatic Cholera.**—Barber found that cockroaches which have fed on human cholera feces may harbor cholera vibrios in their intestines, and these may appear in enormous numbers in the insects' feces for at least two days after the insects have fed, and may occur in smaller numbers seventy-nine hours after ingestion. By means of both feces and vomit, cockroaches may act as carriers of cholera to human food. Cholera vibrios in cockroach feces will survive on human food at least sixteen hours after discharge from the insect, and cholera vibrios in human feces will survive, in competition with numerous other bacteria, on food at least four days. There is no loss of virulence for guinea-pigs in cholera vibrios after twenty-nine hours in the intestine of the cockroach. Cholera vibrios may be found in the bodies of ants at least eight hours after they ingested cholera cultures or human feces from cholera patients.

118. **Cultivation of Virus of Rinderpest.**—The virus of rinderpest has been carried in virulent form by Boynton in two separate series up to the sixth transfer in glucose blood-culture media, covering periods of nineteen and twenty-one days, respectively. In one series the medium first inoculated was non-virulent at the end of twelve days, while the fourth transfer from this tube of culture medium after the same period of time was virulent. Results obtained from numerous experiments indicate that fresh blood from non-immune cattle as a main constituent and glucose as an addition are essential components of the culture media. The virus of rinderpest requires either partial or complete anaerobic conditions for its existence.

121. **Intestinal Parasitism.**—Entamebic infections were found by Willets in 37.5 per cent. of the 1,000 individuals examined, in 38.8 per cent. of 900 Filipinos, in 26.0 per cent. of 100 Americans; in 46.3 per cent. of 417 adult female Filipinos, in 34.2 per cent. of 383 adult male Filipinos, in 25.0 per cent. of 100 Filipino children, in 25.4 per cent. of 71 adult male Americans, and in 27.6 per cent. of 29 adult female Americans. Double infections were found in 59.2 per cent., pure *E. coli* infections in 35.5 per cent., pure *E. histolytica* infections in 5.3 per cent., *E. coli* infections in 94.7 per cent. and *E. histolytica* infections in 64.5 per cent. If more stools had been examined of each patient, it is believed that the positive percentage would have been about 55 instead of 37.5. Willets holds that diagnosis of entamebic infection should be made not only on the presence of active, but also on that of quiescent or encysted forms. The one safe stage of development for a differential diagnosis between *E. coli* and *E. histolytica* is the encysted form encountered in formed stools. Willets suggests that it is probable that in dysenteric stools active *E. coli* closely resembles active *E. histolytica* in motility and general appearance without a corresponding change in its nuclear structure.

122. **Treatment of Entamebiasis.**—The 132 cases of entamebiasis considered by Willets consist of 27 dysenteric and 105 non-dysenteric cases. The dysenteric cases are divided into 11 treated with emetine and 16 with ipecac; the non-dysenteric, into 44 controls—34 treated with ipecac, 19 with emetine, and 8 with neosalvarsan. Prophylaxis against the occurrence of entamebic dysentery in an infected individual and against carriers of *Enatameba histolytica* consists in (1) making a differential diagnosis between *E. coli* and *E. histloytica* and treating only those infected with the latter species or (2) treating all persons indiscriminately who are infected with entameba. Prophylactic treatment should be confined to expelling entameba from the intestinal tract. In order that such a treatment may be used widely, it must be inexpensive, give good results quickly, and the method of administration must be simple and unattended by prolonged unpleasant reaction.

Four preparations are now in use for entamebiasis—ipecac, emetine, neosalvarsan and bismuth. Results obtained in non-dysenteric entamebiasis with salvarsan and with neosalvarsan indicate that this treatment may prove to be the most efficacious in quickly relieving the dysenteric symptoms and expelling entameba from the intestinal tract. More than three consecutive negative examinations are required before one may state with safety that a person is free from entameba, provided four cover-glass preparations be examined of each specimen. Rest and diet influence the clinical evidences of entamebic dysentery favorably, and Willets' results in control cases tend to show that they are to be reckoned with in the elimination of entameba from the intestinal tract. In dysenteric cases emetine gave a larger percentage of symptomatic cures and acted quicker in this class of cases than ipecac. Emetine and ipecac were about equally efficacious in expelling entameba from the intestinal tract. The time required to expel the entameba with the two preparations was also about equal.

In non-dysenteric cases neosalvarsan freed the bowel of entameba in 100 per cent. of cases, ipecac in 70.6 per cent., and emetine in 36.8 per cent. From the last two percentages an undetermined factor which is less than 25 per cent. must be subtracted, because this percentage of cases would have given 2 consecutive final negative examinations (an arbitary standard adopted for comparative purposes) in the time limits without treatment.

South Carolina Medical Association Journal, Seneca

June, X, No. 6, pp. 544-574

125 Certain Medical Aspects of Alien Race Problem. C. W. Stiles, Washington, D. C.
126 Successful Treatment of Autotoxemia and Lesions of Large Bowel, Including Appendix. F. Moore, Montmorenci, S. C.
127 Diagnosis and Treatment of Diarrhea. G. M. Niles, Atlanta, Ga.

Southern Medical Journal, Nashville, Tenn.

July, VII, No. 7, pp. 519-596

128 *Etiology of Pellagra: Experimental Inoculation of Monkeys and Rabbits. W. A. Dearman, Long Beach, Miss.
129 *Digestive Symptoms of Pellagra. S. Harris, Mobile, Ala.
130 First (?) Symptom in Pellagra. T. Frazer, Asheville, N. C.
131 Cerebrospinal Meningitis. R. Lyons, New Orleans.
132 *Subcutaneous Medication in Anemias. M. K. Robbie, San Antonio, Tex.
133 Case of Multiple Mycotic Aneurysm of Aorta. H. L. McNeil, Houston, Tex.
134 Treatment of Fractures of Femur with Hodgen's Splint. W. M. McCabe and J. F. Gallagher, Nashville.
135 Lesions of Sacro-Iliac Joint. J. P. Chapman, Mobile, Ala.
136 Tumors of Carotid Gland. J. Funke, Atlanta, Ga.
137 Postoperative Complications of Abdominal Section and Their Treatment. R. Wallace, Chattanooga.
138 Rarity of Certain Variety of Persistent Hyaloid Artery. Report of Case. R. M. Nelson, Atlanta, Ga.
139 Cataracta Complicta Similar to Senile Cortical Cataracts. A. B. Mason, Waycross, Ga.
140 Typhus Fever: Report of Four Cases. L. B. Newell and W. Allan, Charlotte, N. C.
141 Practical Sanitation for Small Cities and Towns. R. L. Robertson, Charlottesville, Va.
142 Alcoholism and Drug Addictions among Physicians in Alabama. W. D. Partlow, Tuscaloosa, Ala.
143 Treatment of Pus Appendix. G. H. Bunch, Columbia, S. C.
144 Field of Neurologic Surgery and Its Relation to Other Branches. C. M. Remsen, Atlanta, Ga.
145 Plea against Still Too Frequent Sacrifice of Turbinates. R. W. Bledsoe, Covington, Ky.
146 Broncho-Esophagoscopy. E. W. Carpenter, Greenville, S. C.

128. **Etiology of Pellagra.**—Samples of cornmeal were obtained by Dearman from pellagrous homes and from local dealers. Moulds were cultivated, isolated aerobically and anaerobically, suspended in physiologic salt solution, and experimentally injected and fed to rabbits, chickens, pigs and monkeys. Neither ever developed any lesions resembling pellagra. He believes that pellagra is an insect-borne disease, and that dog and cat fleas should be looked on with suspicion, not to the exclusion of other possible transmitters.

129. **Digestive Symptoms of Pellagra.**—In beginning the treatment of pellagra, Harris usually gives several small doses of calomel, 1/20 grain every hour until ¼ grain is given, then bismuth subnitrate in from ½ to 1 dram doses, with 5 grains of salol every two to four hours as may be necessary to control diarrhea. He has rarely found it necessary to use opium. Where there is absence or deficiency of hydrochloric acid, dilute hydrochloric acid with pepsin often relieves the gastric symptoms and will not infrequently control diarrhea. Colonic irrigations with normal salt solution are often helpful, and, in some cases, in which there is pain in the rectum, anodyne suppositories give great relief. When there is stomatitis with ptyalism the chlorate of potash given internally yields splendid results. Mild antiseptic mouth washes, as diluted liquor antisepticus alkalinus are helpful. Fowler's solution should be given in ascending doses of from 1 to 15, or even 20 drops three times a day, or until the physiologic effects are obtained. Harris has used atoxyl in a number of cases but has not been pleased with the results. He is inclined to think that the arsenic must be taken into the alimentary canal to get the beneficial results.

132. **Subcutaneous Medication in Anemias.**—Robbie's experience in subcutaneous and intramuscular medication has been principally and chiefly in the anemias of malaria and those resulting from gastro-intestinal disturbances. The preparation Robbie has been using is 5 to 6 grains of citrate of iron, 1 to 6 grains sodium arsenate and 1 to 120 grains of strychnin sulphate put up in small sterile ampules and given once or twice daily as the case required.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

July 4, II, No. 2792, pp. 1-52

1 British Medical Association in Australia. J. A. MacDonald.
2 Three Cases of Fracture in Neighborhood of Joints Treated by Plating. G. H. Colt.
3 *Hemostasis by Application of Living Tissue. V. Horsley.
4 New and Economical Method of Radium Therapy by Means of Emanation Needles. W. C. Stevenson.
5 Roentgen-Ray Treatment of Tuberculous Glands. H. Mowat.
6 Suspected Case of Foot and Mouth Disease in Man. V. Whitby.
7 *Clinical Test for Estimation of Percentage of Glucose. G. C. Parnell.
8 Case of Cyclopia. D. Dougal and T. M. Bride.
9 Case of Left Duodenal Hernia in Child. F. C. Pybus.
10 Reduction of Old Elbow Dislocation by Operation. F. D. Bird.
11 Napthalene for Destruction of Mosquitoes in Covered Cisterns and Wells. A. W. Bacot.

3. **Hemostasis by Application of Living Tissue.**—To stop bleeding and hemorrhage oozing from soft tissues other than by the employment of a ligature, or pressure with a guaze tampon, or by irrigation with hot liquid, Horsley uses living vascular tissue—that obtained from the (injured) surface of a cut fragment of muscle. If the bleeding point—for example, from the cut surface of the brain, liver, or any soft tissue—be gently pressed with gauze, and this instantly replaced by a piece of living muscle, and pressure again applied from fifteen to twenty seconds, it will be found that the muscle fragment closely adheres to the tissue it is applied to. Such adhesion is necessarily limited by the pressure at which the blood is escaping from the bleeding point.

By direct experiment on divided arteries (including the aorta) in the cat and dog, Horsley found that a muscle hemostasis would resist as much as 60 to 80 mm. Hg blood-pressure. Further histologic investigation of the exceedingly thin viscous layer occupying the plane of contact of the two masses of tissue shows that it contains blood-platelets, fibrin, fibrils, etc., in a considerable degree, and within a short time (five to ten minutes) of commencing the preparation. To estimate the degree of active thrombokinesis Horsley also tested the utility of the muscle after it had been boiled for five minutes at 100 C. Such boiled tissue had a very poor hemostatic effect. It seemed as if this was partly owing to the great loss of adhesiveness which is caused by the heat coagulation completely altering the physical surface of the muscle tissue. Of other tissues Horsely has only exhaustively tried fascia, and with the result that it has not proved satisfactory. It has not the factor of adhesiveness sufficiently well marked, though it can be employed when it is not convenient to take a piece of muscle.

7. **Estimation of Percentage of Glucose in Urine.**—Parnell demonstrated that with Moore's test the colors resulting from boiling equal parts of diabetic urine with liquor potassae do vary in direct proportion to the amount of glucose that exists in samples under examination. To obtain accurate results the amount of diabetic urine or manufactured solutions must be boiled with equal parts of liquor potassae; there must be no guess-work. Each sample must be boiled thoroughly. The test-tubes should not be larger or smaller than five-eighths to six-eighths of an inch in diameter, and the liquor potassæ should be fresh. The resultant color when

found to correspond with any of the test-glasses, will give the percentage, the grains per ounce, or the parts per 1,000, multiplied by 2. Parnell uses for estimation colored glasses showing the exact shades of the different solutions containing known amounts of glucose. On each glass, the size of a microscopic slide, is marked the percentage, the number of grains per ounce, and the number of parts per 1,000.

Edinburgh Medical Journal

July, XIII, No. 1, pp. 1-96

12 Empyema in Children. H. G. M. Dunlop.
13 New Route of Inquiry as to Nature and Establishment of Typical Sex-Ensemble in Mammalia. (To be continued.) D. B. Hart.
14 Anaphylaxis and Status Lymphaticus: Their Relation to Intensified Types of Disease in Infancy and Childhood. (To be continued.) C. M'Neil.
15 *Recurrent Luxation of Patella. D. M. Greig.
16 Dr. Thomas Spens: First Describer of Stokes-Adams' Syndrome. C. E. Lea.
17 Case of Chronic Primary Pneumococcal Cerebrospinal Meningitis. C. Kerr.

15. **Recurrent Luxation of Patella.**—In the treatment of recurrent luxation of the patella, confinement to bed and the application of splints are held by Greig to be unnecessary. He believes there is no actual surgical interference which will improve the condition unless such an obvious abnormality as knock-knee demands rectification. As long as violent games are avoided, he says, the recurrence of the dislocation may be prevented by the application of a firm and well-fitting leather knee-cap. The ordinary elastic knee-cap is neither adequate nor desirable, for its tightness is apt to bring about by pressure an atrophy of the underlying soft parts and interference with the circulation in the cutaneous veins. A soft leather knee-cap lacing up the side and with a hole for the patella is the cheapest in the long run and quite efficient.

Glasgow Medical Journal

July, LXXXII, No. 1, pp. 1-79

18 Working of Midwives Act (England, 1902). F. H. Champneys.
19 Operative Treatment of Fractures, with Special Reference to Plating. G. H. Edington.
20 Acute Suppurative Appendicitis: Analysis of One Hundred Consecutive Cases. R. B. Carslaw.

Lancet, London

July 4, II, No. 4740, pp. 1-74

21 Hygienic Aspect of Coal-Mining Industry in United Kingdom. F. Shufflebotham.
22 *One Thousand Consecutive Abdominal Operations. A. E. Giles.
23 Diseases of Pituitary Gland and Their Effect on Shape of Sella Turcica. E. G. Fearnsides.
24 Case of Triplets Successfully Breast-Fed. J. Morrison.
25 Pathologic Investigation of Four Cases of Pituitary Tumor. W. Johnson.
26 Removal of Foreign Body from Larynx by Suspension of Laryngoscopy. D. McKenzie.
27 Milk and Dairies Bill and Bacteriologic Examination of Milk. R. T. Hewlett.

22. **One Thousand Consecutive Operations.**—The table of cases cited by Giles shows that there was a marked drop in the mortality of the last 500 as compared with the first 500, the percentage being 3.4 in the later series and 5.2 in the earlier. The improvement is attributed to: 1. The personal factor of experience. 2. A higher standard of asepsis. 3. Improved technic. Ovariotomy.—165 cases, 6 deaths, mortality 3.6 per cent. Every kind of ovarian tumor was met with in these cases: multilocular cystic adenoma; papilloma; dermoid, unilateral and bilateral, and including some of the relatively rare cases of dermoid contents in multilocular tumors; parovarian cyst; blood-cyst (lutein hematoma); fibroma; carcinoma, and sarcoma. There were a good many cases with acute symptoms due to twisted pedicle, and several with rupture of the cyst. Tubal inflammatory disease, 154 cases, 12 deaths; extra-uterine pregnancy, 65 cases, 1 death; hysterectomy for fibroids, 208 cases, 7 deaths; hysterectomy for carcinoma, 37 cases, 1 death; myomectomy, 30 cases, no death; hysteropexy, 222 cases, 30 deaths; non-gynecologic operations, 119 cases, 13 deaths.

Speaking of drainage, Giles says that generally drainage should be avoided, if possible, but in certain cases it is essential, and because the danger in this respect of leaving undone the things that ought to be done is greater than that of doing the things that ought to be done he would say, "When in doubt, drain." The cases in which he drains are those with a considerable tendency to oozing from adhesion sites; cases in which the peritoneal cavity has been soiled with pus from the rupture of pus-tubes or the presence of an appendix or other abscess in the peritoneal cavity; cases of peritonitis without actual pus formation, when he is doubtful about the degree of virulence of the infection; and cases in which the bowel walls have been much damaged in the process of separating adhesions.

Practitioner, London

July, XCIII, No. 1, pp. 1-156

28 Diagnosis and Treatment of Tropical Hepatic Abscess. D. Duckworth.
29 Necessity for Systematic and Complete Examination of Nervous System in Medicolegal Cases. J. Collie.
30 Traumatic Neurosis. J. W. G. Grant.
31 Pyrexia of Obscure Origin. G. N. Pitt.
32 Plea for More Systematic Employment of Treatment by Suggestion. M. Telling.
33 Use of Therapeutic Suggestion. R. G. M. Ladell.
34 Psycho-Analysis. C. E. Long.
35 Cases of Obstetric Interest. S. Sheill.
36 Occurrence of Pellagra in England. R. W. Willcocks.
37 Experiments in Connection with Orthostatic Albuminuria. F. D. Nicholson.
38 Work on Children's Diseases. H. Thursfield.
39 Difficulties in Tuberculin Administration. A. H. G. Burton.
40 Two Cases of Schlatter's Sprain. R. Connell.

Quarterly Journal of Medicine, London

July, VII, No. 28, pp. 325-495

41 *Aggressins in Appendicitis and Some Other Varieties of Peritonitis. A. D. Gardner.
42 *Leukemias: An Analysis of Fifty-Nine Consecutive Cases. P. N. Panton, H. L. Tidy and G. H. Pearson.
43 *Fragility of Red Blood-Corpuscles in Physiologic and Pathologic States. A. D. Bigland.
44 *Case of Very Prolonged Cheyne-Stokes Breathing. W. H. White, J. H. Ryffel, E. P. Poulton, W. Johnson and R. A. Chisolm.
45 Importance of Functional Activity in Etiology of Nervous Diseases. W. Johnson.
46 Blood-Pressure Estimations in Disease by Oscillatory and Auditory Methods. G. S. Melvin and J. R. Murray.
47 Formation of B-Iminazolylethylamine in Ileum of Certain Constipated Subjects. N. Mutch.
48 Family Cerebral Degeneration with Macular Change (So-Called Juvenile Form of Family Amaurotic Idiocy). F. E. Batten.
49 Diagnosis of Pancreatic Disease. A. F. S. Sladden.

41. **Aggressins in Appendicitis and Peritonitis.**—The study of aggressins in the peritoneum leads Gardner to the conclusion that in the treatment of several varieties of peritonitis, closer attention might with advantage be paid to the question of bacterial multiplication, and to the direct means which are open to the surgeon of checking it. A considerable number of peritoneal exudates were tested for aggressive action (inhibition of phagocytosis *in vitro*). Gardner believes that aggressiveness is the direct consequence of a profuse multiplication of bacteria. The greater the number of bacteria, the more likely is the fluid to act aggressively. Early exudates therefore (first twenty-four hours) are never aggressive. Aggressive substances are nearly always present in pus from appendicular abscesses, and they do no harm so long as the abscess wall remains intact. But they may play an important and dangerous part when a channel of communication is formed between the abscess cavity and the general peritoneum. In spreading or already diffuse peritonitis, the formation of aggressive bodies, signifying as it does great bacterial activity, marks the onset of a graver stage of the infection. A consideration of aggressins, their origin and their action, suggests that a discriminating use of bactericidal chemicals may be of great value in the surgical treatment of peritonitis. In ether and colloidal silver Gardner has two such bodies which have undergone a successful trial.

42. **Leukemias.**—Of 59 consecutive cases of leukemia examined by the authors, 16 have been classed as acute myeloid, 29 as chronic myeloid, 8 as acute lymphoid leukemia, and 6 as chronic lymphoid. They state that it is

evident that the clinical picture of leukemia varies with the acuteness of chronicity of the disease, and not with the lymphoid or myeloid origin of the cells. Acute lymphoid and acute myeloid leukemia are clinically indistinguishable, and so may be chronic lymphoid and chronic myeloid leukemia. Acute lymphoid leukemia has little resemblance to chronic lymphoid, nor acute myeloid to chronic myeloid, except in so far as chronic myeloid may terminate by a condition similar to the acute disease. It is impossible to distinguish by a blood examination between the acute and chronic types of myeloid leukemia, but not between acute and chronic lymphoid leukemia. The latter diseases are readily distinguished on clinical grounds. Acute myeloid and acute lymphoid leukemia can be distinguished by the type of cell present, but the conditions have been frequently confused and the clinical course is the same. The confusion has been due to a failure in distinguishing between myeloblasts and lymphocytes. The differentiation is rarely if ever difficult for those accustomed to the use of Leishman's or other similar stains. In this connection they have found the oxydase reaction to be quite useless. In no case in the authors' experience has the myeloid type of cell been replaced by the lymphoid type, or vice versa.

The effect of treatment in the acute cases has been negligible. In the chronic lymphoid cases, changes have been extremely slight. In the chronic myeloid cases, some have changed little, others have changed to a remarkable degree. Those cases which have fluctuated to the greatest extent have been the youngest subjects. The blood of patients over the middle age reacts but little. There has been no instance of purpura in either of the chronic leukemias. In those cases of acute leukemia associated with purpura the spleen was invariably enlarged. Infiltrations of the skin, painful bones, and priapism occurred in no case. Oral sepsis did not appear to have any bearing on any type of the disease.

The cases of acute myeloid leukemia include an interesting group of four patients whose predominant blood-cell was a so-called Rieder cell. This cell the authors believe to be a large hyaline, partly on morphologic grounds since the cell may be indistinguishable from the large hyaline of normal blood, and intermediate types between the normal cell and the primitive marrow-cell were numerous; partly on functional grounds, because these cells were actively phagocytic as are those of the normal blood. They consider that a scrutiny of these cases affords strong evidence of the marrow origin of the large hyaline cell.

43. **Fragility of Red Blood-Corpuscles.**—The following method for estimating the fragility of the red blood-corpuscles was advised by Bigland and has worked very successfully. A saponin solution of 1 in 1,000 strength was made up with normal saline solution; this was kept as stock and renewed on one occasion during the work. For use, 5 c.c. of this saponin solution were diluted with 45 c.c. of saline and placed in a burette. Thus the strength of saponin actually used was 1 in 10,000 dilution. A few drops of blood were allowed to flow from a needle prick into tubes containing normal saline mixed with sufficient quantity of a citrate to prevent clotting and maintain the correct tonicity of the solution. This suspension of red blood-corpuscles was then centrifugalized for ten minutes and the supernatant fluid poured away, the resulting corpuscles being regarded as "washed."

When the patient's corpuscles in contact with the serum were examined the blood was drawn up into Zeiss white corpuscle counting pipet (up to the second division on the tube) and the contents transferred to small tubes (those used in the final experiment) filled with an amount of saline solution such that when the saponin solution is added later on the total bulk will be 3 c.c. When the patient's serum alone was required, free from red blood-corpuscles, the blood was collected in Wassermann tubes. These were centrifugalized, then placed in an incubator at 37 C. for half an hour to shrink the clot, and then were centrifugalized again. The resulting serum was drawn off by a similar Zeiss pipet, only this time up to division 1 on the scale.

One to 2 c.c. of saponin is regarded as the standard, and therefore the tubes containing the abnormal red blood-corpuscles to be tested will also have 1-2 c.c. of saponin added to them. The reason for fixing this standard at 1-2 c.c. of saponin is solely for the sake of convenience; normal corpuscles laking with this amount of saponin in about four minutes. Bigland found that human red blood-corpuscles show a constant figure of resistance toward saponin hemolysis. The serum is markedly protective against the action of saponin, but this power varies within certain limits. The corpuscles of various animals show marked variation in their fragility.

In jaundice the resistance of the washed red blood-corpuscles is markedly diminished, while the protective action of the serum is markedly increased. This latter result is not due only to the antagonistic action of saponin and bile salts. In all the anemias, except pernicious anemia, the corpuscular resistance is increased. In pernicious anemia it is normal or slightly diminished. In splenic anemia there is great increase in corpuscular resistance, and the serum appears to have no protective reaction. In the anemia found in malignant disease, syphilis, tuberculosis, scurvy, amyloid disease, and myelogenous leukemia, and in a case of splenectomy there was an increased corpuscular resistance. In diabetes the corpuscular fragility is normal, while the serum in some cases is abnormally protective. In exophthalmic goiter and paroxysmal hemoglobinuria the corpuscular fragility is normal. In polycythemia the resistance is increased. A high temperature appears to increase corpuscular fragility.

44. **Case of Prolonged Cheyne-Stokes Breathing.**—In the case cited Cheyne-Stokes breathing lasted certainly six months, and from the account given by the patient's wife possibly for very much longer. It was present during both sleeping and waking. Although the patient was, as shown by the condition of the retina, the hypertrophy of the heart, and the high blood-pressure, an example of arteriosclerosis, yet the post-mortem examination disclosed that the arterial change was not extensive, for the arteries in the brain were normal, as were many of those in the kidneys, and these organs were not advanced beyond an early granular change. The composition of the alveolar air was determined on several occasions, and it was possible to confirm the findings of previous observers. Observations on the blood dissociation curve by Barcroft's method showed that the blood was abnormally acid, and the authors obtained proof that the respiratory center suffered from diminished excitability. Analysis of the urine and blood proved that lactic acid was not the cause of the increased acidity of the blood. Histologic examination of the respiratory center showed changes similar to those already described by previous observers, although it was impossible to say whether they were the result or partly the cause of the Cheyne-Stokes breathing.

Archives des Mal. de l'App. Digestif, Paris

May, VIII, No. 5, pp. 241-300

50 Pyloric Stenosis with Hypertrophy in Man of 58. H. Hartmann.
51 *Retention of Salt and Elimination of Excess in Gastric Juice. (Les hyperchlorhydries éliminatrices.) H. Surmont and M. Dehon.
52 *Anachlorhydria with Gall-Stones; Twelve Cases. T. Hernando.
53 Dialysis Test of Stomach Content. (Les matières dialysables du contenu stomacal décelables par la réaction de la ninhydrin.) Wasserthal.

51. **Vicarious Hyperchlorhydria.** — Surmont and Dehon think that defective elimination of salt by the kidneys is often compensated for by hyperchlorhydria, the true cause of which, the defective functioning of the kidneys, may escape detection. They report six typical cases, calling attention to the return to normal in the stomach conditions as soon as the kidneys began to do their work properly. This eliminating or vicarious hyperchlorhydria may be the very first sign of latent cardiorenal mischief. The acidity may become so extreme as to entail erosions and ulceration.

52. **Gastric Hypo-Acidity and Gall-Stone Disease.**—Hernando reports twelve cases in which gastric secretion reached

its lowest ebb in connection with cholelithiasis. The anachlorhydria may be either primary or secondary or both. In one case the anacidity long preceded the gall-stone trouble and possibly may have been a causal factor in the latter. His experience with drugs to supply to some extent the lacking gastric acid confirmed the connection between the stomach and bile apparatus trouble, as some of the symptoms of the latter showed marked improvement as conditions became more normal in the digestive tract.

Archives dc Médecine des Enfants, Paris

May, XVII, No. 5, pp. 321-400

54 Sugar in Large Doses in Treatment of Incessant Vomiting in Infants and of Athrepsia. P. Nobécourt.
55 Teething. (La dentition chez les enfants.) J. Comby.
56 Spasmodic Contraction of the Scapular Muscles. (Attitude vicieuse de l'omoplate.) M. N. Wilbouchewitch.
57 Generalized Gonorrhea in Girl of 2½; Recovery under Immobilization of Joints. H. Schwers.
58 Cerebellar Ataxia in Children. J. Comby and A. D'Espine.

Journal de Chirurgie, Paris

June, XII, No. 6, pp. 689-854

59 *Operative Treatment of Echinococcus Disease of the Liver Perforating into the Bile Passages. (Kystes hydatiques du foie.) P. Lecène and H. Mondor.
60 *Technic for Resection of the Colon. (Colectomie totale et colectomie sous-cecale.) G. Lardennois.

59. **Perforation of Echinococcus Cyst into Bile Passages.**—Lecène and Mondor relate a case of this kind in a young man. The first signs of trouble two years before were diagnosed as typhoid at the time. Eight and fourteen months later he had attacks of pain diagnosed and treated as gallstone colic. Then fever and jaundice developed and the stools became clay-colored, with other symptoms indicating mischief in the bile ducts. The operation revealed a large echinococcus cyst in the liver with an opening into the common bile duct. They have found 30 analogous operative cases on record, the various conditions encountered requiring seven different technics. The mortality was about 33 per cent.; success depends on the possibility of thorough draining of the bile duct involved.

60. **Resection of the Colon.**—Lardennois gives an illustrated description of a technic which he thinks is superior to Lane's method of short-circuiting in that it takes better account of the special anatomy of the region; does not sacrifice the greater omentum; and the pelvis is raised while the intestine is being cut and reunited, but the chief advantage of his technic is in the preservation of the cecum, the operation being a subcecal colectomy with anastomosis between the cecum and the sigmoid flexure. By thus saving part of the cecum we avoid the pains of the period during which the small intestine is adapting itself to the new conditions.

Lyon Médical

XLVI, Nos. 25-26, pp. 1369-1512

61 The Doctor's Wife. (La femme du médecin.) Aubert.
62 Dietary Deficiency Diseases in Pigeons. (Les maladies alimentaires par "carence.") E. Weill and G. Mouriquand.

Presse Médicale, Paris

May 6, XXII, No. 36, pp. 341-348

63 How to Administer Digitalis. A. Martinet.
64 *Injection of Serum into Perineum Liable to Cure Enuresis. Cahier.

64. **Serotherapy for Nocturnal Enuresis.**—Cahier makes a subcutaneous injection of physiologic salt solution directly into the perineum, each side of the raphe. The fluid must be forced in rapidly, the aim being to act on the nerve terminals in the region by pressure from the huge blister thus formed. For adults he injects from 80 to 100 c.c. on each side. He has been applying this measure—which, he remarks, is comparatively simple and entirely harmless—since 1906 and has now a record of 30 cases, with a complete cure of the annoying night enuresis in 18 after a single injection. In 6 cases a second or third injection was required, and in 6 others no benefit was realized. The patient is awakened at night by the desire to urinate, and is thus able to control the process where before it proceeded automatically without awakening him. Cahier cites a number of other army doctors who have had gratifying results with this method in a very large proportion of their cases. Gauléjac has reported 50 per cent. cured in 150 cases in children; he restricts the amount of fluid to 40 or 60 c.c. so as not to stretch the child's skin unduly.

Revue de Médecine, Paris

June, XXXIV, No. 6, pp. 393-472

65 Measurement of the Pressure of the Cerebrospinal Fluid. (Manométrie clinique.) H. Claude, R. Porak and J. Rouillard.
66 Diagnosis of Cancer, etc., from Cells Found in Stomach Content. (Le cyto-diagnostic des liquides gastriques.) L. Caussade.
67 Glycosuria Induced in Dog by Intravenous Injection of Cerebrospinal Fluid from Acromegaly Patient. L. Lévy and R. Boulud.

Semaine Médicale, Paris

July 1, XXXIV, No. 26, pp. 301-312

68 *Retention of Different Elements of the Bile. (Les retentions bilaires par lésion de la cellule hepatique.) A. Lemierre, M. Brulé and H. Garban.

68. **Retention of Bile from Functional Incapacity of the Liver.**—This article is practically a summary and continuation of the article reviewed in these columns July 25, p. 356. The writers comment on the fact that three different scientists by different technics arrived almost simultaneously at the same conclusion in regard to the retention of different elements of the bile, namely, that only the liver cell itself is capable of discriminating in this way. Mechanical retention of bile is always of the whole bile. The positive findings of dissociated retention were always in affections known to have an injurious influence on the liver, especially typhoid, pneumonia, septicemia of different origins, tuberculosis and appendicitis, lead poisoning, alcoholism, pregnancy, heart disease, and after general anesthesia, particularly with chloroform.

Archiv für Kinderheilkunde, Stuttgart

LXIII, Nos. 1-2, pp. 1-160. Last Indexed July 25, p. 357

69 *Cyclic Vomiting in Children and Its Causes. (Mit Acetonurie einhergehende periodische Erbrechen im Kindesalter.) H. Zade.
70 Albumin Milk in Infant Feeding. (Erfahrungen über die nach Verfahren von Engel hergestellte Eiweissmilch.) B. Leichtentritt.

69. **Cyclic Vomiting in Children.**—Zade presents arguments to show that the cyclic vomiting is the result of a sudden psychogenic upset of carbohydrate metabolism plus irritation of the vomiting center. The primal cause is, he assumes, of mental or emotional nature, and it is able to produce this effect only at certain periods. As the primal irritation subsides, the disturbances right themselves at once. Cases are known in which sudden fright has brought on severe diabetes, fatal coma following close on the suddenly appearing glycosuria. He has had a case of this kind, a healthy man barely escaping with his life in an accident, and dying in coma within a few months. Zade thinks that cyclic vomiting is a somewhat similar phenomenon. A psychogenic origin alone explains the sudden onset and the equally abrupt termination of the attack, the absence of nausea, the lack of influence from drugs and dieting, the odor of actone in the breath before the attack is actually installed and the cerebral nature of the vomiting act, so unmistakably a reflex process from excitation of the vomiting center. The result is—on a small scale—an acidosis like that of diabetes, and treatment should be with an alkali and sugar or sweet fruit juice, the same as for impending diabetic coma. These generally suffice as the trouble, he says, seems to be more a relative acidosis than alkali starvation. Saline infusion and warm baths may prove soothing and counteract the excessive loss of fluids in the vomiting.

He reviews the literature and reports in detail a case from his own practice in a boy 5½, well nourished, but with an inherited nervous taint and the exudative diathesis. The periodicity is best explained by Fliess' theory of periodic days. Of course cyclic vomiting may be associated with appendicitis or digestive disturbances, etc. The clinical picture of acetone vomiting may also be induced by such, and cease when they are cured, but these cases are not the true cyclic vomiting which occurs—he remarks parenthetically—only during the years when the thymus is at its prime. No case is known after the age of 13. In the personal case reported what seemed to be an impending attack was warded off by having the child drink half a glass of water containing sugar and 5 gm. of sodium bicarbonate repeated the next evening.

Berliner klinische Wochenschrift, Berlin

June 29, LI, No. 266, p. 1205-1252

71 *Laminectomy for Spondylitic Paralysis. A. Tietze.
72 Brace Cures Snapping Hip Joint. (Zur Therapie der schnappenden Hüfte.) G. Müller.
73 Transmission of Hodgkin's Disease to Guinea-Pigs. (Uebertragung von Lymphogranulomatosis auf Meerschweinchen.) E. Schaeffer.
74 Organotherapy with Alkaloids from Ductless Glands. C. W. Rose.
75 *Dulness over the Sound Apex in Children. (Die Spitzendämpfung im Kindesalter.) F. Mielke.
76 Refusal to Permit Operation in Its Bearing on Workmen's Compensation and Personal-Injury Suits. (Zur Frage der Ablehnung des Schadenersatzes wegen Verweigerung von Operationen.) H. Lieske.

71. **Laminectomy for Spondylitic Paralysis.**—Tietze reports fourteen cases of paralysis from compression of the spinal cord by diseased vertebrae in which he sought to remedy conditions by operative measures when the paralysis passed from the spastic into the flaccid form, showing the progressive nature of the lesion, after failure of extension treatment. Success can be anticipated usually only when the anatomic findings indicate compression from displacement of bones rather than from inflammatory granulations. He says that at first he made the mistake of trying to do too much and tamponing. The outcome was much better when he restricted his intervention to removing the arches, the perimeningitic granulations at the rear, and, when readily accessible, also at the sides, but refraining from working too far forward. In two cases he found relics of old neuritis in the roots and there was much pain. Marked benefit was realized only in 3 cases. One was a boy of 9, the others were young men with extensive kyphoscoliosis of a tuberculous nature. Marked improvement slowly followed extensive laminectomy. Five of the patients died from the operation and the others in the course of the following two years, the majority surviving about six months. At first there was considerable improvement but it did not last.

75. **Dulness over the Apex in Children.**—Mielke has found that a pathologic dulness over the apex is often simulated by conditions resulting from weakness of muscles which prevents the child from holding himself normally. As this condition is usually accompanied by pallor and lassitude, tuberculosis is incriminated. The evidence against this includes the shifting of the dulness to the other apex as the child sits or stands. He is convinced that in many cases of supposed tuberculosis the alleged signs are in reality merely the effect of the way the child stands. He encountered eighteen such cases during a recent four-month period. All treatment tending to strengthen the muscles aids in throwing off this anomaly.

He differentiates it by examining in various positions, especially when the child relaxes all its muscles. This is best realized by having the child stoop forward a little, its arms hanging loose, the abdomen drawn in. Of course it has long been known that scoliosis may induce dulness over the apex but Mielke thinks that no one has appreciated hitherto the importance in this line of even a very slight tendency to an asymmetrical attitude.

Deutsches Archiv für Klinische Medizin, Leipzig

CXV, Nos. 3 and 4, pp. 207-398. Last indexed July 25

77 Vasoconstricting and Vasodilating Substances in the Blood. Experiments on the Isolated Heart. H. Hermel.
78 Kidney Disease with Salt Retention. P. v. Monakow.
79 Experimental Study of the Physiology and Pathology of Cholesterin Metabolism, Especially in Pregnancy. K. Havero.
80 Diagnosis of Adherent Pericardium. (Herzbeutelverwachsungen.) E. Edens and W. v. Forster.
81 Chloroma a Myeloblastic Tumor. (Chlorom und seine Beziehungen zur Myeloblastinleukämie.) K. Emden.
82 Refraction Index of Blood Sera and Transudates. J. Löwy.
83 Morphology of Renal Secretion and Absorption. M. Landau.
84 Permanently Irregular Pulse: Pathologic Anatomy. A. Jarisch.
85 Purin Enzymes in the Lung in Pneumonia. E. R. Long and H. G. Wells (Chicago).
86 Uric-Acid Content of the Blood in Diagnosis. R. A. Kocher.

Deutsche medizinische Wochenschrift, Berlin

July 2, XL, No. 27, pp. 1353-1408

87 *Obstetric Hemorrhage. (Behandlung bedrohlicher Blutungen nach der Geburt.) P. Jung.
88 Recurrence of Experimental Trypanosomiasis. H. Ritz.
89 *Hyperglycemia in Elderly Diabetics. (Die Erhöhung des Blutzuckers bei greisen Zuckerkranken.) F. Hirschfeld.
90 Relations between the Spleen and the Liver Stellate Cells. (Experimentelle Untersuchungen über das "Milzgewebe" in der Leber.) G. Lepehne.
91 Direct Laryngoscopy and Tracheobronchoscopy. Seyffarth.
92 Dialysis Serodiagnosis. (Abderhaldens Dialysierverfahren.) A. Bisgaard, A. Korsbjerg and O. Melikjanz.
93 Unfavorable Experiences with Friedmann's Treatment for Tuberculosis. (Erfahrungen mit dem Friedmannschen Tuberkulosemittel.) Schultes and E. Meinicke.
94 Hernia of the Diaphragm. (Zwerchfellbrüche.) W. Peters.

87. **Obstetric Hemorrhage.**—Among the various points emphasized by Jung in treatment of threatening hemorrhages after delivery, is that any attempt to tampon the uterus fails of its effect unless the uterus is packed clear down to the fundus; the tamponade should never be allowed to remain for more than twenty-four hours on account of the danger of infection. After delivery of the child, as long as the uterus feels hard and does not bleed, no attempt should be made to force out the placenta until at least forty-five minutes have elapsed; this law is frequently broken for various reasons but atony of the uterus is too often the penalty, with uncontrollable hemorrhage. Only in case of placenta praevia or premature separation of the placenta are earlier active measures justified. Atony is particularly liable to occur if the uterus has been abnormally distended by hydramnion, twins or hydrocephalus, or has been subjected to unusual strain at delivery from contracted pelvis, rigid soft parts or disproportionately large children. Also when the uterus has been rapidly evacuated by forceps or section before labor has been installed, and also when the woman has had similar atony of the uterus at preceding pregnancies; a habitual atony of the uterus may be feared. In all these circumstances 10 liters of boiled water kept at 40 or 50 C. should be in readiness, with material for tamponing and a rubber tube for the Momburg technic for belt constriction. No ergot should be given before expressing the placenta and the bladder should be empty at the time.

89. **Hyperglycemia in Elderly Diabetics.**—Hirschfeld calls attention to his report of two diabetic men of 69 and 72 who had an unusually high sugar content in the blood but it declined under restriction of albumin and increased intake of carbohydrates. He explains this as due to the more sluggish action of the kidneys in the elderly. Their kidneys are unable to throw off readily fluids and salts and this should be taken into account in the diet. He states that the elderly should not be allowed more than 70 gm. albumin. In the first case described the daily ration had been 120 gm. albumin; 100 gm. fat and 200 gm. carbohydrate. This was modified to 70 gm. albumin; 140 gm. fat, and 160 gm. carbohydrate, and the sugar in the urine dropped from 1.1 to 0.3 per cent. and the sugar in the blood from 0.35 to 0.16 per cent., with a blood-pressure of 138 and 136. In the second case the sugar in the urine dropped from 0.6 to 0.1 per cent.; in the blood from 0.28 to 0.14 per cent.; the blood-pressure from 128 to 124; the specific gravity of the urine from 1031 to 1025 and the nitrogen content from 18.06 to 10.04 gm. These changes were observed in ten days after the diet had been changed from the original 130 gm. albumin; 120 gm. fat, and 95 gm. carbohydrate to a ration consisting of 70 gm. albumin; 140 gm. fat, and 90 to 100 gm. carbohydrate. In both cases, when after this the intake of carbohydrates was increased, the sugar in the urine rapidly ran up. He suggests that these cases of high sugar content of the blood in the elderly may be regarded as a special form of renal diabetes, and the output depends essentially on the diet. Senile conditions and especially arteriosclerosis are probably responsible for this form.

Deutsche Zeitschrift für Chirurgie, Leipzig

CXXVIII, Nos. 5-6, pp. 433-628

95 Gunshot Wounds in Peace; 200 Cases. (Schussverletzungen im Frieden.) A. Hagentorn (Russia).
96 Tuberculosis of the Buccal Mucosa and Gums. (Zur Therapie der Tuberkulose der Mundschleimhaut und des Zahnfleisches.) A. Tiedemann.
97 Technic for Resection of the Stomach (Magenresektion). H. Finsterer.
98 Suspension and Points of Support for Artificial Limbs. (Künstliche Glieder.) J. Dollinger.
99 Primary Carcinomas of Middle Jejunum. F. Kaspar.

CXXIX, pp. 1-704. F. Trendelenburg Festschrift

100 *Cancer of the Larynx. (Kehlkopfkrebs.) A. Barth.
101 To Repair Defect Left after Operation on the Middle Ear. (Osteoplastischer Verschluss retroaurikulärer Oeffnungen nach Antrumoperationen.) Becker.
102 Operative Treatment of Acute Pancreatitis: Four Cases. Dreesmann.
103 *Ectopia Vesicae. (Zur Heilung der angeborenen Harnblasen- und Harnröhrenspalte.) W. Dünkeloh.
104 Symptomatology of Brachial Plexus Paralysis. (Stammneurom des Plexus brachialis und Symptomatologie der Wurzel-, Durchflechtungs- und End-Lähmungen des Plexus.) v. Gaza.
105 Raising the Pelvis. (Der Siegeszug der Beckenhochlagerung.) W. Meyer and E. Grunert.
106 Local Anesthesia for Abdominal Operations. (Oertliche Schmerzverhütung bei Bauchoperationen.) Hackenbruch.
107 Chronic Thyroiditis; Two Cases. (Eisenharte Strumitis.) Heineke.
108 Fibroplastic Appendicitis. A. Läwen.
109 Rupture of Kidney from Contusion; Forty-Seven Cases. (Subkutane Nierenruptur.) E. A. Lüken.
110 Advantages of Closing up the Pylorus with Every Gastro-Enterostomy; Fourteen Cases. (Pyloroplicatio et Pylorotorsio.) G. Mertens.
111 *Total Dislocation of Spine in the Neck. (Totalluxation der Halswirbelsäule.) H. Meyer.
112 Surgery of the Appendix. (Zur Chirurgie des Wurmfortsatzes.) W. Meyer (New York).
113 *Operative Mobilization of Ankylosed Joints and Ultimate Outcome. E. Payr.
114 Operative Treatment of Gastric Ulcer; Thirty-Two Cases. G. Perthes.
115 Retroperitoneal Cysts. H. Rimann.
116 *Suture of the Patella. (Zur Frage der offenen Patellarnaht mit Nachuntersuchungen.) W. Sandrock.
117 Inflammation in and around the Shoulder after Contusion. (Die Arthritis acromio-clavicularis als wichtiges Glied in der Pathologie der stumpfen Schulterverletzungen.) R. Sievers.
118 *Progress in Operative Treatment of Pulmonary Tuberculosis. M. Wilms.
119 Disturbance after Operations on the Cecum. (Beschwerden nach Blinddarmoperationen.) W. Wolf.

100. **Cancer of the Larynx.**—Barth reviews his experience with 70 cases, all but 16 in men. The lesion was in an early stage in 8 but only 3 were willing to be operated on, and these are in good health to date after intervals of fourteen, four, and one and a half years. In 12 other cases the larynx was removed and the 8 patients who survived the operation lived for periods of four to thirty months but then succumbed to metastasis.

103. **Operative Treatment of Exstrophy of the Bladder.**—Dünkeloh summarizes the first 7 cases operated on by Trendelenburg according to his method of mobilizing and reuniting the walls to make a bladder cavity, and 11 other cases in which this method was applied by others. To this list he adds 8 unpublished cases from Trendelenburg's records. Complete continence was not realized in any instance, and only for an hour's duration in one case, but a simple spring contrivance can be worn on the penis which ensures continence at will. Pyelonephritis developed later in only one case.

111. **Dislocation of Cervical Vertebrae.**—Meyer reviews the cases on record and reports a new one. The partial paralysis in his case subsided when the luxation was reduced. This was accomplished by very gradual and cautious suspension with traction under scopolamin-morphin-ether general anesthesia. The Roentgen ray showed that the fourth cervical vertebra had been forced forward by ½ cm.

113. **Mobilization of Ankylosed Joints.**—Payr's report of the technic and outcome in this class of cases fills 124 pages and is profusely illustrated. The prognosis is growing constantly better when the stiff joint is mobilized and a flap of soft parts is interposed to serve as a buffer. Satisfactory results can now be confidently predicted for the knee in 70 or 80 per cent. of the cases, as well as for the shoulder, elbow and hip joints. The roentgenographs show that the new joint adapts itself to its functioning in a most satisfactory manner in the majority of cases. The causes of the failure in the unbenefited cases are analyzed in detail, and the lessons to be drawn from them are emphasized.

116. **Open Suture of the Patella.**—Sandrock has recently reexamined 84 of the 106 cases of fractured patella treated by suture at the Leipzig surgical clinic. None became infected by the operation and all the patients recovered, even those whose injured knee had been soiled with street dirt. The functional outcome was found surprisingly good.

118. **Operative Treatment of Pulmonary Tuberculosis.**—Wilms gives an illustrated description of what he calls his *Pfeiler-Resektion* of ribs at the back to permit the thorax wall to sink in and thus compress and immobilize the lung below. He also describes a number of cases in which he immobilized the lung by a filling of paraffin and others in which he combined this with resection of ribs. He cuts a segment of each rib in the back, cutting a strip out from the first to the eleventh rib, working through a vertical incision at the edge of the scapula, the incision carried slanting outward toward the bottom. He resects from 8 to 10 cm. in the upper ribs and from 12 to 15 in the lower ones. The stumps are forced almost together by the elasticity of the wall. By crushing the intercostal soft parts with a clamp, their sensibility is deadened so there is no pain to speak of afterward as the wounds heal. Of the 23 patients he treated by this pillar resection in 1911 and 1912, 4 are clinically cured; 9 materially improved and nearly cured, and 4 are merely improved. None succumbed to the operation. Four died including 2 who were operated on only as a last resort, one patient having angina pectoris besides his consumption.

Monatsschrift für Kinderheilkunde, Berlin

XIII, No. 2, pp. 69-112

120 Roentgen Treatment not Advisable for Hypertrophy of the Thymus. W. Kaupe.
121 Treatment of Spasmophilia in Infants. Bernheim-Karrer.
122 Concentration of Hydrogen Ions in the Contents of the Infant's Stomach. A. Schackwitz.
123 Changes in Respiration Curve under Electric Tests as Aid in Diagnosis of Latent Tetany. (Atmungskurven bei Kindern mit spasmophilen Symptomen.) M. Masslow.

Medizinische Klinik, Berlin

July 7, X, No. 27, pp. 1127-1170

124 Chronic Bronchitis and Bronchiolitis. Lommel.
125 Sleeping Sickness in German West Africa. (Schlafkrankheit in Kamerun.) P. Kuhn.
126 *Turtle Tubercle Bacilli Cultivated from Mastitis Following Friedmann's Treatment for Tuberculosis. (Specifische Mastitis nach Injektion des Friedmannschen Tuberkulosevaccine.) C. W. Bischoff and K. L. Schmitz. (Befund von Kaltblütertuberkelbacillen in einem Mammaabscess.) W. Fromme.
127 Inhalation Therapy. (Die moderne Inhalationstherapie, ihre wissenschaftliche Ausgestaltung und ihre Auswüchse.) Frentzel-Beyme.
128 Modification of Action of Drugs by Combining Them. (Die Wirkung der Arzneigemische.) M. Kochmann and E. Bürgi.
129 Behavior of Cardiovascular System under Physicotherapy. (Neuere Untersuchungen über das Verhalten von Herz und Gefässsystem unter der Einwirkung physikalischer Heilmethoden.) T. Schott.
130 Complement-Deviation Test of Urine not Reliable for Diagnosis of Tuberculosis of the Kidney. (Sind im Urin bei Nierentuberkulöse tuberkulöse Gifte vorhanden?) M. Hetzer.

126. **Specific Mastitis after Friedmann's Treatment for Tuberculosis.**—Bischoff and Schmitz report the case of a woman of 36 given an intramuscular and later an intravenous injection of Friedmann's remedy. Not long after the intravenous injection she received a blow on both breasts in playing with her children, and in the course of the following weeks suppurating mastitis developed on both sides and what seemed to be the turtle tubercle bacillus was cultivated from the pus in pure cultures.

Fromme reports the bacteriologic findings in the case. Bacilli resembling in every respect, he states, the Friedmann strain of turtle bacilli were cultivated repeatedly from the pus of the mammary abscess. The latest cultures of the bacilli were made 104 days after the injection, demonstrating that the bacilli had retained their vitality in the body for this length of time. The mammary process proved essentially chronic in its course.

Münchener medizinische Wochenschrift, Berlin

June 30, LXI, No. 26, pp. 1433-1488

131 *Advantages of Caramel in Diet of Diabetics. (Karamelkuren bei Diabetikern.) E. Grafe.
132 *Action of Sodium Bicarbonate on Pancreas Secretion. E. Wilbrand.
133 *Vaccine Therapy in Furunculosis. T. Messerschmidt.
134 Possibility of Transmission of Disease Germs on Surface of Bread. (Verschleppungsmöglichkeit pathogener Darmbakterien durch Brot.) Fürst.
135 *Severed Hand Heals in Place with Good Functioning. Schloessmann.
136 Satisfactory Outcome of Tying Off the Pylorus with 2 cm. Wide Strip of Fascia Lata; Thirteen Cases. (Dauerresultate der Pylorusausschaltung.) J. Galpern.
137 Gonorrheal Keratitis after Reinjection of Gonococcus Vaccine. (Konjunktivitis metastatica gonorrhoica.) J. Strebel.
138 *Spinal-Cord Tumor. (Rückenmarksgeschwulst.) T. Mauss.
139 *The German League for Medical Freedom. (Kurpfuscher als ärztliche Sachverständige vor Gericht.) O. Neustätter. Commenced in No. 25.

131. **Caramel Sugar for Diabetics.**—Grafe states that grape sugar caramelized at a temperature of 140 to 150 C. has proved a useful means to supply carbohydrates to diabetics without increasing the glycosuria. He tested its action on animals through two years of experiences, and then gave it to twenty-five diabetics and found that it usually had a decidedly favorable action on the acidosis. The daily dose was from 150 to 200 gm., his extreme range 100 to 300 gm. This was fractioned throughout the day and taken in brandy or coffee or in puddings. He generally gave it for two to four days at a time, repeating as necessary after interposed "vegetable days." By this means it is possible to supply 600 to 800 calories from carbohydrates, and in fluid form. Any tendency to diarrhea can be combated with astringents. Grape-sugar caramel seems to be borne better than cane-sugar caramel. It should contain only 3 or 5 per cent. sugar or less. There do not seem to be any contra-indications except coma and enteritis. The respiratory quotient shows marked increase in oxidation processes under its influence. Diabetics seem to assimilate best hard-baked crust, caramelized starch, etc.

132. **Effect of Sodium Bicarbonate on the Pancreas.**—Wilbrand found in tests on dogs with a duodenal fistula that sodium bicarbonate materially reduced the secretion in the pancreas. It can thus prove useful in sparing the pancreas when conditions require this.

133. **Vaccine Therapy and Furunculosis.**—Messerschmidt applied autogenous vaccine in 16 cases of chronic furunculosis and in 14 of the patients no further furuncles developed. The cure has persisted to date for two years in one case, although there are still occasional pimples. The 2 refractory patients were a weakly infant and a man with severe acne, both with the *Staphylococcus albus*, but probably this was not the primary causal germ.

135. **Restoration of Function after Replacing of Severed Hand.**—The boy's right hand had been cut off in a feed-chopper and hung by a strip of soft parts only 3 cm. wide. Fortunately the artery, ulnar nerve and four tendons were intact in this bridge, and as the hand was clapped back into place at once there was no infection. Except for a slightly livid appearance of the thumb and forefinger the hand looks and works now, over a year later, entirely normal; even the sensory functioning is perfect and the handwriting shows little change. Only when severe exertion is required is any difference noted. An interval of six hours had elapsed before the operation; it included suturing the periosteum, the joint ligaments, median nerve and twenty-two tendons.

138. **Spinal-Cord Tumor.**—Mauss' case is remarkable only in the complete recovery of the long bed-ridden woman of 50 after removal of a subdural psammoma as large as a bean, compressing the spinal cord between the eleventh and twelfth dorsal vertebrae. The first symptoms were noticed two years before and were treated as sciatica. The paralysis progressed with intense pains and sensation as if the legs were packed in ice. Three months after the operation the patient was on her feet and now, after two years, she can walk for an hour without fatigue.

139. **The German League for Medical Freedom.**—There is an organization in Germany, the *Zentralverband für Parität der Heilmethoden*, which unites under its banner all who are antagonistic to scientific, legally qualified medicine. It thus includes all types of those who prey on the credulity of the sick and by its ceaseless, wily propaganda it has enlisted many of the thoughtless. The criminal records of a number of those prominent in the league are reviewed here by Neustätter. He tabulates 32 who have a history of fine or imprisonment for a total of four deaths under their practices and thirty-one severe personal injuries; 6 who have several such counts to their credit, and about 20 who have paid similar penalties once or more for direct swindling or penitentiary offences. He tabulates only those cases of which he has verified data, and cites the amount of the fine and the penitentiary or jail sentence in each. The league has fifty-nine members of parliament enrolled in its membership.

Therapeutische Monatshefte, Berlin

July, XXVIII, No. 7, pp. 469-548

140 *Lumbar Puncture as a Therapeutic Measure. H. Quincke.
141 *Dietetics and Pediatrics. L. Langstein.
142 Prophylaxis and Treatment of the Heart Weakness in Pneumonia. H. L. Elsner (Syracuse, N. Y.).
143 Quinin in Treatment of Syphilis. M. J. Breitmann.

140. **Lumbar Puncture as Therapeutic Measure.**—Quincke here discusses what can be hoped from lumbar puncture as a palliative or curative measure in various affections. Besides removing toxins and debris in the fluid thus withdrawn it may transform conditions in the serosa until spontaneous return to normal is possible, by removing the obstacle to the flow of blood and lymph and functioning of muscles. He warns that the patient should lie flat in bed for at least twenty-four hours afterward, abstaining from alcohol and only gradually returning to other positions. He takes up in turn in his ten pages each affection in which it could have a possible application, summarizing the leading principles in the statement that it should be applied or at least given a trial in all cases in which there is even suspicion that pressure from the cerebrospinal fluid is the cause of threatening symptoms or even of headache, stupor or vomiting. In acute cases of simple serous transudation, with or without inflammation, a single lumbar puncture may transform the clinical picture completely to a permanent cure. If the benefit is only transient, the puncture may have to be repeated daily or even oftener at first and then at longer intervals of three to ten days, and be kept up possibly for months. In this protracted course the indications should be reviewed anew each time, studying the course of the case, and the effects of each separate preceding puncture.

Always in applying lumbar puncture, he emphasizes, the pressure at the start and close and the amount withdrawn should be recorded each time. Systematically repeated lumbar puncture often permits a favorable outcome in suppurative bacillary cerebrospinal meningitis, and even in rare isolated cases of the tuberculous type. Quincke does not agree with those who denounce lumbar puncture if there is suspicion of a brain tumor. He advocates it in many cases as liable to improve the symptoms materially for a long time, even to the complete subsidence of choked disk.

141. **Dietetics for Children.**—Langstein reviews recent work showing the unceasing activity in the study of dietetics for sick and well infants and older children and the fine results already accomplished. Much that has already been learned might advantageously be applied to the diet of adults. Psychic influences affecting the course of digestion must be considered the more the older the child.

Wiener klinische Wochenschrift, Vienna

June 25, XXVII, No. 26, pp. 925-968

144 Filtrable Viruses. (Neuere Ergebnisse in der Erforschung des filtrierbaren Virus.) R. Kraus.
145 Improved Technic for Serodiagnosis of Cancer. (Blutserumuntersuchungen bei Karzinomatösen mit neuer, verbesserter Methode.) G. Kelling.
146 Source of Antibody in Syphilitic Cerebrospinal Fluid. (Herkunft des luetischen Reaktionskörpers.) W. Spät.

147 *Roentgen-Ray Cancers. H. Bichler.
148 No Menstrual Enlargement of the Thyroid. (Zur Frage der menstruellen Schilddrüsenvergrösserung.) N. Woronytsch.

July 2, No. 27, pp. 969-1012

149 *Testicle Functioning in Dogs Not Impaired by Ligation or Resection of Vas Deferens. (Auffällige Befunde bei experimentellen Studien an Nebenhoden.) J. Kyrle and K. J. Schopper.
150 Toxic Action of Fat Fed to Laboratory Animals. (Fettintoxikation.) O. Weltmann.
151 Technic for Injection of Paraffin to Make Artificial Tumor in Pineal Gland Region. (Künstliche Tumoren der Zirbeldrüsengegend.) J. Novak.
152 Hydrops of the Bile Apparatus: Four Cases. ("Weisse Galle.") R. Steiner.
153 Operative Restoration to Normal Site of Congenitally Displaced Kidney; Two Cases. (Verlagerung der kongenitalen dystopen Niere.) Korencan.
154 Cholesterin Content of the Serum in Dermatology. F. Fischl.
155 The Public-Health Service in Egypt. (Das Sanitätswesen in Aegypten.) E. Weiner.

147. **Roentgen-Ray Cancers.**—The four cases reported all date from the early days of Roentgen work at Vienna. Three were in persons handling the rays professionally and in two of these a predisposition may have been afforded by syphilis; one developed general paresis along with the malignant degeneration of the Roentgen burn. The interval between the first signs of trouble and the development of the cancer was eight, fourteen, fifteen and eighteen years and amputation of the hand or arm saved the lives of the professionals. In the other case a boy of 9 was treated with Roentgen exposures on account of rebellious prurigo and eczema. The treatment was successful but the scalp was left almost entirely bald, and a year later a severe, intensely itching dermatitis developed here and on the back which resisted eighteen months of treatment but gradually most of the area healed over. Five years later the area on the front of the head which had never entirely healed over became painful and the tissues proliferated to form a small tumor which bled readily. It was easily excised and the microscope confirmed the malignant nature of the tumor. The patient has been free from disturbances during the two years since to date. Malignant degeneration of a Roentgen-ray burn is usually accompanied by much pain; nearly all writers on Roentgen cancers mention the intensely painful nature of the process.

149. **Ligation or Resection of Epididymis in Dogs.**—Kyrle and Schopper state that they found it impossible to induce atrophy of the testicle by ligation, resection or other injury of the epipidymis or ligation of the vas deferens. The testicle on that side was found gorged with sperma four or six months afterward. In one of the dogs spermatozoa were found in the arteries and veins in the region. Their arrangement in the blood-vessels seemed to indicate that they had made their way into the blood.

Zentralblatt für Chirurgie, Leipsic

July 4, XLI, No. 27, pp. 1145-1176

156 Improved Technic for Harelip Operations. (Heftpflasterverband bei Hasenschartenoperationen.) Hofelder and A. Narath.
157 *Technic for Pyelography. E. Joseph.

157. **Technic for Pyelography.**—Joseph remarks that those clinicians with the most extensive experience with pyelography have been spared the mishaps occasionally reported by others. He thinks this can be explained only by better technic, and describes a number of minor technical points which he has found useful in his own service, such as the use of a fine catheter, not over No. 6, so that any excess of fluid injected runs back freely outside of the catheter. Sometimes the catheter can be introduced without effort far beyond the distance between bladder and kidney, the flexible tip rolling up in an abnormally wide ureter or pelvis; in this case roentgenoscopy at once, without injecting any opaque fluid, may give all the information desired. When the ureter catheter is in place and the urine is dripping from it, he withdraws the cystoscope and fastens the end of the catheter to the thigh with a strip of plaster. Abdominal breathing is shut off by tightening a girdle and all is made ready for the Roentgen exposure. Then the freshly made, 10 per cent. collargol solution is slowly injected, stopping when the patient feels the slightest sensation of fulness or pain under the costal arch. Unless he can rely on the patient's intelligence he does not inject more than 3 or 4 c.c., but as a rule he injects twice this and sometimes up to 14 or 20 c.c. The moment the injection is completed the instantaneous exposures are made and then immediately the catheter is withdrawn and the patient is made to stand up so the fluid runs down into the bladder. By this technic it has not remained more than a minute in the kidney pelvis, and the patients could return home at once. He refrains from pyelography on principle unless the fine catheter slips readily in. If the mere introduction of the catheter causes pain or bleeding, he gives up the attempt at pyelography at once.

Zentralblatt für Gynäkologie, Leipsic

July 5, XXXVIII, No. 27, pp. 961-984

158 *Radium Treatment of Uterine Cancer. (Radiumbehandlung bei Gebärmutterkrebs.) E. Schauta.
159 *Palpation of Fetal Head from the Rear. (Der diagnostische Hinterdammgriff.) E. Schwarzenbach.

158. **Radium Treatment of Uterine Cancer.**—Schauta remarks that it is certainly noteworthy that half of his twenty-two patients treated with radium are clinically cured to date. In all the uterine growth was in an inoperable stage. He operates in all operable cases, but insists on a course of radium treatment afterward, small doses with brief exposures at long intervals to ward off recurrence.

159. **Locating Fetal Head from the Rear.**—When the fetal head has passed the pelvic inlet, it can be felt from the rear, pushing the finger tips in deep between the coccyx and the anus. The parturient lies on her side and between labor pains the finger tips are worked in slowly and finally are pushed up with a quick, brief push. Unless the head can be felt when this is done, no attempt at forceps extraction should be made.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 76-77, pp. 801-824

160 The Cystoscope for Examination of Pleural Cavity, etc. (Diagnosi delle malattie polmonari per la pleuroscopia-toracoscopia.) E. Stolkind.
161 The Wassermann Reaction Is of Only Relative Import. A. Pasini.

Policlinico, Rome

XXI, Nos. 25-26, pp. 889-960

162 Diphtheria Antitoxin in Puerperal Fever, etc. (Alcune speciali applicazioni del siero antidifterico.) R. Carnelli.
163 Bile Favorable Culture Medium for Malta Fever Germs. (Ricerche sperimentali sulla latenza del micrococco di Bruce nella bile.) F. Tallo.

June, Medical Section No. 6, pp. 245-292

164 Tumor in Right Frontal Lobe Causing Cerebellar Syndrome. O. Fragnito.
165 Basic Staining of Red Corpuscles. (Osservazioni sperimentali e considerazioni cliniche sulla basofilia dei globuli rossi.) E. Bianchi.
166 *Léri's Arm Sign in Brain Disease of Central Nervous System. (Il "segno dell 'avambraccio" nelle malattie mentali.) G. Vidoni.

June, Surgical Section No. 6, pp. 257-308

167 Tumor in Round Ligament Protruding through Inguinal Canal. G. Beccherle.
168 Fascia Flap to Bridge Gap in Tendon in Hand. (Il mio metodo di plastica tendinea in 2 casi di gravi lesioni traumatiche.) L. Fioravanti.
169 Hematuria from Varices in Bladder. G. Dialti. Commenced in No. 5.

166. **Arm Sign in Disease of Central Nervous System.**—Léri recently called attention to the long-course reflex elicited in the forearm when the arm, hanging relaxed, is sustained by the investigator's left hand under the wrist while with his right hand he rolls up the fingers and the hand on the forearm. As this is done the forearm bends as if drawn by an elastic cord. This is the physiologic reflex, and it may disappear in case of an organic lesion anywhere along the reflex route.

Vidoni states that he tested 301 patients in an asylum for this reflex, the findings confirming Léri's statements in every particular. He found it impossible to elicit the reflex in any case of organic hemiplegia.

Riforma Medica, Naples

June 27, XXX, No. 26, pp. 701-728

170 *The Liver with Heart Disease. (Sul fegato dei cardiaci.) A. Tomaselli.
171 Achondroplasia. R. Massalongo and C. Piazza. Commenced in No. 25.
172 *Sutured Stab Wound of the Heart. (Ferite del cuore.) J. Bruchi.
173 Echinococcus Disease in Three Young Children. L. Fioravanti.

170. **The Liver with Heart Disease.**—Tomaselli examined repeatedly the condition of the liver in sixty patients with heart disease. In 80 per cent. the condition of the liver was unmistakably connected with the heart trouble; in the others the liver was enlarged, but there was no tendency to edema. A history of malaria or abuse of alcohol was evident in these cases. The prognosis seems to be better when the liver has suddenly grown large than in cases with more gradual enlargement. In any event, enlargement of the liver in the course of heart disease must be regarded as a sign of failing compensation, and one of the gravest.

172. **Suture of Stab Wound of Heart.**—The young man was stabbed in the right thigh and in the right auricle. Bleeding profusely, he sprang on a bicycle and raced to the hospital nearly half a mile distant where the wound was sutured at once, three stitches being taken in the auricle. Salt solution was administered by the subcutaneous drop method before and during the operation and afterward. Complete recovery soon followed.

Archives des Sciences Biologiques, St. Petersburg

XVIII, Nos. 1-2, pp. 1-212. French Edition

174 The Works of V. V. Podvyssotsky. V. N. Klimenko.
175 *The Physiology of Sleep. N. A. Rojansky.
176 The Physiology of the Thyroid. (Le phosphore, l'azote et les lipoides chez les animaux thyroidectomisés.) A. I. Youchtchenko.
177 Lime Sterilization of Drinking Water. (Les résultats qu'a fournis . . . la désinfection de l'eau du Don par une solution de chlorure de chaux.) G. J. Bronowicki and S. K. Dzerszgowski.

175. **The Physiology of Sleep.**—This long communication reporting research on the physiology of sleep was done under Pawlow. The nervous mechanism of sleep, the extinguishing of the conditional reflexes as sleep came on, were studied principally by the relaxation of the muscles in the neck accompanying the first weakening of the conditional reflex. A special rubber-bulb apparatus recorded the moment when the muscles in the dog's neck relaxed—these are the first to relax in dogs and about the last in cats. The conditional reflexes were elicited among other means with food, estimating the intensity of the reflexes by the number of drops of saliva that dripped from a fistula in the salivary glands; sleep coming on inhibits the secretion. The purpose of sleep seems to be to prevent excessive losses of energy. The mechanism for sleep should therefore, and it does, seal up the source for loss of energy as it arrests the functioning of the muscular system, shutting off all communication between the motor system and the external world. A period of sleep in each twenty-four hours conserves energy, but Rojansky insists that it is theoretically impossible to understand why it is such a vital necessity. He remarks that the best evidence of the absolutely vital necessity for sleep is that even in the busiest and most hurried marts of trade, where "time is truly money," yet no one has unlearned the habit of sleeping a certain number of hours in the twenty-four. He cites experiments showing that puppies died when kept without sleep for five or ten days and older dogs eight to twenty days, and Daddi found that the dogs died sooner when they were fed than when no food was given. Rojansky suggests that the fatal outcome may be attributed in part to the measures necessary to keep the dogs from sleeping; they must have been of such a nature that the dogs really suffered from overexcitement and overexertion in addition to the loss of sleep. There is much, he concludes, to sustain the assumption of an inherent periodicity regulating sleep, similar to the periodical fluctuation of the temperature during the twenty-four hours regardless of whether the individual is "turning night into day" or not. There may be a periodical chemical rhythm in the secretion or other functioning of glands with an internal secretion, and the problem of sleep can be best elucidated, probably, by study of all the daily periodical functions of the organism and the relations between them and processes of inhibition. Sixteen pages are devoted to the tabulated "hypnograms" of the nine dogs, and the titles of 446 articles on sleep are listed.

Russky Vrach, St. Petersburg

XIII, No. 12, pp. 397-464. V. Afanassieff Number

178 *Secretory Properties of Tumors. I. Shirokogoroff.
179 Action of Epinephrin on the Liver. E. Mazing.
180 *Organotropic Action of Salvarsan. I. Kaplan.
181 *Abderhalden's Reaction. A. Krupsky.
182 Acute Aleukemic Lymphadenosis. Mazing and Shirokogoroff.
183 Biology of Chondriosomes. V. Rubashkin.
184 Islands of Langerhans in the Pancreas. G. Kull.
185 Primary Fibrosarcoma in Peritoneum. V. Sorokin.
186 Sarcomas of the Eyeball. T. Verkke.
187 Cause of Leprosy. A. Paldrok.
188 Deformity of Spine and Chest; Two Cases. G. Adolphi.
189 Splenomegaly. K. Dehio.
190 Advantages of Two Test-Breakfasts. V. Zimmerman.
191 Enteritis in the New-Born in Connection with General Infection through the Intestines. V. Joukovsky.
192 *Technic for Injection of Salvarsan. E. Terrenson.

178. **Secreting Properties of Tumors.**—Shirokogoroff states that the cells of some new growths seem to possess secretory properties similar to those of the mother tissues. The presence in the cells of cancer of small granules known as Altman's granules, chondriosomes, confirms this opinion. They appear in the form of very small droplets which may attain in some cases the size of the granules of a red blood corpuscle. The process of development and growth of these formations is the same as in a normal gland, and indicates that the cells of a malignant growth containing these chondriosomes have a secretory function.

180-192. **Technic for Salvarsan and Its Affinity for Tissues.**—Kaplan injected an alkaline solution of salvarsan mixed with normal salt solution into twenty rabbits, ten cats and seven dogs, both intravenously and hypodermically. The central nervous system afterward showed hyperemia and hemorrhages, especially in the cerebellum and spinal cord. The cells showed no changes, except a slight chromatolysis in the large pyramidal cells, in cells of Purkinje, the medulla and spinal ganglia. There were also found hyperemia in the kidneys and fatty degeneration of the renal epithelium in dogs. Kaplan comes to the conclusion that salvarsan has an organotropic action with a special affinity for the nervous system.

Terrenson recommends for intramuscular injection acid solutions of salvarsan which he used with excellent results on more than 700 patients. He never used more than 4 c.c. of water, without any alcohol. The injection was made along Duhot's line, extending from the anterior crest of the ilium down to the lower end of the sacrum. The needle is inserted on this line where it is crossed by a line drawn upward along the external third of the femur. The needle must be inserted perpendicularly to the muscle, not deeper than 1 inch. For intravenous injections he uses alkaline salvarsan solutions. The acid solutions are especially indicated in syphilitic lesions of the vessels and heart; he found the salvarsan an excellent and harmless remedy, especially when given in connection with mercury.

181. **Serodiagnosis by Protective Ferments.** — Krupsky studied the value of Abderhalden's reaction in pregnancy, in the post-partum period, in different gynecologic affections, in cancer, etc., and comes to the conclusion that identical results can be obtained in extremely varied conditions, as, for instance, in pregnancy and malignant disease, yet in pregnancy the reaction is always positive even in the earliest stages. It may help to diagnosticate pregnancy in its earliest stages, remaining positive even two weeks after delivery. This establishes its medicolegal value in cases for instance, of criminal abortion or passed normal labors, when this reaction may confirm the assumption of a preceding pregnancy.

STATE UNIVERSITY

St. Peterburger medizinische Zeitschrift

XXXIX, Nos. 10-11, pp. 123-145

193 *Treatment of Eclampsia on Basis of Retention of Salt. (Zur Therapie der Eklampsie auf Grund von Beobachtungen der Kochsalzretention.) A. Christiani.
194 Injury of the Vagus during Removal of Tumors in the Neck. F. Weber.
195 Importance of Diverting the Course of the Urine in Resecting the Urethra. Klopfer.

193. **Treatment of Eclampsia on Basis of Retention of Salt.**—Christiani insists on the importance of the retention of salt as an element for the prognosis in eclampsia. In a case reported this, in connection with the other symptoms, compelled immediate cesarean section, saving both mother and child in an extremely severe case of eclampsia. Notwithstanding venesection and infusion the amount of urine fell off to 135 c.c.; the albumin had increased from traces to 12 per thousand, while there was only 0.4 c.c. of salt to the liter. The morning after the operation the albumin had dropped to 2 per thousand while the salt had risen to 2 c.c per liter. In some other typical cases cited the severe symptoms appeared and disappeared parallel to the drop and rise of the salt curve in the urine. His experience has been that retention of salt occurs with the uncontrollable vomiting of pregnancy and even before there are signs of albuminuria. Its importance as a guide to treatment in this case is obvious.

Hospitalstidende, Copenhagen

July 1, XLII, No. 26, pp. 817-840

196 *Benzol in Leukemia. H. C. V. Møller.

196. **Benzol in Leukemia.**—Møller reports three cases, all in women between 39 and 62, developing about the same time and treated at the Faxe public hospital. The leukemia was of the myeloid, lymphatic or pseudoleukemic type. Under benzol treatment improvement became speedily manifest; one patient could not take the capsules and the benzol was given in small oatmeal-gruel enemas. To each patient 1 gm. was given the first day, increasing by 1 gm. a day to a total of 4 gm.; then the daily dose was kept at 3 or 3.5 gm. systematically until the two true leukemia patients in the course of four months had taken 430 or 360 gm. benzol. In the pseudoleukemia patient the blood seemed to undergo a destructive process, proving fatal about a month after suspension of the medication, with dyspnea, and bleeding from the gums. The reds had dropped to 900,000 and the whites to 625. The improvement at first under the benzol had been striking. The myeloid patient seems to be clinically cured to date, eight months since discontinuance of treatment; the lymphatic patient seemed to be also clinically cured but has succumbed since to intercurrent pneumonia.

Hygiea, Stockholm

LXXVI, No. 11, pp. 625-688

197 *Technic for Effectual Treatment of Gonorrhea in Women. (Om gonorrens behandling och botbarhet hos kvinnan.) J. Almkvist.
198 Benzol and Thorium X in Leukemia. S. Berg.

197. **Gonorrhea in the Female.**—Almkvist is convinced that the reason why the usual treatment for gonorrhea in women so often fails to cure is because the antiseptics used in fluid form do not stay long enough in contact with the mucosa—conditions in the female being far less favorable than in the male. To obviate this he applies the disinfectant in the form of a jelly, injecting it under pressure so that the entire mucosa lining is stretched, thus smoothing out the folds and wrinkles and permitting the disinfectant to make its way into the crevices and by its semisolid consistency to cling there. He gives the detailed histories in tabulated form of 20 cases treated in this way and repeatedly reexamined for months afterward, in 8 cases along with the husbands, both being permanently free from gonococci afterward. In 5 cases the course of treatment required only from nine to fourteen days; in 5 others from twenty-one to twenty-six days; in 11, from thirty-five to ninety-eight, the longer course being necessary on account of complications. In one of the certainly permanently cured cases the gonorrhea was of nine months' standing. He never witnessed any untoward by-effects from injecting the medicated jelly into the uterus as a prophylactic measure even when no gonococci could be discovered in the cervix. All the patients but two had urethritis, and all but two had cervicitis. It is important, he reiterates, to cleanse the mucosa perfectly before injecting the jelly. His formula for the latter is 3 parts tragacanth; 2.5 parts alcohol, and 100 parts distilled water, to which he adds 1 per cent. of a silver salt. Fully 20 c.c. of the jelly are necessary in treating gonorrhea in the rectum, but in the cervix and urethra about 3 c.c. is generally sufficient.

Ugeskrift for Læger, Copenhagen

June 4, LXXVI, No. 23, pp. 1041-1084

199 *Overeating as Cause of Sickness. (Overeernæring som Sygdomsaarsag.) E. E. Faber.
200 Familial Tuberculosis. V. Holm.

June 11, No. 24, pp. 1085-1112

201 *Improved Technic for Mercurial Treatment: Inhalation Device. (Emikuren.) C. Engelbreth.

June 18, No. 25, pp. 1113-1142

202 Venous Stasis as Cause of Certain Complications of Operations for Glaucoma. (Om Glaukom. V.) C. F. Heerfordt.
203 Severe Reaction, with Albuminuria, to Dose of Purgen. L. Balslev.

199. **Overeating as Cause of Sickness.**—Faber is convinced that many of the morbid conditions credited to the "uric acid-diathesis" are in reality merely the effects of eating too much either at the time or previously. His list of 283 corpulent and 364 not corpulent patients shows how chronic rheumatism, lumbago, varices and constipation are far more prevalent among the corpulent. The combination of rheumatism and nervous symptoms in the corpulent is especially frequent. Comparison of the mortality of the corpulent shows a much higher mortality from heart and kidney disease and apoplexy. This may signify that the corpulent have less resisting power. But his main argument is the benefit which follows restriction of the diet. Rheumatism, neuralgia, etc., are liable to show prompt and persisting improvement when the diet is restricted so that the weight is reduced. Chronic rheumatism, refractory to heat, baths, massage and drugs may yield promptly and permanently when a few pounds of fat have been thrown off and it may return when the patient over-eats again. He found the blood-pressure unusually high in thirteen of fifteen corpulent patients; it ran up to 220 in two. Restriction of the diet alone may bring a high blood-pressure down to normal as the patient throws off superfluous flesh. The latter is not the cause of the rheumatism, etc., but both are due to overeating.

201. **Engelbreth's Mercury Inhalation Method of Treating Syphilis.**—The initials of this title form the name "emi" given to this method of treatment. Engelbreth claims for it accurate dosage—which is never possible with inunctions—convenience and simplicity of application, and remarkable efficacy, the mercury given in this way displaying its full potency without drawbacks. The mercury is vaporized by the heat of the water kept at 60 C. and the air passing through it is warmed to 50 C. The pure mercury precipitate on cotton is in a cylindrical glass with perforated top and bottom through which passes the air. Weighing the glass cartridge before and after use shows a loss of weight of 45 mg. mercury in thirty minutes, and this is the standard dose. With this technic, he reiterates, there are no dangerous deposits of mercury while the drug is brought directly into the arterial blood. He graduates the dose as a rule by the patients' weight and condition, beginning with a twenty-minute sitting and increasing to thirty, forty or sixty minutes, with constant supervision of pulse and weight. Headache, dizziness or diarrhea show that the dose is too large. One of the advantages of the method is that on stopping the inhalation there is no further absorption, so the medication is at all times under control. The course consists of twenty to thirty sittings. In tabes he gives only half doses. The results of this "emi-treatment" seem to have been unusually good in the 100 cases he reports.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 6 Chicago, Illinois August 8, 1914

EXPERIMENTAL AND CLINICAL STUDIES OF COLON STASIS *

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The subject of colonic toxemia may be studied under four headings: (*a*) colitis; (*b*) adhesions, membranes and kinks; (*c*) colon dilatations and visceroptosis, and (*d*) stasis. The solution of many vexed questions of alimentary toxemia may with good reason be sought in an understanding of the mutual relationship of these factors.

In examining the region of the terminal ileum, cecum and ascending colon of a large number of dogs, it is observed that this area is almost invariably the site of peri-intestinal inflammation with a notable tendency to the formation of membraniform adhesions. Such membraniform adhesions are very common in apparently healthy dogs. The vermiform appendix in the dog, as is well known, is very large, being virtually an elongation of the cecum. This abnormally large appendix is usually found to be tightly filled; likewise the ascending and transverse colons are more or less engorged at nearly all times in the healthy dog. Manifold membranous adhesions bind the appendix to the terminal ileum or to the ascending colon. In several specimens the appendix was sharply angulated at two or three levels by contracting membranes or bands. Often the terminal ileum was found to be enveloped in such membranous adhesions. On microscopic examination of the colon wall opposite these adhesions, complete evidence of chronic colitis was found in each case. The goblet-cells and the lumina of tubules were engorged with mucus. The intertubular spaces were infiltrated with round cells and the polyblasts of Maximow were seen in nearly every field. The small blood-vessels were congested. Colon stasis in the dog is almost constant. Thus it appears that the factors mentioned before, adhesions, membranes and kinks, colitis and stasis are to be observed in nearly every dog. What is the relation between the adhesions, the stasis and the colitis?

I have produced in rabbits a colon stasis by prolonged intermittent ligation of the anus, and such an artificially induced colon stasis resulted after a few weeks in the formation of plastic adhesions which were drawn out into membrane form by the normal movements of the large intestine. These membraniform adhesions appeared most frequently about the cecum and at the hepatic and splenic angles.

A great many writers, including Virchow, Gerster and Pilcher, have expressed the belief that plastic adhesions may form about the colon as the result of a toxemia having its origin within the lumen of the large intestine. In view of these things it does not seem illogical to say that membranous adhesions about the colon may result from stasis with associated chronic colitis.

Bassler[1] describes a bacterium which he believes is an important factor in the development of pericolonic adhesions and calls it the *Bacillus adhaesioformis.* He examined the adhesions in eleven cases and encountered this bacillus more often than any other. Runeberg and Heyde isolated eleven different bacteria in inflammatory conditions about the vermiform appendix, among them the *B. fusiformis, B. thetoides, B. butyricus, B. parapneumococcus, B. pseudotetanus* and the *Streptococcus anaerobicus.*

It should be noted that the *B. adhaesioformis* of Bassler was not found in the adhesion but in the intestinal lumen opposite the adhesion. Like the bacilli isolated in adhesion formation by Runeberg and Hyde it is an anaerobe. The presence of these anaerobes in the colonic lumen at the site of adhesion may be accounted for by recalling that it is at the site of adhesion that stasis is marked. These saphrophytes or dung-dwellers are present in the stagnant feces, the oxygen of which is gradually consumed by the *B. coli;* thus a medium favorable for the growth of the anaerobes named is established. It can hardly be regarded as proved that any of these bacteria bear a specific relation to adhesion formation. If these anaerobes, however, do bear a direct or indirect causative relation to adhesions and colitis, stasis by the arrest of feces will favor, through the agency of these bacteria, the development of colitis and pericolitis.

Adami[2] remarks that bacteria pass from the intestine to the peritoneal cavity with comparative ease, and when present locally in any number and of low virulence they tend to be destroyed by the inflammation which they set up so that the fully formed adhesions are sterile. Adami, therefore, supports the contention that stasis through the agency of bacteria may produce pericolonic membranes. On the other hand, membranes, bands or folds which in any way fetter or embarrass the movements of the large intestine will tend to cause stasis. Among these bands and folds are many which are of embryonal origin. Many result from traction on adhesions between appendices epiploicae and adjacent intestines (Douglas G. Reid).

It is true that pericolonic adhesions and membranes do not always produce stasis; and here it should be noted that the clinical consequences of pericolonic membrane formation will vary according to the variety and extent of the pericolonic membrane which is present. The white fibrous embryonal fusion membrane passing from the mural serosa to the colon is almost sure to hamper the normal cecal movements, whereas, the gossamer vascular veil, a very common accompaniment of chronic appendicitis and probably the result of changes in the circulation (Hertzler), I have found frequently in young persons, unassociated with constipation in any form or degree. This, however, does not prove that they bear no relation to stasis. Such diaphanous membranes may be present without compression or strangulation of the colon, in which case they have only a potential clinical significance. Often, however, such veils probably cause or aggravate the condition of stasis.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Bassler, Anthony: Med. Rec., N. Y., 1914, lxxxv, 427.

[2] Adami, J. G.: Brit. Med. Jour., Jan. 24, 1914, p. 177.

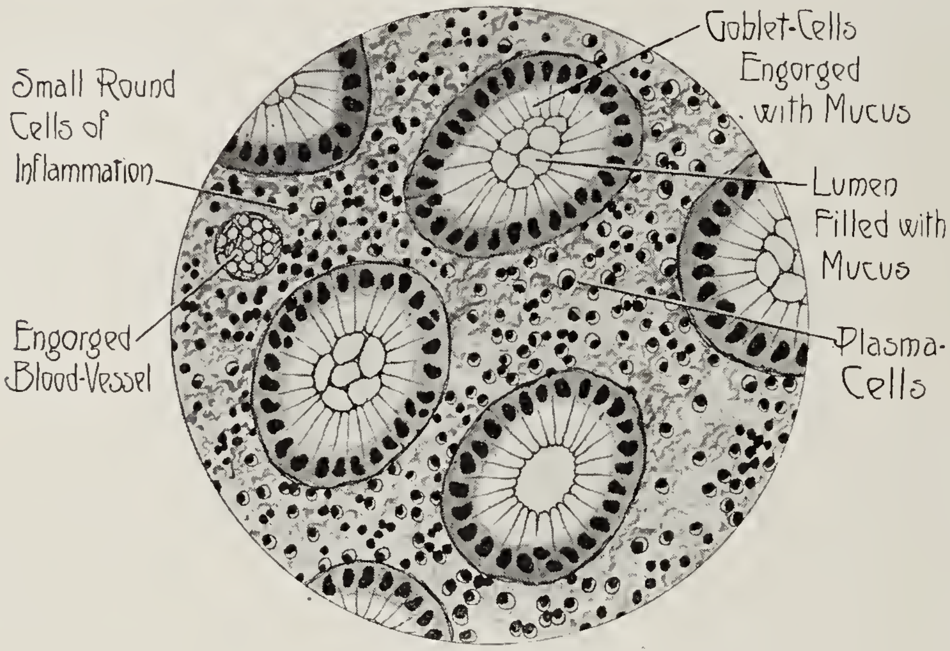
Goblet-Cells Engorged with Mucus
Small Round Cells of Inflammation
Lumen Filled with Mucus
Engorged Blood-Vessel
Plasma-Cells

Fig. 1.—Colitis as seen in association with colon stasis.

I have been greatly surprised at the frequent incidence of this delicate vascular form of pericolonic membrane. It may be found in some form or degree about the cecum in nearly every case of chronic appendicitis with stasis. That is, a thin vascular extra peritoneum may be slipped over the underlying serosa in, I believe, at least 75 per cent. of cases of chronic inflammation of the vermiform appendix. I have demonstrated it in twenty-six consecutive cases of chronic appendicitis with constipation, which observation suggests that the movable vascular veil bears the relation of cause or effect to the chronic appendicitis. The interference with drainage caused by the membrane, doubtless, predisposes to appendicitis.

I have found the appendix when buried under a pericolonic membrane to be greatly reduced in caliber, resembling a very slender cord, white and almost bloodless. Occasionally the first proximal inch of the appendix was of normal size, but the filiform strand beneath the adhesions or membranes was of a cross-diameter of only 2 or 3 mm. It is not proved that this form of membrane is always of fetal origin. It seems more probable that it is a result of irritation or infection, developing either in fetal or adult life; but, however that may be, an appendix thus strangulated could hardly drain normally.

Pericolonic adhesions nearly always give rise to disturbances of one kind or another. The constriction and fixation of the intestine produce not only a mechanical distortion inducing stasis and colitis, but certainly in some cases, by establishing abnormal functional conditions, give rise to aberration in the behavior of the gastro-intestinal tract through the agency of reflex action. Thus in some instances, as Hewes has explained:

> Spasm or abnormality of peristalsis of portions of the gut, stasis of contents or gas, may occur in portions far removed from the actual seat of the lesion without the finding of any anatomical variation in the portion where the function is disturbed. For example, disturbances of the stomach, with imperfect emptying of contents, may occur in cases where no distortion of the stomach or duodenum is present, and where the only abnormality found is adhesions about the cecum and stasis of contents.

Like many others I have occasionally been able to relieve colon stasis permanently by division of an enveloping pericolonic membrane, which fact, though it may not prove that the membrane produced the stasis, is at least strongly suggestive. It seems reasonably fair in view of the foregoing data to say that pericolonic membranous adhesions may induce colon stasis, and on the other hand, as a direct result of colon stasis, bacteria may penetrate by exosmosis the coats of the bowel and develop pericolonic adhesions, an instance of vicious circle.

A somewhat similar interchange of cause and effect is presented in the condition of descensus of the colon. If from any cause, such as decrease of intra-abdominal pressure due to relaxation of the lower abdominal musculature, a ptosis of the transverse colon develops, it is clear that the procession of intestinal contents through the V-shaped transverse colon will be slow. It is equally clear that the retardation of the bowel contents in the sagging transverse colon will tend to maintain or increase the ptosis. Thus, we see how stasis leads to ptosis and ptosis leads to stasis.

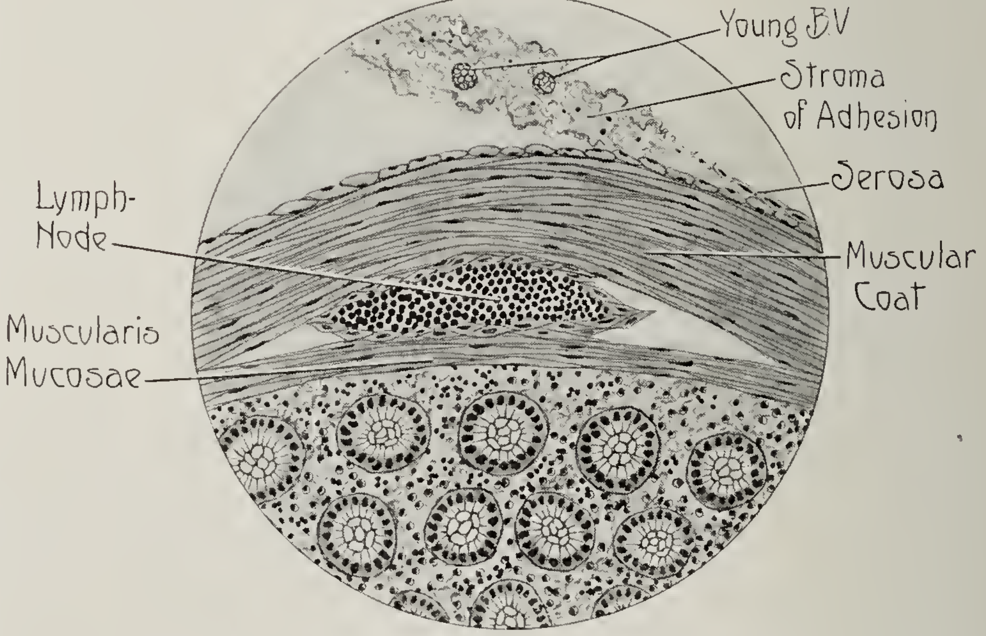

Fig. 2.—Marked colitis as observed opposite pericolonic adhesion.

A specific illustration of downward displacement of the colon, probably acting as a causative agent of stasis, is represented by the cecum mobile of Wilms. The column of contents of the loaded ascending colon by its weight and hydraulic pressure dilates and pushes the cecum downward into the pelvis. The condition of cecum mobile noted results, and as the direct effect of the ptosis and the fatigue of the muscularis of the cecum which empties itself, according to Jackson, like a bulb, stasis becomes more extreme, then comes emigration of bacteria and toxemia by exosmosis, and pericolonic membranous adhesions are formed and another vicious circle is completed.

Colitis seems to be a quite constant accompaniment of stasis and colon ptosis. Sections made by Dr. A. C. Shipp, pathologist of Indiana University, from the human colon wall in cases of chronic stasis in which a short-circuiting operation was performed, disclose, as in the apparently normal dog, chronic colitis evidenced by the presence of plasmatocytes with eccentrically placed nuclei, distended goblet-cells, congested blood-vessels and round-cell infiltration. Colitis may with reason be suspected of causing or increasing stasis. Infiltration of the colon wall decreases its elasticity and contractility and proportionally decreases its propulsive power.

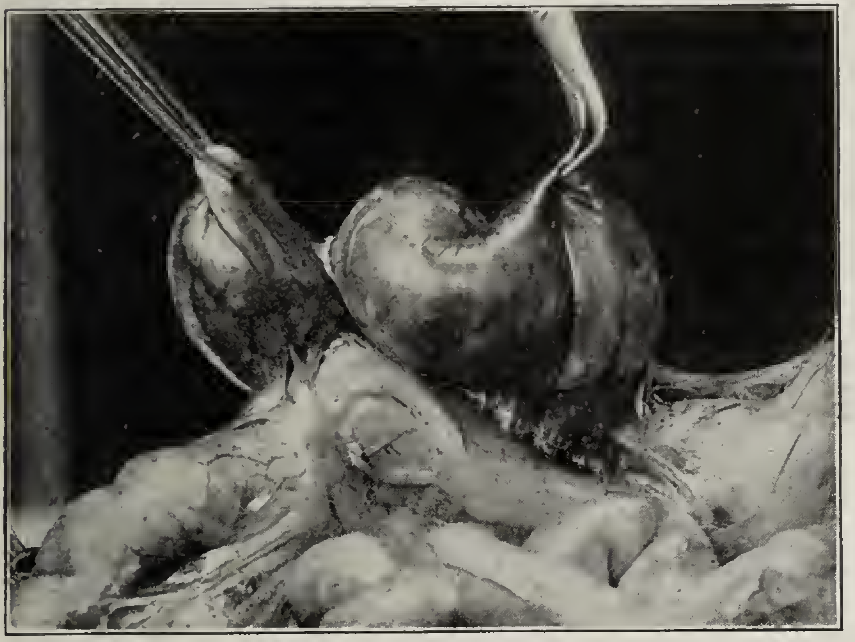

Fig. 3.—Extensive pericolonic adhesions such as are almost constant about caput coli in dogs.

Thus, it appears that each of the elements, stasis, colitis, adhesions or ptosis, may cause any or all of the other three elements or may be caused by any or all of the other three. If this be true, intelligent treatment of any or all of these factors must be based on an understanding of this mutual relationship which takes the form of several correlated vicious circles.

The treatment of colon stasis, by the very nature of its varying causation, must vary according to the peculiarities of each case. Purely medical treatment with petroleum oil, Weir Mitchell feeding after Coffey's plan, which has in view an increasing of the abdominal fat and medical treatment aimed at the arrest of intestinal subinfection, all have an important part in the treatment of intestinal stasis. Hygiene, regular vigorous exercise and proper living will do still more.

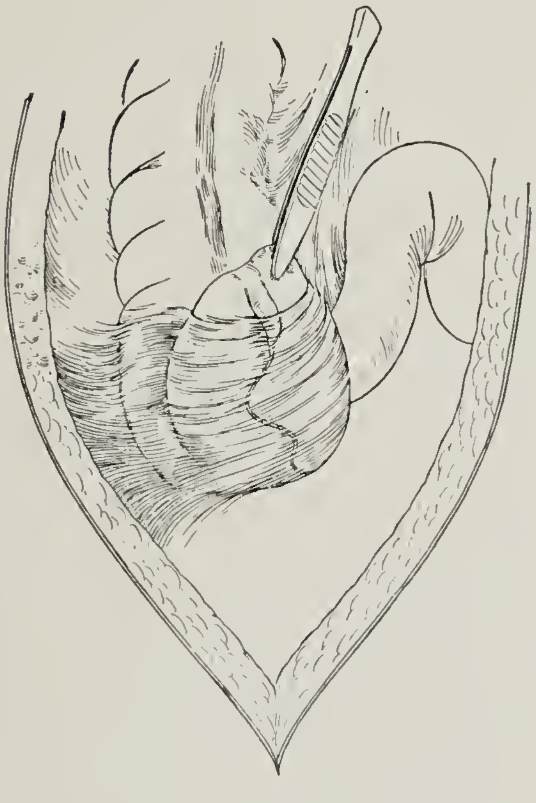

Fig. 4.—Filiform appendix buried under Treves' fold.

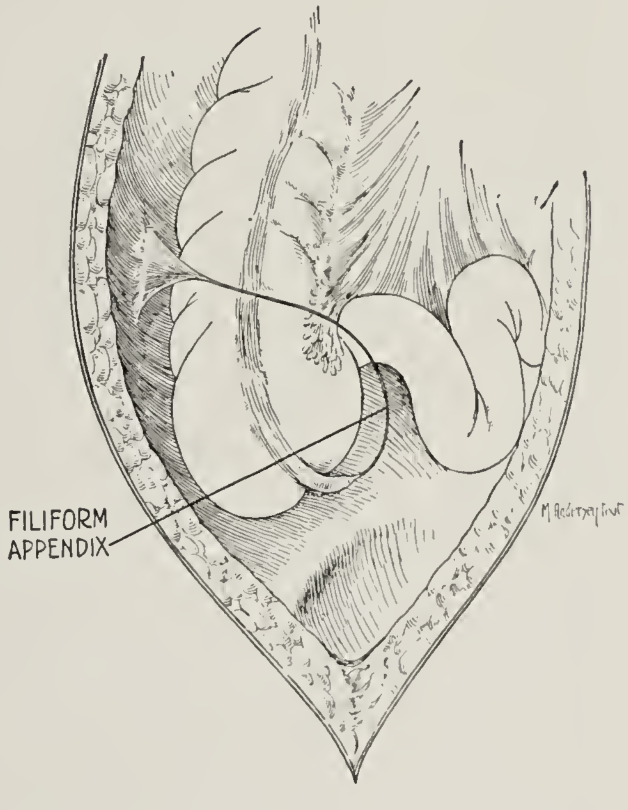

Fig. 5.—Vermiform appendix drawn out into a fine strand, adherent tip drawing out a small membrane from mural peritoneum.

As to the surgical treatment of colon stasis, it may be said that this subject is not yet *sprachreif*. Numerous operations have been devised for the correction of the various causative factors concerned in the arrest and stagnation of the intestinal contents. Among the procedures are those of Robert C. Coffey and C. A. L. Reed for the restoration of the ptosed colon to its normal position, and those of Sir Arbuthnot Lane, whose best-known operative exploits are based on Metchnikoff's view that we are better off without a colon.

The surgical procedure to be employed in any given case should be determined not before operation, but after the abdomen has been opened and completely explored. The operation must be made which will most efficiently correct or remove the anatomic or physiologic abnormality which is causing the stasis. In midline ptosis this may mean the hammock operation of Coffey or his operation to increase the capacity of the upper abdomen. In the case of discrete simple band or membrane formation it may mean nothing more than the division or removal of the band or membrane. In the case of a colon so fettered and constricted by pericolonic membranes that it cannot be freed by division or removal of the membrane, or in a colon so hopelessly ptosed that suspension operations cannot be efficient, then colectomy or a short-circuiting operation or both combined are to be considered.

Little or nothing is to be expected from operations for the removal of pericolonic membranes which are at all extensive. I have attempted this many times and my results do not justify continuance of the practice. If one can definitely divide or remove a constricting band or membrane and cover the raw surface which is left, as can be done occasionally, then the operation is justified. Otherwise, it is to no purpose. The leaving of large, denuded areas is sure to be followed by unfavorable results.

If short-circuiting is to be done, great care should be exercised in selecting the colon surface to be anastomosed.

Mr. Lane places the ileum or cecum against a convenient segment of the sigmoid and the two structures are united, thus throwing 4 or 5 feet of the offending colon out of commission. This method, although easy of execution, is followed in a considerable percentage of cases by fecal regurgitation and impaction.

Case has shown by numerous Roentgen examinations of patients on whom ileocolostomies had been done that the terminal ileum had become a veritable cecum, often dilated and impacted.

Hamilton Drummond made roentgenograms of patients after ileocolostomy and found a definite dilatation of the terminal ileum. The loop of ileum between the anastomosis and the cecum seemed to have taken over to some extent the function of the colon.

Anastomosis of the caput coli at its lowest level with the rectum presents all of the advantages and eliminates some of the evils of ileocolostomy. Ileosigmoidostomy does not efficiently drain the cecum. It has been shown by Mr. Lane in cases in which colectomy had been performed after an ileocolostomy, that the cecum was tightly impacted.

If the caput coli be anastomosed freely to the rectum at the lowest point possible without traction, then the reversed peristalsis of the ascending colon should favor drainage of the cecum through the artificial opening in the floor of the pouch, which is the chief habitat of ammoniacal food and intestinal bacteria of decomposition, and which even in starvation is not entirely empty (Cannon).

The opening of communication should be amply large. In order that the anastomosis may be made on the most dependent surface of the caput coli, the appendix, though normal, if in the way of anastomosis or good drainage, should be removed. If the sigmoid is dilated and very redundant it should be resected in order that coils of incompetent sigmoid may not remain above the stoma.

It is probable that the Roentgen examination of patients on whom short-circuiting operations have been made will continue to afford surprises. My own experience with such examinations has been both interesting and instructive. It has been the rule that patients operated on after the technic described above have experienced prompt relief, even in cases in which the colon impaction had caused distress for years. In a few cases the bowels began moving daily without stimulation of any kind.

When the serial roentgenograms were made after such an operation for stasis without extensive adhesions in which complete relief had been secured, and while the patient was still in the hospital, I found that the bismuth column did not pass from the cecum through the anastomosis opening as I had hoped it would. The first roentgenogram, made twelve hours after the bismuth meal was taken, showed the cecum filled with bismuth, and subsequent examinations showed the bismuth column rising to the hepatic flexure. Serial pictures made up to twenty-four hours revealed bismuth in the transverse and ascending colons. These pictures were made two weeks after operation, when perhaps the margins of the anastomosis opening were still somewhat indurated and unyielding. A week later, or three weeks after operation, roentgenograms showed that the bismuth column after reaching the cecum passed partly through the anastomosis opening, though the greater part arose in the ascending colon as before. In cases with more extensive adhesion formation and with lifeless colon muscularis, the proportion of colon contents passing through the stoma was greater. The Roentgen examination of such cases has shown how little we know of the hydrostatics of the colon. It seems clear that gravity plays little or no part in the course taken by the colon contents, intra-abdominal pressure having a much more important rôle.

The improvement following short-circuiting operations is probably due in some measure to the relief of colitis with consequent relief of the associated factors mentioned previously. Direct drainage by allowing escape of bacteria-laden secretions leads to improvement in the colitis with consequent increase of propulsive power and proportionate decrease of stasis. This is a probability in stasis cases in which the colon is not completely fettered by firm adhesions. Unless the colon is thus hopelessly enveloped in dense membranes, the purpose of a well-planned short-circuiting operation should be, not to put the colon out of commission, but by relief of colitis and pericolitis *through drainage to put the colon back in commission.*

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THE CONDITION OF A FEW PATIENTS, TWO YEARS AFTER ILEOSIGMOIDOSTOMY *

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The profession in its attitude toward the treatment of ptosis of the stomach and colon may be divided into three classes: (1) those who think that any benefit to be derived from operative procedures depends on the shock given the nervous system by the operation, together with the suggestion of benefit received; (2) those who believe in trying to restore the viscera as nearly as possible to their normal position by various methods, and (3) those who believe in overcoming the effects of displacement by short-circuiting the intestinal tract.

I have been inclined to believe that all three views are correct, and that the difference among them is largely a matter of degree of disability of cases observed. The mildest cases can be much improved by diet, proper rest, exercise and suggestion and almost any operation followed by a few weeks of rest will seem to benefit the patients. Cases of the next class are more severe, and cannot be relieved without some operation that assists the bowel in emptying itself. These various operations for restoring the bowel more or less completely to its normal position answers the purpose for this class. In the third class the large intestine has become so elongated and attenuated that to fasten it up in two or three places increases the number of kinks and does not sufficiently overcome the difficulty of evacuation to enable the bowel to regain its tone.

In support of this view I may say that often the Roentgen ray shows marked displacement of the colon while yet there exists no particular disturbance of its functions. It is my rule when opening the abdomen for any cause to note the location and condition of the colon, just as I examine the gall-bladder and appendix. In many cases I have observed a well-marked displacement, and the history of the case indicated that stasis had existed for considerable length of time, but in the vast majority of cases the patient has improved in this regard after the operation, which was in no way directed to the relief of symptoms on the part of the colon.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

As most of these patients are admittedly neurotic, the results of any given procedure can be estimated at their true value only after a lapse of some time. The following cases of ileosigmoidostomy are reported to show the results after two years, which I think is a length of time sufficient to give some idea of the permanency of any relief that has been obtained. The cases are too few to be of much value in and of themselves, but if a hundred other operators will likewise report their cases the statistics will be of real value.

Case 1.—Operation was performed at the Good Samaritan Hospital, Jan. 15, 1912. I reproduce a previous report[1]: The first patient I saw with my friend and colleague, Dr. Carothers. She was 31 and unmarried. Up to the age of 20 her health was comparatively good, with the exception of painful menstruation, for which she was twice curetted without relief. At the age of 28 the abdomen was opened and the left ovary and appendix removed. After this the patient's health was only fair; she had headaches and ill-defined pains continuously, for which she consulted internists, orthopedists, oculists and rhinologists. When I saw her she was absolutely unable to work and manifested in a marked degree all the symptoms of colonic stasis. She was afraid to eat on account of the difficulty experienced in evacuating the bowels. Before the operation this patient had not had a stool without the use of strong purgatives for over five years. On the third day following the operation the bowels moved of their own accord and continued to do so up to the present time. For the first week the stools were rather too frequent and loose and irritated the skin around the anus. Since that time the condition of the bowel has been quite satisfactory.

The patient has gained 15 pounds and has been following her work as a hair-dresser and solicitor. Her skin has cleared and her general health improved in every way, and is much better than she had ever been previous. She occasionally is slightly constipated, but an enema is all that is necessary to relieve her.

Case 2.—Miss S. came to me on account of "stomach trouble." She had constant pain in the abdomen and was absolutely unable to work. I could scarcely get her to take enough food to nourish her on account of the distress it gave her. Her bowels moved only with violent purgation. After a month's observation and treatment I advised operation and she immediately consented. The operation was performed and her bowels moved on the third day without any assistance and were rather too loose. Within a week she was eating better than she had for years. Once since she went home she has been slightly constipated, but this was from drinking large quantities of milk.

This patient was in my office within the last month. She came, however, to ask my advice as to the diet for her baby. Six months after the operation she married and in due time delivered a healthy child at full term without any trouble. She nursed her baby with satisfaction to the child and without interfering with her own nutrition. She can now eat anything she wants and calls herself a well woman.

Case 3.—In the case of Miss G., aged 35, menstruation began at the age of 13, and was irregular the first year, later becoming regular and painful. She had suffered from constipation as long as she could remember. She complained of ill-defined pains over the abdomen. She had periods of most profound melancholia and fits of uncontrollable temper. She had worked as a dress-maker but was forced to give up on account of her health. She was treated by a general practitioner of ability, but he diagnosed her case as hysteria and treated her without sympathy and without benefit. Her mental condition was getting worse. I saw her in consultation. Physical examination showed the uterus not well developed, with a long narrow cervix, sharply anteflexed. A fibroid the size of a hickory-nut was present in the anterior wall of the uterus. I advised a thorough dilatation of the cervix, curettage and packing of the uterus, followed by several weeks of rest in bed in a hospital. The large doses of purgatives necessary to move the bowels exhausted her. After two weeks in the hospital I saw that I could not improve her condition any further by rest and changed surroundings. She was sent home and ordered to walk several squares every day, eat large quantities of fruit before breakfast, and take cold sponge-baths. Several times a day she was to exercise by bending forward till her finger-tips touched the floor and then straightening up. Under this regimen she about held her own, but made no further progress. It took 10 grains of compound extract of colocynth with 5 of cascara to move her bowels. Dr. Dudley Webb made roentgenograms of the stomach and intestines, showing ptosis of the colon and slow motility. She returned to the hospital, and on May 22 I did an ileosigmoidostomy and also removed the small fibroid. The bowels moved on the third day without a purge.

The patient was in my office last week; she is the picture of health, with skin clear, eyes bright and a constant smile on her face. She has gained 65 pounds. She has been clerking in a jewelry store and has not missed a day of work since January 1. Only once this year has she found it necessary to take an enema.

Case 4.—Mrs. G., aged 38, German, was exceedingly nervous and unable to work, with ill-defined pains over body and discolored skin. Patient was always constipated, giving a history of taking large quantities of Epsom salts before being able to obtain even a slight bowel movement.

Six months after ileosigmoidostomy she reported as being greatly benefited. A letter received within the last week says that she has not gained much in weight and that occasionally she has to take a purgative. There is evidently considerable improvement in this case, as the patient is able to do all her housework, including the washing for a large family, which was entirely out of the question before operation.

Case 5.—Mr. C. had been a neurasthenic all his life. Constipation in this case was also so severe that it took large doses of purgatives to move the bowels. He suffered greatly from headaches, which completely prostrated him. He had no appetite; there was a marked discoloration of the skin, due to intestinal absorption. The Roentgen ray showed the colon in fairly good position but a greatly elongated sigmoid. Ileosigmoidostomy was done at Bethesda Hospital, the ileum being attached as low as possible.

The patient's body-weight remains practically the same. His bowels move without any trouble, but occasionally he has to take a purge. His headaches are less frequent and less severe. His color is greatly improved and his nervous symptoms decidedly better. I received this report from his family physician this past week.

Case 6.—Miss R., a neurasthenic of the worst type, was operated on at Bethesda Hospital, Nov. 2, 1911. The uterus was curetted and the right ovary, which was cystic, removed. At this time I noted that the colon was elongated and prolapsed. After the operation she did not improve as I expected her to do, so I advised the ileosigmoidostomy. The following July (1912) during my absence from the city Dr. Carothers performed this operation. She immediately improved and her family physician, Dr. Cadwallader, reported to me this last week that the improvement has been lasting.

It would seem that the results are most satisfactory in the patients who live in the city where I could see them occasionally and give them advice as to diet, etc.

These are all of the cases that I have been able to follow for a full two years or more. The cases are too few to justify drawing any definite conclusion, yet straws show the way the wind blows and I shall continue to perform the operation in carefully selected cases. I have carefully avoided trying to swell my list of cases by doing the operation when it was not absolutely necessary. I would not advise the operation in any case until the ptosis has been demonstrated to exist and the Roentgen ray and bismuth have shown as well that there is a marked retardation of the fecal current; and then it is wise to have a good internist see how much improvement he can secure by diet, exercise, etc. When all other methods have failed, however, I believe this operation has a distinct place in surgery.

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[1] Bonifield, C. L.: Ileosigmoidostomy for Colonic Stasis, Am. Jour. Obst., February, 1913.

In many cases this advanced condition has been warded off by proper treatment while the patient is still young. Other patients, while they may not be cured, can be greatly benefited by exercise, diet and improvement of the general health and particularly the nervous system. So it can be seen that I believe that the cases in which this operation is indicated are comparatively few. I hope in the future a better understanding of the etiology of the condition will enable the family physician to make the cases still fewer. In the meantime, however, I think we can by the judicious use of this operation restore some people to their proper useful sphere in the world.

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RESECTION OF THE FIRST PORTION OF THE LARGE INTESTINE AND THE RESULTING EFFECT ON ITS FUNCTION *

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Human beings vary in their internal anatomy in about the same degree that they vary in their external form and configuration. Were a man who was thin and 6 feet high to ask us to make him fat and 5 feet 6 inches high by operating on him, we would think him mentally deranged. Yet how frequently in the past have we attempted to correct surgically the internal anatomy because of variations from the average normal, especially the position of the abdominal viscera.

It is less than ten years since nephrorrhaphy, ventrofixation, gastrorrhaphy and kindred operations were resorted to on indications which would not be accepted to-day. We have come to appreciate the fact that comparatively few of the abdominal viscera have unchangeable anatomic characteristics and that variations within limits are not to be considered abnormal.

The large intestine, with its short heredity and changing function, has no such fixed characteristics as have the more primitive small intestines. Arising on the left side of the body, the head of the colon swings to the right but does not reach its normal habitation until after birth. The peritoneal cavity has then already been formed and its attachments on the right side may take on the character of adhesions, in many instances causing that condition which Jackson[1] has so aptly termed a "veil." This looseness of attachment of the ascending colon and hepatic flexure permits of freer movement of the right kidney. The terminal ileum normally comes up out of the pelvis and enters the cecum at an acute angle. The ileocecal valve is a sphincter mechanism acting to hold the ileal contents and delay their progress, and this stasis within limits is normal. Early in fetal life the ileum becomes attached to the inner side of the cecum. This fixation prevents expansion on the inner side and, because of its inability to expand in all directions, the cecum assumes a lopsided appearance. An exaggeration of the sustaining bands is often called ileal kinks.

The large intestine, within normal limits, varies in length and position, especially the transverse colon and sigmoid. The high fixation of the splenic flexure of the colon, economically taking the place of a muscular sphincter, is a fixed characteristic and performs an important function. It holds within the proximal half of the large intestine the ingesta which have been passed into it from the small intestine and delays their progress that fluids and nutritive material may be absorbed therefrom. When the waste remnants move beyond the splenic angle they pass rapidly through the descending colon, which acts as the vestibule to the sigmoid, the normal fecal container. As pointed out by Rokitansky[2] more than sixty years ago, the descending colon is normally empty.

Usually when we speak of the cecum we mean the cecocolon or head of the colon which includes the cecum, ascending colon and hepatic flexure. The cecum itself is the end-pouch only and is but from 1½ to 3 inches in length.

It is altogether probable that in the past too much importance has been attributed to purely incidental changes in the position and attachments of the large intestine. Bands, kinks and adhesions of a normal character have been given a fictitious rôle in the supposed production of symptoms which were not in themselves mechanical. Adhesions, bands and kinks are not usually congenital in the sense that they are formed prenatally and then remain as formed, but they change in character throughout life. The interesting work of Lane,[3] Pilcher,[4] Gerster,[5] Gray,[6] Pringle,[7], Binnie,[8] Jackson,[1] Eastman,[9] Flint[10] and many others has thrown much light on the origin of these bands. We are indebted to the pioneer work of Lane for calling our attention to the fact that in the large intestine may lie the cause of much human misery. While I do not agree with Lane in the great stress which he lays on the rôle of bands, kinks, etc., I am convinced that he has discovered a great physiologic truth not heretofore recognized, and he must be fully credited with bringing forward this most important question. Whether or not we agree with him, we must at least recognize the facts on which his contention rests.

The villi of the small intestine are to man as roots to a tree. In early fetal life the first half of the large intestine contains villi the same as the small intestine; and while these villi in later development are lost as anatomic structures, the power of absorption remains. We speak of rectal feeding as though food were actually absorbed in the rectum. As a matter of fact, food or other material placed in the rectum is promptly

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Jackson: Tr. Western Surg. and Gyn. Assn., 1908, xviii, 269.

[2] Rokitansky: Handbuch der spec. path. Anat., 1842.

[3] Lane: Brit. Med. Jour., May 4, 1912, p. 989; Surg., Gynec. and Obst., November, 1910, p. 495; Lancet, London, Dec. 21, 1912, p. 1706.

[4] Pilcher: Ann. Surg., January, 1912, p. 1.

[5] Gerster: Ann. Surg., 1911, liv, 325.

[6] Gray: Brit. Med. Jour., Jan. 24, 1914, p. 177.

[7] Pringle: Brit. Med. Jour., Jan. 24, 1914, p. 183.

[8] Binnie: Month. Cycl. Pract. Med., 1905, xviii, 341.

[9] Eastman: Surg., Gynec. and Obst., April, 1913, p. 341; ibid., February, 1914, p. 228.

[10] Flint: Johns Hopkins Hosp. Bull., October, 1912, p. 302.

carried by reverse peristalsis toward the head of the colon for absorption and assimilation.

What is the function of the large intestine? Beyond the splenic flexure it is to a great extent a storage organ. But proximal to the splenic flexure the colon, and especially the cecocolon, has a most important assimilative function. We know that in the carnivora the large intestine is small as compared with its great size and importance in the herbivora. In the herbivora the large intestine and especially the cecocolon may be compared to a silo in which fermentation of vegetable matter takes place, freeing nutritive material of the greatest value.

The function of the appendix, a part of the large intestine, is practically unknown. The organ in man has been looked on as the vestigal remnant of a herbivorous cecum. Keith[11] dissents from this view, believing that the appendix is a lymphoid organ having a function comparable to that of the tonsil and solitary follicles of the intestine. Ribbert[12] has demonstrated that beginning at adolescence a progressive involution takes place in the appendix, and that in persons at the age of 50 one-half of all appendixes show age characteristics. An appendix which would be normal in a person at 50 years would be abnormal in a child. The same may be said of the tonsil.

C. H. Mayo,[13] in 1903, pointed out the surgical significance of the progressive atrophy of the lymphoid structures of the body after adolescence, thus explaining why cancer in old persons does not spread with the rapidity it does in youth because of the atrophy of the lymphatics.

We must therefore look on the appendix as a lymphoid organ which in early life has some value in connection with cecocolic metabolism. It is interesting to note that in the carnivora, which do not have an appendix, lymphoid tissue of the same nature as that found in the appendix is to be found at the apex of the cecum, the site of the appendix were it present.[14]

It has been suggested that the appendix may through chronic inflammation vaccinate the patient against subsequent colon infections.

Reasoning from analogy, we can say that the functional activity of the proximal half of the large intestine concerns vegetable intake. It has been shown that within 100 years the flesh intake of man has increased four times.[15] The decomposition of unassimilated flesh food develops poisonous substances. It is reasonable to suppose that when these end-products are passed into the large intestine, which has developed to a full extent only the power of caring for vegetable material and fluids, such products may be absorbed, thus disturbing the sympathetic balance and producing many of the symptoms which we speak of in our ignorance as neurasthenia, and which sometimes have been thought to be the result of mechanical conditions, bands, kinks, etc. In this connection, a peculiar type of constipation with a thin-walled bowel with no abdominal distention may frequently be noted. The abdomen is soft and silent as compared with that encountered in true mechanical obstruction with its intestinal stiffening, colic and abdominal distention. The general condition of the patient often well illustrates this sympathetic disturbance. A severe case may even resemble an exophthalmic goiter, for which it may be mistaken. Why may not these persons be cured by a purely vegetable diet? When we consider that man as a species is at least 500,000 years old and that his present characteristics have slowly evolved—so slowly, indeed, that the evidences of prehistoric man show him anatomically to be essentially the same as to-day—the futility of attempting to change during the lifetime of a single individual the whole history of race metabolism is evident.

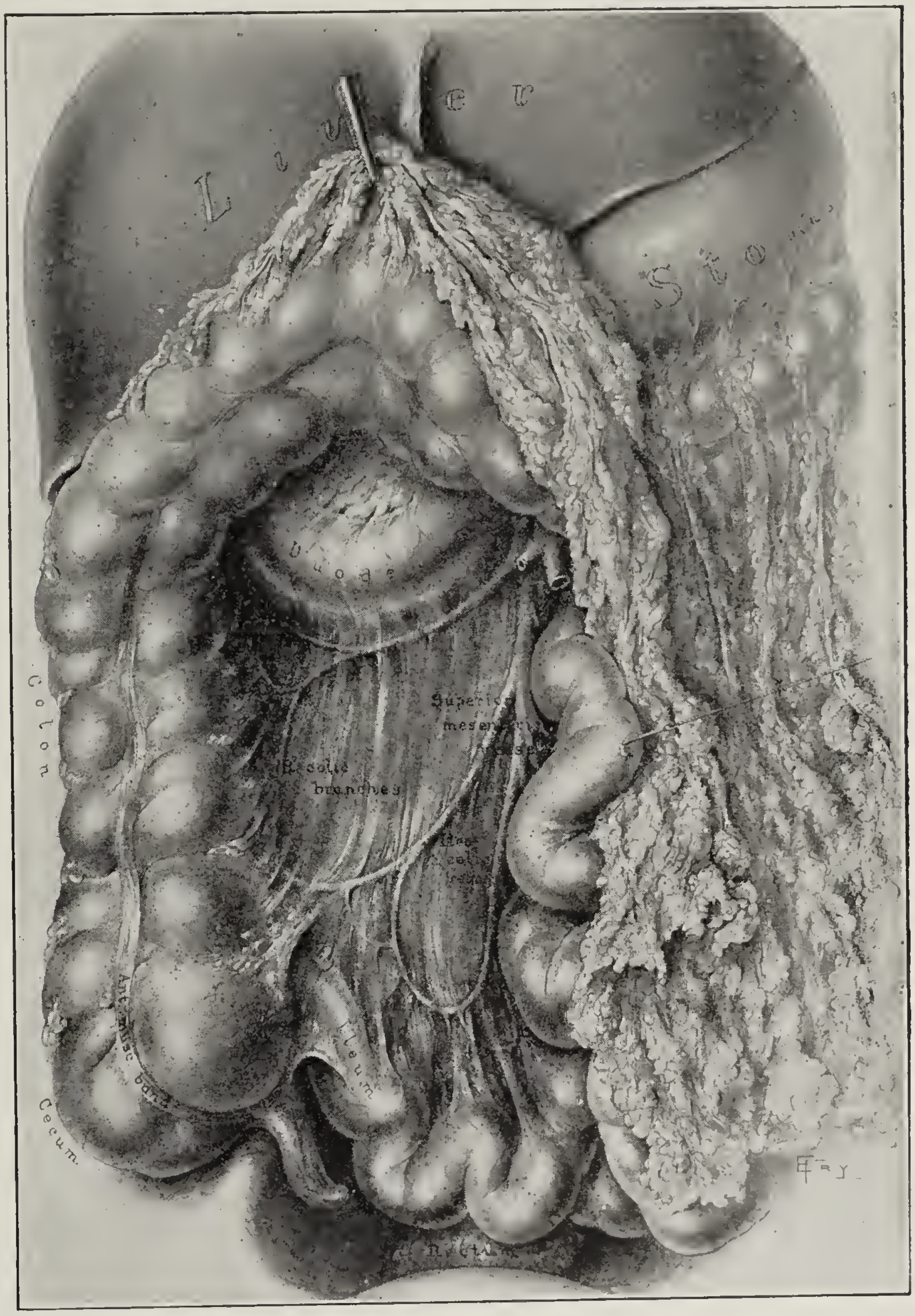

Fig. 1.—Anatomy of the lower ileum and first half of the large intestine.

Adami[16] objects emphatically to the use of the term "auto-intoxication," since proof of such process is lacking. He believes that a low grade of bacteriemia with a local *subinfection* of various vital organs is responsible for the disturbance, and in this he is probably correct in most cases; but obstruction of the bowels produced experimentally by Whipple, Stone and Bernheim[17] shows the poisonous effect of the secretions of the upper jejunum and duodenum when acutely blocked, independent apparently of infection, an effect which these authors speak of as an "intoxication." Clinical experience in acute intestinal obstruction as it occurs in man seems to bear out these experiments. For this reason a high enterostomy in acute intestinal obstruction gives quicker and surer relief than one down closer to the actual point of obstruction.[18] Vaughan,[19] in his notable work on protein metabolism shows the specific character of the poisonous effects which are produced by failure properly to split up proteins and their relation to food idiosyncrasies and anaphylaxis.

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[11] Keith: Lecture, Royal College of Surgeons, October, 1913.
[12] Ribbert: Virchow's Arch. f. path. Anat., cxxxii, 66.
[13] Mayo, C. H.: Tr. South. Surg. and Gynec. Assn., 1903, xvi, 442.
[14] Corner: Ann. Surg., 1910, lii, 512.
[15] Armstrong: Brit. Med. Jour., July 8, 1905. p. 68.
[16] Adami: Brit. Med. Jour., Jan. 24, 1914, p. 177.

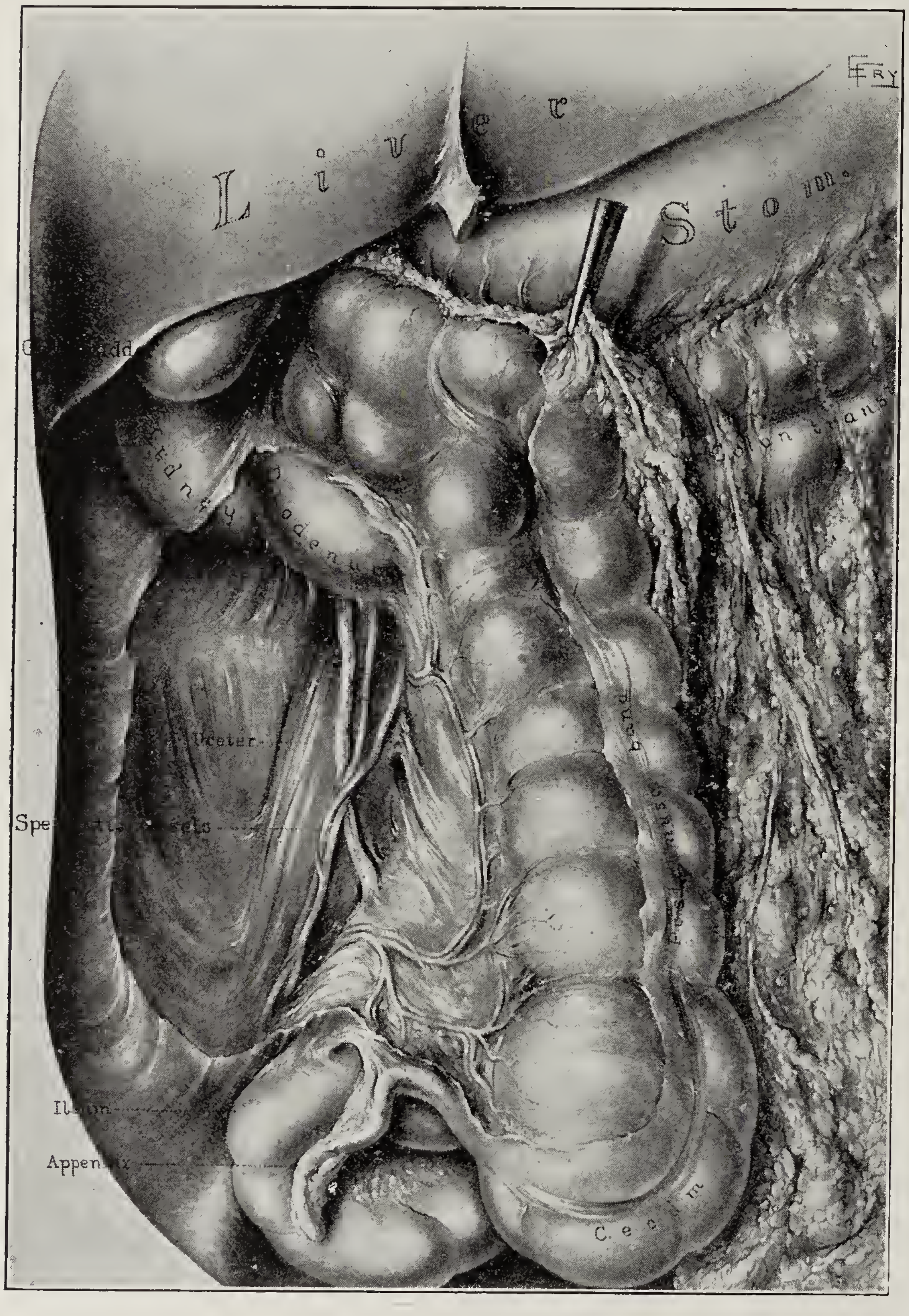

Fig. 2.—Division of the peritoneum which binds cecum and ascending colon to the abdominal wall. Retro-duodenum spermatic vessels and ureter exposed.

Hypersecretion or hyposecretion of the thyroid and hypophysis and the various other glands of internal secretion may have its counterpart in like conditions of the glands of the intestinal mucosa. In lieu of a more expressive term and in the absence of a scientific explanation of the clinical phenomena, intoxication may be used temporarily as a term to express the hypothetical condition. Intoxication is at least a graphic term for these conditions, meaning the absorption of chemical substances, no matter how produced; substances which may be absorbed without leaving in their path infective lesions in the mucosa of the intestine at the place of absorption or resulting in the bacterial invasion of organs.

Putting aside for the moment these anatomic and physiologic considerations, I wish to discuss the effect of the removal of the cecocolon, first, as a means of physiologically limiting absorption, and, second, as to its effect on the storage function of the bowel, that is, on constipation. These two conditions go hand in hand: namely, so-called stasis of the large intestine with a train of nervous derangements and constipation. In 1900, I reported[20] some cases of obstinate constipation which had been cured by an enlargement of the ileocecal orifice, and suggested that constipation may be many times primarily dependent on constipation of the small bowel; that food products might be retained in the small intestine for too great a length of time and not furnish the necessary chemical stimulation to activate the large intestine. I am convinced that the observations which were made at that time and which have been continued in the intervening years were essentially true, and that we may go still further and say that retention of these products not only in the small intestine, but in the cecocolon has a similar effect in diminishing the stimulation to action in the storage-half of the large intestine. Lane,[21] by means of ileocolostomy, has apparently demonstrated the value of this stimulation and its effect not only on constipation, but also on the metabolism of the individual. Hertz and Newton[22] have shown that food intake furnishes a gastro-ileac reflex and the ileocecal valve opens and allow the lower ileum to empty its contents. A gastrocolic reflex occurs simultaneously and the cecocolon forces its contents onward. It is possible that the ileocecal valve is controlled by the cecocolon just as the pylorus is controlled by the duodenum. Ileocolostomy, however, in a certain percentage of cases, especially in adults, leads to an impaction in the disused colon through reversed peristalsis, and thus in some cases to a continuous absorption of poisonous products quite as though ileocolostomy had not been performed.

From a small number of patients — about twenty — in whom exaggerated conditions of cecocolic stasis with the train of general nervous symptoms which go with it and in all of whom constipation amounting to obstipation was present, we have removed 10 inches of the terminal ileum, appendix, cecum, ascending colon, hepatic flexure and a portion of the transverse colon, but not trespassing to a great extent on the part of the transverse colon which contains the omentum. If all of the omentum is removed, as happens in colectomies, in many cases intestinal adhesions of the most severe type subsequently occur, often causing unfortunate sequelae. The cases in which operation was performed were all of an advanced grade and in all there were bands, kinks, adhesions and possibly obstruction, but, if so, of the peculiar silent type with a soft abdomen and without muscular hypertrophy of the intestinal wall.

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[17] Whipple, Stone and Bernheim: Jour. Exper. Med., February, 1914, p. 144.

[18] McKenna: Surg., Gynec. and Obst., December, 1913, p. 674.

[19] Vaughan: Protein Split Products in Relation to Immunity and Disease, Philadelphia, Lea & Febiger, 1913.

[20] Mayo, W. J.: Ann. Surg., 1900, xxxii, 364.

[21] Lane, W. A.: The Operative Treatment of Chronic Constipation, New York, Paul B. Hoeber, 1909.

[22] Hertz and Newton: Jour. Physiol., 1913, xlvii, 54.

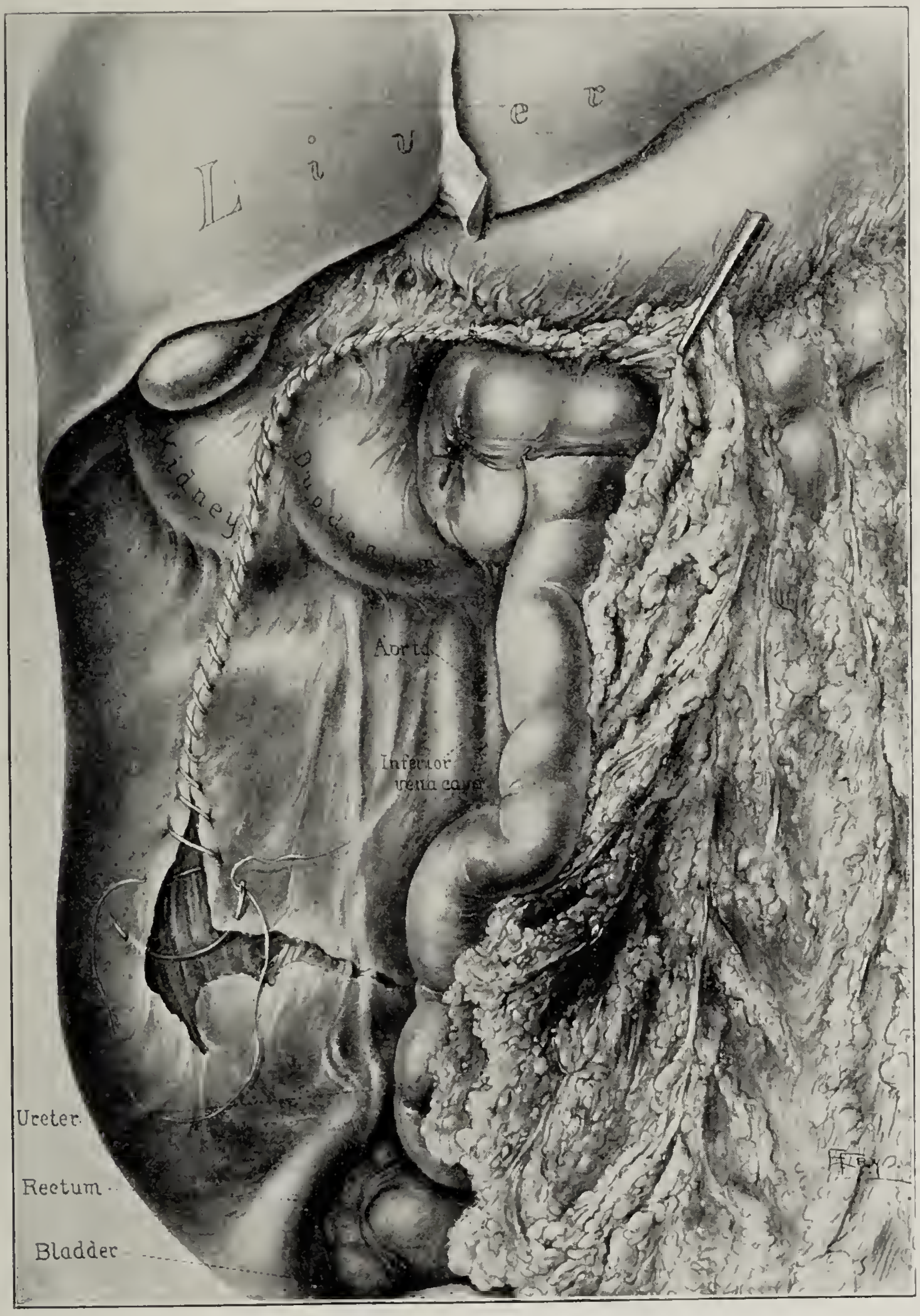

Fig. 3.—Result after removal of 10 inches of ileum, appendix, cecum, ascending colon, hepatic flexure and one-fourth of transverse colon. End-to-side ileocolostomy. Running suture closing peritoneum of posterior wall.

In the cases in which we have made the above mentioned resection, and joined the end of the ileum to the side of the transverse colon, there has usually been a marked improvement in the general condition of the patients, and in 87 per cent.relief from the constipation. In nearly all these patients the appendix had previously been removed, and in a number of them other operations, such as elevation and fixation of the cecum combined with narrowing of its lumen, etc., had been done without relief. To test the question of the effect of eliminating the ileocecal mechanism and removing the proximal colon in constipation, we have grouped together all the cases in which the head of the colon was removed without regard to the pathologic conditions which lead to the operation, and have investigated the effect the operation has had on the evacuation of the large intestine. It was found that nearly all the patients who had been constipated before the operation have been much relieved postoperatively. Yet in but one case has diarrhea been manifested. It would seem a reasonable assumption, therefore, that in physiologic disturbance of the terminal ileum and cecocolon lies the cause in some cases at least of the protean manifestations of intestinal toxemia and constipation, and that the removal of the cecocolon will relieve many of these patients.

Although the operation is a serious one, we have lost no patients operated on for this condition. The number of persons whose condition in our opinion would warrant the risk, however, is comparatively small, and I cannot but deplore the widespread adoption by the medical profession of surgical measures for this or allied conditions while it is in the experimental stage with little evidence to show that the supposed cures are permanent. When one looks back over the fads and fancies in medicine, especially as applied to the so-called neurasthenic group of patients, one may well pause and make haste slowly.

THE REDUNDANT SIGMOID *

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CINCINNATI

THE NORMAL SIGMOID

The sigmoid flexure, more properly called the pelvic colon by the French, the segment of intestine which connects the descending colon with the rectum, is of variable length. In cases in which it was functionally normal, or, in other words, in which it was symptomless, I have seen it as short as 15 cm. (6 inches), and I have encountered it as long as 85 cm. (32 inches), while other observers have found it as long as 108 cm. (42 inches). In a series of sixty-two cases of reundant sigmoid of which I have roentgenographic records, I have not so far had occasion to observe a single instance of sigmoid over 25 cm. (10 inches) in length in which it was not the seat of either functional or organic disturbance logically attributable to redundancy. I do not assume that sigmoids of more than 25 cm. (10 inches) in length do not exist in which, for most of the time at least, the function of the intestine is exercised without perturbation. Cases of this kind, however, do not come to me for treatment and I, therefore, have no occasion to observe them. From these facts, I am forced to conclude for the present, that while in the adult, the normal sigmoid is from 15 cm. (6 inches) to

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

25 cm. (10 inches) in length, the question as to what is and what is not a normal sigmoid relates quite as much to physiology as to anatomy.

RELATIONS OF THE SIGMOID

The full surgical significance of the colon, or to put it more broadly, its full clinical significance, cannot be comprehended without due consideration of its relations. It is important at least to remember that, in the male, the sigmoid, when redundant, may lie in contact with the left ureter, the left iliac vessels and the left sacral nerves, the bladder, prostate and rectum; while in the female, it may lie in contact not only with these structures, excluding, of course, the prostate, but also with the vessels in the left broad ligament, with the left fallopian tube and ovary, and with the uterus itself. The pelvic lymphatics on the left side may also be subject to pressure by a redundant sigmoid. The degree to which these structures are influenced by the superimposed weight of the redundant sigmoid is, of course, relative to the redundancy itself, to the incidental development of the mesosigmoid and, still more incidentally, to the amount of sigmoidal content.

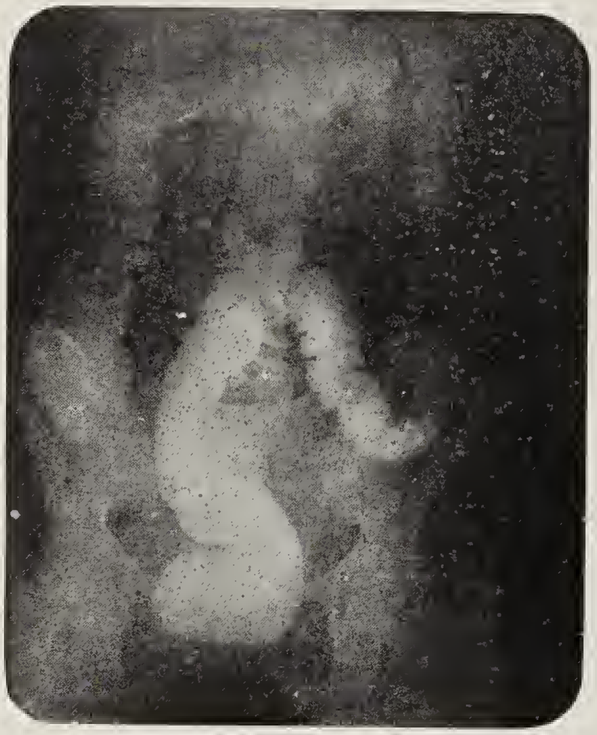

Fig. 1.—In this and the following roentgenograms are illustrated some types of sigmoid as shown by the Roentgen ray. In this illustration is shown very redundant sigmoid which drops above the umbilicus when the patient's shoulders are lowered. (Trendelenburg position).

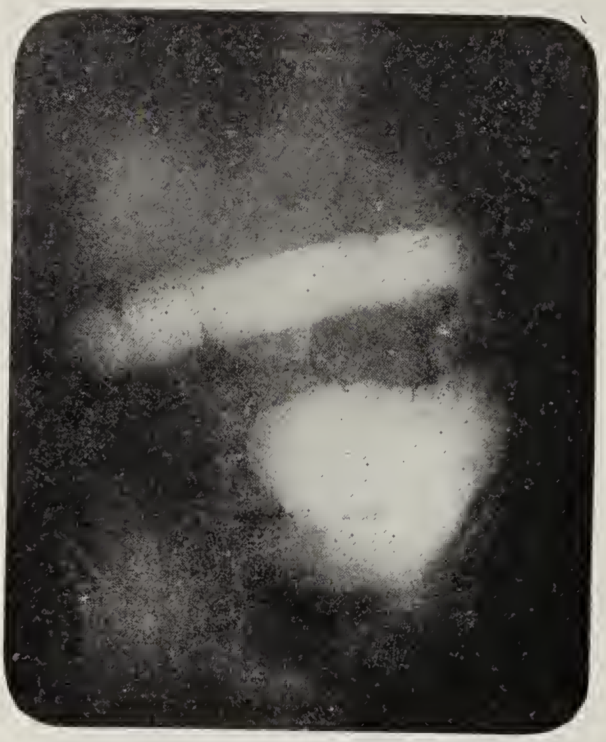

Fig. 2.—(Trendelenburg position) showing large sigmoidal loop which drops heavily on the pelvic organs when the patient is in the upright posture.

THE FUNCTION OF THE SIGMOID

It is probably true that, in the normal person, the sigmoid is chiefly a conduit for the less rapid transit of the intestinal content from the colon to the rectum. In other words, in the healthy subject, it is after periodic and more or less rhythmic evacuation generally relatively free from fecal content. At the same time, it must not be forgotten that the sigmoid is provided with an active absorbent apparatus whose ostia connect with the chyliferous apparatus in the mesosigmoid, which in turn connects with the larger chyliferous vessels in the mesocolon. It is furthermore to be remembered that the sigmoid is the habitat of an abundant flora. In addition to this, especially in cases of fecal stasis, are to be found the usual toxins that result from bacterial decomposition. These facts, thus briefly stated, indicate at once the great functional importance of the sigmoid and its potentiality as a possible disturber of the peace in the human economy.

SOME PATHOLOGIC STATES OF THE SIGMOID

The disturbances which I shall consider in this connection as being caused by the sigmoid are due to function-disturbing variations from the normal type. Those which I wish more particularly to present to-day are based on observations in cases in which I have operated specifically for conditions within the sigmoid itself, as in the accompanying tabulation.

Redundancy	18	
Neoplasms	5	
Diverticula	2	
Adhesions	4	29
Redundancy and ptosis in connection with similar conditions of the colon	43	14
Total		43

This table represents less than 50 per cent. of the cases that have been referred to me for operation, and in which I have demonstrated a sigmoidal factor, the remainder of the cases having been afforded a *modus vivendi* by other means. It likewise represents less than 20 per cent. of the cases in which I have found redundant sigmoid as the concomitant of redunant and, of course, ptosic colon. In fourteen of these colosigmoidal cases, as shown in the table, I have corrected the condition of the sigmoid. The latter operations have been done in my later practice, and since I have become convinced of the important rôle of the redundant sigmoid as a factor in the causation of disease. At the same time, it represents all the cases, eleven in all, in which I have so far operated for neoplasms, diverticula and adhesions that were essentially restricted to the sigmoid. This, I believe, is in a measure an index to the relative frequency of these conditions. I shall, in the present instance, confine my attention to a discussion of the redundant and ptosic colon.

REDUNDANT SIGMOID

The sigmoid is here considered redundant in all instances in which it is in excess of 25 cm. (10 inches) in length, and in which it is the seat of symptoms logically referable to redundancy. There are, of course, no data on which one may estimate the frequency of this condition for the simple reason that symptomless subjects do not submit themselves for examination. There are, however, many variations in the morphology of the redundant sigmoid.

A very constant feature is the redundant mesosigmoid which, in both normal and abnormal subjects, is always relatively short above at the juncture of the sigmoid with the descending colon, and, below, at its juncture with the rectum. It is always relatively long, sometimes very long, occasionally as much as 25 cm. (10 inches) in the interval between these two points.

THE DIAGNOSIS OF REDUNDANT SIGMOID

The diagnosis of redundant sigmoid is based on a very variable symptomatology. Probably the most constant symptom is constipation, with more or less colicky pains. These colicky pains are more liable to precede than to attend efforts at defecation, although they may be experienced at both times. The constipation is liable to alternate with diarrhea, especially in cases of so-called mucous colitis with a large proportion of mucous content in the stools. There are generally more or less pressure-symptoms in these cases. Pain referable to pressure on the sacral plexus, generally more marked on the left side, but often present on both sides, is generally present. Cystic irritation, generally without mucus in the urine, is rather a frequent complaint. In men, there is often discomfort distinctly referable to the prostate and obviously resulting from pressure on that gland. In women, there is generally marked tenderness in the ovarian regions, especially on the left side. This may be due to pressure not only on the ovary itself, but also on the vessels and nerves within the broad ligament.

Pain at the more fixed points of the colon, namely, the hepatic and splenic flexures, is frequently present, because of the frequency with which the redundant and ptosic colon is a concomitant of the redundant and ptosic sigmoid. Pain just under the margins of the ribs in the left upper quadrant is especially significant of angulation and consequent retardation at the splenic flexure.

In many of these cases, hemorrhoids, due both to pressure and to straining at stool, exist as a distinct complication. One important fact that I have observed as a very constant feature in the several hundred cases that I have examined is that pain referable to the redundant and overloaded sigmoid is generally relieved when the sigmoid is emptied, and that it remains relieved as long as it remains empty.

Physical examination generally reveals dulness in the left lower quadrant. This is sometimes associated with fulness which, in extreme cases, is suggestive of a new growth. There is very liable to be an abnormal increase of resonance over the colonic areas which, it should be remembered in these cases, owing to generally equally redundant colon, are to be found entirely in the lower zone of the abdomen. Female patients should be examined in the erect posture, by digital exploration of the vagina, when pressure, sometimes with a mass, may be detected above the pelvic diaphragm. I have found examination by the proctoscope and sigmoidoscope not only annoying to the patient, but also of negative value as means of diagnosis in these cases.

ROENTGEN EXAMINATION FOR REDUNDANT COLON

The conclusive method of examination is, of course, by the Roentgen ray. It is important in this connection to state that these pictures should always be made by an expert, and that to give an adequate conception of the case, certain cardinal rules should be observed namely: (1) The large bowel, clear to the cecum, should be emptied; (2) the barium solution should be used in quantity sufficient to fill the large bowel clear to the cecum; (3) pictures should be made with the patient in the erect, the recumbent and the extreme Trendelenburg posture; (4) the patient should then be given not less than 8 ounces of the barium solution by mouth; (5) pictures of the stomach should then be taken with patient in various positions; (6) pictures, especially with the patient in the Trendelenburg position, should then be taken beginning about fifteen hours after ingestion of the solution, and at shorter intervals thereafter, until all the barium has passed into the rectum; (7) time observations of stomach clearance and of food transit are best made after incorporating barium with an ordinary meal.

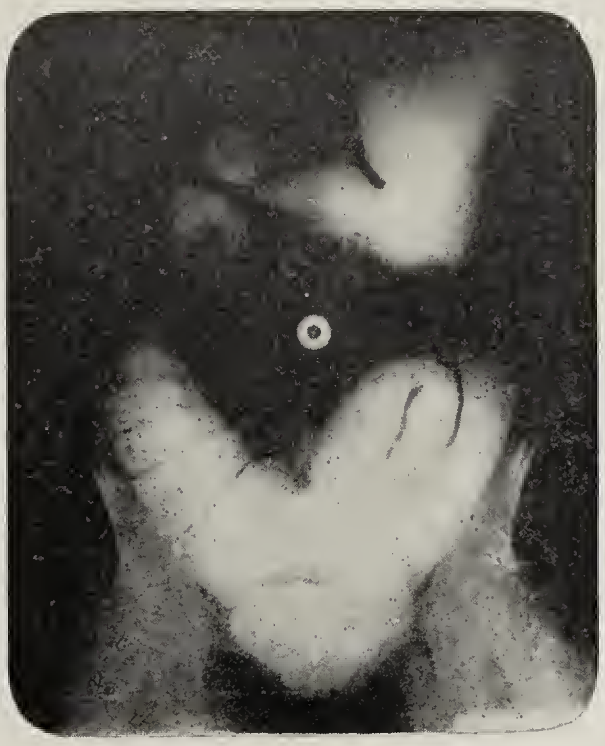
Fig. 3.—A very large sigmoidal loop associated with cecum mobile and ptosic colon (erect posture).

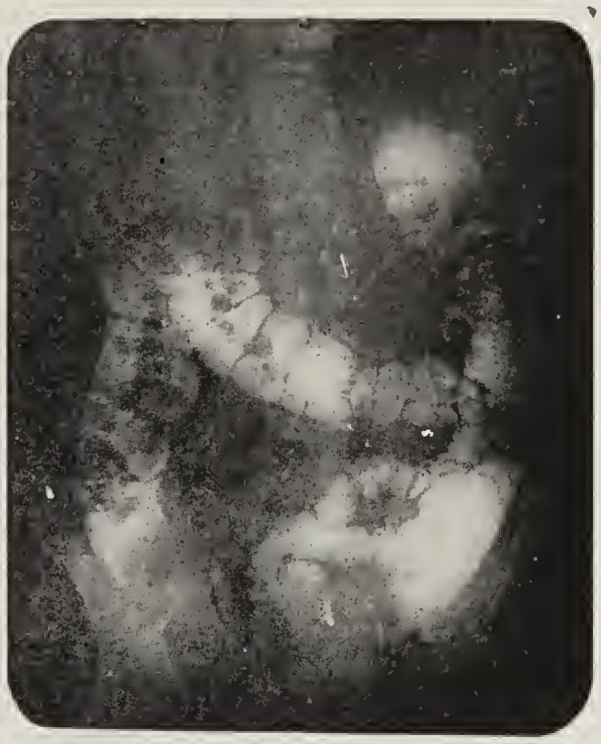
Fig. 4.—Figure-of-eight sigmoid (Trendelenburg position).

These rules, adopted by Dr. Sidney Lange, who has made practically all of my Roentgen-ray examinations, have yielded results which in no instance have failed of confirmation at the subsequent operation.

LOCAL SEQUELAE OF REDUNDANT SIGMOID

Local sequelae of the redundant and ptosic sigmoid are various and may be classified as (1) those that relate to the sigmoid itself, and (2) those that relate to adjacent organs and structures.

1. Among those that relate to the sigmoid itself is inflammation. In practically all of my cases, there has been a history of sigmoiditis sometimes present at the time of examination, but more generally with a history of previous attacks, characterized by mucous diarrhea. This is due not only to mechanical interference with the blood circulation, but especially to mechanical retardation of the fecal current with a consequent elaboration of the toxins of bacterial origin. In certain instances, the follicular infection becomes so pronounced that the endothelium is

broken down, granulation tissue is thrown out and more or less distinct areas of ulceration are developed. Secondary to these changes and as a necessary incident to their recovery, is the formation of bands of scar tissue which, in turn, become sources of irritation. These changes are most liable to occur at the juncture of the sigmoid with the rectum. The fact that it is precisely at this point that cancer is most liable to occur, and the well-known relation of this disease to persistent irritation, certainly comprise a substantial reason why the underlying causative condition should not be allowed to continue. It should be remembered, too, that when the endothelium is once broken down, atria are thereby formed for the convenient introduction of other infections.

2. Among the intrapelvic disturbances induced in adjacent organs and structures by the redundant sigmoid are chiefly those which may be attributable to pressure. I have already called the attention of this Section to the influence of this pressure in causing uterine displacements and functional disorders of the ovaries characterized by pain, especially at the menstrual period.[1] I have already referred in this paper to the effect of this pressure in inducing irritation of the bladder in both sexes and of the prostate in the male. The influence of this condition in causing hemorrhoids and their sequelae is so generally recognized and is so manifest that its further discussion is not required in this connection.

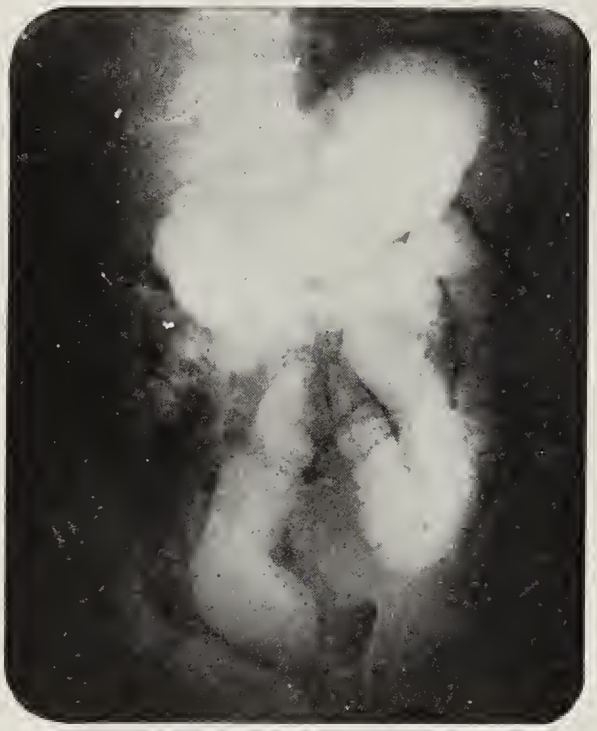
Fig. 5.—A redundant letter S sigmoid was the source of pressure on the prostate (recumbent posture).

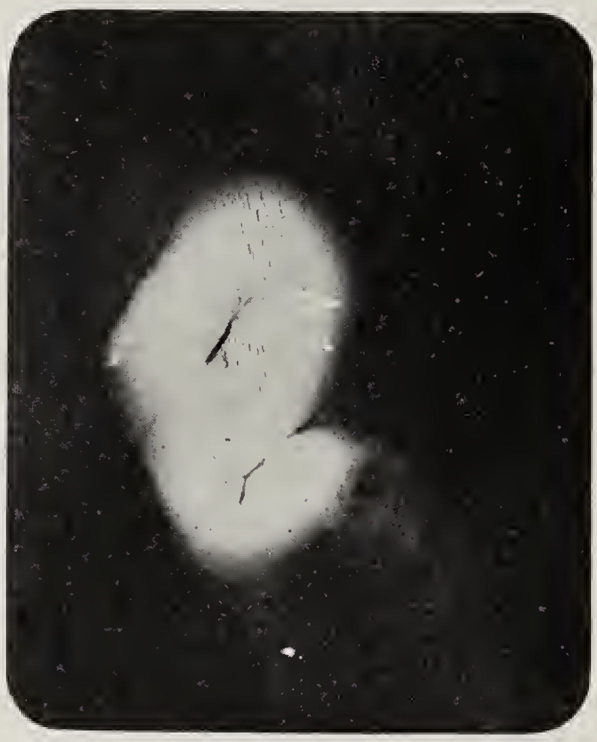
Fig. 6.—An enormous sigmoidal redundancy with hypertrophy but without corresponding condition in the colon (upright position).

SYSTEMIC SEQUELAE OF REDUNDANT SIGMOID

It is, however, with the remote or systemic consequences of the redundant sigmoid that the general practitioner has his most baffling contention. These induced systemic states, so far as they relate to the sigmoid, are less confusing if they are recognized as being most generally equally attributable to colonic origin. In other words, redundancy and consequent ptosis of the sigmoid and the colon occur so generally together that both must be taken into account in the estimation of their systemic consequences. I am, however, to-day emphasizing the sigmoid end of the proposition only because it represents the etiologic factor now most generally overlooked by both the general practitioner and the surgeon.

It may, therefore, be said at the outset that the remote or systemic results of redundant colon are effected through two distinct avenues of influence: first, the circulations; and second, the nervous system. It is obvious, from what has already been said, that toxins elaborated from the abundant bacteria, as the result of fecal stasis, first reach the system through the ordinary channels of absorption. A little later, when the endothelium is broken down, these toxins and other infectious elements may find a short cut into the blood-current. In these ways, one or both, the blood becomes the effective final carrier and distributor of agencies that deleteriously influence not only metabolism, but specifically the processes of hematogenesis.

While this is going on, we have to reckon with the element of pain. It takes violent muscular effort on the part of the large bowel to force hardened fecal masses around sharp corners. This means pain, sharp colicky pain, and persistent pain means unhappiness while it lasts, and more or less exhaustion of the centers when it is over. The pressure exerted on other organs, such as the ovaries, the fallopian tubes, the bladder, the prostate, the rectum, causes pain, and this pain, too, is registered on centers already hypersensitized by toxic agents carried to them by the blood.

Then, following in the wake of this unhappy state, are other changes of more serious significance. With the infection thus reaching the circulatory current, we have established what is now recognized as the underlying pathology of rheumatism, gout, arthritis and arteriosclerosis — a relationship that was pointed out by Glénard thirty years ago under the general term of "arthritism." We trace the process a little farther and find these toxins, together with toxic products of metabolism, carried to the great emunctories for elimination. These organs, in turn, become the seat of infection and of secondary changes, such as are manifested in chronic interstitial nephritis and in chronic interstitial hepatitis with their end histories of cirrhosis—a process likewise recognized by Glénard and designated by him under the general term of "hepatism." In other words, a survey of the systemic conseqences of the infection, or the subinfection, or the intoxication originating in the large intestine, forces on us what the late lamented Forchheimer designated as "a new viewpoint in medicine."

SECONDARY SYSTEMIC SEQUELAE

There are certain conditions which do not comprise distinct links in the chain of events as defined by Glénard, which are materially influenced, if not determined, by colosigmoidal redundancies and consequent stasis. They are, for the most part, conditions resulting from entirely independent causes, generally infectious, which are obviously logically and inevitably influenced for the worse by the toxemias and the nerve perturbations incident to the conditions just enumerated. Let me make a few illustrative citations:

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[1] Reed, Charles A. L.: Constipation and Headache in Women, The Journal A. M. A., Aug. 3, 1912, p. 354.

An eminent lawyer, after three years' confinement in a sanatorium for simple melancholia, was referred to me by Dr. Herman H. Hoppe of Cincinnati; restoration of the sigmoid and colon by my fixation methods resulted in his return to a large practice within two months after operation.

A merchant referred to me by Dr. J. W. Hall of Chicago had been a neurasthenic for years, was mentally depressed and had interstitial nephritis (a link in the Glénard chain); an ileosigmoidostomy resulted in his complete restoration to health, including disappearance of his kidney complication, and in a realization of efficiency beyond his original standard.

A physician had been compelled to abandon his practice because of persistent pain, including a chronic prostatitis; an anastomotic operation, excluding both the colon and the upper loops of the redundant sigmoid, resulted in a cure of the prostate, the disappearance of all neuropsychic phenomena and the resumption of a large practice.

A young woman who had been for a time in the Ohio Tuberculosis Hospital at Mount Vernon, was referred to me by Dr. ——— of Loveland; a fixation operation resulted in the complete restoration of her nutrition and the ability to throw off any remaining tuberculous infection.

Cases of diabetes mellitus have shown marked improvement following restoration of normal conditions within the large bowel. Rheumatism bears such a demonstrable relationship to infections of intestinal origin, that cardiac complications of rheumatic origin must be reckoned among the remote sequelae of such infection.

The situation may be summarized by the statement that any systemic or even local disease that is deleteriously influenced by impaired nutrition must necessarily have an important sequent relationship to coexisting redundancy of the sigmoid and colon. In other words, this condition of the elementary back must take its position among the local infections and must be treated accordingly.

TREATMENT OF REDUNDANT SIGMOID

The question of treatment is to be solved only in recognition of the demonstrated pathology of redundancy and ptosis and in the light of the clinical conditions presented in each individual case. Thus, if the obstipation is not difficult to overcome, or at least to mitigate, certain lines of palliative treatment may be adopted with temporary advantage, but, of course, with no hope or prospect of ultimate cure. If, on the other hand, the obstipation is persistent and, especially, if either local or systemic sequelae, or both, have developed, nothing short of surgical intervention can bring the slightest hope of permanent relief. This brings us to the contemplation of (1) palliative and (2) curative treatment.

1. Palliative treatment may be relied on, in a certain limited number of cases, to afford a *modus vivendi* without, however, offering any prospect of eliminating the underlying or causative condition. In many cases I have been able to make patients very comfortable for a considerable length of time, and without operation by a course somewhat as follows:

Postural Treatment with Massage.—The patient is taught to utilize the Trendelenburg posture. This is done by means of an extemporized inclined plane, ordinarily an ironing-board, one end of which is placed on the side of the bed and other end on the floor. The patient lies on this, heels up and head down, the board coming to the nape of the neck. While in this position, which is maintained for a period of from ten to fifteen minutes, two or three times a day, the patient herself massages her abdomen by drawing the viscera toward the diaphragm. It would seem that the downward displacement of certain abdominal organs is a penalty that we pay for assuming the upright posture and that to stand on our heads, or as nearly on our heads as possible, is the logical correction. In carrying out this practice, I have discovered that it has another incidental advantage, which is, that by gravity it forces the nutrition of the brain and higher centers. When these centers have been depressed, almost exhausted, by pain, both physical and mental, and by toxins transported from the intestines to the brain through the circulation, the condition that they present is essentially that of anemia. This condition is best relieved by having the blood forced into the brain in maximum quantity compatible with health—a principle which may be utilized with advantage in certain neurotic and neuropsychic states that may occur quite independently of the visceral complications that I have been discussing.

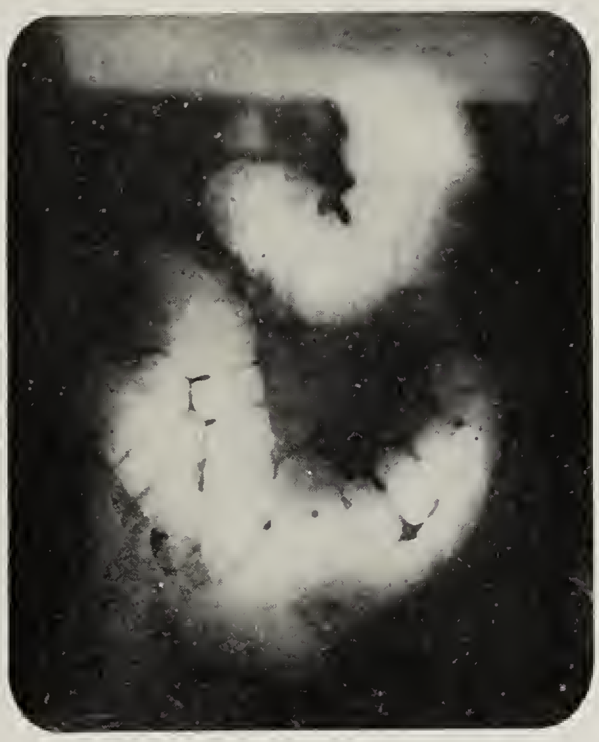
Fig. 7.—Sigmoidal loop with ptosic colon but with stomach in relatively normal position (Trendelenburg position).

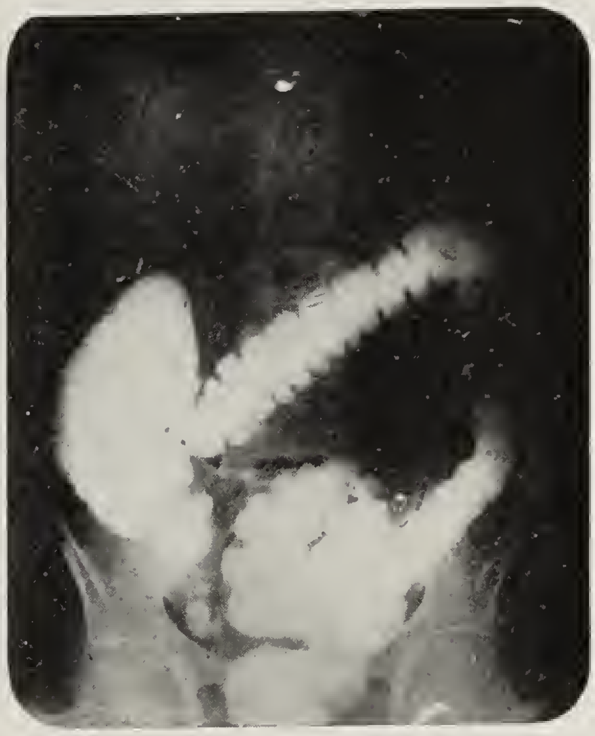
Fig. 8.—Figure-of-eight sigmoid (redundant) complicated with acute angulation of the colon at the hepatic flexure (recumbent position).

Dietetic and Medicinal Treatment.—The diet is looked after by giving laxative foods, especially the grits and fruits. The patient is taught to drink copious draughts of very hot water, from a pint to a quart, immediately on arising, if necessary, repeating the libation before each succeeding meal. This is often all that is required to secure free action of the bowels. When, however, it proves inefficient, I add to the water a small quantity of some laxative salt of sodium or magnesium, preferably the former. Vichy water, or the salt made therefrom, may be effectively employed in this way. On general principles, however, the less medicine the better. I am employing the petroleum oils with advantage as a mere lubricant of the intestines. Liquid petrolatum, petrolatum, oil of petroleum and paraffin oil are products belonging to this class, and of about equal efficiency.

Mechanical Treatment.—While the postural treatment—including hydropathic—already mentioned may be considered mechanical, I am using the term in a restrictive sense as applied to external appliances, such as belts and braces. It is obvious, from a moment's glance at the anatomy involved, that no such appliance can be effective in preventing the ptosis of a redundant sigmoid. On the contrary, such an attempt to hold up this segment of the bowel can only result in pushing it farther down in the pelvis. So true is this that, for the relief of such cases, it is important that even the incidental pressure of clothing suspended about the waist should be interdicted. Another phase of mechanical relief is that by enemas, by which the fecal content is softened, the weight of the redundant bowel lessened, and the consequent pressure diminished.

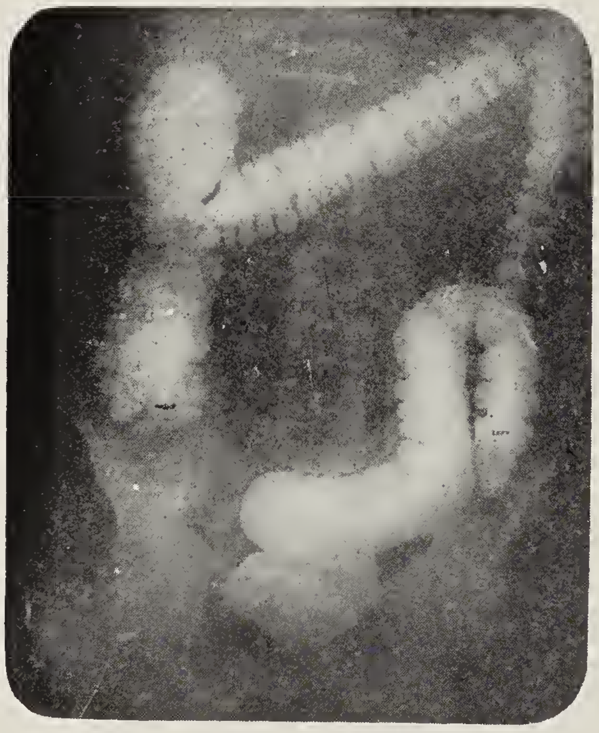

Fig. 9.—Enormous sigmoid loop which was the cause of ovarian dysmenorrhea and other intrapelvic symptoms of pressure (Trendelenburg position).

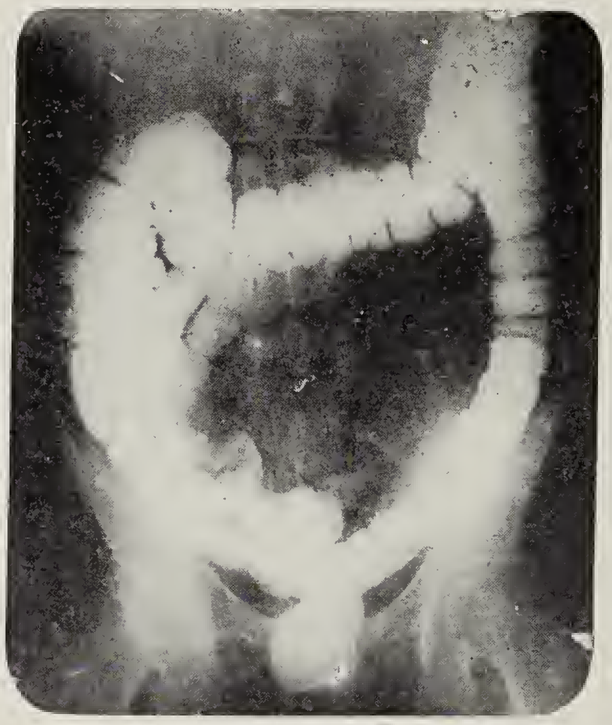

Fig. 10.—Greatly redundant sigmoid lying chiefly in right side of pelvis (Trendelenburg position).

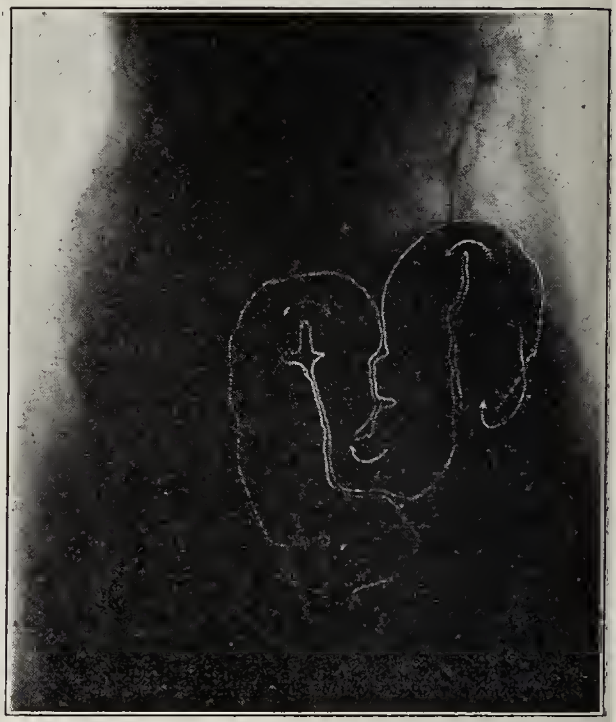

Fig. 11.—Largely redundant sigmoid adherent to anterior abdominal wall (recumbent posture).

2. Contrasted with palliative treatment is curative treatment. While such expedients as posture, massage, diet, medicine and lavage may, in certain cases and for a time, bring a measure of relief, it is obvious that neither all nor any of them can in the least remove the underlying redundancy and the consequent ptosis. In other words, they are mere temporary expedients, the tendency of which is indeed to lower the functional efficiency of the bowel and thus ultimately to aggravate the original ill health of the patient. It is obvious that nothing but surgical intervention can be recognized as having curative significance. But, before considering these measures in detail, it is important again to remember what I have tried to keep constantly to the forefront in this essay, namely, that this condition of the sigmoid is generally associated with a corresponding condition of the colon and that to relieve one without relieving the other is to fail in affording ultimate relief to the patient. With this understanding and addressing myself now exclusively to the sigmoidal state, let me say that the surgical expedients which I have found effective are (*a*) sigmoidopexy, (*b*) ileosigmoidostomy, (*c*) cecosigmoidostomy, and (*d*) resection of the sigmoid, to which may be added, as a measure supplementary to the second procedure, (*e*) colectomy.

It is unnecessary here to give text-book descriptions of these respective procedures. A few incidental observations may, however, be helpful in leading to a selection of the measure to be employed. This, in all instances, should be based on the actual condition as revealed by exploratory incision, and should not be predicated entirely on Roentgen-ray findings. The roentgenogram reveals much that is important, but it does not reveal many conditions that are of determining value in the selection of the surgical measure to be employed. With respect to sigmoidopexy, much has been said in a more or less academic way about its "potential dangers." I have no doubt but that some embarrassing consequences have been experienced from this operation by some operators, but I am equally as sure that such consequences have been the outcome of defective methods employed. Indeed, I have done some secondary operations for the relief of patients who had been victimized by precisely such defective methods. In one case, a little 2-inch incision had been made through a thick wall, and the sigmoid had been drawn over to the median line and there firmly sutured in such wise as to give it a permanent acute angle. In another case, the fixation had not only caused similar angulation, but had failed to control the kinking due to redundancy. The resulting complications, for which I was not responsible, were obviously due to defective methods, as shown by the fact that these cases were completely relieved when the fixation was properly effected. In this connection, it is important to say that it is a defect of method to stitch the sigmoid itself, or any part of it, to the abdominal wall, but that the unkinking should be effected by stitching not the bowel itself, but the redundant mesosigmoid to the parietal peritoneum. This is better done by employing the Pfannenstiel, or transverse abdominal incision. If carefully done by this method and if the colon, when involved, has been brought under similarly effective control, and if other impediments to fecal circulation do not exist, the results are eminently satisfactory.

I would not, however, leave the impression that I look on fixation procedures as the ones always to be employed, or even as the operations of choice. On the other hand, in all cases in which correction cannot obviously be thus effected, resection of the sigmoid with lateral anastomosis of the ends, or ileosigmoidostomy, or cecosigmoidostomy with or without resection or removal of the large bowel may well be employed.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. EASTMAN, BONIFIELD, MAYO AND REED

Dr. M. L. Harris, Chicago: The wide-spread study of diseases of the intestinal tract which has taken place recently has led to the recognition of a number of very important facts which are so prominent that they should be crystallized in our minds at this time. The first of these is that while the intestinal tract during its embryologic and postnatal evolution follows a normal type, yet there is no fixed end stage of this evolution. During the evolution a number of membranes are formed which are but temporary and which as a rule disappear, yet many of these are found to persist after birth. These should not be called pathologic in the sense that they give rise to disturbed function, because they do not, unless they directly cause mechanical obstruction. The next fact is that when we have a disturbance in function due to the presence of these bands of membrane which are found congenitally or to those developing subsequently, the changes are invariably due to changes in the intestinal contents, chemical in nature, bacteriologic or dietetic and metabolic in origin. These conditions arising within the intestines cause the changes in the membranes and bands which then produce the symptoms noted. That gravity plays little or no part in the movement of the intestinal contents or in the emptying of the stomach or colon we discovered long ago in our operations on the stomach. The emptying of these parts is purely physiologic and not a physical process. Any surgical operation done on these patients must be directed to some definite and specific condition mechanical in its nature if any benefit is to be derived from that surgical operation *per se*, and after the mechanical condition has been corrected by proper surgical procedure that patient becomes a medical case and must be followed up by medical treatment, dietetic and other means to change the chemical nature of the intestinal contents, whether of bacterial or metabolic origin. If these cases are not so followed up we may expect relapse with redevelopment of these so-called membranes. The next fact is that while there may be certain physical differences in location and conformation of the intestinal tract, it is a physiologic entity; the entire tract is under a governing and regulating mechanism, and the disturbance of one part must cause disturbance in another. It is useless to disregard the intestinal tract as a physiologic entity in these cases.

Dr. Joseph Sailer, Philadelphia: As an internist my opportunity to study cases of derangement of the large intestines as a rule antedates that of the surgeon. These cases come to the internist in all stages of the disease. If he has wit enough to discover where the trouble is located and persuasion enough to induce the patient to submit to surgical interference he has fulfilled his entire function until, as sometimes happens, at a later date the patient returns for relief from the old symptoms or new ones which may have developed. I urge a greater cooperation between the medical man and the surgeon. I believe it will be generally conceded that abdominal conditions, above all, are the most difficult correctly to diagnose, and, moreover, that in no class of surgery is the importance of preliminary diagnosis greater. Yet it has been my fate on various occasions to have the surgeon respond to what he probably considered my more or less impertinent attempt to explain my conception of the morbid condition, by the statement that he would see what he found after the abdomen had been opened. The best results will be obtained, however, not when the surgeon accepts the medical man's diagnosis but when he is sufficiently familiar with diagnosis to discuss his cases intelligently with his colleague. Three important conditions are: The importance of considering the possibility of some disturbance in the cecum in all cases of supposed chronic appendicitis. Among these disturbances cecum mobile is not an exceedingly rare condition. In many cases removal of a so-called chronically diseased appendix has failed to relieve the symptoms from which the patients suffer. In one such case, anchoring the cecum secured a restoration to health. 2. Those cases in which there is partial obstruction of the large bowel. This also is, I believe, more common than is supposed and fairly difficult to diagnose. The problem of treatment is complicated by the fact that the patient is rarely willing to submit to an operation and curiously enough it is often difficult to persuade the surgeon to undertake it. Why I do not know, for the relief that an appropriate operation affords is sometimes extraordinary. 3. So-called gastro-intestinal intoxication. There is, unquestionably, a group of more or less vague symptoms associated with chronic, partial invalidism concerning whose cause we are at present at fault. They have been called gout, neurasthenia, lithemia, gastro-intestinal intoxication, disturbance of the ductless glands, sympatheticotonia and vagotonia and of late years ascribed to early disturbance of the sexual psyche. The variety of etiology indicates that an actual demonstrable cause has not as yet been discovered. Therefore, all surgical measures which have to do with combating these cases are necessarily measures undertaken on the basis of an as yet unproved hypothesis. I am inclined to believe that some of the brilliant results of colectomy or short circuiting are due to relief of colonic stasis based on an anatomic factor and not the elimination of an intestinal toxemia.

Dr. John H. Gibbon, Philadelphia: The question of colonic stasis has not been settled. We do not know what causes the conditions we encounter when we operate in these cases. I believe also that we do not know—we may think we know—that the symptoms are the result of the conditions which we find. There are few here who cannot remember that patients who suffered very much as these patients we now describe as suffering from colonic stasis, were relieved by other means. The fixing of floating kidneys cured many; the removal of the appendix cured many; the removal of the coccyx has cured many. Now to pass out of the realm of surgery, there are other means less radical that have cured many; mechanical, mental and religious treatment. I believe, then, that colonic surgery has not yet found its proper place. Mr. Lane has forged ahead into a new field fired with the enthusiasm of a pioneer. He has developed a wonderful technic, but I feel that those who attempt to follow him will sooner or later have to make some apology, because Mr. Lane —and I think no more honest man lives than Mr. Lane—in discussing one of his cases of colectomy in which the patient suffered from obstruction due to adhesions, said "Why, if it were not for the postoperative adhesions and obstruction which these patients develop, this operation would be as simple as circumcision." Now it is not as simple as circumcision, and it is our business to recognize the fact that it is not. We have heard of the wonderful results obtained in properly selected cases; the difficult thing is to select the case that will give the good result. A great many things in surgery are easily done that ought not to be done. We have heard of the good results of ileosigmoidostomy. I wish we might hear of all the ileosigmoidostomies that have been done in America—that we might consider why there have been bad results and failures. Let us be honest; we are trying to get to the bottom of this. Two small boys were looking at the poster of a circus and they saw an elephant standing on his trunk, and one boy said, "Do you believe an elephant can stand on his trunk?" "Yes," said the other boy, "there ain't nothing an 'elphant' can't do." Now, gentlemen, there are very few things that a surgeon can't do in an abdomen, but just as it is disastrous for the elephant to try to stand on his trunk, so I think it is disastrous very often, certainly for the inexperienced, to attempt to do what is possible, but what is plainly not indicated. Now I hope that those of us who undertake colonic surgery, will beforehand, read the papers of Dr. Eastman and Dr. Mayo presented here to-day. Of course, I am speaking from the clinical, not the scientific, point of view. If we follow the paper Dr. Eastman gives us we shall see that the last word has not been written. He has shown us that we can make a big stoma in the cecum and attach the cecum to the rectum and that still the colon will not drain. Then how on earth can this operation result in the wonderful cures that we hear about?

Dr. John B. Deaver, Philadelphia: I wish to question the etiology, the cause and effect. No doubt some of these cases of so-called intestinal auto-intoxication are prenatal but not all. I believe the majority are due to pathologic conditions, and we surgeons must determine that pathology. I believe that the surgeon's chief mission is to remove pathologic conditions. The oftener I open an abdomen the less familiar I am with the indications for ileosigmoidostomy or colectomy. Doctors frequently ask me how often I do these operations, and I say, rarely. I believe many a person walks the streets with a peritonitis. It does not give sufficient distress to call the doctor. I have many times seen a driver of a cart come into the German Hospital with an appendiceal abscess and ask for something because he had a little pain, but he had been working just the same. If a man can work with an abscess of that kind the same can be said of a man with a mild grade of peritonitis. After organization of the inflammatory exudate is complete we have bands and membranes, but in the majority of these instances I believe there has been a previous inflammation. The Roentgen ray I think more often misleads the surgeon in connection with the intestinal canal, unless the work is done by a most expert man. I do not operate on Roentgen-ray findings alone. They may influence me to open an abdomen, but If I do not find the lesion I close the abdomen. I think on general principles it is a vicious practice to stitch fast organs which are movable, which too often leaves the last state worse than the first. I have the highest regard for Mr. Lane—all of us who know him love him; he has a charming personality and is a master mechanician; but I do not believe all that he teaches, and I am fearful that his teaching has a bad influence on the younger members of the profession. I would raise my voice with others against too much operating under these conditions. Dr. Janeway, one of the master diagnosticians of the world, was asked to discuss the subject. He said, "Gentlemen, I never made a diagnosis of intestinal auto-intoxication in my life."

Dr. Hugo O. Pantzer, Indianapolis: I would agree with the statement of Dr. Mayo that we may not expect in the life of one individual to be able to divert the racial course pursued through thousands of years, without having economic disturbances to follow in that individual. Constipation, no doubt, is basic to many of the pericolic adhesions found in these cases. The scientific and convincing work of Dr. Hertzler is in pertinent evidence. There is no more potent factor in producing habitual constipation than the misconstruction, by profession and laity alike, of the edict that the bowels shall move daily, to mean that one bowel movement daily is sufficient. There is not an animal, except man, but defecates regularly with every taking of food and several times more daily. It is the inconvenience of complying with this natural demand that has in turn led the human being to formulate the quasi-statutory edict to Nature that she shall move at one set hour daily and no more. Every individual who does not defecate three or more times daily, must in our sense, be regarded as constipated. Once have applied the natural rule to the human family and with one fell stroke you have eliminated the most potent cause of colic stasis! And, also, you have added to each individual life a daily increase of freshness and vigor and endurance, and an increase of years, which will amount to anywhere from 10 to 25 per cent. for each individual. A phase of pericecal pathology commonly not adequately considered is that whenever the appendix is found in retrocecal position there exists not only more or less contraction of the appendix and adjacent ileum, but also a contraction, adhesion and upward displacement of the posterior wall of the cecum. The filling of the cecum under these conditions soon leads to sagging of the entire anterior portion of the cecum. This makes it impossible for the circular muscular fibers to exert themselves normally. The circular muscular fibers which posteriorly are high and fixed, in their anterior portion are often several inches lower, and no longer opposite, and their function is more or less annulled. The fullest release of the postcecal and pericecal adhesions and membranes alone will suffice to give relief here. Commonly such relief is not considered by the average operator. In my estimation, the condition is commonly mistaken for the prolapse of the entire cecum. Where there is one real cecal prolapse of Wilms, there are twenty-five of the anterior wall. None but he who carefully dissects the adhesions and membranes can establish the truth of this observation. This has been my practice for over twenty years, as my case records can establish, and I wish here to state emphatically that I as yet have not found a case in which short-circuiting of the bowel seemed necessary or warrantable.

Dr. Rosalie Slaughter Morton, New York City: It seems to me as a gynecologist that the greatest advance to be made in the next few years will come from a consideration of the pelvic contents in relation to intestinal conditions. Congestion causing dysmenorrhea, which has previously been difficult to treat satisfactorily, has been often due to intestinal stasis and ptosis and to auto-intoxication producing anemia, lowered muscle and nerve tone. Displacements are often caused by pressure of the sigmoid when it has an abnormally long mesentery, and in many cases we find the uterus displaced downward from the constant pressure of the prolapsed cecum or transverse colon. One of the difficulties in diagnosing dysmenorrhea due to congestion is the variability which results from varying conditions of the intestinal contents, and when examined under ether there are no evidences of congestion because the preparation for the anesthetic necessitates the giving of a cathartic and enema which thoroughly evacuates the bowel, producing temporarily a condition which is not the usual one of the patient. In some necropsies we look in vain for the cause of baffling symptoms, because in the moment of death the venous capillaries empty and evidence of congestion disappears. Valuable aid in diagnosis results from the use of bismuth by mouth and in enemas and roentgenograms made every day for a week with the patient in a different position, the patient not remaining in the hospital under abnormal conditions but continuing active in her ordinary occupation. The importance of being able to examine the abdomen thoroughly at the time of a gynecologic operation to see whether there are any intestinal adhesions or angulations, led me to devise a simple instrument, a one-piece abdominal speculum. By introducing the blade through the ordinary low 2 inch incision one can survey the entire abdomen. The handle allows room for the abdominal wall and dressings and keeps the assistant's hand out of the way. By lifting the instrument one can easily find the appendix if it is in its normal position, and if not, by gently turning the wall-lifter, it may be located as high as the hepatic flexure which can easily be seen as well as the gall-bladder. By further turning, the transverse colon, stomach, splenic flexure, descending colon, sigmoid and various portions of the ileum may be inspected easily and without handling. Any lesions of the gall-bladder or constricting bands may be corrected under the present anesthesia, ptosis may be noted for correction, by raising the foot of the bed or other postural treatment during convalescence, thus avoiding complications which often have more effect on efficiency than the gynecologic conditions themselves, as the latter may, in many instances, be considered secondary.

Dr. J. W. Long, Greensboro, N. C.: The pathogenesis of this subject as well as the proper management of these cases may be best understood by remembering the embryology of the alimentary canal. At one time during fetal evolution, most of the intestine, the whole alimentary canal, in fact, is in the enlarged umbilical cord outside of the abdominal cavity. When the colon returns to the abdominal cavity the fetal colon is situated in the left side of the abdomen. As the alimentary tract develops the cecal head is projected, as it were, across the celom, beneath the stomach and liver. Now, while this evolution is going on, there is another important process, namely, fusion and absorption of certain layers of peritoneum taking place. Should fusion of the peritoneum in this region of the abdomen occur too early, the cecum is caught as it rests beneath the liver and we have the high cecum and an undescended colon. This explains those rare cases in which the appendix is found in the kidney fossa above and behind the colon. On the other hand, should fusion fail to take place in whole or in part, the cecum descends below its normal situation in the iliac fossa and may even be found in the pelvis lying on the bladder. As a result of the failure of fusion to anchor the cecum in its normal location we have cecum mobile, dilated cecum, ptosis, thinned walls, infection, and local coloperitonitis, with the formation of pseudoperitoneal cauls of the colon, or Jackson's membrane, Lane's kinks, and intestinal stasis. In other words embrology helps to explain pathology.

Dr. Frank C. Yeomans, New York: On Feb. 10, 1911, at the New York Polyclinic Hospital I operated on a woman, aged 48, for constipation due to stricture of the descending colon. I found the sigmoid very large, at least 3 inches in diameter and 24 inches long. I united the cecum to the sigmoid by a broad lateral anastomosis thus deliberately performing a cecosigmoidostomy. The patient has been perfectly well since the operation. I reported this case with two others in the *American Journal of Surgery*, January, 1913, with the conclusion that when practicable, that is, when the cecum and the sigmoid can be approximated without undue tension, cecosigmoidostomy (*a*) is a safe operation, easy of execution; (*b*) establishes drainage of the entire colon, there being no blind ends left for collection of feces, fermentation and intoxication, the *bête noire* of ileosigmoidostomy; (*c*) observes the surgical principle of draining the colon at its most dependent points, a principle correct both in theory and in practice; (*d*) anchors and drains the cecum mobile of Wilms; (*e*) anchors and drains chronic volvulus of the sigmoid or a giant sigmoid; (*f*) cures permanently constipation due to mechanical obstruction (obstipation) at any point in the colon from cecum to apex of sigmoid. In The Journal A.M.A., March 7, 1914, Dr. Eastman in an article entitled, "An Anatomic and Physiologic Method of Short-Circuiting the Colon" advises that "the caput coli be anastomosed freely to the rectum at the lowest point possible without traction." I presume that he had not looked up the literature or failed to notice my earlier article, published fourteen months before, on "Ceco-Sigmoidostomy; an Operation for Short-Circuiting the Colon." Now Dr. Eastman terms this operation caput coli-rectum anastomosis, but Dr. Reed, correctly I think, calls it cecosigmoidostomy. The rectum proper begins opposite the third sacral vertebra. I have measured carefully the various portions of the colon and observed their respective positions in 100 cadavers to determine the proportion of cases in which anastomosis is feasible. I found that, anatomically, the cecum can very seldom be approximated to the rectum proper, hence, cecorectostomy is not practicable. The cecum and sigmoid can be approximated, however, in over 70 per cent. of cases. Of course, the anastomosis is made at the lowest point possible on the sigmoid without undue traction. I wish to draw attention to the fact that caput coli-rectum anastomosis is but an impracticable attempt to do a low cecosigmoidostomy. I described a successful method of performing cecosigmoidostomy one and one-half years ago.

Dr. Robert T. Morris, New York: To think of this subject as a whole we must think at a target. The authors this morning have given us the opportunity. In thinking at a target we must choose a bull's eye fact: the fact that these patients belong to a class which needed to have its ancestry short-circuited by one or two generations. That means that the surgeon is nothing but a therapeutic resource. These cases are medical first, last and all the time, and we are not to think that we are dealing with the class of patients whose trouble is to be ended by the surgeon. The dog through bad habits of his master has arrived at his master's culture. Consequently he has the same stasis, the same arthritides that the rest of us have. We are dealing with about the same diseases in the dog as in man, among those which are frequently colonic in origin. Dr. Eastman spoke of the *bacillus adhesiformis*. This would mean a bacillus in the shape of an adhesion. There is no such bacillus. In many of these cases we see striking results, from operation sometimes, but it is for the good diagnostician to work out the class of case in which the operation of short-circuiting should be performed. For instance, I had a patient with spasmodic asthma who had not lain down for four years. Whenever the colon was flushed the attacks of asthma were very much lessened. On the basis of this reasoning and the facts elicited in the laboratory, I short-circuited the bowel and the patient has not had any spasmodic asthma since.

Dr. Thomas S. Cullen, Baltimore: In a study of many subperitoneal pedunculated myomata I have been greatly interested in following the behavior of the omentum, in those cases in which it became adherent to the myoma. As the pedicle of the myoma became more attenuated and the blood-supply from the uterus diminished the omentum would gradually make up the deficiency by sending in vessels to the now partially parasitic tumor. The omental fat would gradually disappear until finally the omentum was represented only as a bunch of large vessels which passed from the vicinity of the transverse colon to the tumor. Nearly twenty years ago Dr. Preston, of Hampsted, Md., saw a patient suffering, as he thought, from gall-stones. She went into a state of collapse and he diagnosed rupture of the gall-bladder. The consultant laughed at him and said it could not be so. She recovered, and fifteen years later when I opened the abdomen on account of further gall-bladder symptoms I at once saw six or eight typical gall-stones lying outside the gall-bladder covered by a transparent layer of adhesions. They were as clearly seen as is a glacé nut through the coating of candy. Nature had sealed them over perfectly without leaving any tags of adhesions adherent to surrounding structures. Dr. Marcy speaks of the increased meat-eating in England and the coincident increase of cancer. I recently asked Dr. Hirst of the Severance Hospital, Korea, what was the most common disease in Korea. He said they had more empyemas than anything else. I said "How about appendicitis?" He said "We have had five cases in ten years." They have a large hospital where Dr. O. R. Avison and he are doing the surgery. Every one of these five cases of appendicitis was in a foreigner, so that appendicitis in Korea is a negligible quantity, and as you know, the Koreans have little or no meat to eat.

Dr. Jerome M. Lynch, New York: I hardly ever attend a meeting of any surgical society that some one or two men do not condemn Mr. Lane. If the rule laid down by Mr. Lane is followed there will not be so much occasion to criticize his method. These cases have been treated by physicians and by surgeons and what is the result? The patients have gone to osteopaths, Christian Scientists and a lot of other quacks. If you would short-circuit these cases you would not have the unsatisfactory results that are reported. Every one of ten patients we have so operated on has gained in weight. In a girl 18 years of age with hemorrhagic colitis, there was a gain of 30 pounds. If you put the patient on a meat diet the stool will be liquid when it reaches the cecum. In over 200 experiments we have demonstrated this. If you give a carbohydrate diet it becomes solid. In a great many cases solid feces come from the ileac opening; often the ileum takes on the function of the colon and the feces are thrown into the colon and cannot be removed by flushing or any other means than short-circuiting.

Dr. Henry O. Marcy, Boston: With reference to the Roentgen ray, several of my friends in Boston made a careful study of a large number of normal subjects and found the situation of the intestines in no two cases alike. In one of the hospitals in Boston the surgeons thought they found a stone in the kidney and asked the very distinguished expert to make the roentgenogram. There, perfectly distinct, was the object, round, well defined and in the location of the kidney believed to be the organ discovered. They operated, but no stone was found. When the expert operator was asked to explain the picture he said, "I thought surely you would know that was the button on his drawers." It depends very largely on "the man behind the gun." I recall a discussion some years ago in the Section on Surgery when a Texan said, "Operations for appendicitis are often resorted to when not required. First give sweet oil in large doses" and the young surgeons in the audience showed their disapproval in a very marked manner. He said in closing one thing that is worth remembering—"it will grease the intestines." Then I told this illustrative story: Patrick had a pain in his right side; the doctor told him to go to the hospital and have his appendix removed, and to take a hundred dollars with him, it would cost that. On the way to the hospital he met a friend. "Oh, Pat," said the friend, "them fellows are always wanting to operate; just go to the apothecary and get twenty-five cents worth of castor oil, and I will come in in the morning and see how you are." In the morning, to his friend's inquiry Pat replied, "Jimmie, financially, I am $99.75 ahead, physically I am running behind."

Dr. J. R. Eastman, Indianapolis: I am not the author of the term *Bacillus adhaesiformis* very justly objected to by Dr. Morris. I referred in my paper to a bacillus which I said Dr. Bassler, an associate of Dr. Morris, thus designated. Dr. Yeomans said that for anatomic reasons, it is impossible to anastomose the caput coli and the rectum. That is true under anatomic conditions. We do not operate, however, under normal conditions. The operation is indicated only in severe ptosis and in serious cases of colonic stasis. It requires perhaps a reckless degree of hardihood for me to differ with a man of the experience of Dr. Reed, but I must take issue with him as to one of his statements. I think the internist would grow very excited over his remark that no case of colon stasis of serious character can ever be permanently cured by nonsurgical means. In a certain percentage of cases we can by the use of simple means like exercise and the vegetarian diet with petrolatum to anoint and lubricate the intestine, relieve the colitis, and when the colitis is relieved the pericolitis will likely also be relieved and consequently the stasis is overcome. It is not simply a matter of lubricating the intestine but of correcting the colitis which frequently causes ptosis and stasis and pericolonic adhesions of all kinds. It can hardly be said at this time that every serious case of stasis is a case for surgery.

Dr. Charles L. Bonifield, Cincinnati: I cannot agree with Dr. Deaver that the Roentgen ray is of no account. He must have a poor roentgenoscopist. The German language is of no account to one who cannot read it. The roentgenogram can be depended on by the one who can read it, and if a man makes a series taking about four a day it throws much light on these cases of ptosis. It is particularly valuable in showing how rapidly the small intestine, the cecum and the sigmoid flexure empty themselves. As I remarked before there are degrees of this condition. The cases in which I believe we must operate are those in which the disease has progressed until the large intestine has elongated, and in which its convolutions are scarcely discernible. My old teacher used, in constipation, to prescribe full doses of ergot, and I have found that is a very good drug in the early stages of relaxation of the bowel.

Dr. William J. Mayo, Rochester, Minn.: Surgery of the colon is still in the stage of case-reporting. We have to go through that period. We must be wary of the promoter in surgery as we are of one who tries to sell an oil well. Promoters are as necessary as a drag behind a wagon to keep it from going too fast; but, we must beware of them, because if we accept their teachings, we are going to overdo things. There is something in the question of the large bowel. It may be too long and too big. If we could only say to certain patients that they have too much bowel and that if they continue to live on a meat diet they will not live as long as on a vegetable diet, because Nature has created them vegetable feeders, we might do good if we were sure it were true. If some one would take up the question of our ability to handle various foods much trouble might be avoided. It has been shown that the ordinary man takes two or three times as much meat as he can efficiently care for. Consequently, putrefaction and stasis may occur in the large bowel. Over 60 per cent. of all water we take is absorbed by the large bowel. The danger to all the human family from their inability to absorb all fluids taken is from the development of acid bacteria. The mouth should be alkaline, but when we have an infection in it, the acid-borne bacteria may be carried down from the mouth, and become, possibly, a factor in gastric ulcer and duodenal ulcer. The question is not one of local development but of bacterial infection, the bacteria of chronic and acute conditions going to the liver through the portal circulation.

Dr. C. A. L. Reed, Cincinnati: One of the speakers, a Philadelphia man, said that his opportunity to study this question was generally postoperative. Dr. Deaver also of Philadelphia, has informed us that the last state of these cases was generally worse than the first. The cumulative evidence forces me to conclude that gastro-intestinal surgery in and about Philadelphia must be in a very unsatisfactory state. Let me suggest to those men that they may with profit journey to Cincinnati, where they will find a hospital clinic in which such results are not demonstrable, but in which we will show a primary mortality that is practically nil, with an ultimate functional recovery of better than 85 per cent. Dr. Gibbon alluded to the fact that the profession is very much given to fads. I believe, in a sense, this is true. History, however, will show that every distinct advance in surgical progress has come by virtue of the residuum of truth which has come out of a surgical fad. Therefore, we may look forward with confidence to the ultimate results of this surgery, which is to-day more or less developmental, and as Dr. Mayo said, is yet in the case-reporting stage. Dr. Morris has stated that the rôle of the surgeon is a therapeutic one. If, by this expression, he means helpful or ameliorative, I do not know that any other attitude was ever assumed by the surgeon. He has stated, however, that the condition of these patients is not ended by what the surgeon does. As a sweeping fact, this is a totally unwarranted statement. These patients, many of them, the majority of them, in my hands more than 85 per cent. of them, recover, stay well, and by the results demonstrate the law of cause and effect between the colonic or sigmoidal states, or other intestinal conditions and the general ill health. I do not care one rap about the minutiae of intermediate pathology, although I do not wish to discourage my laboratory friends in their efforts to find out the whole truth and all of its details, however infinitesimal and unimportant. I am afraid Dr. Eastman was just a little inattentive to my exact phraseology. I did not state that intestinal stasis was never relieved except by surgical means. On the contrary, I know that I often relieve it without operative means. What I did say was that, in intestinal redundancy and intestinal ptosis, cure was never secured by other than surgical means. I stand distinctly by that assertion. An elongated, redundant colon and a sigmoid in similar condition were never made less by any medical treatment. An elongated, redundant mesosigmoid was never made shorter except by appropriate surgery. It is impossible. I would just as soon attempt to reduce a dislocated elbow with a dose of Epsom salts as try to overcome one of these conditions I have just described by any sort of medicine.

Obligations of Health.—We are to feel that health is fundamental and inalienable, that it imposes sacred obligations, calls us to willing service, becomes the object of our constant concern, makes us ashamed of inefficiency, stupidity and graft, because they mean disease, raises us to a new level of brotherhood, of citizenship, of sonship to a common Father and of joint parental responsibility to the heritors of a racial stock whose full inheritance consists, not merely of the germ plasm of a fortuitous set of parents, but of all that we jointly bestow upon the generation to which they belong.—Edward T. Devine in the *Survey*.

A STATISTICAL STUDY OF SYPHILIS

THE RELATION OF ITS SYMPTOMS TO SUBSEQUENT TABES DORSALIS OR GENERAL PARALYSIS *

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This study has been prompted by the gradually growing conviction that the men and women who suffer most from recurrent cutaneous syphilis are not those who become tabetics and paretics, and conversely that the victims of tabes dorsalis and general paralysis are not referred to the skin clinic for the treatment of recurrent or persistent late cutaneous syphilis.

With the steady and insistent growth of this feeling the literature has been consulted from time to time, but with disappointingly negative results as to statements based on actual figures, for the authorities on nervous disorders are, as a rule, strangely silent on this phase of the question and the writers on skin diseases do not often concern themselves with the nervous sequelae of the disease. There are, however, a few exceptions to this rule.

Collins[1] says that "it would be interesting and extremely useful to know what proportion of syphilitics develop nervous diseases, but so far no statistics on this subject have been at all convincing."

Jelliffe,[2] in considering so-called parasyphilis, "relies with considerable confidence on a completely negative history of syphilis."

Dercum[3] states that "every physician of experience knows that in parasyphilis the history of the original infection, i. e., the primary lesion, is often difficult to elicit, often denied and often uncertain. Particularly is this true of paresis; it is almost equally true of tabes. Scars of primaries are rare, histories of secondaries commonly wanting. Does this not suggest a possible difference in character of infection. A number of men were syphilized by one woman and all developed paresis (Morel, Lavallée and Bellières); five men all infected by the same glass-blower became tabetic or paretic (Brosius). Nonne, Marie, Bernhard and Erb have related similar experiences. Truly gummatous lesions in paresis are excessively rare."

Nonne[4] believes that the question as to "who will become paralytic or tabetic has not been settled," and that "there is a special genus of spirochete which has especial affinity for the nervous system."

Ravaut[5] remarks that "even in very extensive malignant precocious syphilis the spinal fluid is most often negative."

Jeanselme[6] notes that "in the natives of southeastern Asia where malignant cutaneous syphilis is so prevalent one seldom sees tabes or general paralysis."

Pollitzer's[7] observations extending over many years tend to prove that "the mild cases — those without skin lesions — give us most of our cases of late syphilis of the nervous system."

J. Allen Hoffman[8] draws attention to the frequency in China of primary, secondary and tertiary syphilis and to the extreme infrequency of parasyphilitic conditions, and asks whether syphilis alone is responsible for dementia paralytica or whether other factors such as debauched living or a different oriental strain of spirochete tend to produce parasyphilis.

Finally, Dr. E. D. Bond[9] writes me that in the records of 1,625 necropsies at the Massachusetts State Hospital for the Insane at Danvers he can find mention of only four instances of cutaneous syphilitic lesions and these were all of an early or late secondary character.

From these meager quotations it would seem that the conviction stated at the beginning of this paper was true, namely, that those who suffer most from cutaneous syphilis are spared the fatal nervous consequences of the disease and, conversely, that the victims of syphilis of the brain and cord perhaps unfortunately escape the earlier cutaneous accidents of the malady. Nevertheless, it seemed wiser to base these beliefs on fact rather than on hearsay or the general statements of other writers and so these statistical studies were undertaken.

From Sept. 1, 1904, when the modern record system was established in the outpatient department of the Massachusetts General Hospital, to April 1, 1914, the diagnosis of syphilis has been made in 5,453 individuals, exclusive of 798 cases of tabes dorsalis and 202 examples of general paralysis. The resulting facts enumerated in this paper are based on the study of the first 1,016 cases of syphilis, the last 500 of tabes dorsalis and the first 178 examples of general paralysis. In devoting this rather considerable amount of time to the study of these numerous records it seemed rather a waste of energy to limit oneself to the one mooted point, and so other and perhaps valuable data are recorded in the subjoined tables and statements.

CUTANEOUS SYPHILIS

Sex. — There were 583 males and 433 females recorded, a sex proportion of approximately 4 to 3.

Age of Patients at First Visit.—In the first decade of life there were 4; in the second 71; in the third 390; in the fourth 309; in the fifth 147; in the sixth 52; in the seventh 18, and in the eighth 1. Thus it is seen that between the twentieth and thirty-ninth year of life 699 persons, or nearly 69 per cent. of the whole number first sought relief for their syphilitic infection.

Hereditary Syphilis.—Among these 1,016 patients there were only 24 hereditarily affected.

Age when First Symptoms Developed. — None of these children showed manifestations of their disease at birth. The earliest symptoms were observed in one baby 2 weeks old; one 4 weeks; one 7 weeks; one 2 months; five 3 months; two 4 months; two 5 months; two 7 months; two 1 year; one 4 years, and one each from the tenth to the fourteenth year of life.

STAGE OF THE DISEASE

The primary lesion of syphilis was found in 292 persons; 505 patients presented themselves in the secondary period of the disease and 574 men and women were treated for the late cutaneous symptoms.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* The papers of Drs. White, Hazen and Nichols form a portion of a symposium on syphilis read in the Section on Dermatology. The remainder of the symposium and the discussion will appear next week.

* From the Skin Department of the Massachusetts General Hospital.

[1] Collins: Syphilis and the Nervous System, The Journal A. M. A., Sept. 13, 1913, p. 863.

[2] Jelliffe: Treatment of Nervous and Mental Diseases, White and Jelliffe, Philadelphia, Lea & Febiger, 1913, ii, 304.

[3] Dercum: The Clinical Forms Presented by Nervous Syphilis, New York Med. Jour., Oct. 18, 1913.

[4] Nonne: Eighty-Fifth Congr. German Society of Natural Scientists,

[5] Ravaut: Rev. mens. de méd. int. et de thérap., 1911, iii, 5.

[6] Jeanselme: Bull. Soc. franç. de dermat. et syph., 1913, ii, 129.

[7] Pollitzer: Post-Graduate, August, 1913, p. 729.

[8] Hoffman: China Med. Jour., November, 1913, p. 369, quoted by Reed; Boston Med. and Surg. Jour., 1914, clxx, 572.

[9] Bond: Personal letter.

THE PRIMARY SYMPTOM

As stated above, the initial sore was recorded in only 292 patients, a percentage just under 58 of the persons seen in the primary or secondary stages of the disease. Of this number 239 were in men and 53 in women, a percentage respectively of 47 and 10. These low proportions, extraordinarily meager in the women, rather substantiate my previously formed opinion in this regard. They are in all probability misleading, however, for, as cited above, they include only those primary lesions actually seen and not those possibly hidden away in the urethral, rectal, vaginal or uterine passages. Examinations of these obscure mucous surfaces were not made unless symptoms demanded them. Thus many hard chancres have undoubtedly not been recorded in these computations, but nevertheless, these striking figures decidedly emphasize the fact that we must not depend on the presence of the initial lesion in making our diagnosis of syphilis in hospital ambulants.

Among these 292 chancres there were 27 extragenital, a rather unexpected percentage of 9. They were found on the lips in 19 cases, on the nipple twice, and on the tonsil, tongue, chin, eyebrows, cheek and finger in one instance each.

EARLY SECONDARY SYMPTOMS

It appears to all of us who come in contact with syphilis that there is a primary stage of the disease which is exact and definite in its symptoms when present, but that when this early period is passed then conditions arise irregularly. The typical roseola, mucous plaque and pharyngitis may develop according to precedent, accompanied or not by the less frequent headache, iritis, alopecia and condyloma, or all of these expected phenomena may be omitted and the patient may first be made aware of his infection by malignant precocious lesions of the skin or by some serious nerve involvement. Or again the usual order of events may be quite topsy-turvy and we may find mucous plaques, tonsillitis and even a roseola many years after the original infection.

Therefore in the subsequent paragraphs there will be no exact hard-and-fast rules observed in the consideration of the later manifestations of the disease. It must be borne in mind that in many instances the histories of these patients extend over many years and thus carry them at times from the beginning to the end of the disease, and also, in weighing these figures, let us remember that they concern men and women in the approximate proportion of four to three.

Cutaneous Eruption.—This term includes macular, papular and pustular lesions, and these phenomena were observed in 269 males and in 156 females, an approximate ratio of 10 to 9.

Mucous Plaques.—These patches were found in 158 males and in 88 females. Here the disparity of the figures is striking, the proportion being about 7 to 4; but we should perhaps expect this result considering the greater masculine use of tobacco and larger liability to trauma.

Pharyngitis and Tonsillitis.—Of males 107 were affected against 86 females, about 9 to 7.

Iritis.—Important eye symptoms were recorded in 15 men or boys and in 10 women or girls, a ratio of 3 to 2.

Condylomata.—This type of lesion was recorded an almost equal number of times in the two sexes, 22 in males and 19 in females. This relative preponderance in women is to be explained presumably by the presence of the vulva which affords with the anus a second favorable nidus for secondary infection.

Cephalalgia.—Headache was noted in 62 men and in 71 women. This superinvolvement of the feminine meninges (?) in the ratio of practically 6 to 7 is difficult to explain.

Alopecia.—Here the figures are reversed, namely, 34 males and 13 females; nearly 3 to 1. The numbers may not be wholly accurate, for only visible loss of hair was recorded, no systematic effort at epilation being customary in the skin clinic. Again, the relative frequency in the two sexes may be disputed, as a clever woman can partially hide her loss of hair; but on the whole this practice is not so customarily observed in the public clinics as in the private office. Nevertheless, the fact remains that alopecia is not a common phenomenon of syphilis, for in these patients loss of hair was observed in less than 8 per cent. This low percentage is not in accord with popular belief, but it demonstrates graphically my previously conceived conviction.

Leukoderma.—This symptom was recorded in one male and in six females. These figures are conventional. We know that this pigmentary change is a rare symptom and one almost never observed in men.

Pain.—Bone, joint or muscular pain was recorded in 39 men and in 20 females, an apparent proportion of practically two to one. Why this symptom should predominate so largely in the male is not easy of explanation, unless it be that men are more liable to exposure and trauma and take less care of themselves than women.

LATER SYMPTOMS

Papulotubercular Lesions.—These manifestations appeared in 58 males and in 77 females, a proportion relatively and actually greatly preponderant in the latter sex.

Annular and Serpiginous Lesions.—Here again there was a striking dominance in the feminine patients, for this type of eruption was observed in 35 men and in 52 women.

Gummata, Ulcerations, Perforations.—In these destructive manifestations the relative proportion of the sexes was apparently equal, as this type of lesion was observed in 199 males and in 172 females. Nevertheless the actual percentage was again in favor of the women.

Periostitis.—This occurred in 23 males and in 18 females, an actually equal distribution between the sexes.

Leukoplakia.—This showed the well-known distinctive propensity to attack males, only one woman exhibiting this lesion to 13 men.

Other late symptoms appeared in comparatively so few syphilitics that individual deductions would be futile. Dizziness and vertigo were recorded in 11 males and in 11 females; ear symptoms in 8 men and in 9 women; joint affections in 4 men and in 2 women; cerebral signs including hemiplegia and epileptiform convulsions in 6 men and in 2 women, and nerve paralysis in 2 men and in 2 women.

Summarizing, then, these individual sexual propensities of the disease we find that men are more liable to leukoplakia, cerebral symptoms, mucous plaques, alopecia, iritis and pain, while women suffer more from early and late strictly cutaneous lesions, pharyngitis, condylomata and headache.

Coming now to the main argument of this theme, how many of these 1,016 persons, many of them dating their initial infection many years back, developed tabes dorsalis or general paralysis? Only nine, eight men and one woman. The first man was infected eight years previously and had experienced merely mucous plaques. The second had been syphilitic thirty-four years and had exhibited only pustular lesions of the legs and a perforating ulcer of the foot. The third was inoculated twenty years before and had suffered from ulcerative lesions of the chest, elbow and other portions of the body. The fourth had had apparently no skin symptoms; the fifth, a primary lesion followed by mucous plaques, and tabes eleven years afterward; the sixth, an initial sore without any observed subsequent symptoms until tabes appeared twelve years later. The seventh had had a primary lesion eleven years previously followed only by a roseola and an alopécia. The eighth patient, a woman, had given birth to one dead baby and had suffered general arthralgia and gummata of the forehead. The ninth, a man, and the only general paralytic, was infected thirty-four years previously and had observed no cutaneous symptoms.

Surely these are striking figures, for out of this large number, many of whom were old syphilitics, only eight had become tabetic and one paretic, and of this extraordinarily small group only three had experienced any late cutaneous lesions.

SOCIOLOGIC STATISTICS

From a sociologic point of view it might be interesting to insert here the data obtained from the study of these 1,016 case records as to the value of antisyphilitic treatment as obtained in an outpatient department of a metropolitan hospital. These case histories record the treatment and observation of patients varying from one visit to thirty-five years.

The physicians in the skin department of the Massachusetts General Hospital have endeavored as best they could, when confronted with a new syphilitic patient, to tell him that he has a contagious disease and one which demands and requires long and faithful treatment. The patient has been told verbally just what to do and has been given a printed statement of the details of treatment and has been requested to return on a definite day. This has been our method and our aim. Now let us see what has resulted:

No. Patients	Duration of Treatment	No. Patients	Duration of Treatment
209	1 visit	36	6 years
25	1 week	36	7 years
47	2 weeks	24	8 years
18	3 weeks	20	9 years
56	1 month	10	10 years
46	2 months	6	11 years
41	3 months	2	12 years
24	4 months	3	13 years
17	5 months	4	14 years
30	6 months	9	15 years
8	7 months	3	16 years
11	8 months	1	17 years
10	9 months	4	20 years
7	10 months	1	24 years
1	11 months	3	25 years
74	1 year	1	30 years
99	2 years	1	31 years
54	3 years	1	34 years
35	4 years	1	35 years
38	5 years		

Summarizing these figures we find that 20 per cent. of the patients consulted us but once and only 52 per cent. continued the treatment six months or more. On the other hand, 45 per cent. persevered for one year or more and 38 per cent. for two years or more. These are discouraging facts for us to contemplate, but in reality they are even worse than they appear superficially, for in scrutinizing these case records it is apparent that the majority of the patients who returned for treatment after the lapse of their first year consulted us only when there was an active self-evident lesion and stopped medication after the lesion disappeared. In other words, only a fraction of a half of those syphilized received what the world deems sufficient regular systematic treatment.

What can be done to remedy this evil of the past? The future appears to hold forth a brighter prospect. The vastly increased knowledge among the laity of the possible evils subsequent to the disease, the undoubtedly greater early curative and sterilizing effect of salvarsan and the very valuable "follow-up" work of our present social workers should mean much to eliminate, in the days to come, such a condition of insufficient treatment.

TABES DORSALIS

Five hundred records were studied, those of 427 males and of 73 females, a ratio of nearly 6 to 1.

AGE AT TIME OF DIAGNOSIS

In the third decade of life, that is, between the ages of 20 and 29 inclusive, there were 26 cases; in the fourth 169; in the fifth 213; in the sixth 66; in the seventh 25, and in the eighth 1. In other words between the ages of 30 and 49 we may first expect to make a diagnosis of tabes in 76 per cent. of our cases. In this series the youngest male was 21 years old and dated infection apparently only three months back. The youngest female was 26 and no history of previous syphilis was obtained. The oldest male was 72, and his primary lesion was acquired thirty-eight years previously. The oldest female was 61, and she had suffered from palmar eruptions at various times for twenty years.

INTERIM BETWEEN SYPHILITIC INFECTION AND FIRST SYMPTOMS OF TABES

Syphilis was acknowledged or recorded by the hospital in 226 patients, or 45 per cent. of the cases, and the intervals between the earliest signs of syphilis and of tabes were as follows:

Time Years	No. Patients	Time Years	No. Patients
¼	1	19	6
1	1	20	16
2	4	21	2
3	1	22	4
4	9	23	4
5	10	24	2
6	7	25	9
7	7	26	4
8	13	27	2
9	9	28	1
10	27	30	3
11	11	32	1
12	15	37	1
13	12	38	2
14	9	39	1
15	9	40	2
16	6		
17	7		226
18	8		

Grouping these figures we find that 11 per cent. of the cases developed within the first five years, 25 per cent. within the first ten, and 61 per cent. within the first fifteen.

PREVIOUS OR EXISTING SYMPTOMS OF SYPHILIS

Eighty-four persons "denied venereal"; 141 acknowledged or were seen with primary lesions; 39 patients or wives of patients had experienced miscarriages, and of the late lesions 2 were scaling palms, 3 were late mucous patches, 1 was deafness, 1 was myocarditis, 7 were gummata, 2 were perforated septa nasi, and four were periostitis.

Referring again to the main argument of our theme we find that out of 590 tabetics only 18, or somewhat more than 3 per cent. had ever exhibited any late cutaneous lesions of syphilis, an almost negligible number.

Incidentally, it was found that 2 persons had developed Raynaud's disease, while 17 had suffered from perforating ulcer of the foot. As for the use of alcohol, 24 were total abstainers, 43 were moderate drinkers and 60 admitted excessive indulgence in liquor.

FIRST SYMPTOMS OF TABES

The initial sign of the disease was recorded in 284 patients. Of all symptoms pain was the most frequently referred to, being present in 130 men and women; whereas regionally the part of the body first affected was the legs, which were first attacked in 176 individuals, or 62 per cent.

The details of these data were as follows:

1. Legs	Pain	99	176
	Numbness	38	
	Ataxia	21	
	Weakness	17	
	Stiffness	1	
2. Eyes			35
3. Stomach	Pain	11	19
	Vomiting	4	
	Indigestion	2	
	Distress	1	
	Hot flashes	1	
4. Head	Pain	9	17
	Paresthesia	4	
	Vertigo	3	
	Numbness	1	
5. Bladder			14
6. Back and sides	Pain Hyperhidrosis		7
7. Hands (numbness)			4
8. Feet (perforating ulcer)			4
9. Chest (numbness and pain)			3
10. Rectum (pain)			2
11. Mind (nervousness)			1

GENERAL PARALYSIS

The histories of 178 instances of the disease were studied, for at the time this investigation was completed this constituted the total number recorded in our outpatient department. There were 162 males and 16 females, a ratio of 10 to 1, an even greater masculine predominance than that observed in the case of tabes. Another and even more striking phenomenon was the racial incidence of the disease. Our outpatient clientèle approximates 50 per cent. foreign-born—these being largely Russian Jews, Italians and eastern Europeans, and yet in our figures general paralysis was found in only nine persons who did not hail from the British Isles or descend from still earlier British emigrants. These notable exceptions were four French Canadians, two Germans and one Italian, one Swede and one Russian Jew.

AGE AT TIME OF DIAGNOSIS

Syphilis was acknowledged or recorded in 55 of these patients, including 2 congenital cases, and the intervals between the first signs of syphilis and of general paralysis were the following:

Interval Years	No. Patients	Interval Years	No. Patients
1	2	15	3
2	1	16	1
3	1	17	2
4	3	18	3
5	3	20	7
6	1	21	1
8	6	22	1
9	3	23	2
10	3	24	2
11	2	25	1
12	2	30	1
14	2		
			53

PREVIOUS OR EXISTING SYMPTOMS OF SYPHILIS

Forty-nine individuals "denied venereal"; 53 acknowledged or were seen with primary lesions, 3 patients or their wives had had miscarriages, while only three patients had suffered from late symptoms, one with deafness, one with gumma and one with perforation of the septum nasi.

Recurring once more to the principal theme of this investigation we find that only two patients out of 178 had experienced any late cutaneous sequelae of syphilis—the extraordinarily low percentage of 1 and a small fraction.

As to the previous use or abuse of alcohol there were 7 total abstainers, 16 moderate indulgers and 17 hard drinkers.

FIRST SYMPTOMS OF GENERAL PARALYSIS

The first symptoms of the disease were recorded in 146 persons. Mental deterioration was the most frequent early sign, and pain came second in order.

The details of these data were the following:

1. Head symptoms: nervousness in 20; paralysis in 12; vertigo in 9; headaches in 5; convulsions in 3; eye symptoms in 3; ear signs in 1; changed mentality in the form of altered character in 16; loss of memory in 12; defective speech in 2; faulty handwriting in 2; and melancholia in 1.

2. Cord symptoms: legs, numbness in 13; staggering gait in 9; pain in 11; weakness in 5; cramps and stiffness in 2. Pain in abdomen, elbow, chest and neck in 5.

3. Scattering: weakness and tremors in 5; asthesia in 3; bladder trouble in 3; syncope in 2; hyperhidrosis in 1, and tingling of fingers in 1.

SUMMARY

As a result of the study of these 1,694 case records we make the following deductions:

1. Of our syphilitics, 69 per cent. were infected between the twentieth and fortieth year of age.

2. Hereditary syphilis does not tend to show itself cutaneously at birth.

3. Initial lesions were recorded in only 58 per cent. of our primary or secondary cases, and of these, 9 per cent. were extragenital.

4. The clinical symptoms of syphilis vary much in individuals.

5. Men are more liable to leukoplakia, cerebral symptoms, mucous plaques, alopecia, iritis, and pain,

while women are more prone to early and late skin manifestations, pharyngitis, condylomata and headache.

6. Of these 1,016 recent and old syphilitic persons, only 8 had developed tabes, 7 men and 1 woman, and only 1 had become paretic, and of these 9 parasyphilitics just 3, or less than 0.3 per cent., had exhibited any late cutaneous lesions.

7. Of these patients, 20 per cent. made but one visit, 52 per cent. continued their treatment during six months, 45 per cent. during 1 year and 38 per cent. during two years or more.

8. Tabes dorsalis attacks men and women in the ratio of 6 to 1.

9. Tabes appears between the thirtieth and fiftieth years of life in 76 per cent. of the cases. The youngest tabetic was 21.

10. In 45 per cent. of the tabetics syphilis was acknowledged or found actively present (Wassermann test not included).

11. Tabes developed in 11 per cent. within five years from the date of the primary infection and 61 per cent. within fifteen years.

12. Of these 500 tabetics only about 3 per cent. had ever manifested any late cutaneous syphilids.

13. Pain was the most frequent early symptom of tabes and the legs were the first part of the body to evince the disease.

14. General paralysis occurred in men and women in the ratio of 10 to 1.

15. Although dealing with a class of patients approximately equal numerically as to native and foreign birth, 94 per cent. of these paretics were descendants of or more recently emigrants from the British Isles.

16. Paresis arises in 70 per cent. between the thirtieth and fiftieth years of life, but the youngest paretic was 16 and the oldest 76.

17. In 30 per cent. of the paretics syphilis was acknowledged or had been treated in our hospital (Wassermann not included).

18. The lapse of time between the original syphilitic infection and the first paretic symptoms was distributed more or less equally numerically from one to thirty years.

19. Of these 178 paretics merely 1 per cent. and a fraction had ever suffered from late cutaneous syphilis.

20. Numerically speaking, the brain was the first part of the paretic to give way and the cord came next.

21. Thus my original convictions, based on clinical experiences, have been proved to rest on very solid foundations of fact.

259 Marlborough Street.

Law Enforcement.—In our zeal for regulating everything by law we forget that laws are not automatic, and do not enforce themselves, and that even good motives in the best of officials do not insure good deeds. We forget that government with law and order does not exist primarily in the hands of public officials, but rather in the minds and hearts of "we, the people," who, in both the first and last analysis, are the government.—W. F. King, M.D. in *Jour. Indiana State Med. Assn.*

SYPHILIS IN THE AMERICAN NEGRO *

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The subject of syphilis in the negro is one which has never been thoroughly studied and concerning which there are still many disputes, caused largely by prejudice and broad statements and the lack of careful investigation. Statistics on diseases in the negro are very meager, and on the subject of syphilis are almost entirely lacking. The rule has been to publish personal opinions, often totally unaccompanied by evidence of any kind.

At the start it should be pointed out that there are two distinct classes of negroes, just as there are two classes of every other race, and that the same rules cannot possibly apply to both classes. In the one class we have the colored people who are trying to make something of themselves, who have become responsible physicians, lawyers, teachers and business men, and who live a life not materially different from the same type of whites. In a considerable experience with these men I am convinced that syphilis is not more prevalent among them than among the whites, although there are no statistics to prove the point.

On the other hand, there is a poorer class of negroes, the class of those who frequent the hospitals and dispensaries, and it is with negroes of this class this paper is concerned. While slaves they were valuable property, and as such were well cared for by their owners, just as good horses were cared for. When slavery was abolished, however, these people were free to live as they liked; they were unacquainted with the ways of self- and race-preservation, and as they became a political force nearly all white hands were turned against their advancement, since that seemed to be a prelude to political power. Then whisky and cocain levied their tolls on the race; they were forced to share in the general post-bellum poverty of the South, and as a result of all these conditions the majority were forced to live in the most wretched habitations, often many to a room. Even to-day their lot is none too good; as a rule, they are compelled to dwell under conditions that can breed neither good morals nor good health.

The negro springs from a southern race, and as such his sexual appetite is strong; all of his environments stimulate this appetite, and as a general rule his emotional type of religion certainly does not decrease it. Both Quillian[1] and Murrell[2] state that they have never examined a negro girl over 16 years of age who was a virgin, and the leading negro physicians of Washington admit that virginity is very rare among the poorer members of their race. In fact, virginity is as rare among this class of negresses as continence is among white men. The health reports of the District of Columbia for the ten years ending 1903 show that during this period there were 27,893 legitimate and 907 illegitimate births among the whites, and 13,909 legitimate and 4,786 illegitimate births among the colored. During this time practically one-third of the population was negro. Of course, many illegitimate births among the whites were doubtless concealed, and Washington has not a large number of the poor class of whites; hence these figures are not altogether fair to the blacks, but they do serve to show how many births in that race are out of wedlock. It should be stated, however, that some of the European cities have just as high a ratio of illegitimate births as the colored population of Washington.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Quillian: Med. Era, St. Louis, 1911, xx, 416; Am. Jour. Dermat. and Genito-Urin., 1906, x, 277.

[2] Murrell: Med. Progress, 1911, xxvii, 176; Syphilis and the American Negro, The Journal A. M. A., March 12, 1910, p. 846.

In 1907 Howard Fox[3] read an excellent paper on "Observations on Skin Diseases in the Negro," and his general statement "that syphilis in the negro is not only very prevalent, but more so than in the white, is one point on which the majority of writers, my correspondents and statistics agree," seems pretty generally accepted to-day. Fox collected statistics of 2,200 cases of skin-disease among negroes and an equal number among whites, and found that among the former there were 596 cases of syphilis as opposed to 279 cases in the latter. Going still further, Fox collected statistics of 15,000 cases of general disease among whites and 32,000 among blacks, and found that 3.96 per cent. of the former applied for treatment because of syphilis, and 5.82 per cent. of the latter for the same malady. Fox concludes: "To be exact, the blacks suffered 1.46 times as often as the whites." Similar views are concurred in by Hyde,[4] Morison,[5] Dyer,[6] Matas,[7] Quillian, Murrell, Corson[8] and McHutton.[9]

I have endeavored to ascertain the frequency with which syphilis occurs among the negroes of Washington, and my results have been substantially the same as those of Fox. In 2,000 cases of skin-disease personally observed, there were 440 cases of syphilis. Dr. Warfield, superintendent of Freedmen's Hospital, has personally tabulated all cases of syphilis in the large service of that hospital from 1901 to 1912. It is worth noting that practically all diagnoses were made by the white attending staff, and not by colored physicians. The results were as follows:

Total admissions	32,181	
White patients	2,160	
Negro patients	30,021	
Total admissions for syphilis	974	
White admissions for syphilis	92	or 4.35 per cent.
Negro admissions for syphilis	881	or 2.26 per cent.
Total dispensary patients	61,518	
White patients	1,367	
Negro patients	60,151	
White syphilitic patients	180	or 13.16 per cent.
Negro syphilitic patients	3,939	or 6.54 per cent.
Total negro patients	90,172	
Negro syphilitic patients	4,913	or 5.37 per cent.

It is rather difficult to explain the large number of white patients visiting this hospital to be treated for syphilis, except on the well-known ground that many white syphilitics prefer to be treated by negro physicians, probably being ashamed to call on men of their own color. Among the whites of Washington, Freedmen's Hospital is generally believed to be a strictly negro institution.

In a study of syphilis published by the Committee on Social Betterment,[10] it was found that in the hospitals of Washington 3.46 per cent. of all patients applied for treatment because of syphilitic infection, and in some recent work which I have done along the same line it seems assured that the figures for whites are only a trifle lower.

As a result of these different studies it would seem certain that more negroes than whites are treated for syphilis, and that the negro probably suffers about one and one-half times as frequently as the white.

To my mind one of the most serious facts in connection with the prevalence of syphilis among negroes is the amount that occurs in schoolchildren. While I determined the average age of infection in 500 consecutive cases to be 21 years, still in the series of 440 already mentioned there were no fewer than nine cases of acquired syphilis among schoolchildren, one of whom was 19 years old, and all of the remainder under 15. According to the infected children, and also the parents of several of them, there exist in certain of the graded schools "social clubs" composed of from four to twelve members whose sole object is sexual indulgence, as I have already reported.[11]

Of course, syphilis is by no means nuknown among white school-children, and the morals of many of them are most deplorable, but so far as I can learn acquired syphilis among them is very much rarer than among negro children. Pollack[12] has written an excellent paper on venereal diseases in the very young, and has shown that in certain instances this can be explained by the superstition that if an infected individual will touch the genitalia of a person of the opposite sex who has never known sexual congress, the disease will spontaneously disappear.

In dealing with the late results of syphilis it is still more difficult to gather reliable statistics, but the experience at the Johns Hopkins Hospital and at the Freedmen's Hospital would seem to show that aneurysm and aortic insufficiency due to syphilis are commoner among negroes than among whites. Paresis is about equally common in the two races, while tabes is distinctly less common among the colored, although, as Hecht[13] has pointed out, much commoner than has been supposed. Other types of syphilitic nervous lesions, according to Fox, are more common in the negroes.

The cutaneous manifestations of syphilis in the two races vary considerably, as the following statistics gathered by myself will show. These figures were derived from a personal study of 2,000 consecutive cases of skin-disease in the negro, and an equal number in the white race.

	Whites	Blacks
Chancre	2	12
Extragenital chancre	12	1
Macular	13	10
Maculopapular	8	4
Annular	..	43
Pustular	4	12
Secondary	22	68
Gumma	14	80
Nodular	20	19
Palmar	12	3
Tertiary	12	39
Hereditary	10	42

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[3] Fox: Jour. Cutan. Dis., 1908, xxvi, 67, 109.

[4] Hyde: Morrow's System of Genito-Urinary Diseases, Syphilology and Dermatology, New York, 1893, ii, 18.

[5] Morison: Tr. Am. Dermat. Assn., 1888, xii, 29.

[6] Dyer: South. Med. Jour., 1913, vi, 10.

[7] Matas: Tr. Am. Surg. Assn., 1896, xiv, 483.

[8] Corson: Am. Jour. Dermat. and Genito-Urin., 1906, x, 240.

[9] McHutton: Am. Jour. Dermat. and Genito-Urin., 1906, x, 6.

[10] Kober: Rep. Com. on Social Betterment, President's Homes Commission, Washington, D. C., 1908, p. 137.

[11] Hazen: Washington Med. Ann., 1913, xii, 223.

[12] Pollack: Bull. Johns Hopkins Hosp., 1909, xx, 142.

[13] Hecht: Am. Jour. Med. Sc., 1903, cxxxvi, 705.

Curiously enough, extragenital chancres among negroes are extremely rare. I have seen but one case, and most of my confrères who have had a considerable experience with the race have seen none.

Macular syphilids are not common either in the pure-blood negroes or in mulattoes, but when present can usually be seen easily; hence it can hardly be assumed that the natural pigment hides the eruption, although such a thing is perfectly possible. Papular syphilids are the common variety; in fact, all skin-diseases in negroes have a tendency to be more papular than in the whites. While the ordinary types of papular eruption are the ones usually encountered, still there are five varieties seen among negroes much more commonly than in other races. The first is the follicular variety, in which the lesions are very small, and situated at the hair follicles; the second is the annular kind, already carefully studied by both Fox[14] and myself[15]; the third is the frambesiform, in which there are large vegetating lesions somewhat resembling those of yaws; the fourth is the large semiglobular papule with a diameter of 1 cm. or more, and the fifth is the papulosquamous, which may look like psoriasis. Pustular or papulopustular lesions are fairly commonly seen as the first cutaneous manifestation of the infection. Condylomata are more common than among whites. It is not at all unusual to encounter cases in which there is a fresh infection but no cutaneous eruption.

Relatively speaking, tertiary manifestations are but little more prevalent than among whites: gummata are commoner, but nodular lesions are rarer. Typical cases of intractable palmar syphilids are indeed rarities.

Mucous patches are probably commoner than among whites, and alopecia in the two races has about the same incidence; but glandular enlargement is much more constant in the colored. It must be borne in mind, however, that glandular enlargement is present in almost all negroes, whether syphilitic or not; hence one dares not put too much stress on palpable glands. Gummata of the sternoclavicular articulation and also of the testicle are very common among negroes.

I cannot agree with the usual statement that the lesions of syphilis are less severe in the negro; I can see no difference in the course of the disease in the two races, either with respect to the clinical symptoms or to the Wassermann reaction. Certain of the cases of papular syphilis are very intractable to treatment; it sometimes requires months of steady treatment to wipe out the lesions. As regards treatment, it is somewhat surprising to find that negroes attend the clinics as regularly as they do: they attend just as faithfully as do white patients, and the magic words "blood-test" have much influence over them. Usually they are very docile patients: while they complain of the pain of intramuscular injections, they will come back for more, though they cannot be depended on to carry out the inunction treatment. The secret of treating them is to show them that you are taking an interest in them, and also that you mean just what you say.

The prophylaxis of syphilis in the negro race is especially difficult, for it is impossible to persuade the poor variety of negro that sexual gratification is wrong, even when he is in the actively infectious stage. It is probable that sex hygiene lectures will not have the slightest effect on this type, especially when one considers the risks that many of our own medical students run. As regards personal prophylaxis, all male babies should be circumcised, both for the purpose of avoiding local irritation which will increase the sexual appetite and for preventing infection. It is questionable whether adult negroes should not be taught the use of prophylactic packages, which appear to have worked much good in certain quarters.

The home problem must be studied, overcrowding prevented and opportunities furnished to live in decent dwellings. The passage and enforcement of a strict curfew law might do much good. The cocain and alcohol problems are also urgent, for indulgence in either of these drugs usually stimulates sexual desire and renders the victim careless as to the means of gratification. Doubtless most cases of rape result from the effects of one or the other of these substances. Syphilis should certainly be made a reportable disease, if only for statistical purposes. Parents who bring syphilitic children into the world should be forced to provide competent medical attention; there should be some law by which this could be brought about. Young children with syphilis will usually not attend a clinic, and there should be some way in which they could be forced to do so, possibly through the aid of the juvenile court or the Board of Children's Guardians.

It is probably in the hospitals, however, that the greatest good can be done, and this by shortening the period of infectivity as much as possible. The way that syphilis is treated in the average ward or outpatient department is a disgrace. Many physicians feel that they do not care to bother with the treatment of this infection, and so leave the work to the interns, and many other physicians are profoundly ignorant of the immense amount of detail work required for the proper treatment of syphilis. The old method of prescribing a few pills is, and should be, a thing of the past. We must now work with our serum reactions and injections of salvarsan and mercury, avoiding the injury that may come from overdosage, while taking care to give a sufficiency. If a factory turned out goods in the slipshod way that the average hospital hands out syphilitic medication, it would soon go to the wall. In the hospital wards there is the greatest need for several things. In the first place, more beds for venereal cases are urgently needed; these should be in a general hospital, not in a special hospital, for patients would decline to go there because of the stigma attached to such an institution. There should be one man to direct the treatment of all syphilitic cases; there should always be salvarsan on hand; every hospital should make a provision for competent Wassermann work (which certainly is not the case at present, some hospitals refusing to admit they ever receive syphilitic cases), and lastly, there should be better cooperation between the department of syphilis and the other departments. All syphilitic patients leaving the hospital should be referred to the syphilitic clinic for general treatment.

As regards the dispensary service, the same general rules hold as for the hospital. Clinics should be conveniently located, the attendance should be regular, and there should be proper facilities for work. Every dispensary should have a corps of visiting nurses, so that patients can be followed in their homes and instructed in prevention, in addition to being persuaded to return for treatment.

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[14] Fox: Arch. f. Dermat. u. Syph., 1912, cxiii, 315; A Case of Annular Papular Syphilis in a Negress, The Journal A. M. A., May 10, 1913, p. 1420.

[15] Hazen: Jour. Cutan. Dis., 1913, xxi, 148.

The special hospitals, as the eye and ear hospitals, deserve especial censure, as they make no provision for the general treatment of syphilis. Each hospital should have a special department where this general treatment can be satisfactorily administered under the care of a man skilled in this line of work, for patients cannot be expected to attend two different hospitals, one for a local condition, and one for general infection with syphilis.

The Rochambeau.

OBSERVATIONS ON THE PATHOLOGY OF SYPHILIS *

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It is hardly necessary to say that a knowledge of the real pathology of syphilis would be of great assistance in the practical handling of the disease. Our attempts to treat syphilitics would be more successful if we knew more about what is actually going on in the body, more about where and why the spirochetes localize and more about the mechanism of relapse. At present our knowledge on these and other points is in the making. What has passed for many years as the pathology of syphilis is really only a small part of the subject, namely, pathologic anatomy. This branch has been unusually barren of helpful suggestions, and such interpretations as have been made have necessarily not been convincing. It is only since the recent development of the pathologic physiology or experimental pathology of the subject that we are beginning really to understand something of the pathogenesis of the disease and to profit by this knowledge. In this paper I desire to outline several of the newer theories of syphilis which seem to have enough evidence in their favor to warrant discussion.

I. EARLY LOCALIZATION OF THE SPIROCHETES

The first proposition is that the spirochetes take their final position during the period of the secondary septicemia and that the future course of the disease is determined by this early localization. In other words, syphilis is not to be thought of as a chronic septicemia extending over years, but rather as a complex of local infections which date back to an early septicemia. This theory is illuminating and has practical bearings. As far as I know it cannot be attributed to any one observer. It seems to have developed independently and almost unconsciously among many observers, and evidence in its favor has come from several different sources. The first suggestion came to me from the demonstration that the nervous system may be invaded in the primary and secondary stages. Changes in the spinal fluid indicating early infection are now well known, and the spirochetes have been demonstrated in the spinal fluid of secondary cases by inoculation of the monkey by Hoffman,[1] and by inoculation of the rabbit by Dr. Hough and myself[2] and by Uhlenhuth and Mulzer.[3] From these accepted facts it is but a step to imagine that these patients are the ones who later suffer from syphilis of the nervous system. This is partly a step in the dark, but we are at least sure that the foundations of later lesions *can* be laid down early in the disease.

Additional support of this theory has been given by the systematic work of Uhlenhuth and Mulzer on inoculations of the rabbit's testicle with blood from different stages of the disease. These authors[3] have shown that, in the primary and secondary stages, 80 per cent. of a large series of cases give positive results for spirochetes, while in the latent stage no positive results at all have been obtained. This negative evidence also suggests, although of course it does not absolutely prove, that the spirochetes do not circulate after the first septicemia. It seems more probable that they localize early and then produce lesions ***in situ.*** The alternative of this theory has been stated by Noguchi[4] as a process of sensitization of the brain, for example, by a long systematic infection until the brain is susceptible to a passing infection. The weight of evidence, however, is in favor of the other theory, because we know that the spirochetes can localize early in the disease and it has not been proved that they circulate in the blood to any extent during the later stages.

II. SPECIAL LOCALIZING POWERS OF CERTAIN STRAINS OF SPIROCHETES

With this idea as a background, the affinities or localizing powers of the spirochetes assume great importance. If we consider the spirochetes as a whole we secure an instructive side-light on the subject. In *Spirochaeta dentium,* we have an organism which lives only a saphrophytic existence in the mouth or at best multiplies excessively in local lesions produced by other causes. *S. schaudinni,* on the other hand, is apparently able to produce an ulcer in the skin, but does not metastasize. Again, the spirochetes of relapsing fever produce no skin-lesions, but live in the blood-stream. An advance in localizing power is seen in *S. pertenuis,* the cause of yaws. This organism produces a local skin lesion which may be followed by a septicemia, but the organisms seem invariably to return to the cutaneous tissues and to localize there. It should be said that yaws has not been studied so intensively as syphilis in regard to localization; but lesions of the brain and internal organs have never been demonstrated and the disease is not hereditary. Coming to *S. pallida* itself, we have an organism which produces a local skin lesion, then a general septicemia and finally local lesions in practically any part of the body.

While *S. pallida* can produce lesions almost anywhere, in a given case we usually find a definite localization in the lesions and not a diffuse process. Thus we may find lesions only of the skin, or only of the nervous system, etc. Fournier[5] has tabulated 4,400 cases of this kind; 40 per cent. were lesions of the nervous system, 11 per cent. of the reproductive organs, 11 per cent. of the bones, and 0.3 per cent. of the arteries, etc. This series of cases must have been a selected one, in some respects, because recent work has shown that the localization in the heart and arteries must be higher; but Fournier's tabulation shows possible results of diversity in early localization.

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* From the Department of Pathology, Army Medical School.

* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Hoffman: Dermat. Ztschr., 1906, xiii, 561.

[2] Nichols, H. J., and Hough, W. H.: Demonstration of Spirochaeta Pallida in the Cerebrospinal Fluid, The Journal A. M. A., Jan. 11, 1913, p. 108.

[3] Uhlenhuth and Mulzer: Berl. klin. Wchnschr., 1913, L, 2033.

[4] Noguchi: München. med. Wchnschr., 1913, p. 2484.

[5] Fournier: Prophylaxis of Syphilis, translated by Marshall, New York, Rebman Company, 1906, p. 139.

It seems reasonable that all strains are able to infect several organs indifferently. Thus it has been shown experimentally by Neisser[6] and by Uhlenhuth and Mulzer[3] that in the monkey and rabbit the liver, spleen, bone-marrow and testicle are most infectious. The same is probably true for man. In addition we must recognize the probability that certain strains, besides infecting these organs, have a special power of infecting other tissues. The skin and the nervous system may be mentioned as extremes.

It can be stated with certainty that different strains of *S. pallida* produce different kinds of lesions in the rabbit. I have worked altogether with ten strains from different sources, and certain of these strains have well-marked characteristics which enable one to pick them out without other information. The lesions may be classified in general as either large, loose, edematous ones, or small, hard cartilaginous-like ones. Granted that differences in strains exist, the important question is, Are these temporary varieties which may occur in one infection or are they permanent strains for a number of infections? Working with a large number of transfers in many animals I have found that these differences hold good, and from this evidence the strains appear to be more or less permanent. In addition to the differences in the lesion, Noguchi[7] has called attention to differences in morphology of the spirochetes, such as thick, thin and medium forms and also to a correlation between morphology and character of lesion. Have these facts any bearing on the question of localizing powers? It seems very probable that these apparently distinct and permanent strains of *S. pallida* differ in their localizing power.

The way to settle this question of strains would seem to be to isolate strains from different sources and to carry them on long enough in rabbits to determine their characters. I have recently reported[8] on a strain isolated from the nervous system which possesses distinctive characters in the rabbit. The local lesions are extremely hard with a necrotic center; more particularly, this strain tends to generalize with production of lesions in the eye and eyebrows. No other strain has shown this property. I suggest that the nervous system may be less readily infected than other organs, and that the invasive power of this strain may be significant in infection of the nervous system.

Practically, as is well known, the early localization in the nervous system can be determined with certainty by examination of the spinal fluid; and if ordinary measures of treatment are not sufficient to control the infection, it can be treated locally.

III. LOCALIZATION OF SPIROCHETES IN THE TESTICLE

There is one other localization which merits special consideration, namely, infection of the reproductive organs. Just as the affections of the nervous system are of supreme importance for the individual, so infections of the reproductive organs are of supreme importance to the race. According to the views here outlined, the reproductive organs, especially the testicle, if infected at all, must be infected early and must remain infected for many years. If this is so, it should be possible to detect the infection by examination of the spermatic fluid. Spirochetes have been demonstrated in the spermatic fluid by inoculation twice, once by Finger and Landsteiner,[9] using a monkey, and once by Uhlenhuth and Mulzer,[10] using the rabbit. Both cases were in the secondary stage. I have recently succeeded in finding typical *S. pallida*, with the dark-field illumination, in the apparently normal prostatic fluid of a secondary case. The exact source of the organism in this case is naturally in doubt, but it must be in the reproductive system. A more important finding would be the demonstration of the organism in the seminal fluid during the latent stage, for example, in a candidate for marriage. I have made two unsuccessful series of inoculations from cases in the secondary stage and one from a case in the latent stage. Inoculation from one other case in the latent stage, a candidate for marriage, resulted in the development, after forty-five days, of a definite hard nodule, but no spirochetes could be demonstrated by fresh examinations, smears or sections. To my mind this lesion was syphilitic and compares with similar nodules produced by the inoculations of paretic brains in which I was unable to demonstrate spirochetes,[11] although the virus was undoubtedly present. Experimentally, there is no difficulty in showing the affinity of *S. pallida* for the sexual organs as has been mentioned. In my experience intravenous injections of the rabbit with suspensions of spirochetes from any source result always in lesions of the scrotum and testicle, and sometimes only in these.

Practically, determination of infection of the reproductive organs by local examination is not so important as examination of the spinal fluid for local infection, because by the Wassermann test, the provocative Wassermann test or luetin reaction we can almost always find an indication of infection exclusive of the nervous system, if such exists, and experience has shown that the testicle rarely escapes. But the subject deserves further work, because if it could be shown that the testicle has escaped infection, marriage might be permissible even if other parts of the body were infected.

IV. THE INHIBITING EFFECT OF ONE LOCAL LESION ON THE DEVELOPMENT OF LESIONS ELSEWHERE

According to these views, the character of the spirochetes is of more importance than the resistance of the body, and eventually determines the picture of the disease. On the other hand, one factor in the host must not be neglected. This is the inhibiting effect of one active lesion. This effect is well known as far as the body as a whole is concerned, and has been experimentally demonstrated on monkeys and paretics — namely, that an animal or man once and still infected will not develop lesions on reinfection. I believe the same holds true within the body — namely, that lesions in one organ tend to inhibit the development of lesions elsewhere. I have been able to prove this proposition experimentally in rabbits.[12] If a rabbit is infected in one testicle, the spirochetes develop a local lesion, but they also invade the circulation and localize elsewhere, especially in the other testicle. No lesion develops, however, in the second testicle while the lesion in the first testicle is active. If the first testicle with its lesion is excised, a lesion promptly appears in the second testicle.

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[6] Neisser, A.: Pathologie und Therapie der Syphilis, Berlin, Julius Springer, 1911, p. 97.

[7] Noguchi: Jour. Exper. Med., 1912, xv, 201.

[8] Nichols: Jour. Exper. Med., 1914, xix, 362.

[9] Finger und Landsteiner, referred to by Neisser (Footnote 6).

[10] Uhlenhuth and Mulzer: Arb. a. d. k. Gsndhtsamte., 1913, xliv, No. 3.

[11] Nichols, H. J., and Hough, W. H.: Positive Results Following the Inoculation of the Rabbit with Paretic Brain Substance, THE JOURNAL A. M. A., July 12, 1913, p. 120.

These experimental findings have a bearing on the human pathology of syphilis. They give a clue to the explanation of nervous relapse after inadequate treatment with salvarsan. Given a secondary case with invasion of the nervous system, as long as the skin lesions are active, symptoms rarely occur in the nervous system; but if the skin lesions are suddenly healed up with salvarsan and yet the spirochetes in the nervous system are not all destroyed, the inhibiting effect of the skin lesions is lost and a lesion flares up in the nervous system. Vice versa, in paresis, pathologic anatomists have pointed out that systemic lesions of syphilis are rarely seen. The lesion in the brain, being progressive and fatal, has permanently inhibited the development of spirochetes localized elsewhere. If, however, a lesion is located in some organ in which it is not progressive indefinitely, but resolves after a time, then it is only a question of time when the spirochetes localized in some other part of the body will begin to show their presence by a lesion.

SUMMARY

The views here expressed may be summarized as follows:

1. In syphilis, the spirochetes localize during the early septicemia and probably do not localize in the later stages.
2. All strains probably localize indifferently in certain organs. In addition, certain strains probably have an especial localizing power.
   (*a*) Various strains of *S. pallida* exist which differ in pathogenic properties.
   (*b*) These strains are probably permanent variations.
   (*c*) A strain isolated from the nervous system has shown marked power of generalization in the rabbit.
3. Early localization in the testicle has been demonstrated experimentally, and determination of latent infection may be feasible as a clinical procedure.
4. An active lesion in one part of the body tends to inhibit the development of potential lesions in other parts of the body.

(This symposium will be completed next week and will be followed by the discussion.)

HEMORRHAGE FROM THE SUPERIOR PETROSAL SINUS

AS A COMPLICATION IN OPERATIONS ON THE LATERAL SINUS*

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Hemorrhage from the superior petrosal sinus exists as a possibility in operations on the lateral sinus despite the fact that, with one exception, no mention is made of it in any of the literature published on mastoid or lateral sinus operations. Since attention has now been called to it there is little to add except to show briefly how the complication occurs, and how its results are frequently unfavorable to the patient.

The superior petrosal sinus is described in the various textbooks on anatomy as being one of the terminal divisions of the cavernous sinus, running in a small groove in the superior border of the petrous portion of the temporal bone in the attached margin of the tentorium cerebelli and terminating in the lateral sinus at the point where the sigmoid portion of that vessel begins.

While this termination is usually described as being through a single opening in the wall at the knee of the lateral sinus, this frequently is not the case. The petrosal is often found to empty itself through a series of openings 3 or 4 mm. apart, extending along the sinus wall at a distance of 2 or more cm. Knowledge of this fact is obviously of surgical importance in the control of hemorrhage from these openings after the lateral sinus has been incised.

It was not until some years after Richards had called attention to the faulty technic that was being generally followed in operations for sinus thrombosis that the importance of accurate inspection of the interior of the sinus was generally accepted. The latest authorities, however, now agree on the importance of getting a distinct view of the interior of the vein, and of removing the infected walls as well as the thrombus. Kerrison emphatically expresses this view in his book, recently published, when he says:

> The aim is to expose the interior of the vessel to actual inspection. To attempt less but adds to the patient's risks and supplies the surgeon with absolutely no data of diagnostic value.

In his description of the technic required to accomplish this, however, he implies that beyond possibly an emissary vein the sources of hemorrhage to be considered are solely the two extremities of the sinus itself. The other well-known text-books and articles on the subject give practically the same impression.

Except in Dr. Richards' article on operative treatment of sigmoid sinus thrombosis,[1] a review of literature relative to operations for thrombosis of the lateral sinus reveals comparatively few references to the superior petrosal sinus, and none at all to hemorrhage from that vessel as a possible complication to be encountered during the operation; so it would seem that the occurrence is not frequent. This view is strengthened by the experience of the majority of the surgeons whom I have consulted on the subject. Few of them recall cases in which the hemorrhage was definitely found to arise from the superior petrosal sinus, and yet not infrequently when a sinus is opened for relief of a suspected thrombus, hemorrhage is encountered despite the attempt at control exerted above and below the point of incision.

That the complication does not more frequently arise is due to the fact that the field of operation in the majority of cases is limited to the vertical limb of the sigmoid, and the posterior point of compression for the control of hemorrhage is anterior to, or just over the entrance of, the superior petrosal sinus. In more extensive cases of moderate duration the thrombus will frequently be found to extend into the superior petrosal, in which case there is, of course, no hemorrhage from that vessel.

Richards speaks of having opened the superior petrosal sinus almost throughout its whole length in

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12. Nichols: Jour. Exper. Med., 1911, xiv, 211.

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Richards: Arch. Otol., 1905.

a case of extensive thrombosis which had extended to it from the lateral sinus. While I have seen thrombi removed from the lateral sinus well past the openings of the superior petrosal without hemorrhage occurring from it, I have not seen the operation carried to that vessel in order to obtain from it free bleeding, although theoretically that might be the course to pursue.

The cases in which embarrassing hemorrhage from the superior petrosal are likely to occur are those in which the thrombus in the sigmoid extends to the region of its entrance but does not enter it. Injury to the sinus or to an emissary vein in the region of its knee during a mastoid operation will sometimes give rise to a rapidly formed septic clot which does not block the petrosal. In such cases, the pressure plug for control of hemorrhage from the torcular end of the sinus is placed behind the entrance of the superior petrosal, and if this is not blocked by clot, bleeding from it will obscure the field of operation and interfere with proper inspection of the interior of the vein.

Unless the source of this hemorrhage is recognized and the bleeding stopped, the operation is botched, and its purpose to ascertain definitely the state of things within the sinus is defeated. The operator relies on his assistant to control the hemorrhage from above and below the line of his incision with pressure pads placed on the wall of the vein. In such cases, the assistant whose office it is to block both ends of the sinus, seeing the free escape of blood despite his efforts at compression, may temporarily overlook the position of his compresses in relation to the opening of the petrosal, and exert too great pressure on the cerebellum in his vain attempt to control the hemorrhage. The operator, at the same time intent on observing the interior of the vein, is harassed by the flow of blood over the field, and he too may, in the confusion, overlook the source of hemorrhage.

The result is that more blood is lost than is good for the patient, the wound has to be packed to control the bleeding, and the patient is returned to bed with the source of his infection still present, and his resistance lowered by the loss of blood. This occurrence is exceptional, as has been stated; nevertheless it is sufficiently frequent to warrant some thought of it as a possibility in operations for sinus thrombosis. That it has received no mention in literature may be because it has been considered plainly obvious by the authors; but like other simple facts that are too infrequently met to be well remembered, it escapes attention until personal experience impresses on one the importance of its early recognition. Even personal experience with this complication does not invariably teach, for I have seen it occur to an operator's great confusion and yet remain to the end entirely unrecognized by him; otherwise he might easily have prevented it.

The tendency to blame the assistant for any escape of blood that occurs after the sinus has been opened, regardless of the position of pressure pads, is not uncommon. The relation of the distal compress to the opening of the superior petrosal must, of course, be considered, and I think that we have all seen undue pressure exerted on the sinus behind its knee without effect on the hemorrhage, but with what appeared to be marked traumatism to the cerebellum.

In the removal of cells from the angle of bone that lies between the knee of the sinus and the dura of the middle fossa, hemorrhage from the superior petrosal is occasionally seen. I know of three cases in which the vein was injured in this location without untoward result; two occurred during operations on very pneumatic mastoids, and one during a labyrinth operation. Here the injury is of little consequence, as the source of hemorrhage is easily seen and easily controlled; but in operations on the lateral sinus, unless the source of hemorrhage is recognized promptly as being from the superior petrosal sinus, when that vessel is the one involved, the delay in stopping it, and its interference with the object of the operation to remove the infected focus, jeopardize materially the patient's chance of recovery. For this reason, and from the fact that I have found no reference to this subject in literature, I have taken the liberty of calling attention to it.

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STUDIES ON THE ABSORPTION OF DRUGS*

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The idea is current among both pharmacologists and clinicians that substances which are readily soluble in water are also readily absorbable from the gastro-intestinal canal, except when some physical law, such as that of osmosis, interferes with the absorption. Thus a prominent pharmacologist, speaking of a drug which requires 950 parts of water for its solution, says, "It is evident, however, that a substance which is so sparingly soluble as this must go into solution in the intestine with great slowness, and, therefore, linger in the bowel for a considerable length of time."

A second belief, current more particularly among clinicians, and also held by many pharmacologists, is that there exists a fairly constant ratio between the dose of a drug by subcutaneous administration and that by mouth or rectum, or between the latter two. Cushny[1] says:

> As absorption from the subcutaneous tissues is so much more rapid than that from the stomach and intestines, when the drug is in perfect solution the dose has to be reduced. As a general rule, about one-half of the ordinary amount is sufficient.

It is, of course, recognized that there are many exceptions to this rule.

In a previous communication[2] one of us discussed some of the phases of this subject, considering mainly certain of the digitalis bodies. The present investigation is an amplification of that work in which we have included the study of absorption of different classes of drugs, using various species of animals.

The obvious importance of the subject of absorption to both the pharmacologist and the clinician led us to conduct our work with a view to its practical applications. The general mode of experimentation consisted of the administration of graded doses of the drug in question by each of the several channels available, and the determination of the approximate average minimal dose required by each channel for the production of a constant effect. Most of our figures for the digitalis bodies are taken from the records of previous experiments, many of which were primarily conducted for other purposes. Here, also, much of our work was confirmed by the determination of the actual amount of the drug present in the body. Many of the latter experiments have been discussed in the previous paper[2] and need not be again detailed in this place. The work has extended over several years and includes considerably more than a thousand experiments. For the sake of brevity we have presented the results in the accompanying tables. In addition we have compiled Part X of Table I from Maurel's figures.[3]

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* From the Laboratory of Pharmacology of Cornell University Medical College.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Cushny, A. R.: Textbook of Pharmacology and Therapeutics Ed. 5, Philadelphia, Lea and Febiger, 1910, p. 35.

[2] Hatcher, R. A.: Variation of Dosage Dependent on the Method of Administration, The Journal A. M. A., Aug. 27, 1910, p. 746.

TABLE 1.—DOSES AND THEIR RATIOS FOR DIFFERENT CHANNELS OF ADMINISTRATION *

	Vein	Muscle	Subcut.	Mouth	Rectum
I. STRYCHNIN SULPHATE					
A. To dogs: hyperexcitability.					
Dose, mg. per kg.	0.075	0.075	0.075	0.075	0.075
Ratio	1	1	1	1	1
B. To cats; hyperexcitability.					
Dose, mg. per kg.	0.02	0.08	0.08	0.1	0.1
Ratio	1	4	4	5	5
	....	....	1	1.25	1.25
C. To guinea-pigs; convulsion.					
Dose mg. per kg.	0.3	3.0	3.0	40.0	....
Ratio	1	10	10	133	....
	....	....	1	13.3	....
II. PICROTOXIN					
A. To cats; convulsion.					
Dose, mg. per kg.	0.3	0.5	0.75	2.25	2.25
Ratio	1	1.6	2.5	7.5	7.5
	....	....	1	3	3
B. To guinea-pigs; convulsion.					
Dose, mg. per kg.	1.0	2.0	5.0	50.0+*	....
Ratio	1	2	5	50	....
	....	....	1	10	....
C. To rabbits; convulsion.					
Dose, mg. per kg.	1.5	....	5.0	20.0—*	....
Ratio	1	....	3.3	14	....
	....	....	1	4	....
III. CAMPHOR					
A. To dogs; convulsion. Solution in oil.					
Dose, gm, per kg.	....	0.5	0.75	0.5	0.75
Ratio	....	1	1.5	1	1.5
	....	....	1	0.66	1
B. To cats; convulsion. Solution in oil.					
Dose, gm. per kg.	....	0.5	0.5	0.25	0.75
Ratio	....	1	1	0.5	1.5
C. To dogs; convulsion. Solution in alcohol.					
Dose, gm. per kg.	....	0.75	1.5	0.5—	0.5+
Ratio	....	1	2	0.75	0.75
	....	....	1	0.33	0.33
D. To cats; convulsion. Solution in alcohol.					
Dose, gm. per kg.	....	0.7	0.5	0.5	....
Ratio	...	1	0.7	0.7	....
IV. NICOTIN					
A. To cats; fatal dose.					
Dose, mg. per kg.	1.5	....	5.0	10.0	....
Ratio	1	....	3.3	6.6	....
	....	....	1	2	....
B. to rabbits; fatal dose.					
Dose, mg. per kg.	10.0∓	....	30	200+	....
Ratio	1	....	3	20	....
	....	....	1	6.6	....
C. To guinea-pigs; fatal dose.					
Dose, mg. per kg.	2.25	....	10.0	250	....
Ratio	1	....	4.4	111	....
	....	....	1	25	....
V. OUABAIN					
A. To cats; fatal dose.					
Dose, mg. per kg.	0.1	....	0.15	0.7	....
Ratio	1	....	1.5	7	....
	....	....	1	4.6	....
B. To guinea-pigs; fatal dose.					
Dose, mg. per kg.	0.2	....	0.3	30.0+	....
Ratio	1	....	1.5	150	....
	....	....	1	100	....
C. To rats; fatal dose.					
Dose, mg. per kg.	21.0	....	100±	infinity	....
Ratio	1	....	4	infinity	....
VI. DIGITOXIN					
A. To cats; fatal dose.					
Dose, mg. per kg.	0.35	....	0.4	2.0	....
Ratio	1	....	1.13	5.7	....
B. To guinea-pigs; fatal dose.					
Dose, mg. per kg.	0.75	....	1.5	28.0+	....
Ratio	1	....	2	37 +	....
	....	....	1	18.5	....
C. To rats; fatal dose.					
Dose, mg. per kg.	17.0	....	43.0+	140 +	....
Ratio	1	....	2.8	8.3+	....
	....	....	1	3.3	....
VII. ATROPIN SULPHATE					
A. To cats; dilatation of pupil.					
Dose, mg. per kg.	0.02	0.03	0.04	0.5	0.7
Ratio	1	1.5	2	25	35
	....	....	1	12.5	17.5
B. To guinea-pigs; fatal.					
Dose, mg. per kg.	85	....	600	....	....
Ratio	1	....	7	....	....
VIII. APOMORPHIN					
A. To dogs; emesis.					
Dose, mg. per kg.	0.05	0.06	0.2	5.0	5.0
Ratio	1	1.2	4	100	100
	....	....	1	25	25
B. To cats; emesis.					
Dose, mg. per kg.	0.1	0.75	1.0	2.5	2.5
Ratio	1	7.5	10	25	25
	....	....	1	2.5	2.5
IX. MORPHIN					
A. To dogs; depression.					
Dose, mg. per kg.	0.1	0.1	0.1	1.0	4.0
Ratio	1	1	1	10	40
B. To cats; restlessness.					
Dose, mg. per kg.	0.5	0.5	0.5	0.5	1.0
Ratio	1	1	1	1	2
C. To cats; analgesia.					
Dose, mg. per kg.	0.075	1.0?†	1.0?†	0	0
Ratio	1	13.3?	13.3?	.....	....
D. To guinea-pigs; fatal.					
Dose, mg. per kg.	200+	400	400	1000	....
Ratio	1	2	2	5	....

X. RABBITS ‡

	Vein	Subcut.	Mouth	
A. Spartein Sulphate				
Dose	0.03	0.1	0.5	Mg. x kg.
Ratio	1	3.3	16	
	....	1	5	
B. Caffein Hydrobromid				
Dose	0.2	0.3	1.8	Mg. x kg.
Ratio	1	1.5	9	
	....	1	6	
C. Strychnin Sulphate				
Dose	0.5	1.0	3.0	Mg. x kg.
Ratio	1	2	6	
	....	1	3	
D. Potassium Sulphocyanid				
Dose	0.15	0.55	1.0	Mg. x kg.
Ratio	1	3.6	6.1	
	....	1	1.8	

* In this table the sign + indicates that the dose stated often fails to produce the effect; the sign — indicates that a smaller dose sometimes produces the effect.

† Presence of analgesia exceedingly doubtful with any but vein dose.

‡ From Maurel.

TABLE 2.—COMPILATION FROM TABLE 1

Ratios	Subcut.	Mouth	
Dogs:			
Minimum	1	0.33	Camphor
Maximum	1	25.00	Apomorphin
Mean	1	7.4	
Corrected *	1	2.9	
Cats, ratios:			
Minimum	1	0.5	Camphor
Maximum	1	12.5	Atropin
Mean	1	3	
Corrected †	1	2	
Guinea-pigs, ratios:			
Minimum	1	2.5	Morphin
Maximum	1	100.0	Ouabain
Mean	1	28.4	
Corrected ‡	1	16.9	
Rabbits, ratios:			
Minimum	1	1.8	Potassium sulphocyanid
Maximum	1	6.6	Nicotin
Mean	1	4.4	

* Corrected by omitting from the average the exceptional case of apomorphin.

† Corrected by omitting the exceptional case of atropin.

‡ Corrected by omitting the exceptional case of ouabain.

CONSIDERATION OF TABLES

Table 1 gives the drugs used, the animals to which each was given, the effect chosen for observation, the modes of administration employed, the average minimal dose by each of these modes, and the ratios of these doses. The ratios have been calculated by taking the intravenous, the intramuscular or the subcutaneous dose, as the case demanded, as unity and dividing this into the doses determined for the other modes of administration.

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[3] Maurel: Compt. rend. Soc. de biol., 1907, pp. 897, 960; ibid., 1908, p. 725.

Comparing Parts I, IV, VII, VIII and IX of Table 1, in all of which we are dealing with alkaloidal salts, we see that the ratios of absorption from the several channels in any one animal differ considerably. Thus, in the case of dogs the oral dose of strychnin which causes hyperexcitability is the same as that by vein, intramuscularly or subcutaneously, while for morphin the oral dose which causes perceptible depression is ten times that by vein, though the intramuscular and subcutaneous doses are the same as the intravenous. The difference in the case of apomorphin is even more striking, and here also, the intramuscular and subcutaneous doses are larger than the intravenous, and the subcutaneous is larger than the intramuscular dose. Analogous differences are seen to prevail in the cases of cats and guinea-pigs. In the case of man it might be mentioned that approximately the same dose of apomorphin is required to produce emesis whether given by mouth or subcutaneously. The same ratio holds for morphin, and one of us (C. E.) has also found that man requires about the same dose of morphin by vein as orally or by subcutaneous injection to produce a given effect.

It is obvious, therefore, that drugs of the same general class—alkaloidal salts—show very different ratios of absorption in any one of the several classes of animals.

It is equally obvious that the same classes of drugs show very wide differences in their ratios of absorption in different animals.

When the absorption ratios of different drugs in the same class of animals are compared we again find wide variations. For example, in cats the oral dose of morphin required to produce restlessness is the same as the intravenous dose, atropin requires 25 times the intravenous dose to cause dilatation of the pupil when given by mouth, while the oral dose of picrotoxin is only 7.5 times, and that of digitoxin 5.7 times the intravenous dose.

Salant and Rieger[4] give the same amount—150 mg. per kilogram—of caffein as the fatal dose for cats for both oral and subcutaneous administration, and we have found that the fatal dose by vein for cats may vary from 5 to 150 mg. per kilogram, depending on the rate of administration. This observation is of especial importance in view of the fact that the smaller fatal dose corresponds to amounts habitually taken daily by many persons in the form of tea and coffee, and caffein is occasionally used intravenously in man.

A given animal, therefore, shows widely divergent ratios of absorption from the several channels for different drugs.

Table 2 presents the results of a collective analysis of all the ratios, and shows the mean ratios for the four types of animals employed, taking into consideration all of the drugs used. As certain of the figures stood out prominently as marked exceptions to the general run of ratios, the mean ratios were recalculated with these more exceptional instances omitted, as indicated in the footnotes to the table. One is immediately impressed with the fact that in both dogs and cats the corrected mean ratio of the oral to the subcutaneous dose agrees closely with the statement quoted from Cushny,[1] that the subcutaneous dose is about half of the ordinary oral dose. While this agreement might at first seem to indicate the general applicability of the rule, a moment's consideration will show that nothing could be farther from the truth or a more dangerous conclusion. The maximum variation in the oral to subcutaneous dose ratios in the case of the dog is as 1 : 75, and the cat as 1 : 25. The rule, given by Cushny, in fact fits no single drug studied on either of these two animals except in the case of nicotin in the cat, and possibly those of apomorphin and ouabain for the same animal. It is hardly necessary to discuss the mean ratios obtained for the guinea-pig and rabbit as these will be taken up later in another connection.

Another point of difference in the ratios of absorption was also brought out in our work, and is one which is not generally appreciated. It is that the ratios of absorption of the same drug in the same animal may be different when the dose is adjusted to the production of different effects. This is illustrated by the case of morphin in the cat. When restlessness is taken as the end-effect to be obtained, the ratio of the vein dose to the intramuscular, subcutaneous and oral doses is as 1 : 1 : 1 : 1, while when the production of analgesia is desired the intramuscular and subcutaneous doses are each about 13 times as great as that by vein, if indeed it is possible to determine a definite ratio for these two methods of administration. Analgesia could not readily be obtained when the drug was given by mouth or rectum. Again, in the case of nicotin on the guinea-pig, death resulted from the subcutaneous injection of 4.4 times the vein dose, and 111 times the vein dose killed the animal when administered orally. But, when the development of convulsions alone was sought, 33 times as much was required by subcutaneous injection as by vein, and even a dose greater than the fatal did not cause convulsions when given by the mouth. Kleiner and Meltzer[5] report somewhat analogous differences in the doses of epinephrin required by different modes of administration to produce glycosuria.

The same drug in the same animal, therefore, may show different ratios of absorption when the doses used are adjusted to the production of different effects.

It is shown in the tables that there is a certain degree of similarity between cats and dogs in the ratios of absorption of any given drug, and what little evidence we have leads us to believe that the absorption of drugs in these animals by the several channels of administration is not widely different from that in man. On the other hand, the rodents form a class by themselves with regard to the absorption from the gastro-intestinal tract of drugs derived from the vegetable kingdom. Among these animals there is apparently a much greater selective capacity for absorption from the gastro-intestinal tract than is the case in the cat or dog. The white rat and the guinea-pig may resist almost completely the absorption from the alimentary tract of a drug which is quite soluble in water, while one which is quite insoluble may be absorbed readily. Thus the oral convulsant dose of the readily soluble strychnin sulphate is 133 times that by vein in the guinea-pig, while only 37 times as much of the insoluble digitoxin is required orally as by vein to kill this animal. White rats do not appear to absorb even traces of the soluble ouabain from the alimentary canal. The literature contains numerous isolated instances showing the variability of absorption from the gastro-intestinal tract of the rabbit; but the guinea-pig is generally much more resistant than the rabbit to absorption from this structure.

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[4] Salant and Rieger: Bull. 148, Bureau of Chem., 1912, p. 59.

[5] Kleiner and Meltzer: Jour. Exper. Med., 1913, xviii, 190.

Such marked resistance to absorption from the gastro-intestinal tract as frequently occurs among the rodents is encountered in only a few instances among either cats or dogs, that is, in the cases of some digitalis bodies, and of apomorphin to the latter animal. As the result of extended experiments with apomorphin we are led to the belief that the failure to induce emesis after oral administration to the dog is due to the fact that a certain minimum concentration of the drug in the body is required for the stimulation of the vomiting center, that the drug is rapidly eliminated from the circulation and, therefore, that the large oral dose is necessary on account of the relatively slow absorption rather than through any incompleteness of this process. Such an explanation is also probably applicable to the case of most of the vegetable drugs in rodents, for we have evidence of the extremely rapid excretion of certain drugs by these animals. But here we also usually encounter a true marked resistance to absorption, as has been proved to be the case with ouabain in the white rat.

That similar, though less frequent, instances of resistance to absorption from the alimentary canal of readily soluble substances are encountered in man has been shown in our previous paper in the case of strophanthus. We have also observed that certain drugs are absorbed to only a slight degree from the alimentary tract of all the animals used and of man. Striking examples of these drugs are found among the digitalis bodies, as convallaria, apocynum and strophanthus.

It is, therefore, shown that drugs which are readily soluble in water may be absorbed very poorly or not at all from the gastro-intestinal tract of mammals, and, conversely, that drugs which are insoluble in water may undergo rapid absorption from this tract.

It is fairly well known that colloids may impair absorption from any of the channels of administration. This was shown for strychnin[6] and it is brought out in reference to oils in the figures given here for the absorption of camphor. It is seen that absorption of this drug from the alimentary canal of the dog is more rapid than from the subcutaneous tissues, and in the case of the cat than from the muscles also. The same, however, is true if the camphor is dissolved in alcohol, but in this case the cause is probably different and is referable to the prompt precipitation of the camphor in contact with the tissue fluids. This would form a depot in the muscles or subcutaneous tissues, while in the gastro-intestinal tract the drug, though precipitated, would be spread over a large absorbing surface.

The tables show that most substances in watery solution are absorbed most effectively from the muscular tissues, next from the subcutaneous, and least from the gastro-intestinal tract, and that the differences between the subcutaneous and oral ratios of absorption are generally greater than between the intramuscular and subcutaneous. These relations are also brought out in Table 3, in which the absorption times are compared for a few of the drugs used. This observation is not new, and Meltzer and Auer[7] compared the absorption from the subcutaneous and muscular tissues. Our results are merely confirmatory, though they also serve to show that such relations are by no means universal, for we record certain marked exceptions in which the absorption from the alimentary canal of drugs in aqueous or saline solution is quite as complete as from the muscle, although somewhat less rapid.

TABLE 3.—TIME RELATIONS OF ABSORPTION, BASED ON AVERAGES

	Vein	Muscle	Subcut.	Mouth
I. STRYCHNIN SULPHATE				
A. To cats; hyperexcitability.				
Time, minutes	3.8	7.8	18.2	40
Ratio	1	2	4	10
B. To guinea-pigs: convulsion.				
Time, minutes	2	6.5	9.3	36.6
Ratio	1	3.2	4.6	18.3
II. NICOTIN				
A. To cats; fatal dose.				
Time, minutes	3	..	7.7	37.5
Ratio	1	..	2.5	12.5
B. To guinea-pigs; fatal dose.				
Time, minutes	2.8	..	2.5	12
Ratio	1	..	1—	4
III. PICROTOXIN				
A. To cats; time to first symptom.				
Time, minutes	4	12.2	38	19.4
Ratio	1	3	9.5	5
B. To guinea-pigs; to convulsion.				
Time, minutes	5.3	19	26	313
Ratio	1	3.5	4.8	59
C. To rabbits; to first symptom.				
Time, minutes	6.5	..	7	16.5
Ratio	1	..	1+	2.5
IV. CAMPHOR IN OIL				
A. To cats; time to first symptom.				
Time, minutes	..	23.2	179	46.1
Ratio	..	1	7.3	2
V. CAMPHOR IN ALCOHOL				
To cats; time to first symptom.				
Time, minutes	..	199	177	61
Ratio	..	1	0.9	0.3

There are many scattered instances in the literature which show that the fatal subcutaneous dose of each of several drugs is from four to five times that by intravenous injection in rabbits.

In this study we have dealt with the ratios of absorption of the several drugs from the ordinary channels of administration in a number of different animals, and we have not concerned ourselves with the question of the mechanisms which enter into the absorption of the several drugs from the different tissues of the animals. Some studies bearing on this question have been published recently by workers in Sollmann's laboratory.[8]

RECAPITULATION

1. Drugs of the same chemical class show very different ratios of absorption from the different channels of administration in any one class of animals.

2. Drugs of the same chemical class show wide differences in the ratios of their absorption from corresponding channels when different classes of animals are compared.

3. The absorption ratios of different drugs in the same class of animals vary widely.

4. Collective analysis of the ratios of subcutaneous to oral doses in the cat and dog show that the range of variation of the individual instances from the mean is far too great to permit of any generalization. Although the averages of all the ratios would seem to show that the subcutaneous dose is about half as great as the oral, it should be stated emphatically that any generalization would be a source of grave danger in practice.

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[6] Hatcher, R. A.: Am. Jour. Pharmacol., 1902, lxxiv, 283.

[7] Meltzer and Auer: Jour. Exper. Med., 1905, vii, No. 1.

[8] Sollmann, Hanzlik and Pilcher: Jour. Pharmacol. and Exper. Therap., 1910, i, 408. Hanzlik, P. J.: Ibid., 1911, iii, 387. Hanzlik and Collins: Ibid., 1913, v, 185.

5. The same drug may show different ratios of absorption when its dosage is adjusted to the production of different effects, even in the same animal.

6. Rodents as a class show much greater selective capacity for absorption from the alimentary canal than do the cat and dog. In some instances they almost completely resist the absorption of drugs which are readily soluble in water, while absorbing an insoluble drug fairly well. Similar resistance to absorption was rarely observed in the cat, dog or man.

7. Rodents also exhibit a marked capacity for the rapid excretion or elimination from the blood-stream of many vegetable poisons.

8. A few drugs resist absorption to a marked degree from the gastro-intestinal tract of all animals so far employed.

CONCLUSIONS

1. Ratios of absorption from the four common channels of administration of drugs have been determined in five mammals, and certain observations with regard to the ratios of absorption in man have been recorded. The drugs used included representatives of several different chemical classes, such as, alkaloids, glucosids, neutral principles, etc.

2. Each drug is a law unto itself in respect of the ratio of absorption from the different channels of administration in any animal.

3. In general, the subcutaneous and oral doses lie nearer to the intravenous dose in the cat and dog than in the rodents.

4. The guinea-pig in general seems far more resistant to the absorption of most vegetable drugs from the alimentary canal than is the rabbit, and vastly more so than are the cat and dog.

5. Certain drugs, very soluble in water, are absorbed slowly, or occasionally not at all, from the gastro-intestinal tract, this being especially marked in the case of the white rat and the guinea-pig.

6. Certain vegetable drugs, insoluble in water, are absorbed readily from the alimentary canals of the cat and dog, and relatively so from those of the rat and guinea-pig.

7. *No rule can be formulated for the calculation of the appropriate dose by one mode of administration from the dose by any other mode of administration. Such determination can be made only by experiment.*

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ABSTRACT OF DISCUSSION

DR. SAMUEL JAMES MELTZER, New York: In answer to Dr. Solis-Cohen's question, about six years ago we experimented on dogs by injecting magnesium sulphate through the rectum. We observed at that time no ill effects from these injections. The number of experiments, however, was too small to justify any definite conclusions from them. Especially, since it is known that inhalation of ether has a considerable influence on the profound effect of magnesium sulphate, such injections may ocassionally, indeed, be not without danger. Furthermore, we have recently learned much more about the nature of the ileocecal valve, and that in some pathologic cases this sphincter is inactive and, therefore, fluid injected into the colon may in these cases perhaps go up into the small intestines. There cannot be much discussion as to the correctness of the results. The action of curare, for instance, is a striking example. It has a fatal effect when given intravenously or even intramuscularly, and it may have no effect whatsoever when given by the mouth. This was established nearly fifty years ago. We have made several contributions showing the striking quantitative difference in the effects between intramuscular and subcutaneous injections. Our recent experience may lead us even to a further distinction between the stomach and the intestines. Many years ago I experimented on animals with the administration of magnesium salts by the mouth and found that it practically had no poisonous effect. Recently in experiments made by Auer and myself we discovered that magnesium salts, injected directly into the small intestines in certain doses and concentrations, may be as fatal for the animal as when given intramuscularly. The point I made has some practical bearing. You will recall that Dr. McCosh advised, some eighteen years ago, the injection of magnesium sulphate into the small intestine after laparatomies, before closing the abdomen. So far as I know this method is still practiced by some surgeons. I have reason for my suspicion that it may have been the cause of a fatal outcome in some cases.

DR. SOLOMON SOLIS-COHEN, Philadelphia: Does Dr. Meltzer make a difference between the large and small intestine concerning the inhibiting effect of magnesium sulphate? Everyone knows that in hospital wards the so-called "triplex enema" of magnesium sulphate in glycerin and water is quite commonly used, and, so far as I know, no accident has occurred in consequence—in fact, experience shows it to be efficacious in emptying the bowel. If there is danger from the introduction of Epsom salt into the rectum or colon or if there is no advantage in the use of that particular salt, that is, if the effect is merely osmotic, however, it would be well to substitute some other saline compound. On the other hand, if it is a question of absorption and quantity, I should like Dr. Meltzer to make that point clear. I am not at all convinced that absorption is exactly the right word to use in describing some or the totality of the phenomena described. Dr. Eggleston pointed out that the ratios representing the comparative effects of the various methods of administration differed considerably according to the special effect which he wished to produce. There is something more than absorption concerned in that; it is a question not alone of active quantity but also of tissue affected. There is selective tissue action, proportional concentration (partial pressure), mass action and many other physicochemical and biologic reactions beside the mere question of the time or rate of the taking up of the substance into the circulating fluids—and this last is what I understand by absorption.

DR. CARY EGGLESTON, New York: We were of course acquainted with the facts concerning the non-absorption of curare and also of the peculiarities concerning the absorption of magnesium sulphate, but the little heed which has been paid to these observations gives all the more reason for our present work. In reply to Dr. Meltzer's remarks on absorption from the gastro-intestinal tract and the division of this tract into several functionally different portions, I would say that the physician usually gives his drugs for absorption from the gastro-intestinal tract by way of the mouth and seldom directly into the intestines, and further, one seldom is dealing with a stenosis of the pylorus such as was artificially produced in Dr. Meltzer's dogs. Our observations were not intended to take into consideration such abnormal conditions, but were directed to a study of the problems encountered in the ordinary administration of drugs. I might call attention to the fact that several deaths have been reported from the absorption of magnesium sulphate from the intact intestine after ordinary oral administration of concentrated solutions. In reply to Dr. Cohen's query: the question is one, not of difference in total quantity administered, but of the ratio between the rate of absorption and that of excretion or fixation, so that with the majority of drugs the type and intensity of action depends on the concentration of the drug in the blood-stream or the tissues at any one moment. This is, however, not always the case, as is well demonstrated by the digitalis bodies. Further, in the case of this group of drugs, we have reason to believe that there is no chemical alteration, for the drug can be recovered apparently in its original form from the tissues of an animal.

THE LOCAL PREPARATION OF PATIENTS FOR OPERATION *

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The ideal operation, from an aseptic standpoint, is one in which every element connected with the procedure is free from germ life. The use of moist heat and formaldehyd gas as sterilizing agents places everything, except the skin, within the realm of the ideal. The use of sterile rubber gloves by the operator and his assistants places them, also, from a practical point of view, within the same realm. The skin of the field of operation alone remains as a subject for thought, study and experimentation.

From the point of view of the artist, the skin is a beautiful, perfectly smooth covering of the framework of the body; from the point of view of the physiologist, the skin is a wonderful regulator of bodily temperature, a marvelous excretory apparatus, a soft, pliable covering which protects the underlying tissues from the corrosive action of the air and of fluids or other substances which might come in contact with it; from the point of view of ideal asepsis, the skin is a structure marred by cracks and crevices and crater-like openings, smeared with a mass of debris, and polluted by innumerable wound-infecting micro-organisms. The cracks and crevices are formed by the natural infoldings of the epidermis and by the constant death and exfoliation of the superficial cells of the epidermis. The crater-like openings are the mouths of the ducts of the sebaceous and sweat-glands and the points of exit of the hairs. All of them are inaccessible hiding-places where germ life not only may, but does, lurk. The debris is composed of the secretions and excretions of the glands, countless broken-down cells, and mechanical dirt. It surrounds bacteria and protects them from the action of many of the chemical agents used to destroy them.

The researches of Welch, of Miguel, of Hohein, of Maggiora, of Leedham-Greene, of Heagler, and of almost numberless others show conclusively that bacteria have constant habitation on or in the skin. These germs are not free on the surface from which they might be removed by the sweep of a brush: they are imbedded in the grease and albuminous matter of the skin's debris; they are in the cracks and crevices between the cells of the superficial layers of the epidermis; they are in the crater-like mouths of the ducts of the sebaceous and sweat-glands; they are on the hairs and in the hair follicles. If the germs on the surface of the skin be removed or destroyed, their places will be taken by their fellows in the deeper layers, the latter being brought to the surface by the constant outward activity of the skin. While this action, ordinarily, will cause reinfection of the surface within from two to thirty minutes, yet it is through this action that the skin may be rendered free from germ life.

To enter the realm of the aseptic ideal, the skin of the field of operation must be free from germ life and must remain so during the course of the operative procedure. This must be proved by both clinical and laboratory results. Many writers have reported laboratory findings that support their assertions that the various methods advocated by them have produced the ideal; the same methods in the hands of other surgeons and investigators have given different results. A perfect laboratory test of the sterility of the skin would demand a study of a piece of the skin. As this procedure is not always feasible, the test made cannot give more than approximate results. Welch passed a silk ligature through the skin; Haeger rubbed the surface of the skin with a silk ligature; Fürbinger scraped the skin with an orange-wood stick; Leedham-Greene used strips of ivory or silk; Schleich stroked the skin with platinum wire. To obtain approximately accurate tests, scrapings of the skin must be imbedded, with certainty, in the culture medium; this practically eliminates all methods of testing which do not leave the scraping instrument buried in the medium. All antiseptics used must be neutralized or removed from the skin before the test is made, because an almost infinitesimal quantity of many antiseptics will be sufficient to prevent development of bacteria. As demonstrated by Leedham-Greene and others, the skin must be moist when the scrapings are taken, because, in a dry condition, the cement substance of the epidermis holds the cells and the bacteria in place to a much greater extent than it does when moist. Tests must be made from fifteen to thirty minutes after the supposed sterilization to prove that active bacteria have not been thrown onto the surface from the deeper layers of the epidermis. To prove conclusively the value of any method, the skin should be infected with an active culture of some resistant, easily recognized, bacterium.

The many methods advocated for sterilizing the field of operation may be grouped into two classes, the wet and the dry, with a combination of these two forming a third. In the first class, the methods attempt to remove from the skin bacteria, broken-down cells, oily and fatty matter, and mechanical dirt, and to destroy any germs that may remain. In the second class, the methods omit any attempt at removal of germ life, mechanical dirt or debris, except through dry shaving, but rather attempt to destroy all germs on or in the skin and to lock up in the cracks and crevices all micro-organisms that have not been destroyed. The third class of methods combines these two ideas.

In the first class, the skin is thoroughly rubbed or scrubbed with hot water and soap and then shaved. The field is again rubbed or scrubbed with soap and hot water, or at times with a combination of castile soap, mustard flour, and corn-meal. The action of the water is that of a solvent and vehicle for the removal of exfoliated cells, mechanical dirt, some of the fatty matter of the skin, and bacteria. The water causes the superficial cells to become more or less engorged or swollen and increases exfoliation. The heat increases the solvent power of the water, acts as a stimulant to the skin, and causes a hyperemia with consequent increased activity of the glands. The soap is used to emulsify the fats on the surface of the skin, to soften the hairs, and to act as a general detergent. The official sapo and sapo viridis, hard soap, soft soap, fluid soap; soap impregnated with pumice or with such antiseptics as mercuric chlorid, mercuric iodid, phenol, boracic acid, salicylic acid, trikresol, etc., are used and each has its advocates. An alkaline soap is necessary for emulsification of the fatty matter, but an excessively alkaline soap will injure the skin if used very freely. The soap should make a good lather so that it may enmesh debris and bacteria and insure their removal from the skin when it is removed. The shaving removes the hairs, which are always surgically

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

dirty and which might act as a mechanical hindrance during the operation, scrapes away much of the debris, and opens the mouths of the hair follicles. Improper shaving will cause excoriations of the skin, which should be avoided at all times. The length of time devoted to the rubbing and scrubbing process varies with different surgeons from five to forty-five minutes. The advantage of prolonged mechanical cleansing, with abundant use of hot water and soap, lies in the removal of great numbers of bacteria and debris, many of the former being brought to the surface from the deeper layers through the increased activity of the skin. The objection to prolonged mechanical cleansing, especially when a stiff brush is used, is found in the removal of too many cells with consequent minute excoriations which make the skin much more vulnerable. The mechanical cleansing is followed by the application of antiseptic solutions.

As a result of experience and experimentation, the chemical sterilization of the skin is being limited more and more to the use of alcohol in from 60 per cent. to 80 per cent. strength and solutions of mercuric chlorid, of biniodid of mercury, of iodin (with or without the addition of potassium iodid), and of thymol.

Possibly habit has much to do with the continued use of aqueous solutions of mercuric chlorid. They have been used since the early days of antisepsis, although it has been proved by Harrington, by Post and Nicoll and numerous others, that the solutions used have practically no germicidal value in the time the germs are exposed to their action. Post and Nicoll conclude from their experiments that watery solutions of mercuric chlorid "are absolutely ineffective where prompt disinfection is required, as in the disinfection of the hands and fields of operation." The mercuric chlorid coagulates albumin. Aqueous solutions have slight, if any, power of penetration into the deeper layers of the epidermis.

Alcoholic solutions of mercuric chlorid are much more efficient than aqueous, and markedly so when used on a dry skin. When the solution is acidulated, as advocated by Harrington, it has still greater germicidal power. Harrington's solution will destroy all ordinary germs in from thirty seconds to two minutes. It is painfully irritating to the skin and for this reason should be used only after the patient has been anesthetized. It should be removed within a minute or so by washing with 70 per cent. alcohol.

Watery solutions of biniodid of mercury, especially when combined with potassium iodid, are much more efficient than the same strength solutions of mercuric chlorid. This combination does not coagulate albumin, but requires from ten to thirty minutes to destroy germ life. Alcoholic solutions of the biniodid are much more efficient than the aqueous.

Alcohol, chemically pure, as shown by Koch, has no germicidal power; Sternberg's experiments show that 95 per cent., also, is without germicidal effect. Post and Nicoll claimed germicidal power in solutions as weak as 30 per cent.; Leedham-Greene, after a long series of experiments, concluded that the greatest germicidal power was found in strengths of from 60 per cent. to 70 per cent. Alcohol has the power to penetrate into the cracks and crevices of the skin, as claimed by Braatz, through its ability to decompose and remove small particles of air that may be present. Its penetrating power is much greater on a dry than on a wet skin. Alcohol hardens and fixes the superficial cells of the epidermis. As a solvent or vehicle for the various antiseptics used on the skin, it is vastly superior to water, the alcoholic solutions penetrating more deeply and having greater germicidal power than the aqueous. The alcoholic solutions are more efficient when made with 70 per cent. alcohol than with 95 per cent.

Since the original paper of Grossich appeared in 1908, iodin has been lauded by surgeons far and wide as the chemical which would place the skin of the field of operation in the realm of ideal asepsis. Grossich's method is to shave the part dry and paint it with a 10 or 12 per cent. solution of iodin in alcohol. He insisted, and his conclusions have been confirmed by the studies of others, that the skin must be dry when the iodin is applied; that the presence of water prevents penetration of the iodin because the water macerates the epidermal cells and causes them to swell, thus plugging up the cracks and crevices and openings in the skin. Iodin applied to a wet skin has a tendency to cause suppuration and blistering. The original method of Grossich has been modified by others, the strength of solution being changed considerably, a fractional sterilization being instituted, and the application of iodin being made on a dry skin after it had been shaved and thoroughly scrubbed.

Aqueous solutions of iodin are less efficient than alcoholic. Solutions made with 70 per cent. alcohol have greater germicidal power than those made with 95 per cent. The addition of potassium iodid makes the solution much more stable and enhances the germicidal value. The official tincture of iodin, containing 7 per cent. iodin and 5 per cent. potassium iodid in 95 per cent. alcohol, is increased in germicidal power by diluting with one part water to four parts tincture.

Iodin in benzene, 1:1000, as a preliminary wash for the skin, followed by the application of a 3 per cent. solution of iodin in alcohol, is lauded by some surgeons. The benzol acts as a "solvent which dissolves and carries into solution all of the oily or waxy substances found normally on the skin, in its various crevices and appendages." Zanetti advises the use of a saturated solution which contains 9.75 per cent. iodin.

A 5 per cent. solution of thymol in alcohol has distinct antiseptic powers, but it is not markedly germicidal. Its use is advocated because it can be used on a wet or dry field without increasing the dangers of suppuration and blistering as iodin does on a wet skin.

To remove fatty matter, act as a germicide, and aid in drying the skin after the use of the wet methods, washing with ether is resorted to. It does not dry the skin sufficiently to allow the immediate application of iodin.

In the second, or dry, class of methods, the field of operation is shaved dry and is then painted with an alcoholic solution of iodin or rubbed with a 1:1000 solution of mercuric chlorid in 70 per cent. alcohol. Two or more applications of either may be made, time being allowed between the applications for thorough drying. In this class of methods, attempt is made to kill all germs with which the agent comes in contact, and so harden and contract the superficial cells of the epidermis that all remaining germ life may be prevented, effectually, from reaching the surface of the skin. To aid in obtaining this result, the skin may be covered with adhesive rubber dam, as advised by Murphy, or painted with a special varnish, as advised by McDonald.

A combination of the methods consists in the use of the wet from ten to twelve hours before operation and the application of the dry eight to ten hours later, followed by a second application after the patient has been placed on the operating-table.

The proper application of these methods will afford a field of operation that will be sufficiently sterile to allow healing *per primam* in a very large majority of cases, the natural resistance of the tissues being capable of overcoming the activities of the remaining micro-organisms. None of the germicides mentioned will destroy, with certainty, all germs on or within the skin. It may be rendered free from germ life, however, if the powers of Nature are called into play. It is well recognized that few infected wounds are seen in those who bathe frequently, or in those whose occupation causes sweating. In both instances the skin is kept more active and actually cleansed by being washed from within outward. During health there is never-ceasing exfoliation of epidermal cells and unremitting excretion and secretion of the products of the sebaceous and sweat-glands. By stimulating this activity of the skin it is possible to have it wash itself so free from germ life that it will remain sterile until infected from without.

In several tests made at the German Hospital (and I wish to take this opportunity to thank the members of the resident staff for the interest and aid given me in making the tests), the only perfect results were obtained in those cases in which the skin had been washed from within outward by the forces of Nature. In these tests scrapings of the skin were taken with orange-wood sticks or mother-of-pearl strips roughened, the wood or pearl strips being imbedded in liquefied agar or bouillon and incubated for ninety-six hours.

In one series of tests, both wet and dry methods were used. The chemical agents used were neutralized or removed. Tests were made before and after neutralization. Practically every test made before neutralization gave no growths; after neutralization, more than 60 per cent. gave growths. The various fields were then protected by sterile coverings and another test was made thirty minutes later. In one instance in which iodin had been used according to the dry method, and in one in which the skin had been scrubbed with mustard flour, no growths were obtained. In every other instance of this series of about eighty-five tests, a growth was obtained, the natural activity of the skin having brought to the surface active bacteria from the deeper layers of the epidermis.

In another series of tests of the hands, the number of bacteria obtained from the surface decreased with succeeding operations, the hands being scrubbed and incased in sterile rubber gloves between each two operations. After the seventh or eighth operation the skin of the hands of the operator was sterile and remained so until contaminated from without. The decrease in the number of bacteria found was proportionate to the activity of the hands of the person tested, the operator showing the greatest decrease, the first assistant the next decrease, etc.

In another series, the skin was thoroughly sweated by exposure in a steam bath or in a hot-air oven. After the sweating the skin was washed with sterile water and soap and was then tested. Twelve per cent. of these tests gave no growth after ninety-six hours' incubation.

In another series, cataplasma kaolini, as made at the German Hospital, was applied hot to a wet-shaved part and allowed to remain in place twelve hours. It was then removed and the field was washed with soap and water and tested. Another application of the cataplasm was then made and the same procedure carried out at twelve-hour intervals for forty-eight hours. The skin was then protected by a dry sterile covering and again tested after a twelve-hour interval. In this series, 100 per cent. of the tests gave growths at the end of twelve hours; 50 per cent. gave growths at the end of twenty-four hours. No growths were obtained in any instance after the twenty-four-hour test. The cataplasma kaolini, as made at the German Hospital, consists of 50 per cent. glycerin and 50 per cent. of kaolin combined with a negligible quantity of flavoring-matter and antiseptics. In this application, advantage is taken of the heat which is retained by the cataplasm for a considerable period of time and of the power of the glycerin to abstract fluids from the tissues, which, according to Cushny, is due to its great avidity for water. The combined action of the heat and the glycerin is to cause such an outpouring of fluids from the skin that it literally washes itself and frees itself from all germ life.

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PITUITARY EXTRACT

AN EXAMINATION OF SOME COMMERCIAL PREPARATIONS MADE FROM THE POSTERIOR LOBE OF THE PITUITARY BODY*

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Among the numerous therapeutic agents which have been introduced into medicine within the last few years is pituitary extract, an aqueous decoction of the small structure known as the pituitary body, which lies at the base of the brain. This important structure is enclosed in the bony cavity of the sphenoid bone, the sella turcica; when it is extirpated death soon results or when it is invaded by new growths marked metabolic changes occur.

The pituitary body, or as it is more often termed the pituitary gland, is a neuroglandular structure which in the higher animals is composed of two main parts, an anterior or glandular lobe, and a posterior lobe, the "pars nervosa," which contains nervous tissue mainly. The posterior lobe is small in comparison with the anterior lobe and has surrounding it an epithelial covering, the "pars intermedia," which separates it from the anterior lobe.

In its development it is seen to have a double origin, the anterior part and pars intermedia arising from an upgrowth of buccal ectoderm (Rathke's pouch), which meets a prolongation of neural ectoderm from the anterior brain vesicle. As development proceeds, the buccal ectoderm gradually envelops the projecting neural ectoderm like a pouch, the prolongation thus enclosed later becoming the posterior lobe. During the development of the sphenoid bone the mass of buccal ectoderm becomes enclosed in it and almost obliterates the space between the buccal pouch and neural ectoderm.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

While the function of the pituitary body is not fully known, certain facts have been established either by injecting extracts of its various parts into animals, or by extirpating its lobes and noting the symptoms arising therefrom. The first work of a strictly physiologic nature was done by Oliver and Schäfer[1] in 1895. They found that intravenous injections of pituitary extracts into animals caused a prolonged rise in the blood-pressure which they concluded was due to a peripheral constriction of the arterioles, together with an increase in the activity of the heart. Howell[2] later showed that the effects described by Oliver and Schäfer were due to posterior lobe principles, the anterior lobe extracts being inactive. Magnus and Schäfer[3] described a diuretic effect from posterior lobe extracts and called attention to the unequal constriction produced on the peripheral vessels, the kidney vessels dilating when the pressure rises. Cramer[4] observed mydriatic effects from posterior lobe extracts. Pituitary extracts were found by Borchardt[5] to cause glycosuria. While working on ergot, Dale[6] noticed a contraction of the cat's uterus when pituitary extracts were given intravenously. He later showed that posterior lobe extracts stimulate all involuntary muscle directly and that no true immunity was produced by repeated injections of the extract. Ott and Scott[7] found that in goats during the early nursing period intravenous injections of posterior lobe extracts would greatly increase the secretion of milk. Feeding both the fresh and dried pituitary substance to animals has been done by a number of investigators, but no positive conclusions can be drawn from the work thus far done.

As stated before, the pituitary body is essential to life. Marinesco[8] first showed that extirpation of the pituitary body in cats was followed by death in a very short time. Results of a contradictory nature to those of Marinesco were reported by a number of observers, but owing to the fact that the technic for the removal of the pituitary body was unsatisfactory up to the time of Paulesco's work, previous results must necessarily have little value. Paulesco[9] showed not only that the extirpation of the whole pituitary body was fatal, but also that the anterior lobe alone was responsible for this termination, removal of the posterior lobe giving negative results. By manipulation of the hypophyseal stalk, Goetsch, Cushing and Jacobson[10] could produce a transient hyperglycemia which would for the next few days result in a lowering of the assimilation limit for injected carbohydrates. If a permanent insufficiency of the posterior lobe secretion were produced, the temporary lowering of the assimilation limit would be followed by an abnormal augmentation in the tolerance for sugars, which could promptly be lowered by the subcutaneous injection of posterior lobe extract. There was also a tendency toward the production of generalized adiposity. Repeated injections of posterior lobe extract in the normal animal were apt to lead to a profound degree of emaciation together with a lowered carbohydrate tolerance.

The introduction of pituitary extract into therapeutics was brought about by Bell and Hick,[11] who first suggested it as a uterine stimulant. They also advocated its use in cases of shock and in paralytic distention of the bowel. Bell[12] later found that the extracts seemed to act more efficiently when there was considerable atony and paresis than in normal conditions. Since the work of these investigators, pituitary extract has been extensively studied clinically. Foges and Hofstätter[13] found "Pituitrin" especially valuable in post-partum hemorrhage. Klotz[14] reported remarkably successful results from it in the treatment of rickets. Spire and Parisot[15] obtained good results from an extract of the whole gland in delayed labor and in causing micturition in retention. Citelli[16] used it to prevent operative hemorrhages of the upper air-passages. Ever since the association of acromegaly with disease of the pituitary body, extracts of the whole gland have been administered for that condition on the theory that the disease was due to a deficiency of normal secretion, the results of its use being as a rule indefinite.

In striking contrast to the earlier clinical reports of its use in labor are those of more recent origin. Herz[17] reported a case of rupture of the uterus after "Pituitrin" administration, the os having been partially dilated at the time of its use. Rongy and Arluck[18] after a very extensive clinical experience with "Pituitrin" in obstetric practice, have concluded that extravagant claims were made for it in the induction of labor, and that it should never be used unless a general anesthetic is within easy reach, for the contractions may become so violent that rupture of the uterus is imminent. They personally knew of two cases of rupture of the uterus which resulted from its use. Sheffield[19] has reported a case of poisoning to the new-born from pituitary extract apparently through its mother's milk. Other observers have reported the occurrence of collapse, tetanus of the uterus, asphyxia of the child, and premature separation of the placenta after pituitary extracts.

Either anterior, posterior or whole-gland preparations are used in therapeutics. They can be given by any of the usual methods of administration, although the subcutaneous method is to be preferred. Biedl[20] has described unpleasant symptoms as a result of their intravenous use, namely, nausea, accompanied by the desire to micturate and defecate.

From this short survey of the clinical literature it will be seen that while infundibular extract is relatively non-toxic it does possess a high degree of toxicity in certain cases and so extreme caution should be taken in its administration. It likewise becomes very essential that pituitary preparations be standardized to insure constancy in their dosage.

Little is known concerning the chemical nature of the pituitary body. Various substances have been isolated from either the whole gland or posterior lobe extracts; but while they may be regarded as active substances they are not generally regarded as the active principle in the same sense as epinephrin represents the activity of the medulla of the adrenal gland.

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[1] Oliver, G., and Sehäfer, E. A.: Jour. Physiol., 1895, xviii, 277.
[2] Howell, W. H.: Jour. Exper. Med., 1898, iii, 245.
[3] Magnus, R., and Schäfer, E. A.: Jour. Physiol., 1901-1902, xxvii, Proc. ix.
[4] Cramer, W.: Quart. Jour. Exper. Physiol., 1908, i, 189.
[5] Borchardt, L.: Ztschr. f. klin. Med., 1908, lxvi, 332.
[6] Dale, H. H.: Jour. Physiol., 1906, xxxiv, 163.
[7] Ott, J., and Scott, J. C.: Proc. Soc. Exper. Biol., 1910-1911, viii, 48.
[8] Marinesco, M. G.: Compt. rend. Soc. de biol., 1892, p. 509.
[9] Paulesco, N. C.: L'hypophyse du cerveau, Paris, 1908.
[10] Goetsch, E.: Cushing, H., and Jacobson, C.: Bull. Johns Hopkins H sp., 1911, xxii, 165.
[11] Bell, W. B., and Hick, P.: Brit. Med. Jour., 1909, i, 777.
[12] Bell, W. B.: Brit. Med. Jour., 1909, ii, 1609.
[13] Foges, A., and Hofstätter, R.: Centralbl. f. Gynäk., 1910, xxxiv, 22, p. 1500.
[14] Klotz, R.: Sem. méd., 1912, xxxii, 344.
[15] Spire, A., and Parisot, J.: Jour. de méd. de Paris, 1912, xxxii, 375.
[16] Citelli: Ztschr. f. Laryngol. u. Rhinol., 1913, vi, 525.
[17] Herz, E.: Centralbl. f. Gynak., 1913, xxxvii, 720.
[18] Rongy, A. J., and Arluck, S. S.: New York Med. Jour., 1914, xcix, 878.
[19] Sheffield, H. B.: Am. Jour. Obst., 1914, lxix, 379.
[20] Biedl, A.: Innere Sekretion, Ed. 2, ii, 153.

No generally accepted method of evaluation exists for the determination of the activity of posterior lobe extracts, but two physiologic methods have been suggested which are now used to a limited extent, namely, the determination of the effect on the blood-pressure and the effect on the isolated uterus, the former method being an application of the well-known physiologic method used in the standardization of epinephrin, while the latter is an equally well-known method which is in use in certain laboratories for the biologic assay of ergot. The credit for the application of the former to pituitary standardization properly belongs to Hamilton,[21] for the latter to Dale and Laidlaw.[22] These two methods, therefore, were used in the examination of the preparations which are reported in this paper.

For the determination of the rise in the blood-pressure dogs were used, the method being similar in every respect to that employed for the physiologic assay of epinephrin. The dogs varied in weight from 5 to 10 kg. They were anesthetized with chlorbutanol (0.45 gm. per kilogram per stomach), the vagi were cut, and the injections were given either by way of the external jugular or femoral vein. Artificial respiration was employed in all of the experiments. The pressure readings were taken from the carotid artery.

Inasmuch as there is no standard required, the standard selected against which all the others were tried was one of the strongest preparations. As a rule only one preparation was compared with the standard in a single experiment. Various dilutions were tried, and when a dilution of the sample under consideration was found which would produce the same rise in the blood-pressure as that of the standard, a ratio was then established and the relative strengths of the two preparations would be determined. For example, if 6 c.c. of a 1 : 10 dilution of a certain preparation produced the same rise in pressure as 6 c.c. of a 1 : 50 dilution of the standard, the sample examined would be one-fifth as strong as the standard. In many respects the blood-pressure tracing resembles that caused by epinephrin. In the dog, if a small dose of infundibular extract is injected intravenously, there results a prompt rise in the blood-pressure which is well sustained, usually for from five to fifteen minutes, but occasionally the return to normal does not occur for half an hour. If a second injection be given shortly after the first there is a diminished response, the rise being less than before. This can be overcome to a certain extent by allowing about half-hour intervals between injections and by using small doses. An injection given when the blood contains a large amount of the extract, such as occurs toward the end of an experiment, may produce a slight fall instead of the usual rise.

In the isolated uterus method a uterine segment from a 275 to 350 gm. virgin guinea-pig is selected and placed in oxygenated Locke's solution kept at 39 C. (102.2 F.). One end is made fast to a stationary glass rod and the other to a light straw writing-lever. After about half an hour rhythmic contractions appear and a record of the contractions is then obtained on a slow-moving smoked writing surface.

For use as a standard a 1 : 20,000,000 solution of beta-iminazolylethylamin hydrochlorid was used which was obtained from the Hoffmann-La Roche Company. This is a histidin derivative which in a very dilute solution causes contraction of the isolated uterus. A 1 : 1,000 solution of it was made, put into sterile ampules which held a little over 1 c.c. of solution and subsequently sterilized fractionally. A fresh 1 : 20,000,000 solution made from the sterilized 1 : 1,000 solution was used as a standard in each experiment. The contraction which was caused by the specimen to be examined was compared with that caused by the standard. Various dilutions were tried until one was found that produced the same contraction as that caused by the standard. If a 1 : 10,000 dilution of one sample and a 1 : 2,000 dilution of another produced the same contraction as that caused by the standard, the former would then be considered to be five times as strong as the latter.

By these two methods six samples which were obtained from six different manufacturers were examined. They will be designated as Samples A, B, C, D, E and F. They were all purchased on the open market and in original packages. The preparations were liquid and were made from the posterior or infundibular lobe. They were dispensed in sterile glass ampules containing from 1 to 1.3 c.c. of a clear liquid which was acid to litmus except in the case of Sample E, which was alkaline to litmus. Sample A contained as a preservative 0.005 gm. of chlorbutanol in each cubic centimeter.

By the blood-pressure method the samples gave the relative values shown in Table 1. Sample E was practically devoid of pressor effect on the circulatory system even when large amounts were given, so that it was impossible to standardize it by this method.

TABLE 1.—RELATIVE VALUES OBTAINED BY THE BLOOD-PRESSURE METHOD

Sample	Ratio as Compared with Sample A
A	15
B	15
C	3.8
D	1
E	?
F	7.5

By the isolated uterus method the relative values were obtained as indicated in Table 2.

TABLE 2.—RELATIVE VALUES OBTAINED BY ISOLATED UTERUS METHOD

Sample	Concentration Necessary to Produce a Contraction Equal to that Caused by the Standard	Ratio
A	1: 15,000	7.5
B	1: 15.000	7.5
C	1: 7,000	3.5
D	1: 2,000	1
E	1: 2,000	1
F	1: 8,000	4

When a comparison of the two methods is made it is seen that Samples A and B are the strongest by both methods and that D and E are the weakest. A wider difference between the samples is shown by the blood-pressure method than by the isolated uterus method.

The reason for such great variability in the activity of the preparations is quite obscure. A possible cause for this variation might be found in the fact that the infundibular substance was collected from various animals. On inquiry it was found that A, B, C and E were collected from cattle, and D from sheep and cattle, while F was obtained from horses and cattle. This might account for the variation between A and F, for example, but not for the marked difference in activity between A and E, since these two preparations were both made from cattle pituitary. In the case of Preparations A, B, C and E, two possibilities suggest themselves: either the methods of manufacture differed radically, or the pituitary substance itself possessed great variability.

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[21] Hamilton, H. C.: Jour. Am. Pharm. Assn., 1912, i, 1117.

[22] Dale, H. H., and Laidlaw, P. P.: Jour. Pharmacol. and Exper. Therap., 1912-1913, iv, 75.

CONCLUSIONS

1. Attention is directed to the wide variability that exists in the activity of commercial pituitary extracts.
2. The use of beta-iminazolylethylamin hydrochlorid in 1 : 20,000,000 dilution is suggested as a standard for use on the isolated uterus of the virgin guinea-pig.
3. The blood-pressure method shows a wider range of variability than does the isolated uterus method for the comparison of the relative activity of pituitary extracts and is not applicable to all preparations.

Hygienic Laboratory.

ABSTRACT OF DISCUSSION

DR. SOLOMON SOLIS-COHEN, Philadelphia: These studies are of great importance not only clinically but also as a question of public policy, namely, the establishment of a standard for pituitary preparations which can be incorporated in the forthcoming revision of the United States Pharmacopeia. The commercial preparations vary in activity not only as compared with one another, but also as regards the product put out by any one manufacturer at different times. Was only one set of specimens examined from each manufacturer or were preparations tested which were produced at different times? I have used these preparations for a number of years and believe that this variation accounts for some therapeutic failures. A definite and authoritative standard is necessary, so that, knowing what to expect from a given preparation, we can better regulate the dosage both in quantity and in time. Further, did Dr. Roth find any distinct tendency toward the production of immunity? In the observations I reported some years ago on the effect of preparations of the posterior pituitary lobe, I found that when it was administered by the mouth no antibody could be demonstrated in the blood, but when it was given by hypodermatic injection over a period of several days, an antibody finally appeared. The tests were made by experts in laboratory technic. This is a clinical fact to be considered, especially with regard to dose, to time and therapeutic effects.

There are two groups of cases in which I have had gratifying results: first, in certain forms of angioneuroses, angioneurotic edema, urticaria, asthma, etc., and in that greatest of all autonomic disorders, Graves' syndrome—miscalled exophthalmic goiter, or hyperthyroidism—also in true hyperthyroidism; secondly, in acute lobar pneumonia, in which I now use it almost routinely. I should be loath to treat a case of either croupous or catarrhal pneumonia without having a trustworthy preparation at hand. At Jefferson Hospital we made some comparative observations of three or four different products and also compared them with epinephrin in their clinical effect on separate patients and on the same patient from time to time—both in cases of active pneumonia and on convalescents apparently normal. We did not find, in the preparations we were using then, any considerable difference in effect—that is, in elevation of systolic blood-pressure—between two American preparations and one foreign; nor did we find any material difference between the actual rise of blood-pressure caused by the use of the pituitary preparations and that caused by the epinephrin solution; but we did find that the pituitary effect was more lasting. Still another important clinical use of the pituitary preparation is in the control of tympanites. I have not often used it in typhoid fever because I do not see much tympanites in typhoid under my routine use of the cold-water abdominal coil, but in the tympanites of pneumonia it has proved useful frequently. A large dose is necessary and must be repeated promptly and sufficiently often. In routine treatment the pituitary preparation is repeated every three or four hours as indicated by the blood-pressure, but when tympanites has developed it should be repeated hourly or even half-hourly for three, four or more successive doses, intramuscularly or hypodermatically. In some cases of chronic urticaria the use of the pituitary preparation once a day is sufficient. In others it must be used three or four times daily for a week or more.

DR. GEORGE B. ROTH, Washington, D. C.: It seems as though there is a mixture of substances in pituitary extracts. Now the preparations A (American) and B give very little depressor effect. This depressor effect is difficult to obtain from A and B while it is easy to get from D and E (foreign) so that they would show a qualitative difference. With regard to Dr. Cohen's question: I am more familiar with the literature than my paper indicates and I know of his work. As to immunity—the uterine segments do not all react in the same way and it appears as though some possess immunity; also some dogs react to a less degree to these extracts than other dogs but as to the animals being immune I can not say. In the uterine-segment method, however, with repeated administrations you get rather an increased irritability. Duplicate tests were made in a, c, d, e and f but not in b. Some of the duplicate preparations were obtained about two months apart and showed the same activity.

A CASE OF MYIASIS AURIUM ACCOMPANYING THE RADICAL MASTOID OPERATION *

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The following case is thought to be of sufficient interest to justify a brief report:

L. H., aged 14, is a student in the Pennsylvania Institution for the Blind in Philadelphia. When 4½ years of age, following scarlet fever, he lost the sight of both eyes and developed a double chronic suppurative otitis media, which in time destroyed the hearing in his right ear and so impaired that of the left that the loud-speaking voice could be heard only at a few inches' distance. He has been under my care for the last five years, during which time the discharge of pus has not materially decreased; for during vacation time in summer he is accustomed to go to his home in the country, where he gets no treatment or care at all and so loses what improvement he has made during the winter.

A radical mastoid was proposed several times, although not urged on account of his blindness and the very little hearing power remaining. It was always refused until this summer, when symptoms of cholesteatoma became marked and consent to the operation was finally obtained. At the time of the operation, which was done in the Pennsylvania Hospital, the mastoid process was found to be extensively excavated by cholesteatoma and a sinus had opened from the enlarged cavity of the antrum into the posterior wall of the external canal. Ossicles and tympanic membrane had long since disappeared, and a thorough and carefully complete radical operation was done. The posterior incision was closed completely and the cavity packed through the meatus with plain sterile gauze. Aseptic technic was careful and painstaking throughout. As the boy made a good recovery from the ether and the temperature was normal, the packing was not removed until the third day. On the removal of this packing there was a bad stench and some forty or fifty small maggots came away with the gauze or were washed out immediately afterward. The ear was this time packed with iodoform gauze, which was changed

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* Read at the meeting of the Philadelphia Laryngological Society, Oct. 29, 1912.

daily for a week and then omitted altogether, and no more larvae were seen, the patient making an uneventful recovery, with hearing, for a time, at least. very much improved.

The patient had spent the summer on a farm in central New Jersey, sleeping practically out of doors and living in a very rough fashion, and entered the hospital Thursday, Aug. 22, 1912, being operated on Friday, so that I had not seen him personally since the preceding June, until on the operating-table. The ear had been douched in the ward without any maggots being discovered, nor were any seen at the time of the operation.

I suppose that most otologists of experience have seen cases of myiasis or maggot infection of the middle ear or external canal among dispensary patients in whom there has been great neglect of cleanliness, although it seems to me that they are less frequent than formerly, it having been several years now since one came under my observation. The only interest in the case here reported lies in the fact that it accompanied the radical mastoid operation, and the query as to how it occurred.

According to Gould,[1] the term "myiosis" was first applied by Hugo Summe to diseased conditions produced by the presence of the larvae of dipterous (two-winged) parasites. It is known in the East as peenash. Gould further states that "myiasis" is a corruption.

An inquiry addressed to the Bureau of Entomology, Department of Agriculture, brought the information that, in all probability, the infection in this case was caused by the so-called Texas screw-worm fly (*Lucilia macellaria* or *Compsomyia macellaria*), and the report stated that "this fly often deposits its maggots in open wounds and even in the noses of persons sleeping, especially of those afflicted with purulent catarrh. It also lays its larvae upon wounds on cattle, especially in the West."

Lucilia macellaria (Robineau-Dessoidy, 1830), or Texas screw-worm fly, has its habitat from Canada to Argentina, but its ravages are most common in the West and South. Its genealogy[2] is as follows: Tracheata, Hexapoda (six-footed insects), Diptera (Two-winged), Muscidae (house-fly and its allies).

These flies are divided into two classes by Blake,[3] who in 1872 reported three cases of myiasis aurium. One was due to the larvae of *Muscida sarcophaga*, and two to those of *Lucilia macellaria*. He describes the first as being of the viviparous variety in which the young are brought forth alive, while the second two are oviparous, in which the larva is hatched from the egg deposited by the parent fly.

Britton[4] in 1883 stated that the larvae of the screw-worm fly are fleshy, footless grubs which require moisture for their hatching and development. The eggs are deposited in wounds or decaying animal-matter. When deposited in living bodies, very severe symptoms may ensue from the boring of the larvae into the tissues by means of the nippers which are attached to the head and from which they take their name. Even bone may be pierced in this manner. Many cases of human myiasis have been reported from South America since the disease was first noted by Azosa. The most common places for the deposit of the eggs, according to these reports, are the noses and mouths of sleeping persons.

The grub of the screw-worm fly, according to Richardson,[5] is one of the smaller species. From three to four hundred eggs are deposited by the parent fly at one time and in a few moments. These eggs are cylindrical, about 1 mm. in length, and white. It is said that they hatch in from one to twelve hours, and that no living larvae are deposited. Richardson describes the larva as being a whitish, footless, slender and very active maggot that matures in five or six days. The pupal stage is passed in the ground in which it has buried itself, and from which it emerges in from nine to twelve days as the mature imago or fly. The larvae of this fly are very similar to those of the *musca domestica* or common house-fly, as pointed out by Skinner.[6] He states also that the term "fleshy" used above is in contradistinction to the "skin-like covering" that some forms of maggots possess.

In reviewing this case of myiasis in the cavity of a radical mastoid operation, several difficulties are at once encountered. Of course the point of interest is, How came the maggots where they were found? My first thought was that the wound must have been infected at the time of operation, or that the dressings were infected. That this was not so I was soon convinced for the following reasons:

1. The operating-room was carefully screened and no flies were observed.

2. Had there been any they could not have ovideposited during the operation.

3. Flies never ovideposit on such substances as sterile dressings, always selecting putrid or decaying material in order that the young, when hatched, may have a supply of food at hand.

If, as seemed likely, the eggs were received while the patient was sleeping in an unscreened hut in the country immediately before his arrival in the hospital, they would have hatched into larvae before the time of the operation, and if so, where, with the painstaking technic employed, could forty or more of them, either eggs or maggots, small though they might be, have been hidden? Nowhere but in the nose, nasopharynx or eustachian tube, I should think, and from there, they might have migrated to the wound cavity; but this theory is not very satisfying. Even if the eggs were laid after the patient's arrival in the ward and but an hour or two before operation, it is hard to see how so many could have escaped to develop subsequently. That they could not have been deposited after the dressings were applied is almost certain, as the fly could not have penetrated the usual well-bandaged gauze dressing, nor would there have been much incentive for her to do so. I find that it is a common belief that one maggot can multiply itself into numbers without going through the full cycle of its life-history. If this were true the presence of these parasites in the numbers found could be easily accounted for, but needless to say, this theory is a myth.

In a search of the literature no similar case could be found, and but few references to the subject of myiasis in general, the standard text-books either omitting all mention of it or dismissing it in a few words. And as it will undoubtedly be a much more rare disease in the future than it is even now, it was thought that this brief report would not be without interest.

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[4] Britton, J. B.: Tr. Southeast Kansas Dist. Med. Soc., 1883.

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HARMFUL EFFECT OF CERTAIN SUGAR-CANE PRODUCTS

A PRELIMINARY REPORT

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Many dietary experiments have been made for the purpose of determining whether or not the use of cane-sugar is deleterious. The results of these experiments have failed to prove that any harmful effect follows what is termed a moderate use of sugar. Such experiments, however, should not be applied to the effect of sweet foods in general, because they do not take into consideration certain other derivatives of sugar-cane which are present in brown sugar, yellow sugar and sugar-cane sirup and are consumed in the form of candies, cakes, soft drinks and sirups.

We find nothing in medical literature bearing directly on this point. The writers who have observed harmful effects following the use of sweet foods have not specified the particular form of sweet, but have referred to them as a class. Deeks,[1] writing from the Canal Zone, made a wholesale condemnation of "sweet and starchy foods," especially as to their use in the tropics. Kerley[2] of Brooklyn reported on seventy-eight patients whom he termed sugar susceptibles, characterized by recurrent or persistent forms of the following diseases: head-colds, bronchitis, asthma, vomiting, urticaria, rheumatism, chorea and eczema. His treatment of these cases consisted mainly in the entire exclusion from their diet of everything containing sugar.

In 1912, while making a study of the dietetic habits of patients suffering with chronic stomach and intestinal disorders, I was much impressed with the following case history:

B. C., man, aged 34, traveling drug salesman, states that at the age of 8 years he suffered an attack of what was termed delirium tremens which was attributed to the use of brown sugar. His father, a grocer, had allowed him free access to the sugar-barrel and for some time he had been eating it freely between and during meals. The attack of delirium lasted three or four days and was so violent in character that he had to be "held in bed." Following this he was not allowed to have any more brown sugar and has not had a recurrence of the delirium.

This history suggested to me that the unrefined or partially refined products of sugar-cane contain some poisonous or deleterious substance which, being non-crystallizable, is not present in the fully refined product, granulated sugar.

EXPERIMENTAL ADMINISTRATION OF SUGAR-CANE SIRUP AND GRANULATED SUGAR

In order to determine the effect of these non-crystallizable solids of sugar-cane when taken regularly as a part of the diet, the experiment of feeding sugar-cane sirup to a dog was made. A cheap grade of this sirup was selected because it contains the highest percentage of the sugar-cane extractives and the lowest percentage of sugar, most of the latter having been removed in the process of refining. At first only a small amount of the sirup was given, three times a day, but this was gradually increased, thus developing a sweet habit in the same manner that it is developed in a human being; no attempt was made to force the consumption of sirup beyond what the appetite of the animal seemed to demand. Throughout the experiment as much other food was given as the dog would eat. It will be seen that an experiment of this kind differs very materially from those dietetic experiments in which an animal is allowed only a single article of food, as rice, corn, oils, etc., and in which the question of dietetic imbalance, especially protein starvation, must be considered.

During the same time that one dog received the sirup, another dog was given an equal amount of sweet in the form of granulated sugar. Both dogs were given a generous and well-balanced diet in addition to their sweet ration. The object in giving the one dog sugar-cane sirup and the other granulated sugar was to compare the effect of the two forms of sweets; also, in case harmful results followed the administration of the sirup but not the sugar, such results could not be attributed to the mere addition of sweet food to the dog's diet or to an unbalanced diet, but to some ingredient of the sugar-cane.

DETAILS OF EXPERIMENT

Two female puppies from the same litter, 6 weeks old and weighing approximately 2 pounds 14 ounces each, were selected for the experiment.

Dog 1 was given, three times a day, 1 dram of a cheap grade of sugar-cane sirup, mixed with other food. This was gradually increased until at the end of the second month 4 drams was being given three times a day; from this time on the amount was increased only slightly, and after the third month the amount of sirup given daily averaged slightly less than 2 ounces.

Dog 1 on left; Dog 2 on right.

Dog 2 was given the same amount by measure of cane-sugar. Making allowance for the water in the sirup, the amount of solids in the two forms of sweets was about the same.

The experiment was continued six months.

Effect on Weight.—At the beginning Dog 1 did not gain weight as rapidly as Dog 2, and at the end of two weeks the latter was 13 ounces heavier (the first dog, 3 pounds 10 ounces, the second dog, 4 pounds 7 ounces). Dog 1 then began to gain more rapidly and at the end of the first month their weight was the same (7 pounds 8 ounces). At the end of the tenth week Dog 1 was slightly heavier (Dog 1, 8 pounds 9 ounces, Dog 2, 8 pounds 6 ounces). From this time on to the end of the experiment, Dog 1 gained more slowly than Dog 2, and at the end of the sixth month there was more than 3 pounds difference in weight (Dog 1, 18 pounds 5 ounces, Dog 2, 21 pounds 12 ounces).

Effect on Bowels.—Moderate looseness of the bowels was noted in Dog 1 during the first few weeks but without any considerable change in the character of the movements. Later the movements became decidedly abnormal in character and by the end of the second month they were liquid or partly liquid, generally dark gray and offensive, from two to six or occasionally more a day, and this condition continued to the end. Dog 2 showed nothing abnormal.

Effect on Strength.—Almost from the first Dog 1 showed a lessened strength and endurance, as compared with Dog 2, and evinced a preference for sitting or lying down a good part of the time, but at no time was so sick or weak as to fail to come when called, except during a temporary withdrawal of the sirup as described later.

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[1] Deeks, W. E.: The Carbohydrate Diathesis, Med. Rec., New York, Oct. 8, 1910.

[2] Kerley, Charles G.: Cane-Sugar in its Relation to Some of the Diseases of Children, Arch. Pediat., October, 1907.

Effect on Development.—The most striking result of the experiment was the effect on the muscular and bony development of the dog receiving the sirup. There was an extreme softness and flabbiness of the muscles, comparable to the condition of a patient in the last stages of a serious illness. The bone development in Dog 1 was much less rugged than in Dog 2, especially noticeable in the narrowness across the chest and shoulders of the former as compared with the latter.

Effect of Discontinuing the Sweets.—During the last month of the experiment the sirup and sugar were discontinued for one week. Dog 1 became so ill as to refuse to leave her house or take food. On being given a laxative and resuming the sirup diet she soon became as well as before. The change in diet had no apparent effect on Dog 2.

At the end of six months the experiment was terminated. Dog 2 appeared so active and vigorous — and had at all times from the first — that the effect of the addition of the cane-sugar to the diet was considered negative.

PATHOLOGIC REPORT

In a post-mortem examination of Dog 1, the organs found to be mainly affected were the intestine, liver and kidneys. Sections of these organs, which were examined by Dr. John Funke, showed the following changes:

Intestine.—Necrotic areas, at some points reaching to the submucosa, involving the agminated and solitary lymphoid structures.

Liver.—An abundance of cellular infiltration of the interlobular and intralobular structures. Few normal liver-cells could be found; vacuolization of the protoplasm due to a deposit of fat within the liver cells. Clearly a beginning intralobular cirrhosis.

Kidney.—Many tubules lined with epithelium which is swollen, granular and blurred, at some points occluding the lumen of the tubules; evidences of irritation much less pronounced than in the liver.

SOME SUGGESTIVE FACTS

While sugar-cane products were scarcely used at all a hundred years ago, they are now used in enormous quantities, and their consumption is increasing faster than ever before. This fact alone certainly seems to require investigation since it indicates that these products differ in some essential way from other foods.

The theory that sugar-cane products are habit-forming is suggested by the following fact:

If a child is allowed all the candy it wants it will eat increasing quantities from day to day and will in time develop an enormous craving for sweets, largely to the exclusion of other foods. A habit is thus formed which will be difficult to break up since a withdrawal of the customary allowance of sweets is followed by a reactionary depression and craving.

The injurious effect of sweets on the teeth is a matter of such wide-spread observation and belief that it must have a foundation of truth, but has never been satisfactorily explained. Experimental attempts to demonstrate that sweets cause decay of the teeth by some local action in the mouth have given negative results; that this decay is due to their constitutional effect seems reasonable in the light of the serious lesions which they produce in the liver and intestines and their profound effect on nutrition, as shown by the foregoing experiment.

New Instruments and Suggestions

A NEW SIMPLE STETHOSCOPE

J. J. Singer, M.D., St. Louis
Assistant Physician to Outpatient Department, Washington University Hospital

The stethoscope which I have devised intensifies the audibility of sounds without changing their character. It consists of a set of resonators of different sizes, which are adapted to be detachably connected to a hollow, curved Y-tube that serves as a handle and also as a connection for the ear-pieces. The resonators are so constructed that they can be nested together and combined with a member which cooperates with a resonator of greater diameter to form a protecting cover for other resonators that are nested inside.

Each resonator, A, A^1 and A^2, is cup-shaped, with a flat top wall, and is preferably formed from metal, although some other suitable material which has a certain degree of resonance would do as well. The opening from the top wall of each resonator, *2a*, communicates with opening *1a* of the device *B*. The resonator is connected to the handle *B* in such a manner that it can be easily disconnected, thereby enabling the same connecting member *B* to be used with different-sized resonators. When the rim of the cup-shaped resonator is placed in contact with the patient's chest, the air which is trapped inside of it is set in vibration by the vibration waves of the chest wall. These vibrations are taken up in unison by the resonator itself. Consequently, the sound waves are intensified and transmitted through the hollow connecting device *B* and thence to the ear-drums through the ear-pieces *C*.

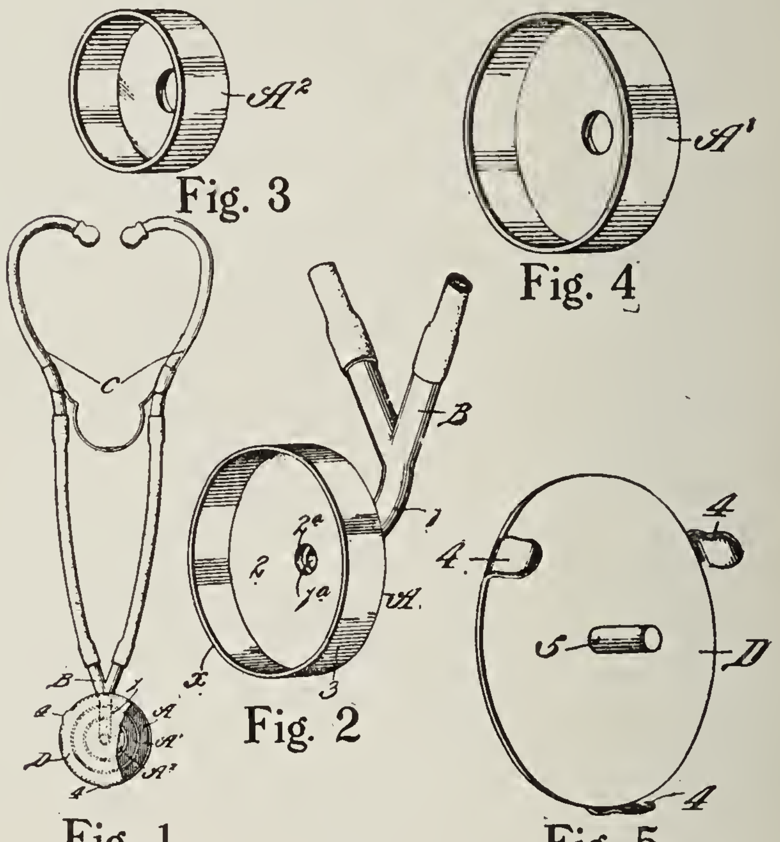

Fig. 1.—View, front elevation, partly broken away, of the complete instrument.

Fig. 2.—Perspective view, showing the large resonator mounted in operative position with the combined handle and connecting member.

Figs. 3 and 4.—Perspective views of the smaller resonators.

Fig. 5.—Perspective view of the cover member.

The cap member, Figure 5, consists of a disk that is provided with several spring fingers that lap over the flange or rim of the large resonator, as shown in Figure 1, thus holding the cap member in position. This cap member is provided with a stud, or guide, in the center that projects through the center openings of the resonators, A^1 and A^2, and thus holds them in position in the enclosing shell, preventing them from rattling and moving around.

When the instrument is to be used, the cap member is removed and a resonator of the proper size is then secured to the connecting member *B*, the operator grasping the shank of the member *B* and using it as a handle to place the resonator in proper position on the body of the patient.

The small resonator, A^2, is especially adapted for auscultating children, localizing heart-murmurs, and in the auscultatory method of taking blood-pressure.

An instrument constructed as described above can be sterilized, because it has no parts that are damaged by water or excessive heat, such, for example, as the hard-rubber diaphragms of the stethoscopes now in general use, or as the hard-rubber bells. Friction sounds are largely eliminated, because only the lower edge of the side wall of the resonator comes in contact with the patient's body. Furthermore, this instrument overcomes the necessity of a physician owning a number of complete stethoscopes of different sizes, owing to the fact that it comprises a set of resonators of different sizes that can be stored compactly.

606-608 Carleton Building.

TABLE ATTACHMENT FOR DOING SURGERY ON FACE, THROAT AND NECK

William M. Hayes, M.D., New Orleans

This apparatus is especially useful for cleft-palate work, enabling the operator to obtain a perfect Rose position (Fig. 1) without its being necessary for some one to support the head and shoulders. The head while in the basket portion can be turned from the right or left. The head and neck can be brought up or down as desired (Fig. 2).

For thyroid work it is ideal. Extension can be easily obtained and at the same time throws the thyroid gland up into view. This dispenses with the sand-bag placed under the back of neck. The head and neck are held firmly in position.

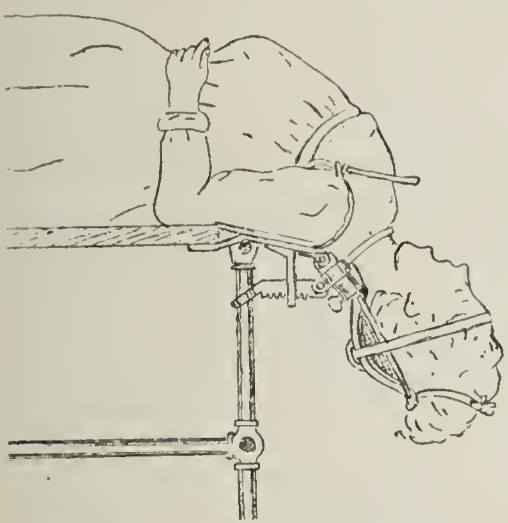
Fig. 1.—Patient in Rose position.

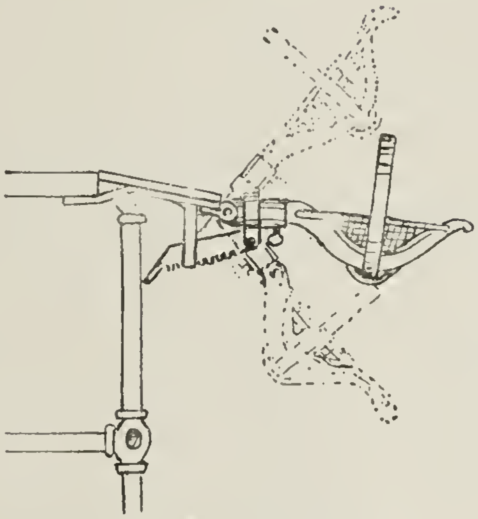
Fig. 2.—Different positions.

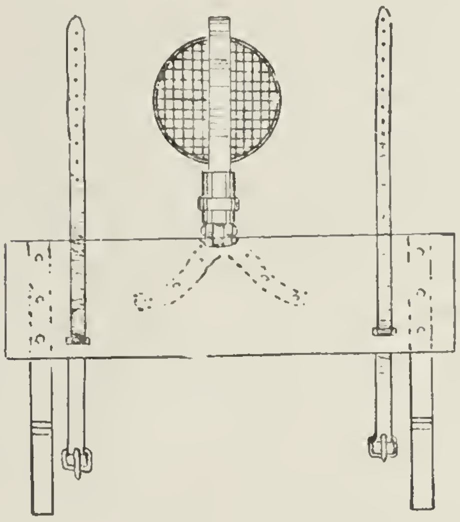
Fig. 3.—Top view.

The apparatus consists of a shoulder-plate the width of an operating-table. Attached to the under surface of the plate are two arms which go under the top of the table (Fig. 1). In each end of the plate is a slot through which passes a strap to go around the shoulders to support them.

A hinge-joint arrangement is attached to the under surface of the shoulder-plate, enabling the head and neck portion to be moved up or down as desired. The neck-piece is made of tubing which is fastened to the hinge-joint by a pin.

The basket portion is made of a piece of steel, which is curved to conform to the head (Fig. 1), and brass wire. The steel on which the basket proper is made ends in a stem which telescopes into the tubing which makes the neck portion.

A thumb- or set-screw as seen in Figure 1 holds the stem of the basket or head portion in the tubing. When the thumb- or set-screw is loosened, the stem rotates in the tubing right or left, or the neck portion can be made longer or shorter by pulling out or shoving back the stem into the tubing.

Around the tubing which makes up the neck-piece is a collar, to which is attached a notched lever which catches in a slot (Fig. 1). The slot is riveted to the under surface of the shoulder-plate. This notched lever is used to support the head and neck portion at any angle wanted (Fig. 2). A strap goes around the forehead if needed (Fig. 1). The strap is fastened to the basket and buckled over.

The anesthetist places the head and neck in any position desired by the operator.

1525 Calliope Street.

AN OPERATION FOR SHORTENING THE SCROTUM

R. L. Rhodes, B.A., M.D., Roanoke, Va.

Not infrequently associated with varicocele is a long, lax, pendent scrotum which in itself needs consideration, and unless dealt with properly these patients will not obtain complete relief from removal of the veins.

The operation most commonly employed is to clamp off and remove the redundant scrotum *en bloc*—the clamp being placed in such direction as is thought best.

The operation which I propose is not to use the clamp but to make the incision through the skin only, and this can then be readily dissected or stripped from the subcutaneous tissues. The incision may be elliptic, as when only one side of the scrotum is pendent, to shorten this side; or transverse, removing as much of the lower end of the scrotum as is desired; or following the line of the raphé extending on either side as wide as is desired. It may be closed in a straight line transversely or parallel with the raphé or in the shape of a cross (+) depending on the amount of skin denuded and the direction most desired to be abbreviated.

ADVANTAGES

1. It is an open operation with everything in full view of the operator, and therefore there is no possibility of doing any damage.
2. There is practically no bleeding—only a few oozing points which can be readily ligated.
3. It can be readily and painlessly done under a local anesthetic.
4. All the tissues beneath the skin are preserved. This is especially desirable as regards the dartos, which because of its elastic and muscle-fibers rapidly contracts following the operation, and forms a thicker, firmer and stronger support.
5. There is no postoperative discomfort.
6. The danger of postoperative hematoma is entirely eliminated because no large vessels are cut, and such as are cut are readily seen and ligated.
7. The scrotum is not opened, and therefore there is no possibility of carrying infection within—it being difficult thoroughly to cleanse and sterilize because of the tenderness of the scrotum.

A Simple, Practical Formaldehyd Sterilizer.—A sterilizer for certain diagnostic and dressing instruments, catheters, and paraphernalia that stand boiling poorly is not only a convenience but a necessity. The formaldehyd sterilizers on the market are efficient, look well, and are relatively expensive. I have found the following bread-box sterilizer satisfactory: A well-made box can be bought for less than a dollar; it should measure about 12 by 9 by 9 inches. Two sets of tin shelf-rests should be soldered in so that when the box rests on its back with its lid opening toward the front, the rests with their trays in place will give a three-compartment box. The trays are made from medium heavy ¼-inch wire mesh material which is faced and sided with tin. The total cost of this sterilizer will not exceed $2.50 instead of the customary $7 or $8. A box should be selected with a tightly fitting lid, if possible, but this defect can be somewhat overcome by the application of adhesive stripping around the narrow edge of the box over which the lid slips. The ventilation-holes should be covered with adhesive also. Powdered formaldehyd is exposed in a small dish which is set in the bottom compartment.

George Stacy, M.D., Jacksonville, Ill.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, AUGUST 8, 1914

LIGHTING AND EYE-STRAIN

There is no organ of the body, outside of that limited group which is absolutely indispensable for the maintenance of life, which contributes more to human efficiency and personal comfort than does the eye. When we stop to consider the prolonged demands made on the organs of vision in these days of printing, and the shameful indifference with which their conservation is treated, it is surprising that they do not fail in their task more frequently than is actually the case. The muscular and nervous systems give a warning when they are called on in undue measure. Premonitory symptoms of fatigue or pain serve to prevent harmful overexertion. But our eyes rarely receive any studied consideration except at long intervals, and then usually under the pressure of impending damage to sight; nor are we concerned as a rule with any adjustment of the needs of the visual apparatus so as to relieve it of any unnecessary burdens or make its task easier of accomplishment.

It has recently been remarked that the goal of the lighting engineer has up to the present time been to get the maximum output of light for a given expenditure of energy. The lighting problem, however, has a very important relation to the eye. If the system of illumination is unsuitable it may speedily produce a loss of efficiency for continued work, and discomfort may likewise ensue. It is interesting to know that the industries concerned with the manufacture of lighting devices are recognizing the need of physiologists as a part of their scientific equipment. Commendable beginnings are being made in the effort to ascertain the merits of various lighting systems from the point of view of the individual rather than of the producing plant. In illustration of this we may quote freely from a recent report by Ferree[1] which represents progress.

The four types of lighting systems in common use to-day are: daylight, direct lighting systems, indirect systems and semidirect systems. The evenness of illumination and the proper diffuseness of the light with exclusion of all extremes of surface brightness are ideal conditions best realized at present in the proper illumination of a room by daylight. As Ferree points out, before it reaches our windows or skylights, daylight has been rendered widely diffuse by innumerable reflections; and the windows and skylights themselves, acting as sources, have a broad area and low intrinsic brilliancy, all of which features contribute toward giving the ideal condition of distribution stated above. The best distribution effects given by artificial lighting are obtained with the indirect systems in which the source is concealed from the eye and the light is thrown against the ceiling or some other diffusely reflecting surface. In the direct systems the tendency is to concentrate the light on the object viewed, and too often the eye is not properly shielded from the source of light. The semidirect systems represent a compromise in which a part of the light is transmitted directly to the eye through a translucent reflector, and a part reflected to the ceiling. Like most other compromises, this one is not ideal. We are assured that among the lighting factors which influence the welfare of the eye, those grouped under the heading "distribution" are apparently fundamental. The newest tests seem to indicate that where the light is well distributed in the fields of vision and there are no extremes of surface brightness, intensities bright enough to give a maximum discrimination of detail may be employed without causing appreciable damage or discomfort to the eye. We are further told that for the kind of distribution effects given by the majority of lighting systems now in use too much light for the welfare and comfort of the eye is being employed. Under many of the systems of direct lighting the eye loses greatly in efficiency as the result of three or four hours of work. In this time it loses practically nothing under daylight, and little more under good systems of indirect lighting.

It is interesting to learn that the difference of opinion regarding the effect of the quality of light on the eyes is quite as wide-spread among the experts as in lay circles. Ferree is not prepared to admit the common belief that colored light, such as is furnished by the kerosene flame, gives better results for seeing than white light. So far as visual acuity is concerned the clear tungsten lamps yield nothing to the carbon lamps which give a light comparatively rich in yellow. If it is true that the kerosene flame is easier on the eye than the more modern sources of illumination, Ferree is inclined to ascribe the benefit, whatever it may be, to the low intrinsic brilliancy of the kerosene flame; for, according to him, it may safely be stated that for the kind of distribution effects now obtained from most of our lighting systems, too much light is being used for the welfare and comfort of the eye. "Our problem in lighting at present is not so much how to see better as it is to see with more comfort and with less damage to the general health on account of eye-strain."

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[1] Ferree, C. E.: The Problem of Lighting in Its Relation to the Efficiency of the Eye, Science, July 17, 1914, p. 84.

STANDARDS FOR MILK

The first report of the Commission on Milk Standards, appointed by the New York Milk Committee, was published in the United States *Public Health Reports,* May 10, 1912. The second report of the commission was published in the same place, Aug. 22, 1913. At the annual meeting of the commission, held in New York in May of the present year, the commission decided not to make any changes in the classification of the report of the commission as contained in its last published report, but recommended that efforts be made by the New York Milk Committee looking toward the adoption of a classification and standards for milk by state, local and municipal health authorities.

At the recent session of the American Medical Association, the Section on Preventive Medicine and Public Health adopted a resolution endorsing the standards suggested by the commission. This resolution was referred to the House of Delegates, and, after having been considered by the Reference Committee on Hygiene and Public Health, was approved by the House.

Just previous to the meeting of the American Medical Association, the Conference of State and Provincial Boards of Health of North America unanimously adopted a resolution endorsing the standards and classification of milk along the lines suggested in the report of the commission, and urged the establishment of such uniform milk standards and classifications by state, municipal and local health authorities.

It is believed that the adoption of these resolutions, emphasizing as they do the interest for the establishment of milk standards and the classification of milk, will be of material aid in forwarding the campaign for pure milk now being waged throughout almost the entire country.

It is understood that the New York Milk Committee has under contemplation, in accordance with the suggestion of the Commission on Milk Standards, the inauguration of a campaign throughout the United States looking toward the adoption of uniform milk standards and classifications.

There are at present pending before the courts, in various sections of the country, cases against milk-dealers for selling milk containing large numbers of bacteria. One of the points that has been raised by the defense has been that the standards proposed by the Commission on Milk Standards have not been endorsed by representative bodies. The fact that the report of the commission has received the endorsement of the American Medical Association, the Conference on State and Provincial Boards of Health, the American Public Health Association and the American Veterinary Association absolutely demolishes this argument.

There is probably no single factor proposed for the control of milk-supplies that is of greater assistance to the authorities in forcing dealers to sell a safe and pure milk than is the adoption and enforcement of bacterial standards for milk. One of the arguments that has been raised by opponents of bacterial standards for milk has been that it is not the number of bacteria, but the kind of bacteria that is of harm, and the statement is made that a few typhoid bacilli are of infinitely more harm than millions of lactic acid organisms. These statements are, of course, true; but the number of bacteria in a milk undoubtedly gives valuable information as to the conditions under which that milk was produced, how it has been handled and how it was kept as regards refrigeration.

The adoption by public health authorities of standards such as those proposed by the Milk Commission and endorsed by the American Medical Association, modified to suit local conditions, will be a potent factor in advancing the cause of pure milk in the United States.

NERVOUS OR EMOTIONAL GLYCOSURIAS

In discussing recently[1] what has been termed the "emergency function" of the adrenal glands, attention was called to the fact that severe emotions, exemplified in fear, rage and pain, are accompanied by an increased discharge of epinephrin into the blood. The hyperglycemia and the epinephrinemia are both due to nervous discharges. Evidences on record show that these effects may be sufficiently intense to lead to the usual consequence of increase in the sugar-content of the blood, namely, glycosuria. That experimental procedures attended by pain result in the appearance of sugar in the urine was demonstrated many years ago. That pure emotional excitement — fear or rage — will have the same effect was proved when Cannon, Shohl and Wright[2] obtained glycosuria in cats by placing them in small cages and permitting dogs to bark at them. Whether or not glycosuria appeared promptly depended on the animal's emotional reaction to the experience. A positive result was not obtained, furthermore, when the adrenals had previously been removed.

It is not unlikely, in view of the experimental findings now on record in the study of animal behavior, that emotional glycosurias are far more common in man than has been previously supposed. "Nervous glycosuria" is a familiar expression to the clinician. The fairly frequent occurrence of moderate glycosuria in the insane has long been known; and in view of the fact that a large number of such patients are subject to intense emotional excitement, Drs. Folin, Denis and Smillie[3] of the Harvard Medical School have accordingly raised the question whether or not many of the glycosurias occurring in the insane have a psychic origin. Mita[4] had already found sugar in the urine to be particularly frequent in patients subject to fear and depressions; and he suggested that there may be a certain relationship between glycosuria and the mental state independent of the more fundamental character of the mental disease. The Boston investigators found sugar in the urine of twenty-two out of one hundred and ninety-two patients examined at the McLean Hospital for the Insane. The great majority, but not all of those who exhibited glycosuria, suffered from depression, apprehension or excitement. Some of them had been in apparently the same condition with reference to the emotional state for several years. At the Danvers State Hospital for the Insane Dr. Bond found sugar in the urine in more than 8 per cent. of a large number of consecutive examinations made immediately after admission of the patients to the hospital, which would probably include a larger percentage of excited individuals.

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[1] Newer Views of the Functions of the Adrenals, editorial, The Journal A. M. A., July 25, 1914, p. 322.

[2] Cannon, Shohl and Wright: Am. Jour. Physiol., 1911, xxix, 283.

[3] Folin, O.; Denis, W., and Smillie, W. G.: Some Observations on "Emotional Glycosuria" in Man, Jour. Biol. Chem., 1914, xvii, 519.

As Folin and his collaborators remark, it is clear that the percentage of the insane having fairly conspicuous traces of sugar in the urine is very large; and if there is such a thing as emotional glycosuria in human beings, one would naturally expect to encounter it very frequently in this class of patients. Mentally normal persons are, furthermore, not free from strong emotional reactions on suitable occasions. That the physiologic sequences — presumably sympathetic stimulation and epinephrin discharge into the blood, with its consequences — are not missed under suitable conditions in sane man, is attested by the fact that Smillie[5] found glycosuria in four out of nine medical students (all normally aglycosuric) after a difficult examination, and in only one of the nine after an easy examination.

In another instance twelve out of twenty-five members of a university football squad were reported to have sugar in their urines immediately after the final and most exciting contest of the season.[5] At the Harvard Medical School 18 per cent. of thirty-three second-year medical students were found by Folin, Denis and Smillie[3] to have small, but unmistakable traces of sugar in the urine passed immediately after an important examination. From a comparable group of second-year women students at Simmons College, 17 per cent. of positive tests were likewise obtained. These facts, taken in connection with the previously discussed bearing of mental and emotional strain on the function of the adrenals give a new interpretation to a group of temporary glycosurias long known in clinical medicine, yet always obscure in their significance.

THE BRITISH NATIONAL INSURANCE ACT

Reference has been made in The Journal from time to time to the British national insurance act. The Journal has endeavored to set before its readers the progress of the passage and development of the act, feeling that while social, professional and economic conditions in the United States and England differ vastly, some valuable lessons could be learned from the experiences which our English professional brethren have undergone in the last three years. For a number of months past the London *Lancet* has published a series of articles by a special commissioner sent out by the *Lancet* to investigate the workings of the insurance act in different parts of England. In the *Lancet* for July 4 appears an interesting editorial summing up the conclusions drawn from this careful study of the operations of the act. According to the *Lancet,* it is clear that the working of the national insurance act, so far as the administration of the medical profession goes, is at present only partially satisfactory. Many of the objections raised to the act before its passage have been fully sustained by subsequent experience. The new law has benefited a certain number of physicians financially, and in many places the standard of contract practice has been improved over the conditions of club practice which existed previously. In other places, however, the special commissioner reports that the old and objectionable conditions of club practice remain practically unchanged. The administration of the act is, it is asserted, cumbersome and expensive, and a considerable amount of amendment and modification will be necessary before a smoothly working system is established. The *Lancet* says that the faulty conditions of club practice have reasserted themselves in panel work. The progress of the work under the act has fallen into the hands of a relatively small number of physicians instead of being evenly distributed. Some physicians have little to do under the act, while others have undertaken more than they can adequately perform. A distinct line of cleavage has arisen in the profession between panel and non-panel doctors, tending toward the creation of rich men's and poor men's doctors. The amount of sickness is suspiciously high in many places and the pecuniary strain on hospitals has been increased.

As an alternative to the present insurance plan, the *Lancet* discusses the proposition made by Dr. W. A. Brend in a recent article in the *Nineteenth Century and After,* advocating the establishment of a national medical service. Dr. Brend finds one of his strongest arguments for the establishment of such a service in the fact that under present conditions in England, the medical services available for the poor do not cover the field and are not of a satisfactory quality. As a remedy he suggests the establishment of a salaried medical service with local centers for medical treatment. He proposes a centrally placed building in every town of twenty thousand inhabitants or thereabouts, as a clinical dispensary, such a building to contain consultation and waiting rooms and a small operating room. In cities of more than twenty thousand, these buildings would be duplicated as the demand might require. Larger cities would have also a Roentgen-ray laboratory and a clinical-pathologic laboratory. Each district, under Dr. Brend's plan, would be divided into areas, and one salaried medical officer would be assigned to each area to take care of all the patients confined to the house, ambulatory patients being treated at the central clinical building. Each clinic would require the services of from five to eight whole-time, salaried, general practitioners with a chief medical officer for each clinic, and district officers and a central administrative staff.

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[4] Mita: Monatsh. f. Phychiat, u. Neurol., 1912, xxxii, 159.

[5] Compare Cannon, W. B.: The Emergency Function of the Adrenal Medulla in Pain and the Major Emotions, Am. Jour. Physiol., 1914, xxxiii, 359.

Commenting on this plan and on the suggestion of Sir Clifford Allbutt for a ministry of health as a part of the national government, the *Lancet* endorses the latter proposition but is unable to see the necessity of transforming the medical profession into a state service in order to secure a health department in the government. Summing up the advantages of a state medical service to the medical profession, the *Lancet* holds that this should mean greater leisure to the individual physician for keeping abreast of new knowledge, opportunity for postgraduate study and for research work, regular working hours and holidays, and certainty of income; but it feels that the drawbacks to such a plan are as obvious as the advantages.

The English situation is interesting and instructive. In that country the demand for better health organization is coming from the people, and the medical profession is apparently the body which is withholding its endorsement. In this country, the organized medical profession has been committed for years past to the establishment of a national Department of Health, while the difficulty lies not so much in the opposition of the public as in its lethargy. Inasmuch as the establishment of a health department as a part of the national government, whether in this country or in England, would be entirely in the interests of the public, and as the labor of organizing and administering such a bureau would fall almost entirely on the medical profession without any immediate reward except to those comparatively few salaried officers necessary for its administration, it would seem reasonable to expect that the opposition, if any, would come from the medical profession rather than from the public. The explanation of the apparently anomalous situation is probably that in this country, the agitation for a national Department of Health was started by the medical profession before the public had come to realize the value or necessity of such a plan, while in England, public opinion on this subject is far in advance of professional opinion, so that the medical profession is the body which needs education in England, while the general public is the factor in need of enlightenment in this country.

INFANT MORTALITY IN THE PHILIPPINE ISLANDS

Certain anomalous features with respect to infant mortality in our Eastern insular possessions are not easily realized at first by any one accustomed to conditions in the United States or Continental Europe. We are told by the health authorities[1] that infant mortality in Manila is greater than it is in any other city from which we have records. This excessive mortality is not due to a single cause or to natural conditions of the country. There are a number of predisposing factors, prenatal and postnatal, as well as various immediate or active causes. Faulty nutrition is one of the most prominent.

It is said that in countries having the same degree of civilization the infant death-rate is remarkably constant, and this is probably accounted for by the similarity in the methods of feeding. Certainly where there is a difference in conditions a difference in mortality will be found. Thus, the mortality of infants fed on cow's milk has been shown to be from five to ten times that of those fed on mother's milk.[2] Ordinarily one would not hesitate to emphasize the desirability of breast-feeding for all children whenever feasible. The artificial (or what Schlossmann has termed the "unnatural") nourishment of the infant has not successfully replaced the natural feeding. This, in the words of an expert in this field, is the inevitable conclusion to which we must come, despite the great advances in our knowledge of foods and nutrition.

In the face of such teachings it is most surprising to learn from the report of Professor Musgrave,[1] of the College of Medicine and Surgery in the University of the Philippines, that the mortality in the breast-fed children there is higher than it is among children artificially fed. This condition seems to be peculiar to the Philippine Islands. The explanation is believed to lie in the deficient quantity and quality of mother's milk. The undernourished condition of many of the mothers, due to the ravages of disease, doubtless contributes to the deficiency in the quantity of breast-milk which has been observed repeatedly in the clinics of the large Philippine General Hospital. The ultimate hygienic aim must therefore be to correct the faulty nutrition of the mothers by education and wholesome reforms in diet. The immediate need, however, is for a food that will save the babies.

Here, again, unusual circumstances stand in the way of an ideal procedure. Next to mother's milk, which would unquestionably be the first choice under normal conditions, comes cow's milk. This substitute has considerable physiologic adaptability, and, furthermore, is the only milk that can be produced in quantities to meet the world's needs. At present, fresh, clean, raw.

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[1] Musgrave, W. E.: Infant Mortality in the Philippine Islands, Philippine Jour. Sc., Sec. B, Trop. Med., 1913, viii, 459.

[2] See Westergaard, Harald: Mortalität und Morbidität, Jena, 1901, p. 364.

cow's milk is not obtainable in large quantities in the Philippine Islands. The milk production there is negligible in relation to the requirements of the country, and the prospect for a sufficient local production seems very remote. Herein, as Dr. Musgrave has pointed out, is a new problem in infant-feeding. The milk of carabaos and goats with that from a few dairies located in the larger cities at present constitutes the principal supply. Moreover, we are told that "practically all fresh milk produced in the Islands is dangerous to health, in whatever manner used, and the marketing of these products should be interdicted by law." We have commented on this situation in the past.[3]

The pressing problem, then, with respect to the food-supply for infants in the Philippines, is the introduction of the most suitable substitutes for fresh milk. In 1912 an equivalent of between 18 and 20 million kg. (about 40 million pounds) of milk was imported into the Islands. The opportunities for reforms are enormous. The products henceforth used should be suitable, inexpensive and economically procurable. The fact that a fertile field is offered for the exploitation of baby-foods calls for stringent supervision and a policy of education. Filipino mothers should be taught not to use contaminated water as a diluent of infant foods. The mixtures prepared for use by these mothers have been shown again and again to harbor dangerous bacteria in countless numbers. The almost universal custom of maintaining the greatest irregularity with respect to time of feeding and the quantity and character of the food administered to babies demands effective reform. We anticipate that the American health authorities in the Philippines, in conjunction with the growing group of native physicians educated under the American régime, will bring about lasting, wholesome changes leading to a conservation of infant life. When it is recalled that the present enlightenment in this direction has been of comparatively recent origin even in so-called culture states, the necessity for both patience and perseverance in meeting the situation described for the Philippines becomes apparent. The children cannot reap the reward at once.

It is sometimes asserted that infant mortality is but the operation of natural selection and should not be interfered with if we are to keep up the vital powers of the race. Preventive medicine has certainly prolonged the lives of infants or of children in general.[4] That a high infant mortality does not tend to produce a long-lived race, but rather to stunt all life, would seem to be indicated by the evidence collected in the Report on National Vitality prepared for the National Conservation Commission.[5] This shows that Russia, for instance, has a high infant mortality. If the statistics are to be trusted, it is 70 per cent. greater than in the United States; yet Moscow and St. Petersburg have a general mortality rate which greatly exceeds that of similar cities in this country. The commission's report further notes that perhaps the more unfavorable the struggle for existence the more rapidly will natural selection result in improved vitality. Even if this were true, however, it would not imply that in a more favorable environment selection would cease; and it may not be true. It is maintained by some that adversity, if too severe, will crush and injure the survivor as well as eliminate the weakling. We do not look for the best trees on the bleak mountain-top, but in the genial valley. As we go up the struggle for existence increases, until even the sturdiest fail to thrive above the "timber-line." The farmer who tries to improve his stock does not subject the animals to hardships. Cold and starvation are now almost unknown in the great ranches, and the breeds that were notable for ability to withstand them give way to varieties adapted to neither condition.[6]

Current Comment

DO THE RED BLOOD-CELLS CONTAIN PROTEOLYTIC FERMENTS?

A few years ago the possible function of autolytic processes in a variety of physiologic and pathologic phenomena was actively considered. It became evident that proteolytic enzymes are widely distributed in the organism outside of the digestive tract; and their presence was drawn on to explain certain manifestations of cell disintegration. The problem appeared in a new light, however, when it was found that various components of the blood contain proteolytic ferments. With respect to the leukocytes, for instance, there can no longer be any doubt on this point. Both the white cells contained in normal blood and those found in sterile pus exhibit undoubted proteolytic activity on suitable substrates. The blood platelets likewise are reported to manifest proteolytic enzymes.[1] Normal blood-serum is devoid of proteolytic power. The development of enzymes in it in an indirect way is, of course, the subject about which the widely discussed serum diagnosis formulated by Abderhalden has revolved. The topic has become the occasion for rather acrimonious argument in recent months and has not reached the stage at which calm judgment and positive conclusions prevail. There remain the erythrocytes for consideration with respect to their possible proteolytic equipment. Information is the more desirable because of the wide-spread distribution of the red blood-cells and the difficulty, if not impossibility, of excluding them from participation in many physiologic processes. Certain observers[1] have maintained that the erythrocytes can digest polypeptids; but Pincussohn and von Roques[2] of the Second Medical Clinic at the University of Berlin have lately demonstrated that the red cells, in the concentration in which they occur in the circulating blood, cannot digest tissues prepared as is customary in the proteolytic serum diagnostic methods of Abderhalden and tested with the now familiar ninhydrin reagent. Furthermore, the absence of autolytic changes in isolated erythrocytes speaks likewise for the absence of the usual proteolytic enzymes.

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[3] Milk in Manila, editorial, The Journal A. M. A., March 7, 1914, p. 782

[4] Graham, Edwin E.: Infant Mortality, The Journal A. M. A., Sept. 26, 1908, p. 1045.

[5] Fisher, Irving: Report on National Vitality, Its Wastes and Conservation, Bull. Committee of One Hundred on National Health, No. 30, July, 1909.

[6] Patten, Simon N.: The New Basis of Civilization, New York, 1907.

[1] Abderhalden, E., and Manwaring, W. H.: Ztschr. f. physiol. Chem., lv, 377.

QUIET PLACES FOR MEDICAL MEETINGS

The following letter, written by one of the leading scientific public health workers of the country, points the way in a greatly needed reform:

> It is not my desire to try to reform the world, and, in fact, I never do anything that I can get some one else to do. The latter clue gives you the purpose of this letter—to ask you to do something.
>
> I suppose that there are very few medical men in this country who attend as many medical meetings as I do. There is one point connected with at least one-half of all of the medical meetings I attend that renders this attendance practically a loss of time on my part. This point is a very simple one. It is this:
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> The average medical meeting is held in a hall that is anywhere from three to ten times too large; it is usually in the noisiest part of the city that can be found so that the papers have a constant musical accompaniment of passing street-cars, railroad-trains, trucks, etc. It is usually in the noisiest building that can be found for fifteen miles around. As a result of this combination, it is impossible to hear half that is said in the meeting, and it is so much easier to go out in the lobby to chat than it is to sit in the room and strain one's ears trying to hear what is being said that it is a positive relief to get out of the room.
>
> The foregoing criticism is not made in a hypercritical spirit at all, but it is made from observations in all parts of the country. The average meeting is a bore for the simple reason that I cannot hear what is said. Will you not use your eloquent pen in an attempt at a reformation in this line? If you will do this, I will see that the future generations place you in the same category with Luther and other reformers.

The Journal is glad to give space to this criticism, not in the hope of securing a place in history with Martin Luther, or even a statue in the Hall of Fame, but because all of our readers who have attended many medical meetings will sympathize with the writer of the letter. One is often led to wonder, in attending a medical association meeting, why so many of those who go to the expense and effort of attending spend so little time in listening to papers or discussions. Our contributor has pointed out one reason. Certainly meeting-places should be selected and arranged so that those who desire to hear the papers and discussions can do so with the least possible effort. The selection of suitable meeting-places is of the greatest importance in determining the success of medical gatherings. And this applies, may we remark on the side, to the meetings of the Sections of the American Medical Association.

CARNOSIN IN MEAT

Physiologic chemists have long appreciated the fact that our knowledge of the composition of the extract of meat is far from complete. Muscle tissue in some guise or other enters extensively into the dietary of man. Aside from its richness in protein, meat is recognized to contain purin compounds (among which hypoxanthin is the most conspicuous), as well as the nitrogenous substance creatin regarding the metabolic history of which there is a lack of conclusive information. These components, along with the inorganic salts of the muscle by no means exhaust its yield of characteristic chemical compounds. A few years ago it was customary, owing to the prevailing ignorance on the subject, to speak of the chemical residuum as a mixture of small amounts of very diverse substances. Some of these "traces," like lactic acid and inosic acid, were early recognized and found their way into descriptive text-books. For the most part, however, the heterogeneous collection of the undiscovered products has awaited investigation. From among these the Russian chemist Gulewitsch has brought to light the base carnosin, which deserves to rank prominently among the extractives of muscle. Carnosin, with an empirical formula $C_9H_{14}N_4O_3$, appears to be a dipeptid composed of the amino-acids histidin and beta-alanin. From a chemical point of view, therefore, it is an unusual compound, judged by the structures with which the biochemist ordinarily deals. An added interest arises from the newest analyses of von Fürth and Hryntschak[1] which indicate the presence of as much as 3 gm. per kilogram of mammalian muscle. In order of magnitude this approaches the content of creatin in the same tissues.

PRACTICAL SANITATION IN INDIANA

During the last two years, 393 new schoolhouses have been built in Indiana at a total cost of about $4,000,000. These new buildings are all thoroughly modern and sanitary in their construction and equipment and are in full accordance with the sanitary schoolhouse law of the state. This law, passed several years ago, requires that the plans and specifications for all schoolhouses must be submitted and approved by the state board of health before the contracts for their construction are authorized. The condemnation by the state board of health of numerous insanitary, dilapidated and otherwise unsatisfactory school buildings and the enforcement of the new law have brought about a marked change in school sanitary conditions in Indiana. The results show the ease with which better conditions may be secured, provided effective remedies are adopted. It is obviously much easier to change the plans than to change the buildings, and far better to criticize a building before it is built than after it is constructed. Most persons want to do what is right and will do so if they know what is right at the right time. Indiana's schoolhouse law is a striking example of a sensible law that really accomplishes something. It ought not to be difficult to secure similar laws in every state. In most of our principal cities the plans of every building must be approved by the proper authority—usually the city health board—before the building can be erected; certainly no building is more important than the school.

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[2] Pincussohn, L., and von Roques, K. R.: Untersuchungen über die fermentative Eigenschaften des Blutes. iv. Untersuchung der Formbestandteile des Blutes auf proteolytische Fähigkeiten, Biochem. Ztschr., 1914, lxiv, 1.

[1] Von Fürth, O., and Hryntschak, T.: Ueber den Karnosingehalt der Säugetiermuskeln, Biochem. Ztschr., 1914, lxiv, 172.

A SCOTTISH MEDICAL SCHOOL

It is the custom for the British Medical Association to select as its president a prominent member of the profession resident in the town in which its meeting is held. At the session just closed at Aberdeen this office was held by Sir Alexander Ogston, Emeritus Regius Professor of Surgery in the University of Aberdeen. His president's address was devoted to the history of Aberdeen and the founding of what was probably the first university medical school in the British Islands. It is probable, he admits, that some of the older universities of Great Britain may have had in a clause in the papal bill authorizing their establishment some reference to a faculty of medicine, but it would appear from his showing that such a plan was practically carried out from the beginning only in the University of Aberdeen, founded in the latter half of the fifteenth century. At that date Scotland, as Ogston tells us, was, except for a few coast towns, a practically uncivilized country. The age as far as learning was concerned was a dark one in North Britain and it was in the northern and least cultivated portion that Aberdeen was situated. Still, as he shows, there was appreciation of learning, and a grammar school existed in that city, or village as it was at the time, as early as 1263. The larger part of the address is devoted to the history of the founder of this first medical school in Britain, Bishop Elphinstone, who appears to have been a bright and shining light in a very naughty world, a contrast to most other Scottish prelates of his time, who were largely devoted to their own interests rather than to the welfare of their flocks. The address is an interesting historical document and as such was probably heard with as much interest as it would have been had not the author modestly excused himself from following the more usual custom of dealing with some purely medical subjects and the advances made in medicine during the year that had passed. In this contribution to medical history Sir Alexander Ogston gives complete evidence that his powers of description and of conveying information attractively have not yet failed him.

NEWS IN PEACE AND WAR

A few weeks ago the cables announced an accident in which fifteen persons died through explosion of a German dirigible balloon. The story was featured with expressions of horror and sorrow at this terrible catastrophe. The newspapers commented on it for days. The other day the cables announced that a balloon containing twenty-five German soldiers had been rammed by a French aeroplane. Twenty-six courageous fighters in the height of their activity met a sudden and terrible death. This item was printed as a mere incident, and no comments made. But this is war!

Medical News

CALIFORNIA

Summer Course at Stanford.—A summer graduate course in medicine, approved by the board of trustees of Stanford University, opened July 6 at San Francisco. The course will continue until August 15, and will consist of twenty-two lectures, together with clinical work at several hospitals.

Restraining Order against Board.—A temporary restraining order is said to have been issued against the State Board of Medical Examiners on the petition of Drs. Edward J. Rich and Gidean M. Freeman, Los Angeles, accused of being guilty of unprofessional conduct in connection with the museum of Dr. L. J. Jordan, incorporated.

Osteopaths Among Drugless Healers.—It is reported that at a recent meeting of the California Board of Medical Examiners action was taken refusing to recognize osteopathic colleges otherwise than as drugless practitioner institutions. Several osteopathic colleges were seeking recognition for their graduates with the right to secure the license of "physician and surgeon."

New Hospital Buildings to be Erected.—Dr. H. T. Summersgill, superintendent of the New Haven Hospital, has been appointed superintendent of the University Hospital in San Francisco. He is now in California to take charge of the present hospital of the University of California Medical School, and to aid in completing the plans for the new teaching hospital buildings, to erect which $615,000 has been given by various friends of the university.

CONNECTICUT

Yale Anatomist Goes to Philadelphia.—Dr. Jacob Parsons Schaeffer, professor of anatomy in the medical department of Yale University, has been elected professor of anatomy and director of the Daniel Baugh Institute of Anatomy and Biology of Philadelphia.

Hospital Alumni Dine.—At the third annual meeting of the St. Francis Hospital Alumni Association at Hartford, the following officers were elected: president, Dr. James F. Rooney, Hartford; vice-president, Dr. Frank J. Ronayne, Hartford; secretary, Dr. J. D. Hartnett, Winstead, and treasurer, Dr. David A. Flynn, New Haven.

Honorary Degrees.—At the 100th anniversary of the beginning of teaching in Yale University, the following honorary degrees were conferred on medical men: Master of Arts.—Dr. Edward Robinson Baldwin, assistant director of the laboratory at Saranac Lake, N. Y., for the study of tuberculosis; Dr. Fred Towsley Murphy, professor of surgery in Washington University, St. Louis; Dr. John Howland, professor of pediatrics in Johns Hopkins University, Baltimore; Capt. Charles Franklin Craig, M. C., U. S. A., officer in charge of the Army Biological Laboratory, Fort Leavenworth, Kan.; Dr. Elliott Proctor Joslin, assistant professor of the theory and practice of physics in Harvard Medical School; Dr. Henry Hun, professor of nervous diseases in Albany Medical College; Dr. Oliver Cotton Smith, Hartford, Conn., president of the Connecticut Medical Society and formerly surgeon-general of the state, and Dr. William Francis Verdi, New Haven, Conn. Doctors of Science.—Dr. Edgar Fahs Smith, provost of the University of Pennsylvania, Philadelphia, and Dr. Richard Pierson Strong, professor of tropical medicine in Harvard Medical School, formerly pathologist of the Bureau of Science of the Philippine Islands. Doctor of Laws.—Surg.-Gen. William Crawford Gorgas, U. S. Army.

DISTRICT OF COLUMBIA

Hospital Closed.—The Northern Dispensary and Emergency Hospital at 3121 Fourteenth Street, S. W., has been closed by order of the board of directors. The reasons assigned for closing the institution are lack of funds and loss of interest by the board of lady managers.

Personal.—Dr. Charles H. Richardson, Washington, has gone abroad.——Dr. Hulbert Young, chief inspector of the district health department, has been appointed supervisor of the commercial laboratories of Baltimore.——Dr. J. Lester Brooks has been appointed medical inspector by the health officer.——The title of Dr. William C. Fowler, in charge of the contagious disease service, has been changed to chief medical inspector.

The Pardon of Kemp.—The prison sentence of two years in the penitentiary of Dr. Thomas J. Kemp, son-in-law of Senator Fletcher of Florida, condemned for using the mails to distribute information regarding the procuring of abortion, was recently commuted by the president to the payment of the fine, waiving the prison sentence imposed by the court. At a meeting of the Washington Medical Society, July 23, President Wilson was severely criticized for his action, and Congressman Mann introduced a resolution before Congress asking that the papers in the case be transmitted to the House for examination.

ILLINOIS

New Officers.—Ogle County Medical Society at Polo: president, Dr. Robert E. Stevens, Rochelle; secretary, Dr. Josiah T. Kretsinger, Leaf River.

Physician's Murderer Found Guilty.—After twelve hours deliberation, a jury at Duquoin, August 1, found Jesse Joplin guilty of the murder of Dr. D. Winton Dunn, former mayor of Duquoin, and fixed his penalty at life imprisonment.

Dixon Epileptic Colony.—Sixty cottages will be under roof before winter at the new State Epileptic Colony at Dixon. Twenty will be erected to the south, twenty to the north, ten to the east and ten to the west of the administration building.

Personal.—Dr. Mary M. Mars, who was recently in charge of the inspection of the children of the Evanston schools, has become a member of the staff of the Breed Tuberculosis Sanatorium.——Dr. Mary L. Rosenstiel, Freeport, sailed for Europe, recently.

Supervisors Will Not Recommend Erection of County Sanatorium.—At the June meeting of the board of supervisors of Kane County, called to look into the matter of the establishment of a county tuberculosis sanatorium, a report was made opposing the establishment at present of such an institution, while acknowledging its value. The cause of the refusal was the heavy initial cost of the institution—$40,000—and the expense of maintenance.

Tuberculosis Institution Ready.—The new building of the dispensary of the Evanston Tuberculosis Institute at the corner of University Place and Maple Avenue, has been completed and the institution is in active operation. The hours for receiving patients are from 2 to 3 p. m., Mondays and Thursdays. The dispensary is under the medical supervision of Drs. William A. Phillips and William G. Alexander. It is expected that the general dispensary of the building will soon be ready to receive patients.

Chicago

Consumptive Relief Society.—During June the Jewish Consumptive Relief Society treated 250 cases, expended more than $520 for milk and eggs, and in addition cared for several patients at different hospitals at a cost of $150. Plans for the new sanatorium of the society are completed and bids for plans have been requested.

Neurologists Convention Closes.—The third annual session of the Alienists and Neurologists of the United States, conducted under the auspices of the Chicago Medical Society, has adjourned. The fourth annual meeting will be held in Chicago in July, 1915. During the week more than two hundred and fifty physicians registered, representing seventeen states.

Health Department Aid Not Needed by Supervising Engineers.—Dr. George B. Young, commissioner of health, is said to have been notified, July 24, by the board of supervising engineers that the department cannot be represented in connection with the work of the board. The intention of the health commissioner was to assist in the supervising of heating and ventilation devices for cars.

INDIANA

Disease Prevention Day.—Plans are being made for the observance in Indiana of disease prevention day. County organizations are being formed to cooperate with the state central organization in preparing the program of the day which is to be in October, the date to be fixed by the governor.

State Association Meeting.—The annual meeting of the Indiana State Medical Association will be held in Lafayette, September 23-25. Dr. George F. Keiper is chairman of the committee on arrangements. The sessions of the association will be held at the Y. M. C. A. building and the Second Presbyterian Church. The Hotel Lahr has been selected as the headquarters of the association.

Good Work in Porter County.—Porter County is taking high rank among the counties of the state in efficiency in preventive medicine. Health Commissioner Simon J. Young, who is also health officer of Valparaiso, has induced the county to build a new laboratory and to appoint an assistant, W. D. Little, a recent graduate of the department of sanitary science of the Purdue University, who will have charge of the health work and is now acting health commissioner. Among other work of the department is an extensive inspection of the milk-supply of the county. Preparations are also under way for the general observance of "health day," October 2.

MASSACHUSETTS

Health Bureau Moved.—The bacteriologic bureau of the Boston Board of Health moved July 27 from its old quarters on Huntington Avenue to the top floor of the new City Hall.

Fresh-Air Fund Appeal.—The Traveller's Fresh Air Association announces that it will require at least $5,000 to finish the season and to provide the outings that have been promised to the children of Boston.

New Hospital for Winchester.—The Visiting Nurse Association has purchased a site on Highland Avenue on which to erect a hospital, which is to be in Elizabethan style, of red brick construction with limestone trimmings. Plans for the building have been accepted, and the construction will commence in a short time.

Hospital Needs Funds.—President A. Shuman of the board of trustees of the Boston City Hospital has applied to the mayor for an addition of $46,000 to the budget of hospital expenses for the current year. Of this $13,200 is for increase in salaries, $1,500 for special police, and $3,500 for the installation of a sprinkling system.

Personal.—Dr. Frank G. Wheatley, North Abington, has been appointed vice dean of Tufts College Medical School, Boston.——Dr. M. Blanche Cooney, Haverhill, is the first woman to be appointed as medical examiner for women in the Catholic Order of Foresters of Massachusetts.——Dr. Freeman A. Tower, superintendent of the Burbank Hospital, Fitchburg, has resigned and will practice in Derry, N. H.

MICHIGAN

Upper Peninsula Society to Meet.—The Upper Peninsula Medical Society will hold its annual meeting at Houghton, April 11 and 12.

Tri-County Society Organized.—A Tri-County Medical Society was organized and effected a permanent organization recently at Memphis. The following officers were elected: president, Dr. Robert McH. Greenshield, Romeo; vice-president, Dr. Jacob H. Burley, Almont; secretary, Dr. Roy J. Pelton, Armada.

Personal.—Dr. Walter G. Paterson, Detroit, has sailed for Europe.——Friends and co-workers of Dr. Theodore A. McGraw, for twenty-five years a member of the staff of St. Mary's Hospital, Detroit, gathered at his home, June 30, and presented him with a handsome silver vase, suitably inscribed and filled with American Beauty roses.

Kalamazoo Academy Meets at South Haven.—The Kalamazoo Academy of Medicine held a meeting at the home of Dr. Arthur R. Elliott of Chicago, 3½ miles south of South Haven, July 25. The program was furnished by Dr. Charles E. Paddock, Chicago, who spoke on "Indications for Cesearean Section;" Albert E. Halstead, Chicago, who discussed the "Surgical Aspects of Gall-stones," and Dr. Arthur R. Elliott who spoke on "Some Medical Aspects of Gall-Stone Disease." Luncheon was provided by Dr. Elliott and his associates.

NEBRASKA

Personal.—Dr. Joseph T. Anthony, Omaha, has sailed for Europe.——Dr. Oscar H. Hahn has resigned after four years of service at the Nebraska Sanitarium, Hastings.

New Officers.—Knox County Medical Association at Creighton, July 21: president, Dr. Frank H. Kucera, Verdigre; secretary-treasurer, Dr. Glen E. Peters, Bloomfield.

Northwestern Nebraska Physicians Organize.—The Northwestern Nebraska Medical Association, was organized by physicians of Brown, Rock and Keyapaha counties at Ainsworth, July 24. Long Pine was selected as the next place of meeting. The following officers were elected: president, Dr. James M. Tische, Wood Lake; vice-president, Dr. William

O. Colburn, Stuart; secretary, Dr. James C. Tucker, Long Pine, and treasurer, Dr. Thomas J. Lawson, Long Pine.

NEVADA

Personal.—Dr. and Mrs. J. La Rue Robinson, Reno, have returned from Atlantic City.——Dr. Patrick J. Mangan, Winnemucca, has been appointed a member of the State Board of Medical Examiners, vice Dr. E. A. Wheeler, Goldfield, deceased.——Dr. A. D. Field, Reno, has moved to Cooledge, Neb., and Dr. John T. Rees, Wadsworth, has located in Denio, Nev.

NEW YORK

Reciprocity with Virginia.—A reciprocity agreement between the state of New York and the state of Virginia has been entered on for the endorsement of medical licenses, providing the applicants have complied with all the specified requirements.

May Abolish Ambulance Chasers.—The Workmen's Compensation Commission has adopted a resolution which states "that the commission declines to consider an agreement for compensation for legal services in connection with any claim arising under the law in advance of the performance of the services for which the claim is made; and that in all cases claims for legal services will be considered solely with reference to the actual service performed on a statement submitted to the commission on the conclusion of the service.

Commission to Study Feeble-Minded.—Governor Klynn has recently appointed a commission to investigate the problem of the feeble-minded in this state. The members are to serve without pay and are as follows: Mr. Robert W. Hebberd, Dr. Max G. Schlapp, Dr. Charles Loomis Dana, Prof. Stephen P. Duggan and Mrs. Mary C. Dunphy. The report of the commission is to be submitted before Feb. 15, 1915, with legislative recommendations. It is pointed out that there are 30,000 feeble-minded persons in New York while accommodations are provided by the state for only 4,000.

Progress of Infant Welfare Campaigns.—The three welfare exhibits of the State Department of Health have completed their first tour of the state. They have covered twenty-five counties and been shown in forty-four cities. The three exhibits were installed simultaneously each week in three adjacent cities, thus concentrating the campaign in a comparatively small territory. The results of the work are already apparent in the establishment of numerous welfare stations in the cities that have been visited and they have left a trail of enthusiastic and constructive welfare work shown by the formation of welfare committees, employment of visiting nurses and establishment of welfare stations. The attendance at the exhibits was very satisfoctory. In Syracuse it is reported that 24,000 persons viewed the exhibits and attended lectures.

New York City

Man Dies from Glanders.—Josè La Vadis, a Spanish mechanic, died from acute glanders in Bellevue Hospital, July 25. It is supposed that he contracted the disease while working in a livery stable in Jersey City.

Vacation Typhoid.—In warning vacationists as to care in the choice of summer resorts in order to avoid the danger of contracting typhoid fever, the Health Department calls attention to an investigation as to just what part vacation typhoid plays in the typhoid records of the city. The diagram of the average of ten years shows that typhoid cases in the city averaged from 15 to 37 a week except for the months of August, September and October, the months when summer vacationists get back to town. In these months typhoid illnesses reached a maximum of over 100 cases a week in September and receded to only 60 cases a week in October.

Personal.—Dr. Lewis A. Sexton has tendered his resignation as resident physician at Willard Parker Hospital to take effect August 1, and has accepted the position of superintendent of Johns Hopkins University Hospital, Baltimore.——Dr. Benjamin Jabbon has received the honor medalion of the Servian Order of St. Sava in recognition of his services during the recent Balkan War in responding to an appeal to enter the Balkan service and assist in preventing the spread of cholera among the soldiers.——Among those who have sailed for Europe are Dr. Colin L. Beggs, Dr. and Mrs. Edward Everett Hicks, Dr. and Mrs. George Draper and Dr. Louis A. Ewald.——Dr. Walton Martin and Dr. David B. Jewett, Rochester, have returned from Europe.——Dr. Charles White Berry, Brooklyn, has been appoined sanitary-supervisor of the state department of health.

Progress Against Venereal Diseases.—The work of the Department of Health in this field is increasing by leaps and bounds. Since the venereal diagnostic clinics were established in May, 1912, the average daily attendance has increased from two to three patients a day to an average of more than thirty-eight. At the present time about 120 Wassermann tests and 30 complement-fixation tests for gonococcus infection a day are being made. Seventy-five per cent. of the specimens examined are sent in by private physicians and institutions. During May, 1914, 127 cases were seen by the medical advisor and of these 15 had been previously treated by quack physicians. Placards have been placed in the toilets of saloons and other places in the city calling attention to the fact that confidential advice regarding gonorrhea, syphilis and sex diseases can be obtained free at Room 10, Department of Health, 149 Center Street, certain days of the week from 2 to 4 p. m. A very difficult problem has been the reference of patients having no family physician to a physician for treatment. Patients able to pay a private physician are given a list of the attending physicians of the various genito-urinary and dermatologic clinics maintaining the required standard. Cards of instruction to those having syphilis or gonorrhea have been printed and there is now in press a circular on the dangers of these diseases and on the methods of the advertising quack.

Amendments to the Sanitary Code.—At the meeting of the Board of Health on July 28 three amendments to the Sanitary Code which have been approved by the New York Academy of Medicine and the advisory council of the Board of Health were adopted. The first of these amendments alters the ordinance making it unlawful to have dogs in the streets or public places without muzzles in June, July, August and September, so that dogs will not be allowed in the streets or in public places at any time during the year without a muzzle. It is said that this is the first step in an effort to secure a dogless city. This ordinance will go into effect as soon as the Board of Health deems that sufficient opportunity has been given for owners of dogs to become acquainted with the ordinance. Another ordinance prohibits the use of wood alcohol or naphtha in any toilet or medicinal preparation and orders the adoption of a poison label which must have the skull and cross-bones and the following: "POISON.—Wood Alcohol or Wood Naphtha. *Warning.*—It is unlawful to use this fluid in any article of food, beverage or medicinal or toilet preparation for human use internally or externally." The word naphtha has been introduced with the hope that it will supplant the term wood alcohol and because it is desired to impress the fact that wood alcohol is wood naphtha and that it is poisonous. The third amendment aims to strengthen the Boylan law in regard to the sale of narcotic drugs. The short time during which the Boylan law has been in operation has served to show that however admirable it is it fails to restrict the use of habit-forming drugs to the extent hoped for, as so many ways of evading the terms of the law have been found. It is believed that the following ordinance will make the law more effective:

> "No cocain or salts of cocain, alpha or beta eucain, either alone or in combination with other substances, or any substance under any other name giving a physiologic reaction similar to the physiologic reaction of cocain; and no opium or preparation of opium, and no morphin or salts of morphin, and no cannabis indica or preparations of cannabis indica, or the derivatives of either or any of the substances named herein, shall be held or offered for sale or sold or given away at retail by any person in the city of New York, except upon the written prescription of a duly licensed physician, veterinarian or dentist.
>
> "Nothing hereinbefore mentioned, however, shall apply to compounded mixtures containing opium or morphin or cannabis indica or their derivatives for external use only, in the form of liniments, ointments, oleates or plasters."

To correct another nuisance the department passed an amendment designed to stop the adulteration and misbranding of commonly used medicines for internal use. For instance it was found that the formula for citrate of magnesia had been changed by one manufacturing druggist when citric acid increased in price so that the contents of each bottle of his citrate of magnesia was 30 per cent. weaker than formerly, while the price remained the same. Hereafter the strength must conform to the standards set up in the U. S. P.

OHIO

Trachoma at Avondale Children's Home.—Two cases of trachoma were found by Dr. H. Reasoner Geyer of Zanesville in the Avondale Children's Home, Muskingum County. These cases are being properly cared for at present, and special precautions are being taken to prevent the spread of the disease to other children.

Revises Limitation of Physicians' Fees.—As a result of the presentation of arguments by a special committee of the Ohio State Medical Association, the State Industrial Commission has granted a revision of the amendment to the workingmen's compensation law as to the limit of $200 as the maximum physician's fee.

Tri-County Sanatorium.—At a meeting held in Steubenville, July 15, the commissioners of Jefferson, Belmont and Guernsey counties agreed to the proposition of building a joint tuberculosis sanatorium, that a tract large enough to accommodate fifty patients will be sufficient, and that the cost of the building and grounds is not to exceed $50,000. A location in Jefferson County, near Richmond, is being considered.

Rat Campaign.—As a result of the advice issued to local boards of health, by Dr. Eugene F. McCampbell, secretary and executive officer of the Ohio State Board of Health, many cities and villages throughout the state have started antirat campaigns and the results so far have been good. The newspapers are giving considerable space to these campaigns and it is probable that an actual economy will result, as the damage rats do in Ohio is estimated to reach considerably over the $10,000,000 mark. Containers to forward rats found dead in river cities and villages have been sent out and preparations are completed to examine rats for plague in the Divison of Hygienic Laboratories.

Typhoid in Steubenville.—An epidemic of typhoid fever began in Steubenville about July 1. At the present time there are about fifty cases. An investigation by assistant state epidemiologist, Walter E. Obetz, of the staff of the State Board of Health has revealed the fact that a large proportion of the patients used water from a spring situated to the northwest of the city. An examination of the water showed it to be grossly polluted and the supply was immediately stopped. The water-supply of Steubenville is subject to considerable pollution and as a result a large proportion of the population use water from private sources. Many of these private sources are poorly protected, and epidemics like the present are unavoidable.

Board of Health Officers Confer.—The thirty-ninth conference of the Ohio State Board of Health with representatives of local boards of health was recently held in Cedar Point, Ohio. The conference was for boards of health and health officers of all villages of less than 3,000 population and all townships in the northern counties of Ohio. Under the Ohio law it is mandatory for each board of health to send a representative to these conferences when so ordered. The attendance was about 400 and nearly 200 health officers were present. The balance was made up of members and clerks of boards of health, mayors and members of council, and other representatives. The program lasted through four sessions and comprised addresses by members of the State Board of Health and lectures by members of the staff. Rural sanitation in its varied aspects was thoroughly discussed. The evening session was given over to two lantern demonstrations, the first illustrating the campaign against communicable diseases, by Frank G. Boudreau, M.D., director of the division, and the second on rural tuberculosis and industrial hygiene, by Dr. Emery R. Hayhurst, Columbus, director of the occupational surgery of Ohio. The secretary and executive officer, Dr. Eugene F. McCampbell, Columbus, gave an addess on the enforcement of public health laws.

PENNSYLVANIA

New Officers.—Lehigh Valley Medical Society at Birchwood Inn, recently: president, Dr. James A. Singer, East Stroudsburg; secretary, Dr. John W. Luther, Palmerton.

Physicians Ask to Have Registrar Retained.—A majority of the physicians of York have refused to sign the petition asking for the removal of Dr. John H. Bennett as registrar of vital statistics.

Personal.—Dr. Daniel N. Butler, U. S. N. (retired), Reading, has presented the Reading Public Museum with a collection of Alaskan Eskimo curiosities.——Dr. Martin E. Griffith, Monessen, sailed for Europe, July 18.

Philadelphia

Woman Held on Baby Farm Charges.—On July 28, the coroner's jury found Mattie Burk, colored, chargeable with the deaths of three colored children, who were victims of starvation at her alleged "baby farm." She was held without bail for the grand jury.

Personal.—Dr. Francis X. Dercum and J. William White have sailed for Europe.——Dr. George E. de Schweinitz has resigned as ophthalmic surgeon and has been appointed consulting ophthalmologist to the Philadelphia General Hospital. Dr. Edward A. Shumway has succeeded Dr. de Schweinitz as ophthalmic surgeon to the hospital.

Unclean Poulterers Arrested.—On July 31, the division of sanitation of the Bureau of Health opened a crusade to enforce regulations that will end the insanitary conditions under which 50,000 fowls are now killed in this city every week. Six Hebrew "Schochets" or chicken slaughterers were arrested and held under $200 bail for court by Magistrate Pennock on the charge of slaughtering without a license. In an inspection trip, one place on Fourth Street was typical. Here chickens were killed in a dark cellar, the floor was litered with a soggy mass of feathers, filth and blood and filthy coops, containing live chickens; 500 chickens a week were killed in this place. What the health officers say can be done to eradicate these conditions was shown at a model slaughter house recently erected on Kater Street near Seventh. The place has cement floors, is well lighted and ventilated, the chickens are cooped in separate rooms, in sanitary cages, and the slaughter rooms are equipped with tools which prevent blood being splashed over the place.

GENERAL

College Merger.—The North Carolina Medical College, Charlotte, will be merged with the Medical College of Virginia, Richmond, but will retain a nominal existence until it confers degrees on the three remaining classes of students. The students will receive the balance of their medical instruction at Richmond, but the degrees will be granted by the North Carolina Medical College.

Sioux Valley Physicians' Convention.—The nineteenth annual meeting of the Sioux Valley Medical Society was held in Sioux Falls, S. Dak., July 22, and the following officers were elected: president, Dr. Robert Evans, Fort Dodge, Iowa; vice-presidents, Drs. Julius A. Hohf, Yankton, S. Dak., and Charles L. Sherman, Luverne, Minn., and secretary-treasurer, Dr. George S. Browning, Sioux City, Iowa (reelected).

Surgical Congress Election.—At the annual meeting of the Clinical Congress of Surgeons of North America, held in London, the following officers were elected on July 31: president, Dr. Charles H. Mayo, Rochester, Minn.; vice-presidents, Drs. Herbert A. Bruce, Toronto, and Robert L. Dickinson, Brooklyn; secretary, Dr. Franklin H. Martin, Chicago (reelected), and treasurer, Dr. Allan B. Kanavel, Chicago (reelected).

Bequests and Donations.—The following bequests and donations have recently been announced:

Association for Improving the Condition of the Poor; Brooklyn Bureau of Charities and Brooklyn Hospital, each $3,792, by the will of Mrs. Jane A. Benson.

Mount Sinai Hospital, New York City, $1,000, by the will of Isadore Wormser.

Mount Sinai Hospital, New York City, and Montefiore Home, each $1,000, by the will of Adolph Magnus.

New York Lying-In Hospital, $5,000, St. Rose's Home, New York City, $3,700, by the will of Miss Lilla Gates.

Nassau Hospital, Mineola, L. I., $5,000, by the will of W. Burling Cook.

Seney Hospital, Brooklyn, one-seventh of the estate of Emalissa Purvis, valued at $16,000.

Pottsville, Pa., Hospital, $50,000, on the death of J. Gardner Muir.

St. Timothy's Hospital, Philadelphia, $5,000, by the will of Elizabeth E. Smith.

School Hygiene Congress.—An international school hygiene congress will be held in Brussels next year. The program takes up the following subjects: school buildings and equipment; medical inspection of urban and rural schools; prevention of contagious diseases in schools; the teaching of hygiene to teachers and parents; school hygiene in its relation to physical education of children; methods, syllabuses and school equipment in their relation to school hygiene; school hygiene in its relation to the children, and school hygiene in its relation to adolescents. The congress is under the patronage of the King of Belgium, and under the auspices of the National Institute of Pediology and the Belgian Pedotechnic Institute. The committee of organization is presided over by M. J. Corman, director general department of sciences and art, and Dr. J. Demoor, director of the Free Institute in Brussels. For information, and in all matters pertaining to the congress, address Dr. H. Rulot, secretary-general, 66 rue des Rentiers, Brussels.

FOREIGN

Association of French-Speaking Gynecologists and Obstetricians.—The first congress of this newly organized association is announced to be held at Lyons, October 1, with Professor Pollosson in the chair. There are twelve affiliated societies, including one each in Belgium and Switzerland, besides an official delegation from Canada.

First National Congress for Pediatrics in Spain.—The thirty-one resolutions adopted by the congress, held recently at Barcelona, under the auspices of the Sociedad Pediatrica española, embody the most advanced views on measures for child welfare, including education of the public in eugenics and censorship of "movies" for all under 20. One resolution urges the founding of a national Child Festival Day, a *Fiesta de la infancia,* to be held in the spring with great ceremony, to exalt the virtues of maternity and distribute prizes for the finest babies.

Deaths in the Profession Abroad.—Among the deaths not mentioned elsewhere is that of Prof. Paul Reclus, the well-known Paris surgeon. The cable states that he died July 29, aged 67. He held various decorations and offices in surgical and medical societies, did active political service in his home district in southern France and has published a number of works on surgery, especially on syphilis of the testicle and a manual of external pathology. He was surgeon in chief at the Hôtel Dieu, and the use of cocain in surgical operations is credited to him. It was mainly to test the value of cocain in local anesthesia that J. Regnault, a French army surgeon, performed an operation for hernia on himself in 1912 and carried it through successfully without pain.——A. Garofalo of Rome, Italy, aged 47, for seventeen years editor of that department of our exchange, the *Policlinico,* which deals with economic and other questions involving the material side of medical practice. He was also editor in chief of the *Clinica Ostetrica.* Under the pen-name of Dr. Cajus he was long a leader in matters of organization of the profession and molding public opinion.——Sir Christopher John Nixon, formerly president of the Royal College of Physicians of Ireland; professor of medicine in the University of Dublin; and member of the General Medical Council; honorary Fellow of the British Institute of Public Health; and vice-chairman of the University of Ireland; died at his home in Dublin, July 20, aged 65.

LONDON LETTER

London, July 24, 1914.

The Color Problem in Hospital Life

For more than a generation colored students, principally Asiatics, have attended the London hospitals. Until recently their presence has not given rise to any discussion. There is competition for students among the various hospitals, and the fees of colored students are as welcome as those of others. Their application and conduct generally does not appear to have been inferior to those of white students and they have fulfilled the duties of dressers and clerks satisfactorily. For some reason the question has recently been raised at certain hospitals as to whether their numbers should be restricted in the interests of the white students. From the patient's point of view, prejudice against the services of colored students certainly exists, but is not great. It must be remembered that in the country generally there is no such color line as exists in the United States and in our colonies. A colored man is treated according to his individual qualities exactly as a white man would be. Some colored men have gone into general practice in working-class neighborhoods where they are, if anything, more successful than the average white practitioner—a result which seems to be due to the fact that the public imagine that they possess some knowledge and skill peculiar to themselves. Any attempt to restrict colored men coming to our hospitals for training would certainly be discountenanced by the enlightened on imperial as well as humanitarian grounds. On the other hand, the giving of appointments to colored students which would place under their control sisters and nurses would be viewed with disfavor.

Deficiency of Surgeons in the Royal Navy

The British Medical Association has issued a report on the conditions of medical service in the Royal Navy which are somewhat unsatisfactory. In consequence of the altered international situation, British warships instead of being scattered all over the world, are now concentrated at home. The former pleasant alternations of home and foreign stations with ever-varying social and sporting facilities have gone, and in their place is a monotonous existence in outlandish parts of home coasts. Most men over 35 are married, and theirs is a hard struggle living in a mess afloat and maintaining homes on shore, which they rarely see—a position which has become acutely accentuated by the increased cost of living as well as by irksome regulations afloat. The disabilities of the Naval Medical Service have been multiplied and increased, and its old attractions have practically disappeared, while the Army Medical Service, in consequence of improved conditions (described previously in The Journal), has advanced in every direction, professionally and materially. The navy is about seventy officers short of its small establishment of ten years ago, although since then the fleet has increased to the extent of upward of 21,000, and the growing process continues. The exact numbers are not known, but it is obvious that at least from eighty to a hundred ships must, at the present minute, be short of complement of medical officers—a situation which would be in ghastly evidence if war broke out.

The Prevention of Infantile Summer Diarrhea

Summer diarrhea is the cause of high infant mortality in our great cities, and floods the outpatient departments of children's hospitals with tiny patients. In London a new departure has been made in dealing with the disease. On the principle that prevention is better than cure, the Queen's Hospital for Children, which is situated in a densely crowded poor district of the metropolis, summoned a meeting in the early part of the year to consider the problem. It was attended by members of local municipal bodies and charities in the neighborhood, and by representatives of the local government board. The following resolution was adopted, "that epidemic summer diarrhea is a preventable disease, dependent on a variety of conditions which can be best dealt with by concerted action on the part of public health authorities and voluntary organizations; and that borough councils and boards of guardians be urged to seek the cooperation of volunteer organizations for the purpose of supplementing the work of the borough councils' visitors, with a view to arranging a complete and thoroughly efficient system of home visiting in every case, in order that treatment prescribed at hospitals and other institutions, and by the general practitioners, may be enforced as far as possible. Further, that all medical charities and all medical practitioners be urged to undertake the voluntary notification to the medical officer of health of all cases that may be brought to their notice. A committee was formed to draw up simple rules for the prevention of summer diarrhea for the information of parents, and these have been widely distributed in suitable quarters. They include directions for the storage of milk and its protection against dust and flies, the disuse of "comforters," giving the child nothing but recently boiled water for twenty-four hours and then feeding with dissolved milk powder.

The Prevention of Insanity

A deputation consisting of members of Parliament and physicians waited on Mr. Herbert Samuel, president of the Local Government Board, to advocate the adoption of measures for the early treatment of mental cases with a view to prevention of insanity. They pointed out the necessity for the treatment of incipient cases without certification. The strong popular prejudice, the loss of liberty and the atmosphere of certified asylums combined to deter patients and their friends from seeking early and efficient treatment. Certification should be restricted to cases so serious that it had become necessary: incipient cases should have more opportunity for preventive treatment in reception homes, observation wards of poor law infirmaries, or the wards of general or special hospitals. Dr. Mott, the well-known neurologist, emphasized the desirability of getting mental cases to the hospital as early as possible and deplored the fact that they usually came for treatment only when chronic. Mr. Samuel gave a sympathetic reply and said he would direct the medical department of the Local Government Board to make a special study of the problem.

Needle Found in a Physician's Heart

At an inquest on a physician who was found dead at the hotel where he was stopping, a curious condition was described. He was addicted to the cocain habit and a hypodermic syringe and tablets were found at his bedside. Death was due to cocain poisoning. In the heart was found a broken hypodermic needle. The medical evidence was to the effect that the needle had probably got into a vein and been carried to the heart. It had nothing to do with the cause of death. The brother of the deceased said that eighteen months ago the physician had in his possession a hypodermic syringe of which the needle had broken off.

Workman's Claim for Compensation for Obesity

As shown in previous letters to The Journal, the workmen's compensation act has given rise to many extraordinary claims for compensation for injury arising out of employment. The record appears to have been broken by the claim of a Scotch miner for compensation for obesity. He met with an accident from which he recovered, but his enforced idleness increased his natural tendency to obesity to such an extent that he found it difficult to follow his occupation. When he recovered, his employers ceased to pay him compensation, but he contended that they were still liable because as a result of his idleness he was getting too fat for manual labor. The arbitrators decided that this did not entitle him to compensation. He appealed to a court which took the opposite view. The case was then taken to the House of Lords (the highest court in the realm) where the decision was reversed and the arbitrators' award restored.

National Council for Combating Venereal Diseases

It has been decided to form a national Council for Combating Venereal Diseases. A number of private conferences have recently been held at which the question of forming such a body has been discussed. Sir Thomas Barlow presided, and among those who have taken part are Sir Rickman Godlee, Sir Francis Champneys, Sir Clifford Allbutt, Sir William Osler, Sir Henry Morris, Sir A. Pearce Gould, the Bishop of Southward, and Major Leonard Darwin. The council will be composed of representatives of the medical profession and the general public. The decision now come to is the outcome of the efforts spread over two years by a committee appointed by the Royal Society of Medicine and the Eugenics Education Society. Among its recommendations was one suggesting that popular education was one of the most necessary steps and probably the most effective for combating the ravages of venereal disease. The immediate provision of proper facilities for treatment was also strongly urged. The submission of this report was followed by the appointment of a further special committee, which discussed the procedure to be adopted to carry out the recommendations. The next development was the appointment of the royal commission, the proceedings of which have been reported in previous letters to The Journal.

PARIS LETTER

Paris, July 17, 1914.

The Rights of the Surgeon

Called to see a patient, Dr. Reynier, agrégé and surgeon to the hospitals of Paris, diagnosed an abscess of the appendix, necessitating an operation. His fee was to be 3,000 francs ($600). When the operation was begun, Dr. Reynier discovered that the appendix was intact, but that there was an abscess of the kidney, and he operated for this abscess. Now the patient refused to pay the 3,000 francs agreed on to the surgeon, alleging that if she had acquiesced to the payment of such a sum she had done it only because the operation was to be on the appendix, and not on the kidney, an operation which should not be worth more than 500 francs ($100). The case was taken to court and Dr. Reynier won the suit. The decision affirmed that the surgeon is always at liberty to perform any operation which he may think necessary for the welfare of the patient, without being held to account for the specific nature of the operative measures which he has taken in good faith, with the intention of curing the affection which he knows exists.

Local Anesthesia in Abdominal Operations

The last sessions of the Société de chirurgie were devoted to very important discussions on the use of local anesthesia in abdominal operations. Professor Reclus, who was the originator of this mode of anesthesia, recalled that when, twenty-seven years ago, he addressed the Société de chirurgie for the first time on the 111 operations which he had performed with local anesthesia, cocain had a bad reputation. The discovery of novocain has widened the field of local anesthesia. As this substance has no vasoconstrictor power, it is well to use it with epinephin. The following solution makes a perfect anesthetic: serum, 100 c.c.; novocain, 0.5 gm.; epinephrin, 1:1,000, 25 drops. Reclus asserts that the surgeon should have the patience to perform in this manner all exploratory laparotomies, radical cures for eventration and hernia, gastrostomies, artificial ani and the ablation of all tumors whose anatomic position is known, cysts of the ovary and hydatid cysts of the liver in particular. If, in the course of the operation, adherences or unforeseen difficulties are met, mixed anesthesia may be used, and a few whiffs of chloroform or ether be given. The patient falls asleep more rapidly, because he is under the influence of the novocain. Furthermore, as Crile demonstrated, disintegration of the cerebral cells is avoided, owing to interruption of nervous influx. Reclus recently had occasion to perform a whole series of abdominal interventions, in particular the extirpation of a cancer of the transverse colon, without the help of general anesthesia, but merely by the use of local anesthesia.

Dr. Chaput, surgeon to the hospitals of Paris, has been an advocate of Reclus' idea for some time. He has used local anesthesia in resection of the maxilla and amputation of the breast, but as a rule he reserves this method for debilitated cases, generally employing lumbar anesthesia, which is, he says, a rapid, complete, simple and benign process.

Professor Quénu uses local anesthesia among all tainted or infected patients, in cases of angiocholitis when he must perform an emergency cholecystostomy. He does not agree with those who think that they cannot use this method in cases of abscess or phlegmon; it can be done by beginning the anesthetic line on the healthy skin and extending it to cover the inflamed zone. But in the question of exploratory laparotomy he differs entirely from Reclus: he considers that the patient should be put to sleep in order to have a complete examination of the abdomen.

Dr. Tuffier, agrégé and surgeon to the hospitals of Paris, had occasion to employ local anesthesia in pulmonary surgery. After having anesthetized the line of incision, he opened the intercostal space and anesthetized the intercostal nerve. He could avoid the ribs in a considerable proportion, and, in one case, explore the apex of the lung which he intended excising, detach the adhesions and make an artificial pneumothorax. In another case he performed a pneumolysis. The patients operated on felt no pain at any time, and, moreover, it was possible, by having the patient make an effort, to inflate the lung and to keep it from contact with the pleura, which makes useless methods of hyperrepression and hyporepression.

Professor Lejars dwelt on the advantages which the use of local anesthesia brings in operations on the stomach, by avoiding the pulmonary complications which are the darkest place in the realm of surgery. Professor Hartmann was equally impressed with the frequency of pulmonary complications following operations on the stomach; at one time he performed all gastro-enterostomies with local anesthesia, but he had nevertheless continued to observe some accidents.

Dr. Walther, agrégé and surgeon to the hospitals of Paris, thinks that even for exploratory laparotomies it would be possible to use novocain in all cases in which the extent of the lesions of the tumor to be operated on are known; but the case is not parallel when an indeterminate lesion must be sought. Walther thinks that in the particular case of appendicitis, local anesthesia should be of great service. It is evident that if one happens on widely spread and unexpected lesions, adhesions or an extended region of inflammation, ether or chloroform must be given. He had noticed, as had Reclus, that patients go to sleep rapidly. Localized anesthesia presents further the immense advantage of obviating all the inconveniences which follow the use of chloroform; the patient can resume an almost normal life a few hours after the operation. There are some cases of intolerance, however, and Walther has observed a patient who was operated on in the morning and who presented a whole series of accidents in the afternoon (vomiting, syncope, profuse perspiration); he had been given a very small injection, but he was a very nervous and particularly impressionable subject.

Professor Pozzi thinks that local anesthesia in laparotomies could be advocated in a certain number of cases; for example, in all gastrostomies and in colostomy; but when laparotomy is undertaken, it is an entirely different question. This is the case in gynecology, in which one is always liable to meet surprises. To be sure, recourse may be had to mixed anesthesia, but certain patients resist, struggle and make efforts which bring on a certain degree of evisceration; this last sometimes a quarter of an hour; but even if this intermediary period should last only a few moments it is an intermission which compromises the security of the operation.

Professor Schwartz is a partisan of local anesthesia in all well-defined operations such as hernias, gastrostomies and colostomy. It is not the same thing in exploratory operations.

On the other hand, Dr. Rochard, surgeon to the hospitals of Paris, thinks that in laparotomies the patient should be immovable and calm, a state which cannot be obtained except by general anesthesia. So, even if a certain number of easy operations can be performed with local anesthesia (hemorrhoids, fistulas of the anus, hydroceles, operations on the fingers) up to amputations, it is preferable to put the patient under the anesthetic, because you should do to others as you would they should do to you; and Rochard would never care to be operated on by any method of local anesthesia if he had to have a limb amputated.

Dr. Morestin, agrégé and surgeon to the hospitals of Paris, spoke of the benefits which have come from regional anesthesia in surgery of the face. It is possible to anesthetize the entire under lip by infiltration of the suborbitary nerve, and the entire lower lip by passing the needle through the mental foramen; the deadening of sensation is then rapid and complete. Thus one can make all restorations of the labial contour in cases of traumatic dents, or for harelips which have been inefficiently treated. By filling the pterygomaxillary cavity with novocain and making several injections at the level of the posterior foramens of the palate, a complete analgesia of the covering of the palate is obtained; that of the tongue may be obtained by infiltration of the lingual nerve.

Association of French Physicians

L'association générale des médecins de France just held its fifty-fifth annual general assembly. Dr. Darras, treasurer-general, outlined the financial situation. The association has distributed, since the last meeting, more than 200,000 francs ($40,000) for pensions and assistance; there was on hand more than 6,000,000 francs ($1,200,000), which included the possessions of the ninety-three local societies. Since its founding, the association has paid in pensions and assistance a total sum of 54,500,000 francs ($10,900,000), of which 1,825,000 francs ($365,000) went to members and the rest to the widows and orphans of members.

Jubilee of Professor Metchnikoff

Next year Elie Metchnikoff, assistant director of the Institut Pasteur, will enter his seventieth year. This anniversary will coincide with the fiftieth anniversary of his entrance into scientific life; his thesis for his doctorate in science dates back, in fact, to 1865. A committee has just been formed, under the presidency of Dr. Roux, director of the Institut Pasteur, to celebrate the scientific anniversary of Professor Metchnikoff. This committee has decided to present him with a book in honor of the occasion, a collection of unpublished scientific works of members of the Institut Pasteur and foreign scientists.

BERLIN LETTER

Berlin, July 18, 1914.

Special Treatment in Charlottenburg Public Hospital

The recognition that, in accordance with the progress of specialism, the work of a public hospital can no longer be limited to internists, surgeons and gynecologists, led some years ago to the engagement in some of the hospitals of specialists as consultants. The Rudolph Virchow Hospital in Berlin has established two wards for dermatology, each of which is put under a separate director. Now the municipality of Charlottenburg is contemplating the enlargement of the Westend municipal hospital by a pavilion for treatment of the specialties. In this building, patients who are being treated in the hospital because of an internal or external disease will find suitable care when they need special services in addition to the treatment of their principal ailment. This will include such treatments as those for the eye, the ear, the throat, nose, teeth and treatments with radium and Roentgen rays. In addition, there will be provision for rooms for gymnastic exercises and for gymnastic and medical apparatus. Here will be treated not only the inmates of the hospital but also convalescents who have been dismissed from indoor treatment. The entire cost of this new building will be about $85,000 (340,000 marks).

Regular Measuring and Weighing of Schoolchildren

According to a resolution of the Berlin School Board, the children entering the public schools are to be measured and weighed regularly once every six months for the first two school years. The practical ground for this action is found in the idea that by the determination at the proper time of a standstill or retrogression in the physical development, the occurrence of severe disturbances of health may be prevented. Children in whom such defects are observed will be provided free of charge with breakfast and lunch. It is hoped also that scientifically valuable facts will be learned through these weights and measures. For normal children, the connection between the intellectual capability and the increase in height and body weight has been determined by experimental psychologic investigations. By these investigations a supplement to this material will be obtained for children that are not sufficiently developed intellectually.

Social Service in the Hospitals

A short time ago, a committee of social philanthropy for the sick was formed. Societies of girls and women will carry out the task of instituting a social philanthropy in the municipal hospitals of Berlin and some of the suburbs. In this project, the principal idea is that the recovery of the patients is often hindered or interrupted if the anxiety for their dependents prevents their securing mental quiet. Often they leave the hospital prematurely for this reason, and thereby imperil the success of medical treatment. An effort will be made to determine the domestic conditions of patients and to provide in a suitable way for their dependents. Further opportunities for work will be secured for patients even after their dismissal. The first step toward the support of mothers with infants will be taken, and a convalescent station will be provided. From one to three directresses, who serve without pay, will be provided for each hospital, according to its size. They will also have representatives who will have regular consultation hours at the hospital. In addition to these, there will be voluntary assistants in service at the same time.

Hygiene in the Prussian Parliament

Some of the representatives complained that the air in the Prussian parliament house was susceptible of improvement and the wish was expressed that an ozone apparatus should be installed. As a result, the Berlin University Hygienic Institute was requested to investigate the ventilation conditions of the parliament building. On the basis of the tests undertaken, the request of the representatives was refused by the minister of public work as without foundation. According to the investigation, the temperature, humidity and carbon dioxid content of the air were found to be very favorable and it was shown that the heating and ventilating arrangements were in working order. The air conditions even at the close of a very crowded session corresponded completely to hygienic requirements, and it was shown in particular that an increase of material which could be oxidized by ozone was not present to any considerable extent.

Finally, it was justly shown in the answer of the minister that there are serious hygienic objections to the introduction of large amounts of ozone in rooms which serve for the assembly of human beings, because ozone possesses the properties of irritating the mucous membranes of the air passages and when in large quantities is capable of producing conditions resembling narcosis.

Personal

H. Fasbender, professor extraordinary of gynecology, died July 12, at the age of 71, at Berlin. Fasbender used to be one of the most noted gynecologists of Berlin. He belonged to the era in which diseases of women were treated with few operations, and as he held fast to these principles, he was very popular among women who were afraid of the knife. In late years he devoted himself largely to historical studies and has published a comprehensive work on the history of obstetrics.

Petition for a Professorship for "Drugless Therapy"

The German Association of Practitioners of Physico-Dietetic Therapy—Naturheillehre—has petitioned the Prussian parliament that hospitals shall be provided for their methods of treatment under the supervision of physicians who are recognized by the association, and that professorships shall be established and filled to suit the petitioners. Finally, they demand representation in the national organizations which advise with reference to public health. The government refused this peculiar request for the following reasons: No one is hindered from applying the methods of drugless therapy, not even a university professor, so that there is no prejudice against these methods. There are no professorships for special methods of treatment and cannot be. To erect hospitals in accordance with the principle demanded is not properly within the sphere of the government. As to representation in the officially recognized organization, it must be considered that any physician who enjoys the confidence of his colleagues may be elected to office in the medical councils and thus it is open to everyone. For election to the controlling body in state medical affairs, other points are of importance rather than how a particular patient shall be treated.

Causes of Death in Prussia

The following table gives the relations of the principal causes of death in Prussia for the years 1909-1912:

	1909	1910	1911	1912
Total deaths	....	....	696,854	636,303
Diseases of digestive organs per 10,000 inhabitants	....	18.96	27.34	15.94
Senile debility	....	16.92	17.39	17.37
Tuberculosis	15.59	15.29	15.12	14.58
Diseases of circulatory organs	....	14.49	15.11	15.44
Pneumonia	14.55	13.03	13.68	13.48
Apoplexy and other nervous diseases	11.38	10.62	10.88	10.57
Congenital debility and developmental defects	11.34	11.06	11.32	10.55
Diseases of the respiratory organs	9.59	8.79	8.75	8.69
Cancer and other neoplasms	7.54	7.92	8.07	8.15
Deaths from contagious diseases	166,010	156,698	161,344	156,907
Percentage of all deaths	24.86	24.56	23.15	24.66

Statistics of Venereal Disease

The statistical offices of the large cities in Germany in cooperation with the German Society for the Suppression of Venereal Diseases, established an investigation with regard to the distribution of venereal diseases in the large cities of Germany, which was carried on from November 20 to December 20, 1913, and the results of which are now available in part.

At a recent meeting of the Berlin Dermatological Society, Blaschko made a report on the results of the Berlin investigation. Although not one-half of the Berlin physicians and even of the specialists of dermatology and neurology (only 48 per cent.) returned answers, there were found in the period of investigation 20,000 persons under treatment for venereal diseases. When it is considered that many cases remain untreated and are treated by quacks, one may assume that there were double this number. The accession of new cases amounted alone to 7,552. In reality it is quite 15,000, which would mean for Berlin during the entire year an addition of 180,000 cases of venereal diseases. Among the new cases, syphilis represented 46 per cent.; gonorrhea, 49 per cent.; but in the syphilis figure a number of relapses treated are included. If the access of fresh cases alone is considered (syphilis 27 per cent. and gonorrhea 80 per cent.), of these two diseases the proportion is: gonorrhea alone, 65 per cent., fresh syphilis, 24 per cent.

Reckoned for the year this would amount to 18,000 cases of fresh syphilis. The proportion according to sex is: women 1 to men 2.8; in gonorrhea 1:3.6; in fresh syphilis 1:2. One case in nine received hospital treatment; in syphilis, every seventh to eighth case; in fresh lues, every fourth to fifth; in gonorrhea, only every tenth. The hospitals sent complete reports, but the number of dispensary patients must have been double that reported and the percentage of those treated in the hospitals only half as large as given above. A striking fact is the large number of cases of paralysis and tabes. In the course of the month, there were 1,874 cases of this kind under treatment. The access of fresh cases of this kind amounted to 167, which would be for the year 2,000 cases, of which 1,450 were among men. This is a figure which amounts to 8 per cent. of the new cases of syphilis, and it seems strikingly large.

In conclusion, the lecturer recommended a repetition of the statistical investigation in the near future. As the collection of the material often imposes quite unusual demands on physicians who are otherwise overloaded with clerical work, he suggests that in order to secure the participation of all physicians an obligatory report be required, which, to be sure, could be carried out only by legal enactment with payment for the reports, according to the English custom.

VIENNA LETTER

Vienna, July 17, 1914.

Restriction of the Number of Medical Students in Vienna

As mentioned in previous letters, the increasing numbers of students flocking to the Vienna University caused such an overcrowding in our teaching institutes that these were utterly unable to cope with them. Now, instead of doing the most natural thing—enlarging the institutes or building new ones—the government thought best to return to medieval measures and to restrict the number of students admitted to the courses, as if we had enough doctors in this country. It is true, in the larger towns and cities we have an abundance of medical men, but in the country districts the lack of qualified men is seriously felt. The constant lack of funds for philanthropic or cultural requirements is one of the saddest consequences of the unsettled political situation in which this country has found itself for more than twenty years. The restriction of medical students, or the "numerosus clausus," as it is termed here, has been ordered by a special ordinance of the ministry of education. It will be in force one year temporarily, according to present report, and the following plan has been adopted: Not more than 400 students will be admitted to the first-year courses. In first line, only those are eligible who are born in Vienna or lower Austria or in those countries which have no university. If these first-year students should be less than 400 in number, then the students from other Austrian countries will be admitted, and in third line, students from abroad. Of course, these regulations do not apply to students who already have matriculated in Vienna or to postgraduate work. The plan has met much opposition and the order has caused much dissatisfaction in medical circles. Not only does it follow methods too closely which were used in former times by guilds to keep off competition, but it also positively harms the reputation of the Vienna University, which has always stood high for liberty in scientific study, especially in medical matters.

New Regulations for Notification of Infectious Diseases

The new epidemics act stipulated that no longer need cases of a number of infectious diseases, including measles, German measles, erysipelas and puerperal fever, be reported to the board of health; but lately an "appendix" has been published which requires that notification of these diseases should nevertheless be made at once, if they occur in health resorts, in schools, prisons and similar institutions containing a considerable number of inmates. Experience has proved that the neglect of notification has been followed by an increase in the number of cases, as contagion was not guarded against.

Expenditures for Sanitary and Social Purposes

In the budget of 1914-1915, several interesting items claim the attention of the medical circles. A sum of over four million kronen (about $900,000) has been set off for sanitary purposes; for combating infectious and epidemic diseases, for water-supplies and drainage of certain districts, for isolation hospitals and nurse-schools. Especially the fight against malaria in the southern districts of our empire requires great attention on the part of our board of health, also pellagra (in Tyrol and the east). Trachoma is still present in the east and southeast and a special lepra hospital in Dalmatia receives also a substantial grant. Furthermore a sum of 500,000 kronen ($100,000) has been spent for the purpose of a lupus home in Vienna. Considerable sums have been devoted to help the establishment of bacteriologic-diagnostic laboratories all over the country. The serotherapeutic institute in Vienna requires 200,000 kronen ($40,000), the pharmacologic-chemical institute receives 50,000 kronen ($10,000), the institute for hydrophobia (rabies) inoculation gets 10,000 kronen ($2,000), and the vaccination (cow's lymph) institute gets 70,000 kronen ($14,000). Furthermore, the publication of instructive leaflets regarding the prevention of infant mortality and sexual diseases, and of general hygiene, is also provided for.

Transmission of Peruvian Verruga to Animals.—The *Cronica Medica* of Lima, 1914, XXXI, 109, brings an illustrated description of the successful inoculation of rabbits, dogs, sheep, goats, asses and small monkeys by subcutaneous injection of material from the skin lesions of verruga patients. The work was done by Ribeyro, Mackehenie and J. Arce. Immunity was conferred by successful inoculation.

Marriages

Orval James Cunningham, M.D., Kansas City, Mo., to Miss Grace Margaret Quinlan of Chicago, June 7.

Henning Vitalis Hendricks, M.D., Hardwick, Mass., to Miss Jennie M. Burnett of Underhill, Vt., June 24.

Gordon Lawrence McClellan, M.D., Big Sandy, Mont., to Miss Ida Slysse Hein of Dover, Minn., June 30.

Hubert Shattuck Howe, M.D., New York City, to Miss Mary Sinsabaugh Gallup of Denver, July 21.

Elexious Thompson Bell, M.D., to Miss Cecile Stuart Porcher, both of Minneapolis, Minn., July 29.

Murdoch Campbell Smith, M.D., to Miss Helen Emery Cruickshank, both of Lynn, Mass., July 11.

John Daniel O'Brien, M.D., to Miss Florence Mary McCrea, both of Canton, Ohio, June 17.

Charles Edward Eaton, M.D., to Miss Caroline A. Bull, both of Seattle, Wash., July 22.

Thomas Irving Stines, M.D., to Miss Laura Lee, both of East St. Louis, Ill., July 28.

Deaths

Evan Norton, M.D. Washington University, Baltimore, 1869; a Confederate veteran; for more than twenty-five years a member of the board of trustees of the Conway (S. C.) high school; and for twelve years auditor of Horry County; editor of the *Horry Herald* from 1876 to 1886; once president of the Horry County Medical Society; and a member of the county board of medical examiners; died at his home in Conway, S. C., July 21, from pellagra, aged 72.

Charles L. Williams, M.D. Bellevue Hospital Medical College, 1867; a Confederate veteran; a member and once vice-president of the Medical Society of Georgia; for many years a member of the city council, city physician and police commissioner of Columbus, Ga.; died at his home in that city, July 16, from acute dilatation of the heart, aged 70.

James Forster Alleyne Adams, M.D. Harvard Medical School, 1866; a Fellow of the American Medical Association; one of the most prominent practitioners of western Massachusetts; consulting physician to the House of Mercy, Pittsfield; a medical cadet in the Navy during the Civil War; died at his home in Pittsfield, Mass., July 27, aged 70.

Thomas L. Hutchison, M.D. Kansas City (Mo.) Medical College, 1902; a member of the Kansas Medical Society; formerly a specialist on diseases of the eye, ear, nose and throat of Wichita, Kan.; while of unsound mind, shot and killed his two daughters and himself, at his office in Glenwood Springs, Colo., July 21, aged 43.

Theodore Erskine Hamilton, M.D. College of Physicians and Surgeons in the City of New York, 1861; surgeon of the Eighth Connecticut Volunteer Infantry during the Civil War; for many years a member of the staff of the Springfield (Mass.) Hospital; died at his home in Springfield, July 21, from cerebral hemorrhage, aged 80.

Edward Everett Haynes, M.D. Jefferson Medical College, 1890; for three years a member of the New Jersey legislature; postmaster of South Amboy, N. J.; a member of the common council for one term; a member of the board of education; and president of the local board of health; died at his home, June 24, aged 54.

Henry J. MacDonald, M.D. Willamette University, Salem, Ore., 1886; a Fellow of the American Medical Association; local surgeon at Morris Park for the Long Island Railroad; for many years chief of staff of St. Mary's Hospital, Jamaica, N. Y.; died in Long Island College Hospital, July 22, after a surgical operation, aged 62.

Alexander B. McGregor, M.D. Detroit College of Medicine, 1902; a Fellow of the American Medical Association; aged 39; of Cheboygan, Mich.; while responding to a professional call in Cheboygan, in his automobile, was struck by a freight train and instantly killed, July 14.

William Joseph O'Byrne, M.D. Bellevue Hospital Medical College, 1870; for thirty-seven years a practitioner of the Bronx, New York City; died at his home, July 19, from heart disease, aged 69.

David Philip Miller, M.D. Keokuk Iowa Medical College, 1895; of Chicago; a Fellow of the American Medical Association; formerly professor of physiology in Illinois Medical College; died in the Henrotin Hospital, Chicago, July 22, after a surgical operation, aged 41.

Delmso A. Walden, M.D. Rush Medical College, 1870; a surgeon of volunteers during the Civil War, and later a surgeon in the Indian troubles in Nebraska; for many years surgeon of the Burlington System at Beatrice, Neb.; died at his home in that city, July 22.

Henry McCrea, M.D. University of Michigan, Ann Arbor, 1875; Bellevue Hospital Medical College, 1876; for thirty-eight years a practitioner of Marlette, Mich.; coroner of Sanilac County in 1878 and 1879; died at his home in Marlette, recently, aged 70.

Clifford P. Johnson, M.D. University of Kansas, Lawrence and Kansas City, 1909; a member of the Kansas Medical Society; died suddenly at the home of his father in Coffeyville, Kan., from acute dilatation of the heart following typhoid fever, aged 31.

Jacob Jacques Fabian, M.D. Vanderbilt University, Nashville, Tenn., 1907; of Grand Rapids; a member of the Michigan State Medical Society; after rescuing a woman from drowning at Reed's Lake, Mich., July 28, became exhausted and was drowned, aged 30.

Frank E. Courtright, M.D. Starling Medical College, Columbus, Ohio, 1897; a Fellow of the American Medical Association; for fifteen years a practitioner of Shawtown, Ohio; died in Toledo, Ohio, July 21, after an operation for appendicitis, aged 45.

Henry Knox Stratford, M.D. Eclectic Medical College of Pennsylvania, Philadelphia, 1865; Bennett Medical College, Chicago, 1888; surgeon at Camp Douglas during the Civil War; died at the home of his daughter in Austin, Chicago, July 28, aged 92.

Charles Gartner, M.D. Albany (N. Y.) Medical College, 1895; also a graduate of the Albany College of Pharmacy; for nineteen years a practitioner of Brooklyn; died in the Lutheran Hospital in that city, July 25, from heart disease, aged 44.

Charles Segerlund, M.D. Bennett Medical College, Chicago, 1897; a Fellow of the American Medical Association; secretary of the Caledonia (Ill.) Mutual Telephone Company; was instantly killed by a train near Caledonia, July 24, aged 47.

Clarence Cullen Seabrook, M.D. University of Pennsylvania, Philadelphia, 1878; died at his home in Burlingame, Kan., July 11, from the effects of a fracture of the hip received in a fall down cellar in his home a few days before, aged 60.

J. C. Davidson (license, Tenn., 1889); for more than half a century a practitioner of Putnam and Jackson counties, Tenn., and a resident of Pine Fork; died at the home of his brother-in-law near Cookeville, Tenn., July 16, aged 73.

Henry Adolphe Richy, M.D. College of Physicians and Surgeons in the City of New York, 1889; a captain in the French Army during the Franco-Prussian War; died suddenly in his office in New York City, July 18, aged 75.

George Ethelbert King, M.D. Kentucky School of Medicine, Louisville, 1898; for many years a practitioner of Mason County, Ky.; died at the home of his brother near Mt. Carmel, Ky., July 20, from tuberculosis, aged 44.

Michael Francis O'Rourke, M.D. College of Physicians and Surgeons in the City of New York, 1902; a member of the attending staff of St. Vincent's Hospital, New York City; died at his home, from pneumonia, July 22, aged 36.

James Edward Nelson, M.D. Georgetown University, Washington, D. C., 1895; for many years a member of the board of medical examiners in the Pension Bureau, Washington; died at his home in that city, July 22.

Hagop H. Thoumaian, M.D. Northwestern University Medical School, Chicago, 1896; of St. Anne, Ill.; a Fellow of the American Medical Association; died in the Presbyterian Hospital, Chicago, July 18, aged 47.

Leslie Levi Wiles, M.D. Syracuse (N. Y.) University, 1911; a member of the Medical Society of the State of New York; died at his home in Amsterdam, N. Y., July 17, from scarlet fever, aged 24.

William S. Stanfield (license, Tenn., 1889); for more than fifty years a practitioner of Obion County, Tenn.; died at his home in Obion, about July 20, aged 75.

Charles B. Lee, M.D. Southern Medical College, Atlanta, Ga., 1884; a member of the Tennessee State Medical Association; of Edgemoor, Tenn.; died in Scarboro, Tenn., June 23, aged 60.

Walter L. Landrum, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; of Taylorsville, Ga.; was shot and killed in a quarrel near Taylorsville, July 27, aged 37.

Archibald S. Watkins, M.D. Vanderbilt University, Nashville, Tenn., 1893; city health and quarantine officer of Tehuacana, Tex.; died at his home in that city, July 21, aged 62.

John Milton Singleton, M.D. Kansas City (Mo.) Medical College, 1884; a member of the Missouri State Medical Association; died at his home in Kansas City, July 21, aged 57.

Thomas Oliver Keator, M.D. Dartmouth Medical School, Dartmouth, N. H., 1875; formerly health officer of Rochester, N. Y.; died at his home in Accord, N. Y., July 6, aged 60.

Charles Feathers (license, Ark., 1903); of Farmington, Ark.; died in the Fayetteville (Ark.) City Hospital, July 13, a few days after an operation for appendicitis, aged 33.

Edgar Wilard Clark, M.D. Hahnemann Medical College, Chicago, 1868; a veteran of the Civil War; mayor of Neenah, Wis., in 1887; died at his home in Los Angeles, recently.

Andrew Baylies, M.D. New York University, New York City, 1879; a member of the Massachusetts Medical Society; died at his home in Worcester, Mass., July 7, aged 75.

Agnes Benford McCrea, M.D. College of Physicians and Surgeons, Los Angeles, 1913; of San Francisco; died at the home of her parents in Los Angeles, July 23, aged 27.

Jeremiah Chapman Wasson, M.D. Vanderbilt University, Nashville, Tenn., 1880; a Confederate veteran; died at his home near Rhea Springs, Tenn., July 20, aged 77.

Mary Vail Grinnell (license, Vt., 1887); for thirty-four years a practitioner of Vermont; died at her home in Rutland, about July 10, from appendicitis, aged 59.

William W. Farr (license, Miss., 1882); of Bolton, Miss.; aged 65; while making a professional call near that place, July 18, was run down by a train and killed.

James Foster Wilson, M.D. University of Pennsylvania, Philadelphia, 1895; of Philadelphia; died at the home of his brother in that city, July 24, aged 42.

John W. Tuthill, M.D. Eclectic Medical Institute, Cincinnati, 1878; a veteran of the Civil War; died at his home in West Milton, Ohio, July 24, aged 82.

William Wesley Grim, M.D. Western Pennsylvania Medical College, Pittsburgh, Pa., 1892; died at his home in Volant, Pa., July 13, from heart disease, aged 52.

Thomas Arthur McMurtry, M.D. University Medical College, Kansas City, Mo., 1895; died at his home in Carthage, Mo., July 12, from nephritis, aged 43.

Ernest A. Hendricks, M.D. Birmingham, Ala., Medical College, 1908; died at his home in Tuscola, Texas, about July 2, from tuberculosis, aged 30.

John Duke McFaden (license, Kansas, 1901); of Ames, Kan.; died at the home of his mother in Concordia, Kan., June 30, from heart disease.

Elbert A. Moye, Jr., M.D. Jefferson Medical College, 1895; died at his home in Greenville, N. C., July 8, from cerebral hemorrhage, aged 45.

John T. Bowen, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889; died at his home in Crawford, Ga., July 14.

Edwin J. Farr, M.D. Castleton Medical College, Castleton, Vt., 1851; died at his home in Eau Claire, Wis., July 10, aged 82.

John V. Hennessy, M.D. Albany, N. Y., Medical College, 1884; died at his home in Albany, N. Y., July 13, from heart disease.

Gillum Taylor Ragan, M.D. University of Georgetown, Washington, D. C., 1866; died at his home in Neogo, Ill., July 9.

Joseph B. Westcott, M.D. Chicago Homeopathic Medical College, 1890; died in Newton County, Ind., about July 8.

George Henry Christie, M.D. McGill University, Montreal, 1872; died at his home in Lachute, Que., May 12, aged 62.

William T. Delaney, M.D. Jefferson Medical College, 1861; died at his home in Bristol, Tenn., July 18, aged 78.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

THE NEW YORK INSTITUTE OF SCIENCE *

Another Fraudulent Concern Denied the Use of the Mails

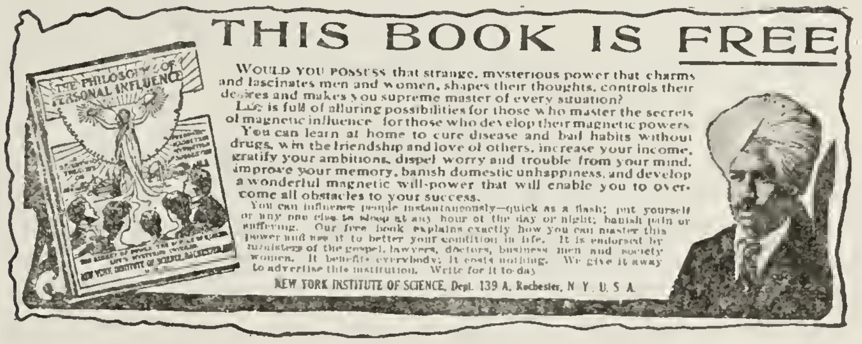
One more of the Neal-Adkin syndicate of frauds was denied the use of the United States Mails when a fraud order was issued against the New York Institute of Science, Rochester, N. Y. E. Virgil Neal, the original president of this concern, has made quackery his life work. Although some of The Journal's readers may remember what has been said about Neal in the past, it is worth while briefly summarizing this arch faker's meteoric career.

Previous to 1900, E. Virgil Neal traveled over the country under the alias X. La Motte Sage, giving alleged exhibitions of hyponotism.

In 1904 he was connected with the "Columbia Scientific Academy," which "taught" palmistry.

In 1905 Neal, with Adkin, conducted the "New York Institute of Physicians and Surgeons." This was put out of business by a fraud order issued Aug. 2, 1905.

In 1906 Neal was operating the "Force of Life Chemical Company." This fraudulent concern sold pills or tablets (made to order by Parke, Davis & Co.) and operated what the New York *Times* described as a "grotesquely obvious swindle." The Force of Life Chemical Company was investigated by the federal authorities. When it was found that an influential New York politician, Gen. James R. O'Beirne, was president of it, the "investigation" ceased! The newspaper publicity, however, killed the business.


THE PHILOSOPHY OF PERSONAL INFLUENCE
NEW YORK INSTITUTE OF SCIENCE, ROCHESTER

THIS BOOK IS FREE

Would you possess that strange, mysterious power that charms and fascinates men and women, shapes their thoughts, controls their desires and makes you supreme master of every situation?

Life is full of alluring possibilities for those who master the secrets of magnetic influence for those who develop their magnetic powers.

You can learn at home to cure disease and bad habits without drugs, win the friendship and love of others, increase your income, gratify your ambitions, dispel worry and trouble from your mind, improve your memory, banish domestic unhappiness, and develop a wonderful magnetic will-power that will enable you to overcome all obstacles to your success.

You can influence people instantaneously—quick as a flash; put yourself or any one else to sleep at any hour of the day or night; banish pain or suffering. Our free book explains exactly how you can master this power and use it to better your condition in life. It is endorsed by ministers of the gospel, lawyers, doctors, business men and society women. It benefits everybody; it costs nothing. We give it away to advertise this institution. Write for it to-day

NEW YORK INSTITUTE OF SCIENCE, Dept. 139 A, Rochester, N. Y. U. S. A.

A photographic reproduction reduced of a typical advertisement put out by the New York Institute of Science. This alleged course in hypnotism was sold under the claim: "You can learn at home to cure diseases and bad habits without drugs, win the friendship and love of others, increase your income, gratify your ambitions, dispel worry and trouble from your mind, improve your memory, banish domestic unhappiness, and develop a wonderful magnetic will power that will enable you to overcome all obstacles to your success."

In 1906 also, Neal conducted a bank which is said to have loaned money to small publishing houses, the loans being paid in advertising space in the publications. In the same year, too, Neal started the "Neal Biscuit Company," which later changed its name to the "American Health Products Company."

Other concerns in which Neal has been either directly or indirectly interested are:

To-Kalon Mfg. Co.—A beauty treatment.
Cartilage Co.—Guaranteed to increase the height.
Harriett Meta.—Wrinkle eradicator.
Everett Wood—Cure for baldness.
Roman Solvene Laboratory—Superfluous hair remover.
Okola Laboratory—Eye treatment.
Paris Academy of Beauty Arts—Bust developer.
Dr. Turner Co.—Obesity cure

So much for the activities of E. Virgil Neal. The New York Institute of Science is said to have mulcted the public to the extent of $1,500,000. Briefly, the scheme was to advertise that a free book would be sent to all those interested, explaining how "magnetic influence" and "hypnotic power" might be attained. Those answering the advertisement received a pamphlet describing the alleged "course of study" given by the New York Institute of Science. It contained a list of names of those alleged to be members of the faculty of the "institute." There was no faculty, the names given being either fictitious or those of clerks employed by this fraudulent concern. When cited to show cause why a fraud order should not be issued against it, continuances were granted at the request of the concern's attorney, John J. Vause, and the case was not finally heard until Nov. 17 to 20, 1913. Mr. Vause, by the way, also appeared as attorney for two other frauds operated by the same syndicate, the Cartilage Company and the Okola Laboratory. But the story is well told in the memorandum of the Assistant Attorney-General to the Postmaster-General recommending the issuance of a fraud order. Part of the memorandum follows:

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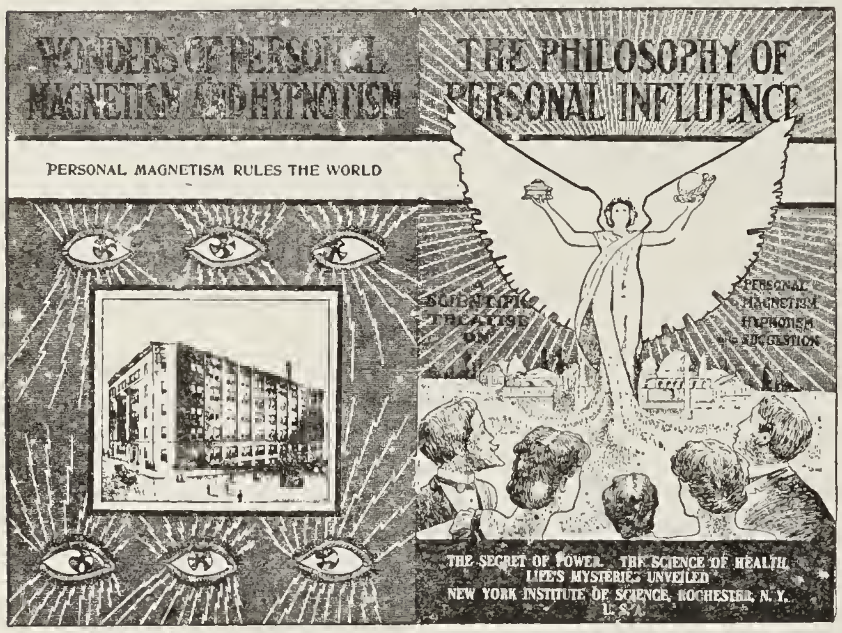
* A more complete account of this case will appear in pamphlet form, price 4 cents.


WONDERS OF PERSONAL MAGNETISM AND HYPNOTISM
PERSONAL MAGNETISM RULES THE WORLD
THE PHILOSOPHY OF PERSONAL INFLUENCE
A SCIENTIFIC TREATISE ON PERSONAL MAGNETISM HYPNOTISM AND SUGGESTION
THE SECRET OF POWER. THE SCIENCE OF HEALTH. LIFE'S MYSTERIES UNVEILED
NEW YORK INSTITUTE OF SCIENCE, ROCHESTER, N. Y. U. S. A.

Greatly reduced facsimile of the back and front covers of the "free booklet" sent out by the New York Institute of Science. In addition to many fraudulent claims, this booklet contained a list of the alleged "faculty" of the "Institute" made up largely of names of clerks employed by the concern.

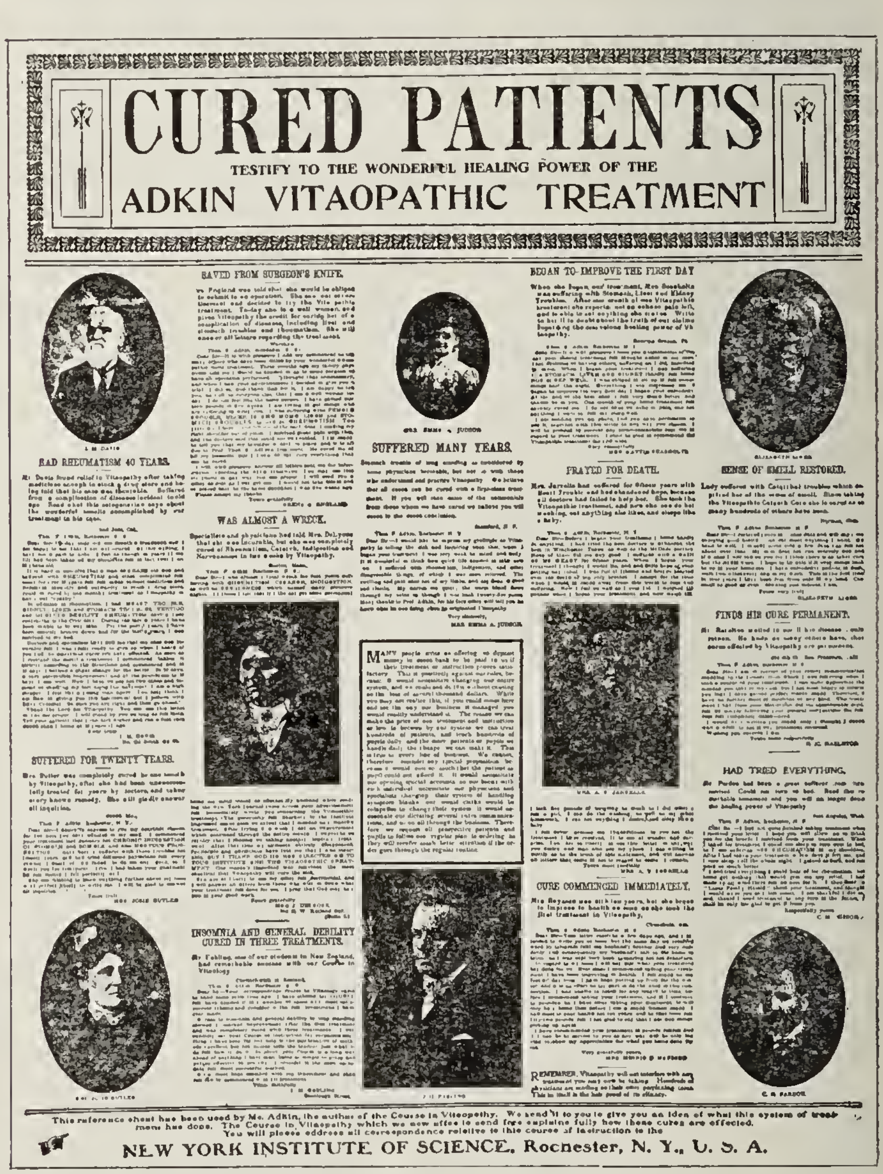
"The New York Institute of Science was incorporated under the laws of the state of New York, Sept. 9, 1899, by X. La Motte Sage, whose true name is E. Virgil Neal, T. F. Adkin, M. N. Adkin, M. H. Neal and B. Hurd. On Jan. 29, 1913, a statement of voluntary dissolution was filed, but prior to that date, that is on Nov. 27, 1912, Charles S. Clark, E. J. MacNamara and K. A. McCormick were incorporated under the laws of the state of Virginia to conduct this same business, under the same name, and at the same place, Rochester, N. Y.

"It is established that X. La Motte Sage, the original president of the concern, has not been connected with it since 1902, and T. F. Adkin, who, it is interesting to note, was the president of the New York Institute of Physicians and Surgeons, against which a fraud order was issued on Aug. 2, 1905, makes affidavit under date of Jan. 10, 1913, that he is not connected with the respondent company. Charles S. Clark has been connected with the business for many years as vice-president and general manager, and in the Virginia articles of incorporation he is named as president, E. J. MacNamara, vice-president, and K. A. McCormick, secretary and treasurer, these three parties being also the incorporators of the Okola Laboratory, the business of which was conducted in the same building, and against which you issued a fraud order on Feb. 16, 1914.

"Evidence in the case is to the effect that one of the publications used by the concern, bearing the title 'Vitaopathy' and written by Thomas F. Adkin, is practically the same as the course on 'Vitaology' used in connection with the business of the New York Institute of Physicians and Surgeons, of which Adkin, as stated above, was president. Other publications used are 'Magnetic Healing' by Thomas F. Adkin, 'Personal Magnetism' by Paul Weller, and a Course in Hypnotism by X. La Motte Sage. The mails were also closed against the circulation of these publications by means of the fraud order of 1905 against the New York Institute of Physicians and Surgeons. In promoting the business of the last named concern prominence was given to the course in 'Vitaology' or 'Vitaopathy,' the course in hypnotism being subordinated, whereas in the business of the New York Institute of Science prominence is given to the Sage course in hypnotism, 'Vitaopathy' being secondary."

Some of the advertisements which the New York Institute of Science issued are then described in detail, and Judge Lamar points out that the free book which the advertisement offers to the public is not a scientific treatise, as might be inferred, but merely an advertising pamphlet containing, among other things, a list of the alleged faculty of the New York Institute of Science.

Then follows the Assistant Attorney-General's description of the method by which the New York Institute of Science attempted to deceive the public by giving the impression that X. La Motte Sage was a man of high educational rank. The memorandum further states that letters from various educators at Rochester, N. Y., show that the members of the "faculty" of the New York Institute of Science were unknown to them and that the "institute" itself had never been recognized by them as an institution of learning. It then continues:


CURED PATIENTS
TESTIFY TO THE WONDERFUL HEALING POWER OF THE
ADKIN VITAOPATHIC TREATMENT

HAD RHEUMATISM 40 YEARS.

SAVED FROM SURGEON'S KNIFE.

WAS ALMOST A WRECK.

SUFFERED MANY YEARS.

BEGAN TO IMPROVE THE FIRST DAY

PRAYED FOR DEATH.

SENSE OF SMELL RESTORED.

FINDS HIS CURE PERMANENT.

SUFFERED FOR TWENTY YEARS.

INSOMNIA AND GENERAL DEBILITY CURED IN THREE TREATMENTS.

CURE COMMENCED IMMEDIATELY.

HAD TRIED EVERYTHING.

REMEMBER. Vitaopathy will not interfere with any treatment you may now be taking. Hundreds of physicians are sending us their other perplexing cases. This in itself is the best proof of its efficacy.

This reference sheet has been used by Mr. Adkin, the author of the Course in Vitaopathy. We send it to you to give you an idea of what this system of treatment has done. The Course in Vitaopathy which we now offer to send free explains fully how these cures are effected. You will please address all correspondence relative to this course of instruction to the

NEW YORK INSTITUTE OF SCIENCE, Rochester, N. Y., U. S. A.

Another advertising sheet sent out by The New York Institute of Science in its attempt to separate the credulous public from its money. The "institute" professed to give instruction in what it called the "Vitaopathic Treatment" of disease. This advertisement consisted of testimonials from persons alleged to have been cured by "Vitaopathy."

"Embracing two pages of the booklet under the caption 'Endorsed by Colleges and Universities,' are what purport to be facsimiles of five letters on the letter-heads of institutions of learning, speaking in complimentary terms of Dr. X. La Motte Sage, dated in the years 1889, 1897 and 1898, in none of which is mention made of the New York Institute of Science, and necessarily so, as the corporation of that name was not organized until 1899.

"Another page in the booklet is devoted to what purport to be excerpts from different newspapers dated 1896, 1897, 1898, and all of which refer personally to Dr. Sage. Beneath these clippings the statement is made:

> "We have testimonials and press clippings almost without number, all certifying to Dr. Sage's wonderful success. After the founding of the New York Institute of Science Dr. Sage ceased to give public performances and to deliver lectures, and devoted his entire time to the interests of the institution and its pupils."

"It is admitted by respondent 'that this institute has held out Dr. X. La Motte Sage as the president of same,' and in defense urges that 'this is not a material representation' and that 'the fact that whether Sage was or was not the president of the institute seems to be highly immaterial in view of the fact that the course of instruction was by correspondence.' An examination of the excerpts from the booklet set out above, however, and of the matter described in brief also appearing therein, shows that the so-called endorsements of colleges and the excerpts from newspapers relate to Dr. Sage personally, and are clearly depended on by respondent to lend an educational character to its business and to reflect credit on it, for the purpose of deceiving the unwary. Further, the representation is material in view of the pretense that 'students' can always write to Dr. Sage or any of his corps of professors and obtain their opinion on any question or difficulty.

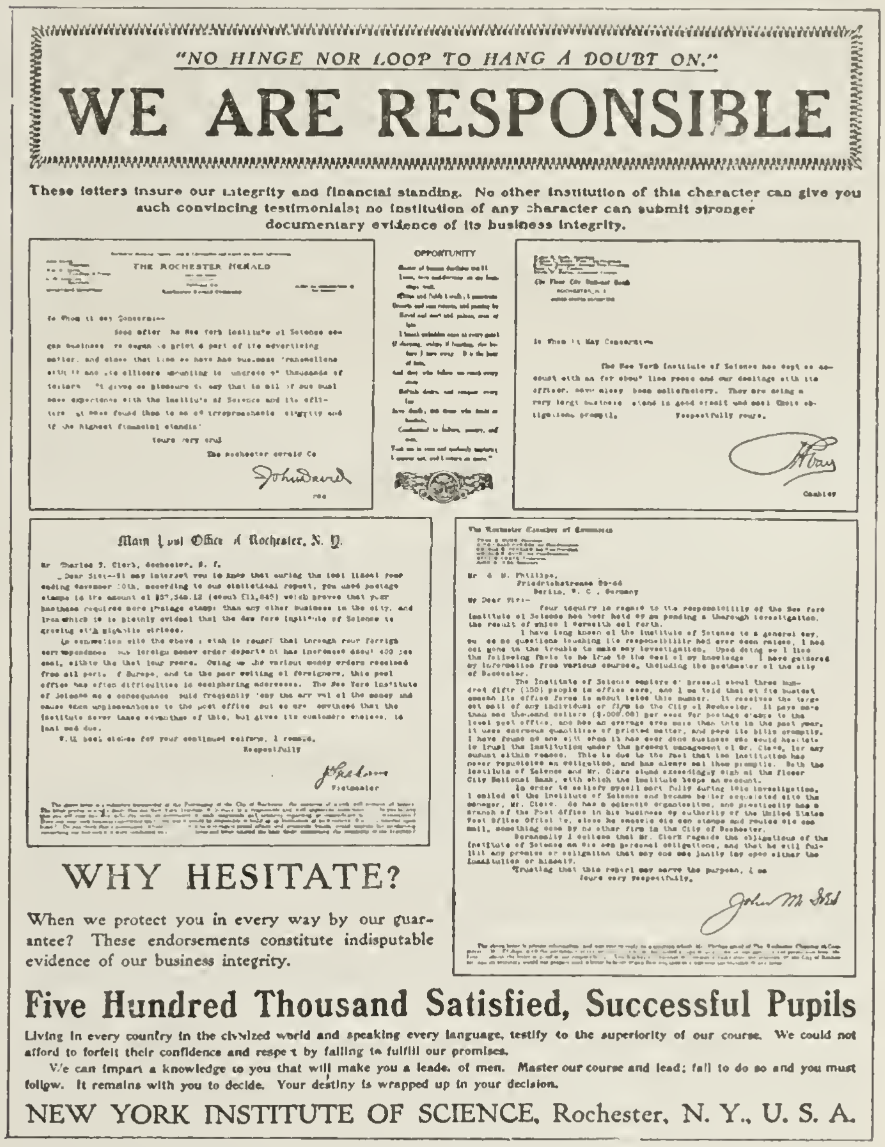
"There is in fact no 'faculty' nor is this concern an 'Institute of Science.' It is in fact nothing but a mail-order scheme in which pamphlets and books are being sold under the false and fraudulent representations herein quoted. The persons represented as constituting the 'faculty' are in the main merely clerks and the officers of the corporation. It is significant that some of the names appearing in this alleged 'faculty' were connected with the Institute of Physicians and Surgeons against which a fraud order was issued several years ago. It also appears from the evidence that X. La Motte Sage, whose true name is E. Virgil Neal, has not been connected with this concern for a number of years and further that a number of the members of the 'faculty' became associated with the respondent years after Sage had severed his connection therewith. Regardless of this fact the company continues to represent that Sage is the president of the 'Institute' and that his personal advice is available to 'students.' While Sage and Dr. Wharton and Rev. Paul Weller are purported to have written certain of the pamphlets used by this concern in instructing its pupils, as a matter of fact they are not connected with the 'Institute' and their advice is not available to the people who buy this course of instruction.

The government officials then discussed in detail the various claims made by the New York Institute of Science. These claims were analyzed in detail and their absurdity and fraudulence shown. Particular stress was laid on the fact that the "institute" claimed to be able to make hypnotists of anybody, regardless of age, sex, education or personality, and that, in fact, it apparently, made a special bid for the illiterate. Attention also was directed to the claim made that the "course of instruction" was originally sold for $25 when, as a matter of fact, the "course" never sold for more than the $5 asked for it in the follow-up letters.

In considering the case against the New York Institute of Science, the government called in noted alienists who had investigated the subject of hypnotism and brought out the following facts: In hypnotism there are two controlling factors, the first and more important being the individuality or personality of the subject, and particularly, his willingness to be hypnotized; the second, is the individuality or personality of the operator. As one of the physicians testified: "The capacity of being hypnotized is a thing resident in the person and not a force which comes from the outside—from the operator." The whole trend of the claims made by the New York Institute of Science was exactly the opposite of this; that is, that the hypnotic power is one possessed by someone who can use it and produce results over someone else and that the New York Institute of Science could develop this alleged power in its "students." The memorandum continues:

"The purpose of the promoters in making these representations is to lead the reader of its advertising literature to believe that this concern will impart to him this wonderful power and ability to hypnotize and control anyone under any circumstances and thus to subject to his own will whomsoever he pleases, and thereby to deceive them into remitting $5 for this so-called course of instruction.

"Despite the positive and emphatic representations calculated to create the contrary impression the respondent in its brief admits that 'everyone cannot be hypnotized' and that 'it is practically impossible to hypnotize a man who is not willing to do as you say,' and the testimony of the experts introduced was also to this effect.



"NO HINGE NOR LOOP TO HANG A DOUBT ON."

WE ARE RESPONSIBLE

These letters insure our integrity and financial standing. No other institution of this character can give you such convincing testimonials; no institution of any character can submit stronger documentary evidence of its business integrity.

THE ROCHESTER HERALD

OPPORTUNITY

Main Post Office of Rochester, N. Y.

The Rochester Chamber of Commerce

WHY HESITATE?

When we protect you in every way by our guarantee? These endorsements constitute indisputable evidence of our business integrity.

Five Hundred Thousand Satisfied, Successful Pupils

Living in every country in the civilized world and speaking every language, testify to the superiority of our course. We could not afford to forfeit their confidence and respect by failing to fulfill our promises.

We can impart a knowledge to you that will make you a leader of men. Master our course and lead; fail to do so and you must follow. It remains with you to decide. Your destiny is wrapped up in your decision.

NEW YORK INSTITUTE OF SCIENCE, Rochester, N. Y., U. S. A.

A reduced facsimile of a sheet, three square feet in size, sent out by the New York Institute of Science in its attempt to impress the public with its responsibility and honesty. The sheet contained reproductions of four letters. One was from the president of the Rochester *Herald*, who states that the "Institute of Science and its officers" are "of irreproachable integrity." The cashier of the Flour City National Bank, Walter B. Duffy, President, testifies that the bank's dealings with the New York Institute of Science "have always been satisfactory." The Rochester Chamber of Commerce comes to the defense of this fraudulent concern by stating that it employs 350 people, uses more than $1,000 worth of postage stamps each week and "pays its bills promptly." The fourth letter is from the postmaster of Rochester who praises the "institute"—possibly because it used over $57,000.00 worth of stamps a year—and states that he is convinced that the institute "gives its customers whatever is just and due." The New York Institute of Science commenting on the postmaster's letter says: "Do you think that a postmaster, whose business it is to investigate postal affairs and prosecute frauds, would express his satisfaction concerning our business if it were conducted on a fraudulent basis and there existed the least doubt concerning the reliability of the institute?"

"Evidence was introduced showing that in a number of instances testimonials published by the 'Institute' were solicited and procured upon promise to furnish books free.

"For years the Department has been flooded with complaints against this concern from people claiming to have been defrauded and it is estimated that this concern has mulcted the public to the extent of $1,500,000.

"I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises in violation of Sections 3929 and 4041 of the Revised Statutes, as amended, and I therefore recommend that a fraud order be issued against the New York Institute of Science, Inc., and its officers and agents as such."

The fraud order was issued.

Correspondence

Warning as to Use of Hay-Fever Toxin

To the Editor:—Since the publication of my article on hay-fever in The Journal, July 11, 1914, p. 141, I have been receiving so many letters of inquiry that it is impossible to give each one a reply.

I tried to make clear the fact that in its present form the method is not suited for general use. What I wrote was intended only for the laboratory worker with a thorough knowledge of the principles of immunity; such men can easily prepare their own toxin and vaccines and, after some study and experimentation, should be able to use the method successfully.

All others should leave it alone. The toxin is as potent as tuberculin and requires fully as much judgment and care for its administration. I have seen some alarming reactions from it and am convinced that in some cases a dose sufficiently large would prove fatal. Any physician who, without the necessary skill and experience in such work, attempts its use is liable to acquire some very useful, but extremely painful, experience.

The pollens are not on the market so far as I know; and the toxin is too unstable to be marketed successfully. I hope you will be able to give this space in the next issue of The Journal.

R. C. Lowdermilk, M.D. Galena, Kan.

Technic for Obtaining Placental Serum

To the Editor:—I have received a large number of inquiries as to the technic in obtaining placental serum, mentioned in my paper, "Treatment of the Toxemias of Pregnancy" (The Journal, July 11, 1914, p. 158). The method is as follows: After the delivery of the child the cord is cut and the blood is allowed to flow freely from the placental end. A sterile flask collects the blood, which is then placed in a refrigerator until there is complete separation of the serum from the other elements of the blood. If the serum is perfectly clear and yellowish in color it may be used without further preparation; but if it is not, it may be centrifuged under aseptic precautions and then made perfectly clear.

A. J. Rongy, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

EFFECTS OF VESICULECTOMY

To the Editor:—1. What effect on the general health would be produced by the removal of one seminal vesicle and of both? What effect on the power of procreation would be produced by the removal of both seminal vesicles?

2. Would removal of one be indicated if chronic inflammation persisted in it for years, with many exacerbations resulting from slight causes or causes not obvious; also by ordinary methods of treatment such as stripping, hot-water rectal lavages, suppositories, etc., the exacerbations being accompanied by spasmodic condition of pylorus and resulting symptoms of headache, vomiting of intensely acid stomach contents, etc., and the disease causing many fatigue symptoms, of the neurasthenic order and therefore much discomfort to and disability of the patient?

Ira W. Chapman, M.D., Pittsburgh.

Answer.—1. As seminal vesicles are not found in carnivora, and as the experimental removal of them from other animals entails no appreciable impairment of health or procreative capacity, the presumption seems warranted that these vesicles are, in the human subject also, accessory rather than essential to general and sexual health. Yet this presumption still lacks ample clinical confirmation in man; for the extirpation of one or both vesicles is seldom performed, perhaps because it is a formidable operation, entailing about 10 per cent. mortality. Less than one hundred vesiculectomies are recorded in the literature; and most of these were made for the relief of serious diseases (for instance, tuberculosis) whose effects overshadow the mere loss of the vesicles. Yet there are cases on record in which the human subject has enjoyed normal health after the removal of one or both vesicles.

2. "Chronic inflammation" designates an anatomic condition only; this condition in the vesicles is usually due to an infection, by the gonococcus, pus bacteria or tubercle bacillus. The non-tuberculous infections have been frequently cured by drainage of the vesicle from the perineum (vesiculotomy) as practiced by Fuller, and by irrigation and medication of the vesicle through the vas deferens, devised by Belfield. An infected vesicle (non-tuberculous) should be treated by one of these safer methods before extirpation is considered.

EHRLICH'S HEMATOXYLIN STAIN

To the Editor:—In an article on "The Invariable Blood-Stain," by B. G. R. Williams (The Journal, Nov. 1, 1913, p. 1627), there was published the formula of a blood-stain under the title of "invariable." May I ask how the "three months' ripened Ehrlich's hematoxylin" is prepared. Is this a watery or an alcoholic solution? Is the solution made and then permitted to stand for three months? A detailed account of how this stain may be prepared ready for use will be greatly appreciated.

William H. Best, M.D., Brooklyn.

Answer.—The following directions are given for the preparation of Ehrlich's acid hematoxylin:

Hematoxylin crystals		2 gm.
Absolute alcohol		60 c.c.
Glycerin	60 c.c.	saturated with ammonia alum.
Water	60 c.c.	
Glacial acetic acid	3 c.c.	

The solution is to be exposed to the light for a long time until it acquires a deep-red color. If it then be kept carefully stoppered, its staining powers will remain constant for years. The acetic acid is added to prevent the formation of insoluble compounds of hematein and as a decolorizer to limit the stain to nuclei.

It is suggested that the alum, hematoxylin and water be combined and the solution allowed to ripen for two or three weeks before adding the other ingredients, which have a tendency to prevent oxidation. The fully ripened solution would then be obtained more quickly and surely. As can be readily seen, this is an aqueous solution with the addition of alcohol and of glycerin. The time of standing begins with the preparing of the solution.

HECTINE IN HAY-FEVER

To the Editor:—A patient of mine brought a clipping to me in which Hectine is recommended in the treatment of hay-fever, asking me to advise him as to the reliability of this remedy. Please give me some information regarding it.

W. H. H., South Bend, Ind.

Answer.—Hectine is a French proprietary and is stated to be, chemically, sodium benzosulphoamino-phenyl-arsenate. If the asserted composition is correct, Hectine is similar to atoxyl, which is described in New and Nonofficial Remedies, 1914, page 38. Hectine has not been examined by the Council on Pharmacy and Chemistry. Arsenic has been employed in the treatment of hay-fever with apparent success in some instances, but there is no reason to suppose that the proprietary Hectine will act better than other forms of arsenic, such as atoxyl.

Medical Economics

This Department Embodies the Subjects of Post-graduate Work, Contract Practice, Legislation, Medical Defense, and Other Medicolegal and Economic Questions of Interest to Physicians

Fee-Splitting and Commission

The Nebraska State Medical Association has taken a positive stand on the question of fee-splitting and has directed its council, through a standing committee created for the purpose, to institute an investigation whenever a member is accused of this practice. The council has defined the term "fee-splitting" as follows:

"In order that there may be no misconception, . . . the Board of Councilors hereby specifies that where a patient is referred by one physician to another, neither one shall handle or transmit any part of the patient's funds which is to go to the other. Each physician must render a separate account for his services as operator, counselor, companion, anesthetist or assistant, and neither physician shall in any such case collect or transmit any part of the other's fee. Failure to observe this rule shall be considered prima-facie evidence of fraud. The board realizes that in making this interpretation of the resolution it will prevent a number of perfectly innocent transactions; but it feels that such interpretation is necessary to prevent fraud in the guise of innocence. It is not meant by this, however, to prevent a surgeon or specialist from including in his bill the accounts of his ordinary assistants, provided that they are not concerned in the reference of the case in question. Nor shall it be held to prevent any physician from collecting the fee for Roentgen ray or other laboratory work done for him by another, provided that the amount of such collections be specified in the bill."

Medical Education and State Boards of Registration

Higher Preliminary Requirements

It is reported that the Alabama State Board of Medical Examiners has passed a ruling that on and after Jan. 1, 1919, all candidates for license to practice medicine in Alabama must present credentials showing that prior to entering on the study of medicine they have completed two years of collegiate work including courses in physics, chemistry, biology and a modern language in addition to a standard high-school education. This will apply to all students matriculating for the session of 1915-16 and thereafter.

Medical Council of Canada

Dr. R. W. Powell, registrar of the Medical Council of Canada, reports that the next regular examination of that council will be held at Montreal, Oct. 13, 1914.

A candidate must either be a licensed practitioner of some province of Canada, or not being so, must present to the registrar a certificate from a provincial registrar that he has fulfilled all the requirements of a province and is therefore qualified to go up for the examination for the provincial license. The fee is $100, and papers, etc., must be deposited with the registrar, Dr. R. W. Powell, 180 Cooper Street, Ottawa, Ont., at least four weeks before the date set for the examination.

Oklahoma April Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 14-16, 1914. The number of subjects examined in was 10; total number of questions asked was 100; percentage required to pass was 70. The total number of candidates examined was 15, of whom 11 passed and 4 failed. Nineteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas..........(1911) 73; (1912) 70;	(1913)	75
Northwestern University	(1903)	79
University of Illinois	(1913)	86
College of Phys. and Surgs., Baltimore	(1907)	89
American Medical College, St. Louis........(1911) 77;	(1912)	75
University Medical College, Kansas City	(1912)	89
Ohio Medical University, Columbus	(1903)	82
University of Pennsylvania	(1912)	88

FAILED

College	Year Grad.	Per Cent.
College of Phys. and Surgs., Little Rock	(1910)	48
University of Arkansas	(1912)	67
College of Medicine and Surgery, Chicago	(1903)	61
Vanderbilt University	(1893)	63

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Jenner Medical College	(1898)	S. Dakota
University of Maryland	(1901)	W. Virginia
Beaumont Hospital Medical College	(1897)	S. Dakota
Marion-Sims College of Medicine	(1899)	Texas
Missouri Medical College	(1899)	Tennessee
St. Louis College of Phys. and Surgeons	(1910)	New Mexico
St. Louis University	(1907)	W. Virginia
University Medical College, Kansas City	(1894)	Tennessee
Cornell University	(1899)	New Mexico
Knoxville Medical College	(1909)	Tennessee
Meharry Medical College..........(1910) Arkansas;	(1912)	Tennessee
Universities of Nashville and Tennessee	(1910)	Tennessee
University of Tennessee..(1887) Texas; (1900-2) Indiana,		W. Virginia
Southern Methodist University Med. Coll	(1912)	Texas
Texas Christian University	(1913)	Texas
University of Dallas, Med. Dept	(1901)	Texas

STATE UNIVERSITY

Book Notices

The Practice of Medicine. A Text-Book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By James Tyson, M.D., LL.D., and M. Howard Fussell, M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Sixth Edition. Cloth. Price $5.50. Pp. 1211, with 185 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

Tyson's practice has been recognized from the first as a practical and satisfactory guide in its important field and has won for itself a high place in the esteem of the large number of physicians who have used it. The various subjects have been given careful revision, but so rapid is medical advance that even numerous new editions cannot keep pace with the latest established methods of treatment, discoveries in pathology, etc. Thus we find that even Tyson fails to mention the emetin treatment of amebic dysentery (although the ipecacuanha treatment is described). The discovery of the *Spirochaeta pallida* in the brain in paralytic dementia is also overlooked. Among the many new subjects added, pellagra is perhaps most important. In the consideration of this subject the author has had the collaboration of Dr. Edward Jenner Wood, author of a work on the disease. Dr. Spiller has also revised his own section on nervous diseases. Through the deletion of considerable unnecessary historical matter the book is no larger than in former editions, and remains a splendid work on practice.

Diseases of the Heart. By John Cowan, D.Sc., M.D., F.R.F.P.S., Professor of Medicine, Anderson's College Medical School. With chapters on the Electro-Cardiograph by W. T. Ritchie, M.D., F.R.C.P., Physician, Deaconess Hospital, and the Ocular Manifestations in Arteriosclerosis, by Arthur J. Ballantyne, M.D., F.R.F.P.S., Surgeon, Eye Infirmary, Glasgow. Cloth. Price $4.00 net. Pp. 458, with 199 illustrations. Philadelphia: Lea & Febiger, 1914.

In this book there is presented in condensed, yet reasonably complete manner, the modern views of diseases of the heart. The results of the study of such disease by the polygraph, electrocardiograph, sphygmomanometer and Roentgen ray are clearly described. Bacteriologic features are included as in the discussion of acute endocarditis. Chapters are found with titles strange to text-books of a decade ago, on the myogenic theory, stimulus production, nodal rhythm, conductivity, auricular flutter, auricular fibrillation, etc. The valvular lesions are well discussed, including the treatment. There is a full consideration of the various types of pericarditis. The author cites numerous instructive cases from his own personal experience to illustrate many of his points. The illustrations are largely original, and are illuminating. We were a little startled at finding the diagrammatic representation of a cardiac murmur planted squarely in the abdomen of the body figure, but learned that this is a device by which the otherwise blank space of the abdomen would be unutilized. The book is to be commended to practitioners and undergraduates.

Guide to the Microscopic Examination of the Eye. By Prof. R. Greeff, Director of the University Ophthalmic Clinic in the Royal Charity Hospital, Berlin, with the Cooperation of Professor Stock and Professor Wintersteiner. Translated from the Third German Edition by Hugh Walker, M.A., M.B., C.M., Ophthalmic Surgeon to the Victoria Infirmary, Glasgow. Cloth. Price $2.00 net. Pp. 86, with six illustrations. New York: Paul B. Hoeber, 1913.

This admirable work is a reprint of a number of articles published in the *Ophthalmoscope* during the past year. As there is no recent work in English that deals in their entirety with the methods employed in the microscopic examination of the ocular tissues, this work of Greeff ought to be doubly welcome. The preparation of ocular material for sectioning, including the formulas of the various hardening fluids, stains, etc., as well as the processes followed in histologic examinations, are fully described in the general part, while a second, or special part, deals with the problems that arise in examining particular tissues and organs of the ocular apparatus. The contributors to this volume have done their work well and have left little to be desired, whether one uses it as a laboratory vade-mecum, or as a book of reference in which to find, for example, an exact description of Marchi's method or the formula of Erlitzki's fluid. The pages devoted to comparative ophthalmology are an interesting phase of this work. Concurrently with an account of the methods most desirable in the investigation of human eyes (including a short account of them), parallel findings in the lower animals are discussed. These studies in comparative histology ought to be of considerable value to investigators; they are found nowhere else, so far as we know, in any English text-book. The translation is well done and is singularly free from the Teutonisms that characterize so many books derived from German literature.

The Road to a Healthy Old Age—Essays Lay and Medical. By Thomas Bodley Scott. Cloth. Price, $1 net. Pp. 104. New York: Paul B. Hoeber, 1914.

It is seldom that we meet a work of medical literature that charms by its style as much as by its subject-matter and gives so much sound advice in so pleasant a manner as the book before us. The author is qualified to speak from experience, for he has gone a good part of the way himself, and if it is impossible to mark the point at which healthy old age may be said to begin, he is clear on the question of what constitute the chief pathologic features which threaten the aging man on his journey. Arteriosclerosis as the result of chronic intemperance of various sorts is the chief danger. The author preaches temperance as the crowning virtue of old age and the prophylactic against its evils. He is not content with the mere recommendation of temperate habits, but he also reviews the drug treatment of the chief symptom of hardening arteries, namely, high blood-pressure, and points out the possibility of preventing the worst consequences of previous pathologic changes. Having in the second chapter discussed the treatment of arteriosclerosis, he devotes the third chapter to the other danger of old age, the chronic infections of the respiratory tract. These are treated, it is maintained, with great success, from the most advanced point of view of vaccine therapy. The author asserts that only autogenous vaccines promise successful results. Consequently he appends an outline of the method of preparation and action of the vaccines. A more general trial of vaccines applied in this way could do no harm, for the vaccines are autogenous and hence calculated to meet an existing pathologic condition, and such experience is likely to advance our knowledge greatly along the lines of the most recent scientific research. The reader of Dr. Scott's little book is sure not only to derive the pleasure of perusing a fine essay, but also to find a number of useful hints to aid him in the treatment of both old and young. For while we emphasize the importance of arteriosclerosis and bronchial infection in old age, it is to be remembered that their prevalence is not limited by lines of age in years, but of age in physical conditions.

Nucleic Acids, Their Chemical Properties and Physiological Conduct. By Walter Jones, Ph.D., Professor of Physiological Chemistry in the Johns Hopkins Medical School. Cloth. Price $1.10. Pp. 118. New York: Longmans, Green & Co., 1914.

This new member of the series of monographs on biochemistry is in all respects up to the high standard maintained by the previous issues of this invaluable enterprise. A better authority to cover the interesting field of the nucleic acids and their products could not have been selected, for much of the best work on their physiologic conduct has come from the laboratory of Jones. This monograph should be especially interesting to physicians, for the nucleic acids, and the purins derived from them, occupy a prominent place in medical literature. Here can be found the facts concerning that much-exaggerated and overabused fetish, uric acid, stripped of the glamor furnished by futile methods and pseudoscientific enthusiasm. The time has passed when to question the dominant importance of uric acid in human disease made the heretic a fit subject for the stake. It is well that physicians now have accessible reliable information coming from the biochemists, who have not been under the spell of the uric acid diathesis and its sovereign, lithia water.

Materia Medica for Nurses. By A. S. Blumgarten, M.D., Instructor in Materia Medica at the German Hospital Training School for Nurses, New York. Cloth. Price, $2.50. Pp. 644. New York: The Macmillan Company, 1914.

The appearance of a work for nurses on materia medica nearly as large as the more important works on pharmacology intended for physicians may strike one as unnecessary and tending to invade the province of the physician. This is not, however, the case with the present work. The author explains that the nurse needs to be a trained observer and must know the action of medicines in order to observe accurately the effects that are obtained. The actions of medicines are therefore taught with enough of physiology as a foundation to enable the nurse to detect any untoward symptoms or the action of an overdose. Therapeutics are excluded because the nurse is never called on to treat patients, nor should she ever do so without orders from a physician. The administration of remedies receives particular attention. The treatment of poisoning is given in detail under the individual drugs. A large number of drugs are described, including, in addition to official preparations, the more prominent proprietary synthetics.

What Men Live By: Work, Play, Love, Worship. By Richard C. Cabot, M.D., Assistant Professor of Medicine, Harvard University. Cloth. Price, $1.50. Pp. 336. Boston: Houghton, Mifflin Company, 1914.

These essays on practical ethics lead to a definite end, but each is sufficient in itself. References to the life of the physician crop out, but not more so than references to other topics. Each point is made through living examples, and no walk of life has been neglected. Therefore the book is adapted to being picked up at odd moments and read at random. If the author did not intend this, he should not have made the book so interesting. It is an instance of what he himself has noted: "'Any one who works hard,' says Ostwald, . . . 'will find something new.' But this 'something' is usually found, accidentally as we say, while we are looking for something else. It is in this sense that genius results from taking infinite pains. It produces something never looked for, yet something which without the infinite pains could never have come to light."

Miscellany

The Ideal Surgeon

That the ideal of surgery was at one time rather limited is shown by the alliance of the trade with the craft of the barber in the guild of barber-surgeons. The development of science has tended not only to improve the technic of the surgeon as a craftsman but also to place before him ideals from the realm of biology which involve more than the mere removal of injured or redundant parts. The surgeon has had to conquer the dangers from disease introduced by his own interference. By antiseptic and aseptic operating this has been accomplished to a great extent. At the foundation of these advances lies the knowledge of biology as shown by the microscope which, by revealing the condition of the blood, has become a great aid to operators of the present day. Thus Bland-Sutton, in the address in surgery, delivered at the eighty-second annual meeting of the British Medical Association, August, 1914, points out that the discovery of leukemia contra-indicates removal of an enlarged spleen because the extirpation of a leukemic spleen is always followed by death.

The attempt to influence the soil favorably in advance of an operation, as by the administration of hexamethylenamin before operations on the brain or spinal cord, shows the efforts of the surgeon to turn biologic or physiologic investigations to practical account. Bland-Sutton suggests that "it is probable that compounds will be discovered that can be injected into the cerebrospinal fluid and cause gliomas to shrivel in the same way that gummas disappear under potassium iodid, mercury or salvarsan, and thus abolish some of the most uncompromising operations of modern surgery."

In the treatment of malignant disease, as Sutton points out, the surgeon meets problems that arise from the infection of cancerous tissue by virulent organisms foreign to the cancer itself. In order to cure such cases, surgeons must find some way of sterilizing them or a specific remedy must be found for cancer. There are indications, he says, that both methods will be available.

Sutton sketches the character of the surgeon of the future:

"Surgeons are of two types: they are either craftsmen or biologists. The surgical craftsman invents variations in technic: metal plates, wires and screws for bones, or fancy methods of suturing wounds. Some expend their ingenuity on surgical cutlery and improve the knives and needles. The utility of a simple tool such as the clip forceps is inestimable. In spite of much ingenuity among surgeons, an ideal ligature material awaits discovery. Clever contrivances like the laryngoscope, bronchoscope and cystoscope have revolutionized special branches of surgery. Another useful instrument, the esophagoscope, requires for its successful use a surgeon with the instincts of the sword-swallower and the eye of a hawk. Recently through the kindness of my colleague, Alfred Johnson, I witnessed through the cystoscope a stone slowly extruded from the vesical orifice of the ureter.

"The biologic surgeon studies pathology in its broadest aspect and investigates, in the laboratory, problems of morbid anatomy and bacteriology. The diagnostic value of reports issued from the laboratory by the pathologist and the bacteriologist, to be of value, must be estimated with the help of clinical experience. If the surgeon has had no experience in the bacteriologic methods he must accept the reports from the laboratory with the hopefulness of a patient swallowing physic compounded from a prescription he does not understand and which he is often unable to read. The training of surgeons in clinical pathology is of great importance, and it requires little foresight to recognize that for men ambitious to attain high places in surgery the high road lies through the pathologic institute.

"Morbid histology has been and still is of great use in classification, diagnosis and prognosis of morbid growths; for a knowledge of their cause new methods are required. For those we fix our attention on the men along the sky-line—bacteriologists, experimental physiologists, physiologic chemists and physicists; the future lies with them. As it is of the utmost importance that surgeons shall have a practical knowledge of clinical pathology, it becomes essential to bring the wards, operating theaters and laboratories into the closest intimacy. From this union of workers means will be found for curing diseased organs by chemiotherapy rather than by extirpating them. Until the right compound for curing cancer has been discovered, surgeons will continue to excise cancerous viscera, and this makes it more necessary to discover means for ridding cancer of pyogenic bacteria.

"The skill, ability and dexterity with which surgeons remove a kidney, the uterus, or perform extensive resection of the intestine, great and small, can be witnessed almost daily in the splendid hospitals of large cities, but surgical effort is handicapped by streptococci and the coli group, which are very resistant to chemiotherapy. There is something fascinating in submitting septic morbid growths to what Ehrlich picturesquely terms a 'bacteriologic siege.' Our difficulty is to destroy these seeds of disease without serious damage to the organs and the delicate tissues in which they flourish. The antiseptic solutions employed against bacteria are powerful cell poisons. We need therapeutic agents which destroy parasites but do not kill the tissues of the host. Acute minds are busy with these problems, and surgeons may hope to remove visceral cancer with no more risks than attend gastrojejunostomy or hysterectomy for fibroids."

Formation of Hydrochloric Acid in the Foveolae and on the Surface of the Gastric Mucous Membrane, and the Non-Acid Character of the Contents of Gland-Cells and Lumina

B. C. H. Harvey and R. R. Bensley (Biol. Bull., September, 1912, p. 225) report some striking experiments on the place of formation of hydrochloric acid in the actively secreting mammalian stomach. They show that, contrary to the generally accepted belief, free hydrochloric acid is not formed within, nor does it occur within, the gastric glands themselves. The results of their investigations "demonstrate that only non-acid substances are formed by the glands, and that the contents of the gland-cells and lumina are not acid, even when hydrochloric acid is being actively formed on the surface of the mucous membrane. . . . The contents of the parietal cells and of the lumina of the gastric glands are not acid but neutral or alkaline."

"Heidenhain, Langley and others were able to associate other secretory functions of the gastric mucous membrane very definitely with other cells. This left the parietal cells and the formation of hydrochloric acid. Further, Miss Greenwood and afterward Macallum and Miss Fitzgerald have shown that chlorids are more abundant in the parietal cells than in other parts of the gland. These facts suggest that there is some association between the formation of the hydrochloric acid and the parietal cells. . . . The parietal cells probably form substances which later furnish the chlorin of the hydrochloric acid." It will be remembered that Claude Bernard (in 1877) was forced to conclude from his classic experiments with his Prussian blue reaction that "the acid of the gastric juice is formed only after the secretion of the juice, the glands secreting a liquid which breaks up into an acid fluid and another product as yet not definitely determined." By the same method and by entirely new microchemical methods Harvey and Bensley have confirmed and extended these observations of the great French physiologist.

The most beautiful and positive results obtained by Harvey and Bensley were those in which cyanamin was used as indicator for the hydrochloric acid. This dye in the presence of hydrochloric acid forms a bichlorid with a deep blue color. In the presence of alkalies it gives a red reaction. Small pieces of fresh actively secreting stomach mucous membrane from various laboratory animals were cut out and stained in cyanamin. It was found that, with the exception of dead cells and the special cells of Heidenhain, "the dye is entirely confined to the secretion in the lumina of the glands and their various diverticula, including the whole basket-work of canaliculi in the parietal cells—all of which was intensely stained. Moreover, in no place in this system of gland tubules below the level of the gastric foveolae was the blue color of the acid solutions of the dye obtained. On the contrary, the secretion contained in the canaliculi of the parietal cells was a distinct red like that displayed by the dye in alkaline solutions, while the secretion in the lumen of the gland was a bluish red. . . . At the level of the bottoms of the foveolae (that is, the evaginations of the surface epithelium) the color of the secretion changed rapidly to the pure blue of the acid solutions of cyanamin, and the cylindrical cells of the surface and of the foveolae stained the acid color also." These findings were confirmed by substituting neutral red as well as phenylated Nile blue for cyanamin.

In view of the fact that the secretion of the parietal cells contains a high percentage of chlorids, that the secretion "is alkaline while in these cells themselves, and that the secretion of the whole gland while contained in the gland lumen is very nearly neutral as shown by the neutral red cyanamin reactions, it seems probable that the chlorin is secreted by the parietal cells in the form of a chlorid of an organic base, and that the hydrochloric acid is only set free after this secretion is poured out of the gland into the foveolae. As to the nature of this base, there are some facts which suggest the probability that it is protein in nature."

Harvey and Bensley also demonstrated that the secretion of the gastric glands occurs in the lumen of the gland in a very concentrated form and that it is greatly diluted on reaching the surface of the gastric epithelium.

Under the head of other considerations we find that "since it is apparent that the contents of the gastric glands proper when in a state of normal activity are not acid in reaction, and may even be alkaline, it follows that the ferment of the same secretion in the gland lumen is probably not in an active form, since, as is well known, pepsin is destroyed by alkalies while pepsinogen is not affected. Hence, the failure of the secretion to attack the cells themselves requires no further explanation in the case of the gastric glands than in the case of the pancreas, since in neither case does the activated ferment come in immediate contact with the parenchyma cells. This being the case, it is pertinent to inquire whether under any conditions the secretion within the gland may become acid in reaction." In this event the secretion would be activated and autodigestion would be expected. The authors hope to report on this matter in the near future.

British Field-Service Ration

An experiment conducted by the Army Medical Advisory Board of the British military organization to determine a proper field-service ration is described in the *British Medical Journal.* In the first experiment twenty volunteers and four officers of the Royal Army Medical Corps went on practice marches during October when there was almost continuous rain. The ration consisted of fresh beef, whole meal biscuits, bread, a vegetable ration, jam, sugar, salt and tea. The energy value of the ration was 3,465 calories, which is slightly less than the standard laid down by Atwater for moderate work, 1,000 calories less than that for hard work, and 750 calories less than that supplied to convicts in England on hard labor. The health of the men was excellent throughout. During the last five days, the average loss in weight was just over ½ pound in the men and ¾ pound in the four officers. It was calculated that the men were losing 62 gm. of fat and 170 gm. of flesh during the last five days, and the conclusion was reached that the ration was too small and that at least 4,500 calories should be furnished, or even 5,000 for big men.

The second experiment also comprised twenty men under command of an officer. The ration was raised to an average of 4,511 calories by the addition of bacon and cheese. At the conclusion of the experiment the men were not hungry, and were in good condition. In the first experiment the men had been hungry and presented all the appearances of commencing starvation. The initial rise in weight was greater in the second experiment than in the first and the subsequent fall was much less. At the end the men were above their weight at the beginning. The result of the test was that the field-service ration was fixed at 3 pounds in weight and 4,500 calories.

Medicolegal

Liability of Charitable Hospital for Injury from Hot-Water Bottle

(*St. Paul's Sanitarium vs. Williamson (Tex.), 164 S. W. R. 36.*)

The Court of Civil Appeals of Texas affirms a judgment for damages for personal injuries sustained by a patient in the sanitarium from being burned on a hot-water bottle after the performance of an operation on her. The rule in Texas is that such institutions, with respect to patients within their walls or under their care, whether the patient be one on charity or one who pays, are liable for the negligence of their physicians, nurses and servants only when it appears that ordinary care has not been exercised in their selection and retention, and that, with respect to injuries inflicted on third persons and employees by the negligence of their managers, agents and servants in the conduct of the institution, they come entirely within the rule of respondeat superior, or let the superior answer. According to the testimony it was necessary and usual to place the bottle of hot water in the bed, but this was an act attended with more or less possible injury to the patient, if managed improperly. Thus it was the duty of those directing the placing of the bottle to select a person to perform the task who would be competent to anticipate injury to a patient by reason of the water being too hot. But a girl of 12 or 14 years of age was selected to perform the duty in this instance and she was not only incompetent, but wholly inexperienced. It would, therefore, seem that her selection by a member of the corporation to perform the task was alone sufficient to sustain the finding of the jury. Giving the general order, in the kitchen where the girl was employed, for some one to perform the task could hardly be said to be the exercise of ordinary care. Again, if it was customary for those in charge of the institution to assign the girl to such duties, that fact would support the finding that ordinary care was not observed in the selection and retention of the defendant's servants. Besides, the pupil nurse, who placed the patient in bed after the operation, made no examination of the bed to ascertain whether the bottle of hot water was in a safe position, notwithstanding it was shown that it was the duty of nurses to take such precaution.

Contract Not to Practice Medicine Abrogated by One of Partnership

(*Menefee vs. Rankins (Ky.), 164 S. W. R. 365.*)

The Court of Appeals of Kentucky reverses a judgment obtained by the plaintiff to recover damages and enjoin a further practice of medicine by the defendant for an alleged violation of their contract. The defendant sold certain property and his good will in the practice of medicine to the plaintiff, agreeing to remove from the town on a certain date and to locate at a point more than fifteen miles distant, and not to locate again in the town so long as the plaintiff remained in the active practice of medicine there. Later the plaintiff and the defendant formed a partnership, under a written contract, for the joint practice of their profession, to compete with another physician who was thinking of locating in the town. The partnership was to continue for three years and as much longer as it was mutually agreeable to both parties, but it was dissolved by mutual consent after about eight and a half months. After that the defendant remained in the town and continued the practice of his profession, which brought him into competition with the plaintiff, and gave rise to this suit. The Court of Appeals held the contract of partnership to be complete in itself as to the business and professional relations of the parties to each other from its date, and that it abrogated or superseded the first contract. If the partnership had continued the full three years, as contemplated by the last contract the defendant could not at that time have been compelled to comply with the terms of the first contract, as indicated. It was therefore equally clear that an earlier dissolution of the partnership, whether brought about by mutual consent of the partners or the wrongful act of one of them, could have no different effect. The plaintiff's remedy, if he had any, was an action at law for the breach of the partnership contract, instead of an action in equity to enforce the performance of the first contract.

Continuous Confinement Within the House

(Great Eastern Casualty Co. vs. Robins (Ark.), 164 S. W. R. 750)

The Supreme Court of Arkansas says that the insured in this case was sent on account of incipient tuberculosis to a sanatorium. He was continuously under the treatment of physicians, and was confined to the house except that he was out for a short time daily under the direction of the physician, for the purpose of getting sunshine and fresh air. His policy provided for indemnity if any sickness "shall necessarily and continuously confine him within the house, where he shall be regularly visited by a licensed physician." The trial judge instructed the jury that a continuous confinement within the meaning of this provision did not mean that the insured, in order to be entitled to the indemnity, must have been actually confined within the walls of the house every minute or hour; that the mere fact that he went out occasionally and at stated intervals for the purpose of taking exercise and fresh air, under the instructions of his physician, would not be sufficient to prevent the insured from recovering such indemnity. The court is of the opinion that that correctly interpreted the contract, and affirms a judgment in favor of the insured.

County Not Liable for Cost of Operation on Prisoner

(Nolan vs. Cobb County (Ga.), 81 S. E. R. 124.)

The Supreme Court of Georgia holds that an action cannot be maintained by a physician against the county to recover the value of services rendered at the request of the sheriff, to a prisoner in his custody. It was urged that the services rendered were reasonably worth $100; that the operation could not have been postponed until the assembling of the board of commissioners, and that the board, on the presentation of the claim had ordered that the plaintiff be paid $50 for the operation. A general demurrer was properly sustained in this case. The civil code of Georgia provides that "a county is not liable to suit for any cause of action unless made so by statute." There is no law authorizing the sheriff of the county to bind the county under the facts alleged in this case. Thus the sheriff could not have made an express contract on behalf of the county for such services, nor could he have had services of the character alleged rendered on any understanding, express or implied, whereby the county would become liable on a *quantum meruit,* or for their reasonable value. Even if the action of the board of county commissioners could be considered as a recognition of the liability of the county for the services rendered, it could not render the county liable, as the liability of the county to suit depended on the law, and no action of the county commissioners taken after the services were performed could render the county liable to a suit for such services.

Itinerant Vender Law Upheld

(Baccus vs. Louisiana (U. S.), 34 Sup. Ct. R. 439.)

The Supreme Court of the United States affirms a conviction on an information which charged that the accused had, in violation of Section 12 of Act 49 of the Laws of Louisiana for 1894, illegally, as an itinerant vender or peddler, "sold drugs, ointments, nostrums and applications intended for the treatment of diseases and deformity." It was urged that the law was repugnant to the Fourteenth amendment to the Constitution of the United States (a) because it prevents a citizen from pursuing a lawful vocation; (b) it denies to other citizens rights enjoyed by all others in the state, and . . . is class legislation in its effect, as it gives to the local dealer a monopoly in the sale of such drugs, etc., and deprives the itinerant vender or dealer of the privilege of selling such articles. The court accepted the construction affixed by the court below to the statute, on which alone it could in reason have held that the acts charged were embraced by its provisions. Thus, considering the case in its true aspect, the single issue to be determined was as to the validity of the measure. A previous ruling of this court (Emert vs. Missouri, 156 U. S. 296), together with the authorities cited and the reasoning which sustained the ruling of the court in the case just stated, leaves no room for controversy on the subject. Moreover, the power which the state possessed to classify and regulate itinerant venders or peddlers, exerted in the statute under consideration, is cumulatively sustained and made, if possible, more obviously lawful by the fact that the regulation in question deals with the selling by itinerant venders or peddlers of drugs or medicinal compounds—objects plainly within the power of government to regulate.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Electro-Therapeutic Association, Battle Creek, Sept. 15-17.
American Roentgen Ray Society, Cleveland, Sept. 9-12.
Colorado State Medical Society, Boulder, Sept. 8-10.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Michigan State Medical Society, Lansing, Sept. 11-12.
Oregon State Medical Association, Portland, Sept. 10-11.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Washington State Medical Association, North Yakima, Sept. 21-23.
Utah State Medical Association, Salt Lake City, Sept. 29-30.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

July, LXX, No. 1, pp. 1-172

1 *Retrodisplacements of Uterus following Confinement. A. Flint, Jr., New York.
2 Complete Sterilization of Skin by Iodin. J. W. Bovée, Washington, D. C.
3 *Operation for General Enteroptosis. H. N. Vineberg, New York.
4 Rupture of Uterus During Labor, Report of Spontaneous Case. J. W. Long, Greensboro, N. C.
5 Fatty Concretions in Ovarian Dermoids. J. W. McMeans, Pittsburgh.
6 Pathology and Prophylaxis of Rickets. J. E. Winters, New York.
7 Special Training in Pediatrics. J. Epstein, New York.

1. **Retrodisplacements of Uterus.**—Retroversion, which occurs much more frequently after confinement than is generally supposed, Flint claims, can often be prevented by simple routine measures. He advises that patients should be examined more frequently during the puerperium, and hospital patients should be instructed to return for an examination in about a month after their discharge. When retroversion does occur, treatment should be begun at once. The results of treatment which is begun early, while the uterus, including its ligaments, the vagina and pelvic floor are still subinvoluted, may be said to be universally good if one leaves out cases in which the retroversion is simply a recurrence of a condition existing previous to pregnancy.

The treatment and results vary somewhat according to conditions and depend largely on the time after delivery that the displacement occurs. If it should occur between the second and third week post partum, the treatment consists of hot douches, the internal administration of ergot, and the knee-chest posture exactly as has been outlined under the head of prevention. Between the end of the third week and the end of the sixth week, in addition to these measures, tampons of glycerotannin should be used every third or fourth day. They should be put in either after first replacing the uterus or with the patient in the knee-chest position, and serve not only to hold the uterus forward but to reduce it in size. The tampons may be used without jeopardizing the end results of operations for the repair of the perineum. Before the end of the sixth week the use of a pessary is contra-indicated. After this time a pessary should be used when retroversion is present. In favorable cases the uterus will remain forward, become firm and small and the patient is cured.

Should the displacement recur and the uterus still remain larger than normal, a round elastic ring pessary will hold it up comfortably and will still permit the use of douches. In three or four weeks it should be changed to the ordinary hard-rubber retroversion pessary. The vagina and perineum by this time will have decidedly more tone, lacerations will have healed and the fitting of this form of pessary becomes a simple matter. During the time that a pessary is worn, the patient should assume the knee-chest position for five minutes twice a day. She should also take a douche once a day, attention should be given to her diet, her bowels carefully regulated and the amount of exercise or exertion she is allowed to take carefully supervised.

3. **Operation for General Enteroptosis.**—In the operation described by Vineburg a long median incision is made, extending from the umbilicus to the pubis. The patient is placed in the extreme Trendelenburg position and the intestines are packed away, as much as possible, into the upper abdominal cavity by suitable gauze pads. An assistant with flexed hand and fingers spread out holds the intestines away from Douglas' cul-de-sac. Another assistant with a gauze pad held in a long gauze-holder, pushes the body of the uterus downward in the anterior pelvic space. Douglas' cul-de-sac is thus rendered empty and is exposed fully. A fold of peritoneum is caught on either side, as far down as one can possibly succeed in getting and the two folds are sutured together by a continued suture, either of catgut or Pagenstecher thread. The formation of this first shelf is the most difficult part of the operation. The next shelf is made in the same manner, a fold of peritoneum taken on either side, about 2 inches above the first sutured. When this suture reaches the posterior wall of the cavity, it is made to catch the anterior longitudinal stria of the upper rectum, so as to close the space completely and to prevent the possibility of the sigmoid slipping in between the shelf and the rectum. A third shelf, the same distance higher up, created in the same way, usually brings one up to the level of the pelvic brim and thus Douglas' cul-de-sac is entirely obliterated.

The next step of the operation consists in suturing the round ligament to the anterior parietal peritoneum to within 1 to 2 inches of the uterine insertion. The remainder of the ligament on either side is employed for fixation sutures to the abdominal wall, in the manner described by Vineberg for retroversion. By means of these sutures the fundus of the uterus can be brought up as high above the pubis as one wishes, usually from 2 to 3 inches. When the operation is completed, the ovaries and tubes rest, naturally, on the posterior shelf, on a plane with the pelvic brim. The cecum, which in these cases is found dipping for some distance below the brim, is held up in its proper position without any sutures.

American Journal of Physiology, Boston

July, XXXIV, No. 4, pp. 353-451

8 Toxin of Rhizopus Nigricans. R. A. Gortner and A. F. Blakeslee, Boston.
9 *Experiments on Origin and Propagation of Impulse in Heart. W. J. Meek and J. A. E. Eyster, Madison.
10 Reactions of Earthworms to Hydroxyl Ions. A. T. Shohl, Boston.
11 Carbon Dioxid Production from Nerve Fiber in Hydrogen Atmosphere. S. Tashiro, Chicago, and H. S. Adams, Woods Hole.
12 Conditions Determining Rate of Conduction in Irritable Tissues and Especially in Nerve. R. S. Lillie, Worcester.
13 *Movements of Intestinal Villi. B. F. Hambleton, Nashville, Tenn.

9. **Origin and Propagation of Cardiac Impulse.**—With the aid of two string galvanometers, one comparing the upper with the lower part of the sinus node and the other comparing the sinus node with the auriculoventricular node, it has been shown that by means of vagal stimulation, cooling of the upper part of the sinus node or injection of potassium chlorid, the point of initial negativity may be made to shift from the upper to the lower part of the sinus node. This has been interpreted as showing that during these procedures the pacemaker of the dog's heart may move from the upper to the lower part of the sinus node. During the time that the seat of impulse formation resides in a lower part of the sinus node there is a lengthening of the cardiac cycle and a shortening of the *As-Vs* interval.

On the basis of work presented by Meek and Eyster and others of the series, a theory has been presented which correlates their experimental results on the automatic and vagal mechanisms of the vertebrate heart. It is believed that the specialized tissues of the heart exhibit from above downward progressively diminishing degrees of automaticity. Vagal chronotropic innervation of the specialized tissue also diminishes from above downward. The most automatic portion of the specialized tissue acts as pacemaker for the heart. The function of the chronotropic fibers is to depress this automaticity. When the automaticity of the pacemaker is reduced below that of a lower part the latter assumes dominance and becomes pacemaker. In this way the vagus, if the stimuli are properly graded, may cause the pacemaker to descend from the upper part of the sinus node in which it resides normally, to the lower part of the sinus node and finally even to the auriculoventricular node.

13. **Intestinal Villi.**—Hambleton claims that the villi possess distinct movements that are independent of peristalsis. These movements are two kinds: (1) a lashing movement, which may be supposed to aid in the mixing of the intestinal contents and thus promote the action of the digestive secretions as well as the process of absorption. This movement is not stopped by atropin. (2) An alternating retraction and extension, a form of movement which may be of special value in the act of absorption, particularly the absorption through the lacteals. This movement is abolished by both nicotin and atropin and is therefore under the control of the peripheral nervous mechanism. It is regarded by Hambleton as being probably a local reflex.

Boston Medical and Surgical Journal

July 23, CLXXI, No. 4, pp. 137-176

14 *Ulcerative Angina. Occasional Early Symptom in Typhoid. N. B. Potter, New York.
15 Problems of Private Sanatoria for Tuberculosis. F. M. Pottenger, Monrovia, Cal.
16 Development of Modern Artificial Pneumothorax. G. M. Balboni, Boston.
17 Pylorectomy for Ulcer. Report of Eight Cases. P. E. Truesdale, Fall River
18 Causes of Insanity. H. W. Wood, New Bedford.
19 Organotherapy. H. G. Jarvis, Hartford, Conn.

14. **Ulcerative Angina. Symptom in Typhoid.**—In enteric fever, Potter says, there appear not infrequently (6 to 12 per cent.) it may be before, but as a rule about the same time as the roseola, one or more small superficial ulcers, usually situated on the anterior pillars of the fauces, the so-called typhoid angina or Bouveret's ulcer. These ulcers may appear sufficiently early to be of some value in the clinical diagnosis of typhoid. An appreciation of this lesion will prevent the mistaken diagnosis of syphilis, diphtheria, croup and scarlet fever, as well as of other local lesions. Potter suggests that the ulcers are probably due to a secondary infection on a mucous membrane altered by the existing disease.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

July, VII, No. 1, pp. 1-15

20 Principles of Medical Ethics. R. Winslow, Baltimore.
21 Gastric Ulcer, Its Treatment. W. L. Rodman, Philadelphia.

Canadian Medical Association Journal, Toronto

July, IV, No. 7, pp. 565-660

22 Method of Zadig in Practice of Medicine. T. McCrae, Philadelphia.
23 Treatment of Puerperal Infections. J. R. Goodall, Montreal.
24 Diagnosis of Subtentorial Tumors. Report of Four Cases. G. W. Howland, Toronto.
25 Nickel-Chromium Wire for Bacteriologic Laboratory. H. M. Lancaster, Toronto.
26 Chloroma. W. G. Hepburn, Montreal.

Colorado Medicine, Denver

July, XI, No. 7, pp. 243-282

27 More Common Drug Eruptions and Their Bearing on Diagnosis. G. P. Lingenfelter, Denver.
28 An Unusual Case. (Trophoneurosis). H. A. Black, Pueblo.
29 Histopathology of Faucial Tonsil. T. E. Carmody, Denver.
30 Methods of Invasion of Urinary Bladder. C. E. Tennant, Denver.
31 *Experiments on Animals to Determine Influence of Ureteral Obstruction on Kidney Infections. Description of Author's Nephropexy. O. S. Fowler, Denver.
32 Normal Kidney and Ureter, Shown by Roentgenoscopy. W. M. Spitzer, Denver.

31. **Ureteral Obstruction and Nephropexy.**—Fowler rotates the kidney to an oblique position so that the lower calyx has a downhill or gravity drainage when the patient is on his feet, which is an aid to the musculature of the urinary tract. Then he makes a permanent fixation in this position by taking two strips of fascia lata from the thigh, each ½ inch wide and 10 or 11 inches long, depending on the size of the kidney and the thickness of the muscles of the back. The strips of fascia soon become fixed and make it impossible for the kidney to get away and prolapse again.

Georgia Medical Association Journal, Augusta

July, IV, No. 3, pp. 71-105

33 Medical Gospel of Twentieth Century. W. B. Hardmann, Commerce.
34 Ethics. M. A. Clark, Macon.
35 Use of Protein Milk in Diarrheal Disorders of Infancy. W. A. Mulherin, Augusta.

Medical Record, New York

July 25, LXXXVI, No. 4, pp. 141-186

36 *Problems in Genetics. T. E. Satterthwaite, New York.
37 Chronic Intestinal Stasis. S. Wendkos, Philadelphia.
38 Parenteral Nutrition and Its Surgical Application. A. C. Burnham, New York.
39 Why Yellow Fever is Endemic in Tropical and Atlantic Region. G. D. Palacios, New York.
40 Interrelation of Ex-Intern and Hospital. L. Kerr, Brooklyn.
41 Metrorrhagia. E. Schwarz, New York.
42 Diagnosis of Chronic Bronchitis. J. M. Cruice, Philadelphia.
43 *Method of Treatment for Diphtheria Carriers. H. R. Miller, New York.
44 Pedal Tic. G. F. Boehme, Jr., New York.

36. Abstracted in The Journal, July 18, p. 270.

43. **Treatment of Diphtheria Carriers.**—The method devised by Miller consists in thoroughly spraying the throat with a solution varying in strength from ¼ to 1 per cent. of the usual 40 per cent. formaldehyd solution. The patient's throat is sprayed one hour before, or two hours at least after the ingestion of food or fluid. The spray is usually used every three or four hours except during sleep. The throats were sprayed daily and cultures taken from five to eight hours after the solution had been used. When the throat becomes free from bacilli, later confirmatory cultures were made. Because formaldehyd acts better on organic material when used warm or almost hot, the solution used in the last five cases was warmed in a corked bottle before use. It was freshly prepared daily. In general Miller advises that one begin with a solution of ¼ or ½ per cent. made up from 40 per cent. formaldehyd. When necessary the solution can be increased to 1 per cent, and be applied less frequently. Three, four, five or even six days of treatment may be required, but there should be persistence in the treatment. The urine should be examined daily so as to discover any effect on the kidneys. In none of the cases which Miller has treated has there been any evidence of any renal irritation. In the series of cases observed thus far no case failed to become diphtheria-free except one which was not treated under the author's supervision.

Michigan State Medical Society Journal, Grand Rapids

July, XIII, No. 7, pp. 417-457

45 Hour-Glass Stomach and Duodenum. G. B. Eusterman, Rochester, Minn.
46 Antigens in Wassermann Reaction. R. G. Owen and H. Snure, Detroit.
47 Frontal Neuralgia. J. V. White, Detroit.
48 Rôle of Pituitary Extract in Obstetrics. C. E. Boys, Kalamazoo.
49 Louis Pasteur. C. W. Hitchcock, Detroit.
50 Roentgen Therapy in Case of Mediastinal Tumor. J. G. Van Zwaluwenburg, Ann Arbor.
51 Pituitrin in Obstetrics. Analysis of Forty Cases. W. F. Seeley, Ann Arbor.
52 Case of Lymphangioma Circumscriptum. Case of Localized Scleroderma. U. J. Wile, Ann Arbor.
53 Two Cases of Amebic Dysentery. H. B. Schmidt, Ann Arbor.

Modern Hospital, St. Louis

July, III, No. 1, pp. 1-68

54 Where Free Patients Will Fare Well. J. H. McClelland, San Francisco.
55 Value of Convalescent Labor in Hospital Work. C. F. Sanborn, Cincinnati.
56 Seattle Children's Orthopedic Hospital. A. B. L. Stedman, Seattle, Wash.
57 Surgical Operations and Surgical Dressings at Johns Hopkins Hospital. R. B. Seem, Baltimore.
58 United States Naval Hospitals in American Samoa. E. U. Reid, U. S. Navy.
59 Board, Staff and Special Departments of Small Hospital. E. A. Greener, Muskegon, Mich.
60 Items in Hospital Efficiency. J. A. Hornsby, Chicago.
61 Operating-Room Technic in Royal Victoria Hospital. R. K. Felter, Montreal.
62 Plans and Description of $400,000 Hospital. L. B. Simpson, Kansas City.
63 Advantages of State Control over Tuberculosis Hospitals. H. L. Taylor, St. Paul.

New York Medical Journal

July 25, C, No. 4, pp. 157-204

64 Primary Perineorrhaphy by Buried and Subsurface Catgut Suture. R. L. Dickinson, New York.
65 Roentgenoscopy of Appendix. J. T. Case, Battle Creek, Mich.
66 Tubal Gestation. J. A. McGlinn, Philadelphia.
67 *Significance of High Blood-Pressure. H. Brooks, New York.
68 Pott's Paralysis. Restoration by Albee's Operation. A. J. Davidson, Philadelphia.
69 Present Status of Cataract Extraction. L. W. Crigler, New York.
70 Quantitative Estimation of Uric Acid, Cholesterin and Sugar in Blood. R. Weiss, Freiburg, Germany.
71 Protection of Public by Law. C. E. Whitney, New York.
72 Is Constipation an Evil? W. F. Waugh, Post Falls, Idaho.

67. **High Blood-Pressure.**—Brooks summarizes his opinion of the significance of high blood-pressure by saying that it is not a cause but usually a result. It is not disease, though the evidence of it. It is not pathologic, but is usually, if not always, physiologic in meaning. It tends more to prolong life than to shorten it. Where its causes cannot be removed, it is not to be treated, but maintained.

Ohio State Meedical Journal, Columbus

July, X, No. 7, pp. 391-454

73 Liver in Its Relation to Operations on Biliary Tract and Stomach. G. W. Crile, Cleveland.
74 Serum Diagnosis of Cancer. O. Berghausen, Cincinnati.
75 What Shall We Do with Our Tuberculosis Patients? C. O. Probst, Columbus.
76 Bacterins in Treatment of Ear, Nose and Throat Affections. C. L. Minor, Springfield.
77 Dentigerous Cysts. A. L. Steinfield, Toledo.

Oklahoma State Medical Association Journal, Muskogee

July, VII, No. 2, pp. 45-78

78 Rabies in Oklahoma. G. Ellison, Norman.
79 Infantile Paralysis. L. E. Andrews, Oklahoma City.
80 Treatment of Infantile Paralysis. R. L. Hull, Oklahoma City.
81 Treatment, Care and Training of Feeble-Minded Children. W. L. Kendall, Oklahoma City.

Pennsylvania Medical Journal, Athens

July, XVII, No. 10, pp. 771-850

82 Exploratory Incision as an Aid to Diagnosis. R. R. Huggins, Pittsburgh.
83 *Craniotomy. G. M. Boyd, Philadelphia.
84 *Inflammations of Female Pelvis with Special Reference to Subject of Drainage. W. H. Howell, Altoona.
85 Routine Use of Tracheobronchoscope as Diagnostic and Therapeutic Measure. R. H. Skillern, Philadelphia.
86 Gangrene of Tonsils. Report of Case. C. C. Sandels, Pittsburgh.
87 Metastatic Choroiditis. Report of Case with Streptococci in Vitreous. E. Stieren, Pittsburgh.

88 Pyuria in Infancy. T. J. Elterich, Pittsburgh.
89 Treatment of Hemorrhoids with Electrolysis. C. C. Mechling, Pittsburgh.
90 Case of Fusiform Aneurysm of Descending Aorta, with Apparent Functional Recovery after Antisyphilitic Treatment. R. M. Goepp, Philadelphia.
91 *Hospital Economy in Relation to Rubber Gloves. S. E. Tracy, Philadelphia.
92 Conservative Treatment of Hip-Joint Disease. J. K. Young, Philadelphia.
93 Thoracic Surgery. A. Armstrong, White Haven.
94 Clinical History of Case of Cervical Polyp Complicated by Pregnancy. H. Stuckert, Philadelphia.

83. **Craniotomy.**—Boyd urges that craniotomy should be performed more frequently for the dead child because by so doing a long labor will be cut short and trauma and infection prevented. Craniotomy performed by a skilful operator should have no mortality. Cesarean section has so low a mortality that in suitable cases it should be performed more frequently.

84. Abstracted in The Journal, Oct. 25, 1913, p. 1565.

91. **Hospital Economy in Relation to Rubber Gloves.**—Dry gloves are pleasant to work with, but, asks Tracy, how long do they remain dry? Most surgeons wash them off before they begin to operate. Gloves put up in a tight roll may or may not be sterile. Granting, however, that the gloves are sterile when they come from the pressure sterilizer, many of them become infected by the time the surgeon is ready to operate. After the hands have been scrubbed and disinfected, it is necessary to dry them before the gloves can be put on and this is done with a towel. While one end is being used on the hands, the other end is usually dangling against the surgeon's clothes which have been in contact with the sides of the wash basin; sprinkled with the wash water; rubbed against other things in the operating room impossible of sterilization; brushed against various people in the room and probably against visitors in street clothes and thus contaminated in many ways. Before the hands have been thoroughly dried they have been rubbed over by the infected end of the towel. Then the gloves are picked up and handled, the fingers in many instances are rubbed down by the infected hands and the gloves become infected before the operation is started.

This source of infection is eliminated by those who use wet gloves. After the hands have been scrubbed and disinfected, the gloves are filled with an antiseptic solution and slipped on. Any rubbing down on the fingers, which may be necessary, should be done with a piece of sterile gauze and in this way the gloves are handled but little. If dry gloves are injured during the operation, the powder within is smeared over the field of operation, and the wound not only gets the germs from the pores of the skin but also the germs which were rubbed on the hands from the infected towel. Not infrequently the whole end, or side of a finger will give way, and the surgeon may thus work several minutes with a finger or fingers exposed before the condition of the glove is recognized. Such a mishap is serious if the hands have not been thoroughly scrubbed and disinfected. With boiled gloves, this accident practically never happens. If the wet gloves are perforated, or torn, during the operation, any skin germs which may leak through, have been in contact with an antiseptic solution and are less likely to cause infection. After the wet gloves have been put on, if the surgeon will pull out the gauntlets and open and close the hands a few times, the excess of fluid will be expelled. It is a very simple matter to fill a sterilized jar with an antiseptic solution in which to store boiled gloves for emergency work, and gloves thus treated can be used many times. If they are to be used on dirty hands, the ones from the antiseptic solution are decidedly less likely to become infected.

Philippine Journal of Science, Manila

April, IX, No. 2, pp. 137-195

95 Sanitary Survey of San José Estate and Adjacent Properties on Mindoro Island, with Reference to Epidemiology of Malaria. W. E. Musgrave and Others, Manila.

Public Health Journal, Toronto

July, V, No. 7, pp. 439-512

96 Tuberculosis and Its Control. C. S. Mahood, Calgary.
97 Practical Application of Wassermann Test in Public Health Work. J. H. Laidlow, Ottawa.
98 How Toronto Controls Her Milk Supply. H. Lloyd, Toronto.
99 Interrelation of Physician, Citizen and State to Public Health. J. W. McIntosh, Vancouver.
100 Dawn of To-Morrow. C. G. Sutherland, Moose Jaw.
101 Alcohol, Its Place and Power. J. Grant, Ottawa.
102 Rare Piece of Humanity. S. W. Cody, Sweaburg.
103 Chronicles En Route. Back in Japan. F. Withrow.

Surgery, Gynecology and Obstetrics, Chicago

July, XIX, No. 1, pp. 1-130

104 *Interpleural Pneumolysia. F. Torek, New York.
105 *Function of Periosteum. J. E. Moore and J. F. Corbett, Minneapolis.
106 *Experimental Study of Silk-Tendon Plastics with Particular Reference to Prevention of Postoperative Adhesions. C. W. Henze, New Haven, Conn., and L. Mayer, New York.
107 *Pathology and Treatment of Chronic Leukorrhea. A. H. Curtis, Chicago.
108 Intestinal Polyposis with Report of Case with Three Intussusceptions. J. Bratrud, Warren, Minn.
109 Pyonephrosis. C. H. Chetwood, New York.
110 *Hemorrhagic Osteomyelitis. G. Barrie, New York.
111 Prevention and Treatment of Pelvic Adhesions. P. Strassmann, Berlin.
112 Case of Arteriovenous (Varicose) Aneurysm of Deep Epigastric Artery and Vein. M. J. Seifert, Chicago.
113 Tarsalgia. W. J. Merrill, Philadelphia.
114 *Discussion of Pott's Fracture with Complications. K. Speed, Chicago.
115 Placenta Prævia and Its Treatment. W. Nagel, Berlin.
116 Operative Technic for Radical Extirpation of Vesical Neoplasms en Masse. J. B. Squier and C. G. Heyd, New York.
117 Surgery of Ileocecal Coil. F. Reder, St. Louis.
118 Evolution of Tonsil and Adenoid Operation and Description of Writer's Method of Procedure. J. C. Beck, Chicago.
119 *Use of Wire Tourniquet in Operations for Goiter. L. Freeman, Denver.
120 Two-Time Treatment of Encysted Peritoneal Abscesses. W. A. Bryan, Nashville, Tenn.
121 Autogenous Fascial Transplantation. Report of Three Cases. V. F. Marshall, Appleton, Wis.
122 Universal Extension Apparatus Applied to Surgical Bed. C. G. Swenson, Chicago.
123 Modification of Abbott's Frame for Applying Scoliosis Jackets. A. H. Freiberg, Cincinnati.
124 Sliding Splint of Plaster of Paris for Fractured Femur. J. T. Hanan, Montclair, N. J.
125 Dilatation of an Otherwise Impassable Stricture by Retrograde Passage of Filiform Guide. A. J. Underhill, Baltimore.

104. **Interpleural Pneumolysia.**—The method of operating advocated by Torek is as follows: Anesthesia is conducted by intratracheal insufflation or other methods of differential pressure to guard against the possible occurrence of respiratory accidents. An incision of ample dimension, about 6 inches, is made in the sixth or seventh intercostal space, at the posterolateral aspect of the chest, down to the pleura, and after all hemorrhage has been stopped the pleura is opened. The patient is now placed with the head low, so that if in the course of the manipulation of the lung the contents of a cavity are expressed, they may run into the mouth and not into the opposite lung. The adhesions between the two layers of pleura are then separated. This is accomplished by introducing at first only the tip of a finger to separate the adhesions in the immediate vicinity of the incision, the ribs being held apart by retractors. The separation then proceeds further and further, until finally the whole hand is introduced into the chest in order to liberate the more distant parts of the lung. In the course of this procedure bands of adhesions may be encountered that are so dense as to require division with the aid of scissors. When the separation of adhesions has been completed, the lung will collapse as much as the degree of its infiltration will permit; it is allowed to remain in this state of collapse and is not inflated before closing the thorax. The pleural cavity is closed without drainage. The two ribs which had been spread apart are brought in apposition by pericostal sutures of silk or chromicized catgut, the muscles are sutured with catgut, and the skin with silkworm-gut. Subsequent treatment is similar to that given in the ordinary pneumothorax method.

105. **Function of Periosteum.**—Moore and Corbett found that cutting the nutrient artery prevents the formation of subperiosteal bridge. As the nutrient artery supplies medullary bone, and as the periosteum is left intact when the artery is cut, they assume that the medullary bone is responsible for the subperiosteal bridge. Subperiosteal bridge may fill in gaps left in the periosteum, therefore is not absolutely dependent on that structure even as a place of refuge. Subperiosteal bridge is more marked in cases in which it receives osteoblasts from two sources than from one. Fascia is a substitute for periosteum. In heterotopic transplants, no subperiosteal bone could be produced by irritation. The authors state that the present day surgeon may be comparatively indifferent to the periosteum when operating on bone. If it is convenient he preserves it, because the conservation of tissues is always good surgery; but if it is not convenient he does not hesitate to sacrifice it, knowing that it is not an essential element in the healing of bone.

106. **Silk-Tendon Plastics.**—The experimental study of the Lange silk-tendon plastic by Heenze and Mayer indicates that the one effective method of preventing postoperative adhesions consists in a restoration of the normal anatomic relations of the transplanted tendon to its environment. This is best done by Biesalski's method of running the transplanted tendon through the sheath of the paralyzed tendon. All artificial methods of preventing adhesions by implanting living tissues or interposing foreign bodies defeat their own ends, since they exaggerate rather than inhibit the tendency to adhesions. The one possible exception is Cargile membrane. This may, for five or six weeks, help slightly to prevent dense adhesions, but the results of the author's experiments do not warrant maintaining this effect to be more than a possibility. The adhesions after the Lange operation occur not to the silk but to the end of the transplanted muscle or tendon.

The tendon itself, subsequent to the operation, shows extensive necrosis, from which, however, it recovers in from five to six weeks. During this period it should be kept at rest, and undue strain or tension on the silk strands should be avoided. The tissue enveloping the silk strand consists of a dense fibrous tissue, almost all of whose fibers and cells run parallel to the long axis of the silk; a smaller number encircle the silk. It is developed essentially from the adjacent connective tissue, though the true tendon-cells and the cells of the peritendineum and tendon-sheath also contribute to its formation. The arrangement of its fibers and the degree of its development depend on the functional demands to which it is subjected. Anatomically, it is not tendon. It must be emphasized that its development, though rapid during the first few weeks, is subsequently slow. The major share of the tension must for a long time be borne by the silk strands. Therefore, they must be of sufficient tensile strength. Therefore there is also necessity of long postoperative fixation, allowing the tendon to recover from the necrosis subsequent to the operation and insuring a firm union between the silk strands and the stump of the transplanted tendon.

107. **Pathology and Treatment of Chronic Leukorrhea.**—Curtis urges that care of the general health, free elimination, and treatment of pelvic complications which predispose to mild local infection must not be overlooked in the care of chronic leukorrhea. Curtis' bacteriologic examinations indicate that treatment of the endometrium can ordinarily be dispensed with. In unusual cases dilatation for drainage, possibly aided by topical applications, is logical treatment. Curettement of the uterine cavity, douches and tampons are probably harmful. Glands of the cervix which produce excessive mucous secretion should be excised, destroyed by cautery or otherwise rendered inactive. Purulent discharges originate, as a rule, in the lower genital tract.

Bacteria of low pathogenicity, chiefly anaerobes, evidently play an active part in their production. Autogenous vaccines decrease general malaise and backache. When aided by correction of associated pathology their influence on chronic purulent discharges is beneficial; a large number of patients are helped only so long as vaccines continue to be administered; a smaller number are permanently improved, and a fair percentage appear to be cured.

Powder treatment exerts a favorable influence but in Curtis' experience has a limited value only. Yeast seems not to have distinct advantages over other forms of powder treatment. The medicinal effects of ingredients of the powder are probably secondary to benefits from its absorptive action. Irritating discharges are absorbed by the powder, whereby the tissues are given opportunity to regain their normal resistance. If the tissues are incapable of return to normal while kept dry through use of powder, recurrence of discharge may be expected with discontinuance of treatment. Specific treatment that produces the highest percentage of successful results consists in the continued use of autogenous vaccines and dry cleansing of the vagina, together with applications of powder. Local treatments with iodin or other drugs are possible sources of help.

110. **Hemorrhagic Osteomyelitis.**—Barrie believes that the so-called medullary giant-cell sarcoma of bone is in fact a localized regenerative inflammatory lesion, without evidence of malignancy. Owing to the anatomic arrangement and structures involved, slight initial trauma is ample to account for the pathologic phenomena and progressive bone destruction that occurs, regardless of any infective process. The giant-cells found in these lesions are neither tumor-cells nor tissue builders. They act in the capacity of scavengers. A more simple terminology and classification is needed. The terms at present in use are numerous, confusing and misleading. The following classification is suggested: Hemorrhagic osteomyelitis. Traumatic. Localized. Non-infective (?). Non-suppurative. Acute. Never observed. Chronic—Type A, hemorrhagic (shows little or no metaplastic change). Type B, fibrocystic (due to later metaplasia). A. Chronic hemorrhagic osteomyelitis—Synonyms: (1) medullary giant-cell sarcoma; (2) myelogenous giant-cell sarcoma; (3) myeloma; (4) medullary giant-cell tumor (Bloodgood). B. Chronic fibrocystic osteomyelitis—Synonyms: (1) benign bone cyst; (2) osteitis fibrosa; (3) chronic osteomyelitis fibrosa—cystic or solid (Bloodgood); (4) traumatic solitary bone cysts (Felten and Stolzenberg).

114. **Pott's Fracture.**—Speed analyzed 208 cases of ankle fracture and found that Pott's fracture as classically understood is very rare. He says that each ankle fracture should be treated in accordance with the most searching diagnosis, aided if possible by skiagrams, and not by routine method. Too much faith should not be given to anteroposterior skiagrams through the ankle mortise. Lateral views should be made to show the correct position of the astragalus in the anteroposterior axis and to reveal lipping fractures. Speed would lay more emphasis on the treatment of fracture of the external malleolus with or without ligamentous damage on the inner side of the ankle by overcorrection in extreme inversion on a splint or in a cast. He advises that special attention should be paid to cases with posterior or anterior displacement of the foot, as these indicate lipping fractures of the tibia or complete separation of the external malleolus with loss of support of either anterior or posterior tibiofibular ligaments. Operation should be considered in these cases, particularly to obtain the best result. Operative measures, of simple replacement, nailing or other procedures, give perfect anatomic results in selected cases. Speed insists that the use of the foot should not be permitted until pain is not caused.

119. **Wire Tourniquet in Operations for Goiter.**—In the operation devised by Freeman the gland is dislocated in the usual manner through a collar incision. Several loops of heavy braided silk or, better, strong fishing line are then drawn through the substances of the lobe near its attachment. This may conveniently be done by plunging a small pair of blunt-pointed "alligator forceps" through the gland, grasping at its center a ligature a foot long and dragging the loop into position. Several loops are required—one near

each end and one or more in the center, according to the size of the goiter. If more convenient both ends of a loop may be threaded through the eye of a large round needle which is then passed blunt end first through the glandular tissue; or an ordinary probe with an eye at one end may similarly be used.

As soon as the loops are in place, two wires are adjusted, one on either side of the lobe, and tied tightly in place by means of the ligatures, thus forming a sort of tourniquet which compresses the base of the lobe firmly enough to control the circulation without crushing the tissues. This is easily accomplished by passing one wire through the closed ends of the loops, and on the opposite side tying the loose ends firmly over the other wire. Additional security may be obtained by again tying the loose ends of the two outer loops around the wires as they project beyond the gland and this should generally be done. If bow-knots are used they may be united and the loops tightened, if the tourniquet should prove to be too loose after amputation of the tumor, as might rarely occur in the larger and softer goiters.

The size of the wire should be about No. 17. It should be capable of being bent without bending too easily. The German silver wire employed by dentists ("orthodontia wire") answers the purpose admirably. With a pair of cutting pliers the wires may be cut to appropriate lengths during the operation, and perhaps bent to suit the requirements of special cases. As soon as the tourniquet is properly applied, which can be done very quickly, the distal portion of the gland is cut away to any desired extent without the least fear of hemorrhage. The wound is next rapidly whipped over-and-over with catgut in a round needle, so as to cover in the raw surface and prevent subsequent bleeding. The application of this hemostatic suture will be facilitated if a sufficient stump is left beyond the wires and especially if the excision is made slightly deeper in the center than at the edge. The wires are then pulled out of the loops, thus freeing the latter so that they may be picked from the tissues; or, if the wires stick, the loops may be cut.

Tennessee State Medical Association Journal, Nashville

July, VII, No. 3, pp. 99-142

126 *Brain Abscess. H. O. Reik, Baltimore.
127 Pudenal Hematocele. J. M. Clack, Rockwood.
128 Use of Local Anesthesia in Over One Thousand Major Surgical Operations. J. A. Crisler, Memphis.
129 Sarcoma of Upper End of Tibia. D. Eve, Jr., Nashville.
130 Serodiagnosis of Pregnancy. A. A. Eggstein, Nashville.
131 Runabout Baby. W. N. Lackey, Gallatin.

126. Abstracted in The Journal, May 16, p. 1582.

West Virginia Medical Journal, Wheeling

July, IX, No. 1, pp. 1-40

132 Treatment of Abortion. W. S. Gardner, Baltimore.
133 Angina Pectoris. T. A. Claytor, Washington, D. C.
134 Work of Hygienic Laboratory for Physician and Public Health. A. Arkin, Morgantown.
135 Recognition of Different Periods of Gonorrhea by Microscope. H. G. Steele, Bluefield.
136 Incidence of Cancer. J. R. Hunter, Hansford.
137 Bone Implantation in Pott's Disease. C. S. Venable, San Antonio, Tex.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal, London

June, XXXII, No. 124, pp. 97-191

1 *Secondary Infections of Pulmonary Tuberculosis and Their Treatment by Vaccines. S. H. Habershon.
2 *Mixed Infections in Pulmonary Tuberculosis; Treatment with Tuberculin. N. Bardsweil.
3 Treatment of Laryngeal Tuberculosis by Tuberculin. P. Watson-Williams.
4 Autoplastic Intramedullary Bone Pegging as Method of Operative Treatment for Fractures. C. F. Walters.
5 Tachycardia in Association with Parenchymatous Goiter. F. H. Edgeworth.
6 Case of Lymphatic Leukemia in Child Aged Three Years. E. C. Williams.

1. **Pulmonary Tuberculosis.**—Habershon has found that the best results are obtained from vaccine treatment when the primary tuberculous infection is not active and the secondary symptoms of bronchial catarrh or asthma are prominent. He has personally obtained the best results in cases of secondary infection by the *Micrococcus catarrhalis*, Fraenkel's *diplococcus pneumoniae* and the Friedländer bacillus. A few of the cases have shown such marked immediate improvement, that it appears to Habershon fully to justify the vaccine treatment. A large number of cases of pulmonary tuberculosis are infected with an organism known for the present as a pneumostreptococcus, in reality a streptococcus. He has rarely obtained more than temporary relief in such cases, and the results have been disappointing.

2. **Pulmonary Tuberculosis Treated with Tuberculin.**—Cases of pulmonary tuberculosis, in which tubercle bacilli are not found in the sputum, are said by Bardswell to do equally well with or without tuberculin. In 1907 and 1908, 120 cases of this type were treated by him in the King Edward VII Sanatorium, all of the patients being discharged apparently well. What is more to the point is, that at the present time, after a lapse of from six to seven years, only 7 deaths have occurred among these patients—1 from insanity, 1 from cancer and 5 from tuberculosis. The remainder are well. It is clear to Bardswell that the treatment of these bacillus-free cases with tuberculin is uncalled for, and that in view of the good results obtained with simple hygienic measures the records of such cases treated with tuberculin can supply us with no useful information as to the value of this form of treatment.

In 1912 and 1913 Bardswell treated 200 favorable cases of early and moderately advanced disease (all of which had tubercle bacilli in the sputum) with tuberculin. The immediate results were: Arrested or much improved, 68 per cent.; stationary or worse, 16 per cent. The records for 1910 and 1911, when no tuberculin was used, show that the results of treatment of 200 similar cases were precisely the same.

As to disappearance of tubercle bacilli from the sputum: Of the 200 cases just referred to, which in 1912 and 1913 were treated in the sanatorium with tuberculin, 27 per cent. lost their bacilli before discharge; but of the 200 cases of the same type treated without tuberculin in 1910 and 1911, the percentage figure for loss of bacilli was almost identical, namely, 27.5 per cent. With rigid selection of cases, excluding all save those with a limited apical lesion associated with complete absence of constitutional symptoms, the percentage figure for loss of bacilli worked out as high as 50 per cent., both in the case of patients treated with and without tuberculin.

Bardwell's experience is that tuberculin is not a remedial agent which can be depended on to revolutionize either sanatorium results or the outlook for the average tuberculous. Tuberculin has not proved itself to be a remedy in the ordinary sense of the term, and no immediate or striking results are to be expected from it, even in the most favorable cases. Tuberculin, as employed in the sanatorium, in association with the favorable conditions which are secured by residence in the institution, exercises an influence on those cases in which steadily-increasing doses can be taken. The treatment produces (1) tolerance to considerable doses of tuberculin, and in many cases (2) an effect on the diseased structures. This local effect may be a source of danger.

As to the kind of cases in which it may be expected that tuberculin treatment is at least without unfavorable effect, Bardswell's experience is that it is the patient with a good outlook who has rapidly responded to general hygienic measures, and who has shown evidence of constitutional vigor and recuperative power. In a considerable number of cases tuberculin, so far as can be judged from immediate clinical results, has no obvious influence on the lesions. The patient is gradually made tolerant to it, but this seems to be the only objective indication of its effect. Bardwell's experience has been that the administration of tuberculin is quite unsuitable as a routine method of treatment of pulmonary tuberculosis, and that its indiscriminate and careless use on a large scale can only end in harm.

British Medical Journal, London

July, II, No. 2793, pp. 53-104

7 *Diathesis in Infancy. Plea for Its Closer Study. H. C. Cameron.
8 Carbon-Monoxid Poisoning in Senghenydd Explosion. I. J. Davies.
9 How to Increase Usefulness of British Medical Association. J. L. Stretton.
10 Recent Legislation and Medical Profession. J. Russell.
11 Tuberculous Milk in Edinburgh. A. P. Mitchell.

7. **Diathesis in Infancy.**—Cameron says that the problems of infantile dietetic disorders require for their solution all the trained faculties of medical men, and that a close supervision of the amount, composition and quality of the diet will not avail in a great number of cases to detect the cause or ensure recovery. In infantile disorders, as elsewhere in curative and preventive medicine, the help given by trained, competent and intelligent nurses and voluntary workers can only be subsidiary to the work of experienced medical men. At the present time, because of the relatively small number of medical men who are interested in the subject or who study it in a rational and broad-minded way, there is some tendency for their place to be usurped by lay workers, who are perhaps more interested but whose lack of training renders them unable to appreciate the complex nature of the problems concerned. The scientific study of the ailments of very young infants is of supreme importance to the state. Progress in the control of infant mortality is hindered not by the apathy of the public or the state, but by the comparative neglect of the profession.

Journal of Laryngology, Rhinology and Otology, London

July, XXIX, No. 7, pp. 337-392

12 Suspension Laryngoscopy and Its Practical Use. (To be continued.) G. Killian.
13 Rhinogenic and Otogenic Lesions of Third, Fourth, Fifth and Sixth Cranial Nerves. L. Onodi.

Journal of Tropical Medicine and Hygiene, London

July 1, XVII, No. 13, pp. 193-208

14 Treatment of Yaws and Their Sequelae by Means of Salvarsan. E. C. Girling.
15 Amebic Dermatitis. L. B. Keng.
16 Bronchial Spirochetosis. F. S. Harper.
17 Canine Babesiasis in Porto Rico. I. G. Martinez.

Lancet, London

July 11, II, No. 4741, pp. 75-140

18 Causes of Insanity. F. W. Mott.
19 *Treatment of Ankylostoma Anemia. H. B. Day and A. R. Ferguson.
20 Case of Cheilotomy. W. S. Handley.
21 *Common Mode of Deferred Death after Tracheotomy for Laryngeal Diphtheria (Tracheal Mucus Plug). J. Biernacki.
22 Artificial Pneumothorax: Fundamental Defects in Accepted Technic of Inducing Pneumothorax and How to Remedy Them. W. P. Morgan.

19. **Treatment of Ankylostoma Anemia.**—Extended clinical experience has demonstrated to Day and Ferguson that patients with slight anemia may benefit from hematinics without the expulsion of worms. But no case of decided anemia can be really improved unless the worms be expelled. Recent cases of moderate anemia from ankylostomiasis are cured by expulsion of the worms. Recovery in most chronic cases is very slow unless hematinics be given. Under treatment with vermicides and iron the rise in hemoglobin is a reliable index to the expulsion of the worms provided the marrow be in a condition to respond. The administration of simple forms of iron by mouth is more satisfactory than the use of organic compounds or hypodermic medication. Manganese cannot be substituted for iron.

After the expulsion of worms in a moderately severe case the recovery from anemia is better and quicker when arsenic is given as well as iron. In severe cases of ankylostomiasis the administration of arsenic is often essential to recovery. In such cases, arsenic given by the mouth may be ineffectual, but hypodermic medication generally succeeds. Arsenic by itself is useless. Iron is always essential to recovery from severe ankylostomiasis. Persistent eosinophilia after the complete expulsion of worms may be attributed to the presence of living larva in the tissues. Intense and persistent anemia in ankylostomiasis generally denotes exhaustion and atrophy of the bone-marrow.

21. **Deferred Death after Tracheotomy.**—Under present conditions, Biernacki says, it nearly always happens in cases of deferred death that severe lobular pneumonia develops. Death is usually attributed to the pneumonia, but this view requires qualification. The fact that asphyxia largely due to the plug is likely to anticipate death from the pneumonia *per se* must give weight to measures directed against its formation. These considerations indicate a line of treatment which has been well tested by Biernacki. While dry cases—those generally in which lobular pneumonia is established at the time of operation—are far more liable to tracheal plugging, the latter may take place although the patient's condition is at the outset quite satisfactory. In Biernacki's opinion it is safer to place every tracheotomy case in steam for at least a week if the tube is required for that time. Short of this, steam will, of course, be employed at the first sign of dryness. It hinders desiccation of the discharge and is beneficial when lobular pneumonia threathens or is established.

If obstruction returns after an interval and is not due to loose membrane, and at the same time the patient is not coughing up discharge freely or the discharge is very tenacious, a spray of sodium bicarbonate is prescribed (10 gr. to the ounce of water). The efficacy of this treatment depends partly on the expertness of the nurse. Using a rather coarse, intermittent spray, she compresses the ball, say, three times with the nozzle directed into the mouth of the tracheotomy tube. This she does during successive inspirations. The patient will probably then begin to cough, and the spraying fluid, mixed with more or less discharge, may be driven up to the inner end of the tube or out of it. To sop up the fluid and discharge, the nurse makes a thin swab by wrapping cotton wool round the point of sinus forceps bent to the angle of the tube. New swabs are inserted until one comes away dry. Then she repeats the whole process, perhaps three or four times. Not uncommonly the patient in the end coughs up a quantity of partly desiccated discharge, so that the formation of a slug may be delayed or possibly averted. If definite plugging occurs the sodium bicarbonate is increased to 20 gr. to the ounce.

Biernacki holds that extraction should be postponed until it is certain that spraying alone will not dissipate the plug and the obstruction has become immediately dangerous. Great care is needful in inserting the forceps; if they are opened too soon or too wide or force is used the wall of the trachea may be injured. Streaking of the discharge by blood not referable to the operation wound may reveal such injury, the result of which may be that obstruction returns earlier and proves less amenable to treatment. The forceps should be inserted no farther than is necessary to grip the plug. Extraction is discontinued in improving cases whenever this can be done without undue danger of suffocation. Some risk may have to be run. Throughout the spray may be serviceable. Oxygen when used is always passed through water. Straight from the cylinder it rapidly absorbs moisture and thus dries up discharge.

Medical Chronicle, London

July, XXVII, No. 4, pp. 221-300

23 *New Test for Morphin and Its Salts. T. H. Oliver.
24 Malignant Growths on Lupus Scars. L. Savatard.
25 Lumbar Puncture and Examination of Cerebrospinal Fluid in Meningitis in Children. C. P. Lapage.
26 Case Illustrating Rare Cause (Pleating) of Acute Intestinal Obstruction. J. P. Buckley.

23. **Test for Morphin and Its Salts.**—During an investigation of the action of catalysts on a solution of morphia in the presence of hydrogen peroxid, Oliver came across a reaction which serves as a useful test for morphin and its salts, and which is, as far as he is aware, entirely new. He describes it as follows: To a solution of morphin add a few cubic centimeters of H_2O_2 and a little strong ammonia. The solution is then stirred with a piece of copper wire, whereon the previously colorless solution becomes of a deep port-wine tint, the reaction being accompanied by a considerable evolution of gas. The test is an extremely delicate one, 0.00002

gm. of morphin being readily detected, but in looking for very small amounts it is necessary to add a few drops of potassium cyanid solution at the end of the reaction to remove any blue color formed from the copper which otherwise would mask the tint. The addition of the solution of potassium cyanid before that of the copper tends to prevent the reaction occurring.

The reaction is also a very delicate one for copper 0.00001 gm. being easily detected in solution; moreover, it will occur with any of the cuprous or cupric salts, and even the insoluble copper oxalate is markedly active. The reaction appears to be dependent on the combination of all four reagents; the copper acting as a catalyst. It will occur, however, on the substitution of monomethylamin (NH_2CH_3) for ammonia, but not with dimethylamin [$NH(CH_3)_2$], nor with caustic soda, the NH_2 group being apparently essential to the reaction.

Methyl and ethyl morphin (codein and dionin), drugs hitherto indistinguishable from morphin by ordinary tests, do not give the reaction. Apomorphin + NH_4OH + H_2O_2 gives a slight pink color which, on the addition of copper, turns orange. The reaction has been tried on the following alkaloids with negative results: Strychnin, brucin, atropin, narcotin, heroin, cocain, nictoin, cephalin, emetine, veratin, physostigmin, pilocarpin and conium. Other substances were tried as substitutes for copper, viz., powdered aluminum, iron, nickel and calcium, the salts of manganese, cobalt and iron, and colloidal selenium and rhodium. In all cases, however, the results were negative. The red substances formed is insoluble in the ordinary morphia solvents and also in ether, chloroform and toluol, and the whole of the morphia is apparently changed, none of the alkaloid being precipitated from the ammoniacal solution.

Annales de Gynécologie et d'Obstétrique, Paris

June, XLI, No. 6, pp. 321-383

27 *Morphin in Puerperal Eclampsia. J. Rouvier.
28 *Pregnancy after Myomectomy; Five Cases. Goullioud.
29 The Ovary with Fibromas. (L'ovaire chez les fibromateuses.) De Jong. Commenced in No. 5.

27. **Eclampsia.**—Rouvier says that eclampsia is frequent and severe in his district, and that the secret of success in treatment is to detect the first onset of the eclampsia and by prompt measures to check it in its incipient stage, avoiding especially any errors in diet, as this is particularly liable to bring on the convulsions. It is safer, he says, to keep the patient on water alone, and then on an unsalted vegetable diet. By this means the eclampsia may be aborted even when there is already high albuminuria and high arterial pressure. He cites the details of six cases in which the patients disregarded his warning as to the diet and returned to the usual cold meats, candy and pastry, followed in a few hours by the first convulsions. In a corresponding group of six typical cases the women heeded his advice, and, although there had been up to three weeks of symptoms suggesting impending eclampsia, on the unsalted vegetable diet the blood-pressure dropped and the threatening storm blew over. Restriction to milk does not answer the purpose.

Some of the symptoms of eclampsia resemble those induced by injection of epinephrin and the action on the adrenals of some toxin may be one of the elements in the clinical picture. They may be stimulated by the toxin to overproduction or it may paralyze them more or less and also other organs. The convulsion itself does sudden and serious harm from the passive congestion in various organs during the tonic contractions, and the patient may die of asphyxia during the convulsion or may die from the disorganization that follows in its wake. For these reasons Rouvier keeps the patient under the influence of morphin when the convulsions are once installed and does not hesitate to inject large doses to arrest the convulsions: 2 c.c. at once, followed in half an hour by 1 c.c. and in another half hour by 1 c.c., thus giving 4 c.c. in the first hour. If the convulsions subside for two hours he gives an additional 0.5 c.c. two hours later; if the convulsions keep up, he continues with 0.5 c.c. every hour. The azotemic forms with myosis seem to require larger doses than others. He has records of twenty-nine cases of eclampsia thus treated: he gave up to 11 c.c. in forty-six hours in one case, and 14.5 c.c. in thirty hours in another. Reexamination later has confirmed the harmlessness of this method. The morphin reduces the congestion in the kidneys and this helps to wash out the toxins and the albuminuria subsides. Adjuvant measures are lavage of the stomach and intestine and, with pulmonary edema, dry cups to the chest and venesection plus continuous intake of oxygen by inhalation and subcutaneous injection.

28. **Pregnancy after Myomectomy.**—Among the 74 women with uterine myoma treated by myomectomy one or more pregnancies occurred later in 5 of the 26 married women under 40, that is, in 20 per cent. All the patients have been under observation for long periods after the myomectomy. Recurrence is rare and there was usually an interval of ten or more years permitting the raising of a family.

Archives des Mal. de l'App. Digestif, Paris

June, VIII, No. 6, pp. 301-360

30 *Splashing Sound and False Ascites as Signs of Ileus. (Valeur séméiologique du clapotage abdominal et de la fausse ascite pour le diagnostic de l'occlusion intestinale.) A. Mathieu.
31 Indications for Operative Treatment of Constipation. (Les altérations du colon droit et constipation caecale.) P. Duval and J. C. Roux.
32 Gastric Crises plus Herpes Zoster. Hautefeuille and Dupret.

30. **Splashing Sound as Sign of Ileus.**—Mathieu remarks that sufficient emphasis is not placed on the instructive findings of a splashing sound and pseudo-ascites just above the point in which the intestines have become obstructed from any cause. He has noticed this in a pronounced form in twelve recent cases of ileus, the obstruction developing slowly with paroxysmal exacerbations. It is sometimes hard to decide whether the trouble is from ileus or from dilatation of the stomach with pyloric stenosis; the area of dulness and roentgenoscopy will aid in differentiation.

Archives des Maladies du Cœur, etc., Paris

July, VII, No. 7, pp. 433-496

33 Anemia in Rachitic Twins. (Variété d'anémie profonde et durable, observée chez deux jumeaux rachitiques hypotrophiques.) E. Lenoble.
34 Arhythmia Originating in the Sinus with Abnormally High Blood-Pressure. (Présence d'une arythmie sinusale chez quelques hypertendus.) D. Danielopolu and J. Heitz.
35 Vasoconstricting Properties of Extravasated Blood. G. N. Stewart and T. F. Zucker (Cleveland).

Archives de Médecine des Enfants, Paris

June, XVII, No. 6, pp. 401-480

36 *Congenital Lesions of the Liver in the New-Born and in Athrepsia. H. Barbier and M. Cleret.
37 Vaccine Therapy of Vulvovaginitis in Children. J. Comby and Condat.
38 Acute Influenzal Thyroiditis in Girl of 13 with Pott's Disease. Phelip and Trèves.
39 Streptococcus Peritonitis in Small Children. H. Schwers.
40 *Acute Enteritis and Hemiplegia in Two Infants. Carretier.
41 Pneumonia Simulating Membranous Croup. J. Comby.

36. **Congenital Lesions in the Liver.**—Barbier and Cleret report the details of eleven cases in which the liver of infants dying from athrepsia showed congenital changes enough to explain the downward trend of the children, but in these cases other organs are liable to be physically inferior likewise. The liver being at birth below par is especially sensitive, but if it is spared any extra task, it may recuperate and the child may finally grow into health if it can be tided along through the first few months. The diet should be chosen with a view to spare the liver in particular. To know how to wait, in these cases, is the beginning of wisdom.

40. **Acute Enteritis and Hemiplegia.**—Carretier reports gastro-intestinal disturbances and hemiplegia in two artificially fed infants 20 months old. They developed symptoms

of meningism and hemiplegia which subsided by the third or fourth month during which the children lived on slightly sweetened tea and whey, alternating with a vegetable broth.

Lyon Médical

July 5, XLVI, No. 27, pp. 1-56

42 Diseases of the Hands in the Rose-Gatherers of the Riviera. Revillet.

Presse Médicale, Paris

July 1, XXII, No. 52, pp. 497-504

43 Intratracheal Insufflation. T. Tuffier and G. Loewy.

July 4, No. 53, pp. 505-516

44 Technic for Operative Treatment of Abscess in the Breast. (Incision sous-et rétro-mammaire.) E. Desmarest.

45 Measurement of Pressure in Cerebrospinal Fluid. (Sous-arachnoidomanométrie.) S. Chauvet.

July 8, No. 54, pp. 517-524

46 *Pituitary Body not Responsible for Diabetes Insipidus. (Régulation de la teneur en eau de l'organisme.) J. Camus and G. Roussy.

46. **Diabetes Insipidus and the Hypophysis.**—Camus and Roussy report extensive experiments on dogs and other animals the results of which seem to show that the hypophysis is not responsible for diabetes insipidus. The seat of the mechanism regulating the water content of the organism seems to be in the region just back of the hypophysis. Injury to this region, leaving the hypophysis intact, brought on polyuria, with or without polydipsia, in all of their experiments. The experiments on record and clinical experiences apparently demonstrating the connection between disorders of the pituitary body and diabetes insipidus, they think have been misinterpreted; the inevitable concomitant superficial injury of the region just to the rear was probably the real cause of the diabetes. At least this is true of dogs, they assert; the regulating center is in the gray matter of the third ventricle, not in the pituitary body.

Berliner klinische Wochenschrift

July 6, LI, No. 27, pp. 1253-1300

47 *Pyelography and Its Importance for Surgical Work; Indications and Limitations. E. Joseph and L. Casper.

48 *Roentgen Rays and Pregnancy. H. Edelberg.

49 Histologic Variations in Chicken Sarcomas Induced by Filtrable Agents. P. Rous (New York).

50 Nothing Takes the Place of the Knife in Treatment of Cancer. (Zur Zeller'schen Pastenbehandlung.) Lange.

51 Simple Portable Device to Estimate Carbon Dioxid Tension of Expired Air. (Zur Bestimmung der Kohlensäurespannung in der Lungenluft.) L. S. Fridericia.

52 *Hysteroneurasthenia, Chronic Appendicitis or Helminthiasis? A. Rheindorf. Commenced in No. 26.

47. **Pyelography.**—Thirty-eight roentgenograms accompany this study of pyelography by Joseph, based on 100 cases. He has never had it cause colic pain except in three cases and in two it was mild and transient. In the third the pain persisted for three hours. He says that the procedure is scarcely more than a rinsing out of the kidney pelvis with collargol solution, but if the ureter is found unduly sensitive when the catheter is introduced, it is better to refrain from the method altogether. He advises a fine catheter permitting the surplus fluid to flow back outside of it.

Casper advises not to use a syringe but merely a tube and small funnel, as for lavage of the stomach. Even with the most scrupulous care, mishaps are liable, he says; he recently witnessed pains, nausea, vomiting and fever to 39.2 C. follow pyelography done with every imaginable caution, so that he warns against the use of the method when other means are instructive. Wandering kidney can be diagnosed by other means as a rule and pyelography can generally be dispensed with. It is directly contra-indicated as liable to do harm in tuberculosis of the kidney, and the findings are liable to be misleading with calculi. In five of seven cases of hypernephroma, pyelography gave negative findings, so that it was of no aid in the diagnosis. With an abnormally located kidney an opaque catheter gives just as instructive findings as injection of an opaque fluid while it is far less dangerous. A simple method of testing for impairment of function by a tumor is to test the functional capacity of each kidney separately (freezing-point, phlorizin injection and U) and compare the findings. A tumor in one is liable to reduce its functional capacity. If this fails to locate a tumor, percussion after inflation of the colon will often succeed. Pyelography on the other hand may be indispensable for the diagnosis of horse-shoe kidney and hydronephrosis, in which it clears up the clinical picture at once.

48. **Roentgen Exposure of the Ovary with Pregnancy Later.**—Edelberg reports a case of myoma of the uterus in a woman of 38, six years after her second pregnancy. She was given a course of Roentgen treatment, the ovaries being systematically exposed for a total of 125 minutes during three months, the total dosage 146 Kienböck X units, and at least 35 of the units must have been given after the unsuspected pregnancy was under way, but the pregnancy proceeded unmolested to normal term and the child seems absolutely normal and thriving to date (seventh week).

52. **Chronic Appendicitis and the Oxyuris.**—Rheindorf has found specimens of oxyuris in the apparently sound appendix and he ascribes many of the symptoms and disturbances of supposed chronic appendicitis to the presence of these helminths. In several cases they were found only when numerous sections of the appendix were examined. In one case only one oxyuris was found in a block of 100 sections. If he had commenced cutting at the other end of the block he probably would have missed it. The patient was a girl of 17 who for two years had had attacks of pain in the cecum region lasting sometimes for a day or so. She had no itching at the anus but twenty specimens of the oxyuris were found in the lumen of the appendix.

The oxuris is transparent and difficult to detect unless it is white from being full of eggs. In the case of a man teacher of 32, the appendix contained a large number of specimens and the pains kept up after removal of the appendix until the helminthiasis was cured by a vermifuge. It is probable that helminths are responsible in some cases for the persistence of pains after appendicectomy. Rheindorf has carefully examined eighty-two cases of the kind, the findings suggesting that the mere presence of the helminths sets up spastic contracture in some cases or the helminths may have a direct irritating action on the nerve terminals; in some of his sections the oxyuris was close to some of the larger nerve sections. The pains are described as dragging, boring, cutting, stabbing, prickling or a sensation of pressure, usually aggravated by movements and sometimes accompanied by nausea and vomiting. Sometimes the pain waked the patient in the night. Two brothers were operated on for chronic appendicitis and the oxyuris was found in the appendix of both. In one there were signs of inflammation and this boy had had fever the night before the operation. He found the oxyuris in 27 boys and in 13 girls with symptoms of chronic appendicitis. In adults he can count on the oxyuris in 20 or 30 per cent. of all cases and in 50 per cent. in children. That others do not find them more frequently is probably because they are overlooked. Bäärnhielm found them in 9 per cent. of the 875 cases examined in Sweden, and Sagredo in 41 per cent. at Geneva.

Deutsche medizinische Wochenschrift, Berlin

July 8, XL, No. 28, pp. 1409-1456

53 *Pulmonary Embolism Prevented by Reducing Coagulating Power of Blood. (Bau der in die Pulmonalarterie embolisierten Thromben.) H. Ribbert.

54 Dialysis Serodiagnosis. (Zur Anwendbarkeit des Abderhaldenschen Dialysierverfahrens.) E. Mosbacher and F. Port.

55 Protective Ferments against Plant Albumin. (Spezifizität der gegen Pflanzeneiweiss gerichteten proteolytischen Fermente.) B. Issatschenko.

56 *Acute Hemolytic Malaria. (Schwarzwasserfieber.) A. Plehn.

57 *Blocking the Nerves for Gynecologic Operations, etc. (Die paravertebrale Leitungsanästhesie.) P. W. Siegel.

58 Friedmann's Treatment for Tuberculosis. (Schlechte Erfahrungen bei chirurgischer Tuberkulose mit dem Friedmannschen Mittel.) E. Kahn and O. Seemann. (Erfahrungen mit dem Friedmannschen Heilmittel bei chirurgischer Tuberkulose.) R. Drachter.

59 Perforation of Tubercle into Aorta and Into Trachea. A. Girardet.
60 *Early Diagnosis of Gastric Cancer. (Zur Differentialdiagnose der Achylien mit bes. Berücksichtigung der quantitativen Eiweissbestimmung und der Fermentabscheidungen im Mageninhalt.) M. Trallero.
61 Telecardiography. (Einfache Methode, die Herzspitze für die Messung des Längsdurchmessers des Herzens sichtbar zu machen.) Huismans.
62 *Transmission of Friedmann's Virus from Guinea-Pig to Guinea-Pig with Outbreak of Tuberculosis. (Zur Virulenz des Friedmannschen Tuberkulosemittels.) K. Kaufmann.

53. **Structure of Thrombus in Pulmonary Embolism.**—Ribbert concludes from the structure of the long, loose and easily swept away thrombus which is found in the cases of fatal pulmonary embolism that changes in the composition of the blood are responsible for the development of thrombi of this special character. They must be regarded as a product of coagulation. If this view is accepted, then the next step is to reduce the coagulating property of the blood as the important factor in warding off pulmonary embolism. This form of thrombus production is certainly under our control by means to check the coagulation of fibrin.

56. **Hemolytic Malaria.**—Plehn insists that in severe cases of black-water fever, as in the case he describes, the physician must have the courage of his convictions and, aside from keeping the patient in bed, do nothing. During the critical period the patient must keep absolutely still, as this alone will enable the remaining red corpuscles to supply the tissues adequately with oxygen. If there is difficulty in breathing, or nausea, he does not hesitate to give morphin. Above all the patient must not be moved under any circumstances, and there must be no violent purging nor stimulation by baths. The unfavorable influence of chilling was particularly noticeable in the case reported. The rapid, small and sometimes empty pulse must not be mistaken for "heart weakness"; heart stimulants should be scrupulously avoided as they merely exhaust the overworked heart. At the utmost, only saline or Ringer's fluid can be permitted in intravenous injection, and he has always shrunk from this, fearing to dilute the already cell-poor blood any farther. Forced feeding had better be avoided likewise as liable to cause nausea and vomiting.

Not until the destruction of reds has ceased and the patient begun to recuperate should he be taken where he can get institutional care if need be. Under good care and nourishing food recuperation proceeds very rapidly. The attack in the case reported occurred in a Berlin hotel after return from Africa and no attempt was made to take the young man to the hospital until he had begun to improve. Then convalescence proceeded rapidly. The hemolysis occurred with intermissions several times a day, the close of each accompanied by chills and new rises of temperature, with vomiting at times but there was no tendency to anuria. The destruction of the reds proceeds inexorably so that death generally occurs the fourth or fifth day. The case he reports is one of the few cases of this type with recovery. The predominant other types are the fulminant toxic form, the hemorrhagic and the abortive hemoglobinuria forms. The clinical picture may be complicated in either type by nephritis or obstruction of the bile passages. The latter occurred in three cases in his experience but at necropsy no obstacle to the flow of bile could be discovered.

57. **Blocking the Nerves for Laparotomies, Etc.**—Siegel states that by the method of paravertebral and parasacral anesthesia he describes he succeeded in 70 per cent. of 170 gynecologic, obstetric or other abdominal operations without requiring further anesthesia. Even in the cases requiring supplementary inhalation anesthesia, the amount of the anesthetic was small. The local anesthetic in a dilute solution—0.5 per cent.—and the combination of the paravertebral and parasacral technics plus the twilight sleep are the essential features of his method. One patient died the eleventh day from sepsis after a hysterectomy; the other patients all recovered; in 120 kept under close control there was no temperature above 38 C. in 84; the pulse was constantly under 100 in 106; vomiting occurred in 5 cases; headache in 7; coughing in 15, and without cause in the lungs in 13, and 23 complained of backache; pneumonia occurred in one of the 70 laparotomy cases.

60. **Early Diagnosis of Gastric Cancer.**—Trallero gives a number of tables showing the findings with malignant disease in the stomach, nervous achylia and other affections in respect to the digestive ferments, acidity, etc. The findings show that even large albumin content and subnormal hydrochloric acid can not be accepted as sure signs of cancer. The assumption of cancer is sustained however by finding an unusually high albumin content with unusually low pepsin and rennin content, when the production of gastric juice as a whole is materially reduced. Differentiation between nervous achylia and that due to gastritis is facilitated by the striking lack of constancy in the secretion of the ferments. The rennin and pepsin may be found in normal range at one time and then very much reduced or lacking altogether. This fluctuation was never noticed in the cases with an organic basis. The findings recorded in the tables are the more instructive as they are compared with those from fifty normal persons.

62. **Transmission of Tuberculosis from Guinea-Pig to Guinea-Pig after Injection of Friedmann's Remedy for Tuberculosis.**—Kaufmann reports that he inoculated a guinea-pig last February with the contents of an ampule of Friedmann's remedy. The animal died the twentieth day with signs of microscopically certain tuberculosis. Another guinea-pig was inoculated with an emulsion of the spleen from the first animal, and when killed the thirty-sixth day severe tuberculous processes were found in the peritoneum, liver, spleen, lung and glands. Three other guinea-pigs also inoculated at the same time died of severe tuberculosis. These findings confirm that the Friedmann virus is transmissible to warm-blooded animals and that under certain circumstances it may become extremely pathogenic.

Jahrbuch für Kinderheilkunde, Berlin

June, LXXIX, No. 6, pp. 645-762

63 The Effect of Whey on the Epithelium, etc., of the Intestines. I-V. (Einfluss der Molke auf das Darmepithel.) E. Moro. (Artspezifität der Molkenwirkung auf Darmzellen.) H. Hahn, Hayashi, L. Klocman, E. Freudenberg and G. Schofman.
64 Spasmophilia. E. Freudenberg and L. Klocman.
65 The Blood in Melena Neonatorum. E. Lövegren.

Medizinische Klinik, Berlin

July 12, X, No. 28, pp. 1171-1212

66 *Uterine Hemorrhage in Girls. G. Schickele.
67 *Deforming Juvenile Osteochondritis. Brandes.
68 *Diagnostic Importance of Tuberculin Reaction in Focus in Obscure Hip-Joint Disease. (Tuberkulinherdreaktion bei unklaren Hüftgelenkserkrankungen.) W. Keppler and F. Erkes.
69 Adipositas Dolorosa. (Fall Dercumscher Krankheit.) L. R. v. Korczynski.
70 *Excessive Vascular Tonus and Contracted Kidney. (Zur Lehre von der vasculären Hypertonie.) E. Münzer and A. Selig.
71 Climate of German Seashore Resorts. (Ost- und Nordseeklima.) Ide.
72 Physical and Chemical Therapeutic Measures and the Distribution of the Blood. C. Hertzell.

66. **Causal Treatment of Uterine Hemorrhage in Girls.**—Schickele remarks that nearly all cases of abnormal uterine hemorrhage in the young can be traced to some constitutional or general affection, inadequate or excessive nourishment, or primary or secondary irritability of the vasomotor system, or to some local cause, disturbance in functioning of the ovaries or other glands, inability of the normal or defectively developed uterus to contract properly, or the vasomotor apparatus of the uterus may be unduly irritable, or there may be secondary hyperemia in the uterus, or some upset in the local metabolism, that is, in the production of the substances in the uterus which dilate the blood-vessels and check coagulation. These substances may be produced to excess at the onset of puberty and possibly keep the uterus irritated and thus maintain the hemorrhages.

Treatment of excessive hemorrhage in girls should be based on which of the above factors are operative. With defective secretion in the ovaries or other glands, a change of climate or of occupation may aid in restoring normal conditions; others improve under a diet rich in salts, with large doses of sodium bicarbonate. With a defectively developed uterus, ergot may improve its contracting power and ovarian therapy may start the uterus to grow. When the uterus is normal but seems unable to contract properly, hypophysis extract with or without ergot may prove useful, as also with simple hypoplasia. When vasomotor causes are responsible, a vegetable diet, calcium salts, hydrotherapy and possibly psychotherapy render good service. When general or constitutional causes are at work, appropriate treatment should be applied, but local measures should be avoided to the utmost. If more vigorous measures are unavoidable, the uterus may be tamponed or the curet may be required in very exceptional cases.

67. **Deforming Osteochondritis in the Young.**—Brandes encountered last year ten children presenting the clinical picture of a hip-joint trouble permitting the patient to flex the hip-joint freely while abduction is almost impossible. The roentgenoscopic findings at first are insignificant but later they are more serious than would be suspected from the clinical picture. The syndrome is further distinguished by the protracted course and the gradual subsidence of all subjective symptoms and of nearly all the objective findings. The process hitherto classed as tuberculosis of the neck of the femur probably belongs in this category, as also many cases of supposed tuberculous hip-joint disease, published as having been cured by this or that treatment. He advocates and has constantly applied a plaster dressing to spare the joint, applying it with the leg abducted to the utmost under general anesthesia. After two or three months this is changed for a walking stirrup, and the plaster dressing is cut shorter and shorter. Massage and superheated air complete the cure. (See abstr. 174, May 2, 1914, p. 1444.)

68. **Focal Reaction in Hip.**—This article was summarized July 11, page 203, as it appeared elsewhere.

70. **Excessive Vascular Tonus.**—Münzer and Selig report a few cases which sustain their contention that contracted kidney is merely one manifestation of the results of thickening of the walls in the precapillary arterial system. It may finally obstruct the lumen completely in the finest of these vessels, augmenting the blood-pressure and entailing hypertrophy of the heart. The term "contracted kidney" should be discarded for "vascular hypertony of the kidney" as the former is based on a mistaken conception of the cause.

Monatsschrift für Geb. und Gynäk., Berlin

July, XL, No. 1, pp. 1-186

73 Effect of Hypophysis Extract on Uterine Contractions in Labor. (Wirkung des Pituitrins auf die Uteruskontraktionen unter der Geburt.) M. Malinowsky.
74 Treatment of Extra-Uterine Pregnancy Rupturing During the Early Months. J. Olow. To be concluded in No. 2.
75 Chorio-Angioma. O. Nebesky.
76 Quadruplets from Four Ova with a Discussion of Quadruplet Births in General. E. Brattström.
77 Primary Carcinoma of Bartholin's Gland. J. Fabricius.

Münchener medizinische Wochenschrift, Berlin

July 7, LXI, No. 27, pp. 1489-1544

78 New Experiments on the Reactions of Plants and Animals to Light. (Lichtreaktionen bei Tieren und Pflanzen.) C. Hess.
79 Roentgenoscopy of the Appendix. H. Rieder.
80 Experimental Analysis of Kidney Functioning. (Funktion der Niere.) E. Leschke.
81 Increased Acid Content of Blood in Uremia. (Azidose des Blutes bei Urämie.) H. Straub.
82 *The Proteolytic Index in Serodiagnosis. (Ueber Abbau von Kasein durch Blutserum.) L. Flatow.
83 No Practical Value to the Skin and Conjunctival Tests for Pregnancy. D. A. de Jong.
84 Color Test with Dialysis Serodiagnosis. (Kolorimetrische Bestimmungsmethode der mit Triketohydrindenhydrat reagierenden Verbindungen.) E. Herzfeld.
85 Regeneration of the Cornea. (Abstammung der Keratoblasten bei der Regeneration der Hornhaut.) Salzer.
86 *Very Small Salvarsan Doses in Treatment of Secondary Anemia and Nutritional Disturbances. K. Kall.
87 Albumin Milk a Great Progress. (Erfahrungen mit Eiweissmilch.) A. Lichtenstein.

82. **Abderhalden's Dialysis Test Applied with Casein.**—Flatow remarks that the use of a standard solution of casein for the Abderhalden test does away with all possibility of error from traces of blood in the organ extract, and permits calculation of a proteolytic index for estimating and recording the protective ferments in a given serum. He remarks that time has confirmed his views as to the non-specific nature of these ferments. It is only a question of the degree of the digestion. He has applied various tests in twenty cases and found the results concordant in all with the casein solution. The standard casein solution is made by soaking 1 gm. casein in 3.5 c.c. decinormal sodium bicarbonate solution until it has softened and then 16.5 c.c. water is added and toluol to keep it sterile. The "proteolytic index" is the increase in the percentage of nitrogen in the dialysate of the serum plus casein solution, compared with the dialysate of the "serum alone," after dialyzing for fifteen hours. The quantities used are 1.5 c.c. serum in each tube and 0.2 c.c. of the casein solution with 20 c.c. of water to dialyze into. The nitrogen content of the dialysate is determined by Pregl's "microkjeldahl" method. In 5 pregnant women the increase was from 46 to 90 per cent. while in five controls, including one or two men, the increase was from 32.5 to 48 per cent.

86. **Very Small Doses of Salvarsan in Treatment of Secondary Anemia and Nutritional Disturbances.**—Kall has treated fifty-five patients of this kind with minute doses of salvarsan, never over 0.05 or 0.075 gm., as a simple and harmless method of giving arsenic and found it extremely effectual in increasing the weight, and it improved the blood-picture and subjective symptoms in all forms of secondary anemia and mild tuberculosis. He gives from ten to fifteen injections and repeats the course after an interval of a few weeks.

Therapie der Gegenwart, Berlin

July, LV, No. 7, pp. 289-336

88 *Prognosis with Arteriosclerosis of the Heart. G. Klemperer.
89 Treatment of Diabetes Mellitus. Forster.
90 Isolated Primary Tuberculous Focus in Fascia of Upper Arm. W. Pohl.
91 *Dislocation of Peroneus Tendon. Muskat.
92 Consensus of Opinion on Friedmann's Treatment of Tuberculosis. (Klinische Erfahrungen über das Friedmannsche Tuberkulosemittel.) F. Klemperer.
93 *Radiotherapy in Blood Diseases. (Strahlentherapie der Blutkrankheiten.) H. Hirschfeld.

88. **Prognosis in Heart Disease.**—Klemperer remarks in the course of this postgraduate lecture that the tortuous course of the temporal arteries has absolutely no prognostic import, and that the blood-pressure at the wrist may vary under emotional impulses and thus have no bearing on the prognosis. He adds that almost the same can be said of intermittent claudication; he has patients with this for seven years without evidence of progression of any cardiovascular trouble, and several who have thrown off completely the tendency to intermittent limping. Even gangrene of the toes does not shorten life as it may heal with or without an operation. Cerebral complications are more dangerous, but small hemorrhages may be reabsorbed; he has several patients still living ten to twelve years after their first "stroke." Tinnitus may prove very persisting; he has a patient now 91 who has had tinnitus constantly since the age of 64. Large doses of sodium iodid, not less than 2 or 3 gm. a day, kept up for six or eight weeks, have arrested syphilitic aortitis almost invariably in his experience when treatment was applied in an early stage. Mercurial inunctions might be used instead of the iodid. Moderation in all things, repose and an equable philosophic view of life are essential elements in the prognosis just as the restless ambition spurring to constant efforts, may often be regarded as one and the main cause of the arteriosclerosis.

91. **Habitual Dislocation of Peroneus Tendon.**—Muskat reports dislocation of the peroneal tendons accompanying flat-foot. Both feet were affected, and he restored conditions to approximately normal without an operation, cast or plaster bandage. An insole and inheel kept the foot in extreme supination. A stout elastic band inside the shoe, correspond-

ing to the course of the fibula prevented the tendon from slipping past the malleolus. During the night a leather gaiter was worn which held the leg and foot in extreme supination and had an irritating action on the periosteum, stimulating it to throw up a protecting barrier. The parts were all stimulated with massage, electricity, etc., and a complete cure was thus realized. The patient has had no recurrence of the trouble, not even in mountain climbing. Muskat compares with this some published operative cases and urges others to report their experiences to decide the question as to the superiority of operative or non-operative measures.

93. **Radiotherapy in Blood-Diseases.**—Hirschfeld has had a number of favorable experiences with Roentgen exposures of the enlarged spleen in myeloid leukemia. The magic effect may be realized in a few weeks, the huge spleen subsiding to its normal size and sometimes without any symptoms; in other cases there may be pains probably from adhesions. The general health improves remarkably and leukemic retinitis, priapism, deafness or vertigo may subside entirely. This favorable outcome was realized in 20 or 30 per cent. of his cases, and generally in the cases of shorter duration. But some improvement under the radiotherapy is evident in nearly every case. Lymphatic leukemia is less easily influenced but even in this he has had better success in some instances than with any other treatment. He has sometimes found radium succeed when Roentgen treatment had failed. In one case, under ten radium exposures the whites dropped from 500,000 to 12,500 and the spleen, which had filled half the abdominal cavity, subsided until it could scarcely be palpated under the costal arch. The formerly bed-ridden patient feels almost entirely well and takes long walks. The trouble in this case was a recurrence. A lymphogranuloma, rebellious to the Roentgen rays, promptly subsided under mesothorium in one case. In pernicious anemia remarkable results were sometimes obtained under small, merely stimulating doses of thorium X, but as a rule it proved less effectual than arsenic. The outlook with acute leukemia is less promising. He states that he does not know of an instance in which the slightest benefit from roentgenotherapy was evident in acute leukemia.

Wiener klinische Wochenschrift, Vienna

July 9, XXVII, No. 28, pp. 1013-1052

94 *The Clinical Importance of Blood-Dust. (Die klinische Verwertbarkeit der Hämokonien.) O. Weltmann.
95 *Nature and Treatment of True Epilepsy. G. C. Bolten.
96 *Vagotony. H. Neugebauer.
97 Roentgenoscopy of the Stomach. (Tastsonde für die Röntgenuntersuchung des Magens.) G. Kelling.
98 Gaseous Phlegmons. W. Goldschmidt.
99 Industrial Diseases in Hungary. (Gewerbe-Pathologisches aus Ungarn.) H. Pach.

94. **Blood-Dust in Diagnosis of Liver Disease.**—Weltmann here reports from the third university medical clinic at Vienna, in charge of Chvostek, 105 cases of various affections in which the test for blood-dust or hemoconiae in the blood was applied (as described in The Journal, June 6, 1914, p. 1848). He tabulates the findings the fourteenth, second and third and fourth hours after the butter test meal (50 gm. of butter on bread). Classifying them according to the proportionate content in blood-dust, shows that the cases with little or no blood-dust after ingestion of butter, were all cases of liver disease. A delay in the appearance of blood-dust in the serum after the butter test meal indicates disturbance in the functioning of the liver. Complete absence of blood dust or very small proportions seems to be a sign of more or less complete obstruction of the biliary passages; it is as significant in this respect, he states, as clay-colored stools.

95. **Epilepsy.**—Bolten has devoted ten years more or less to the study of true epilepsy, that is, excluding all forms of epilepsy for which some cause was apparent. His research has established, he thinks, that essential epilepsy is the result of auto-intoxication from lack of the normal ferment processes in the intestines and disturbance in the intermediate metabolism from lack of normal functioning in the thyroid and parathyroid bodies. By supplying the active principle of these glands in juice squeezed out of the glands, it is possible, he declares, to arrest completely all the manifestations of true epilepsy, as he has succeeded in doing in a whole series of cases. The production of the proper ferments is stimulated by the treatment, metabolism is corrected into normal paths, and the epilepsy is clinically cured. He reviews the literature and compares various data, with other arguments to sustain his contention, and points to his cured cases as the final proof although he gives no details as to the actual cases he has treated in his practice at The Hague.

96. **Vagotony.**—Spitzig's article on vagotony in The Journal, Jan. 31, 1914, p. 364, describes the main features of this condition of overstimulation of the autonomic system, but Neugebauer here adds other clinical pictures of this state and reports effectual treatment. He states that patients with this hypertonicity of the vagal tract are generally comparatively young, of weakly constitution, with signs of status hypoplasticus. The stools generally consist of hard lumps in diarrheic soft feces. The sexes are about equally involved. There is flushing of the face, general or in patches. Dermographism may be so pronounced that words written on the back are plainly perceptible for half an hour. The bradycardia fluctuates with position; it may be 48 reclining and run up to 100 on rising, gradually settling down to 60 or 72, as in a soldier recently in his care. Pressure on the eyeball may slow the pulse to 36 or less, and in several young soldiers the radial pulse stopped completely and no heart-beat was audible for ten or twelve seconds; by the sixth second the man dropped unconscious. Relieving the eyeball from pressure, the heart-beat started up again, with profuse perspiration, but the bradycardia persisted afterward for some time. During the syncope and afterward, respiration was rapid and shallow. In two cases there was no syncope but extreme nausea and vomiting in one. The fact that the above symptoms are due to the abnormally low nervous threshold in the vagus system is proved by their subsidence under atropin. A systematic course of atropin trains the vagus out of its morbid overexcitability and approximately normal conditions may be permanently restored as in a case he describes at length in which by exclusion the trouble was differentiated as vagotonic cardiospasm.

Similar permanent benefit is also derived in vagotonic dysmenorrhea. Menstruation occurs usually at three-week intervals, accompanied by severe pains in the pelvis and sacral region. In a typical case reported a woman of 28 was confined to bed for five or six days at each menstruation by the pains and excessive menstrual flow. The pulse was 108 and the large intestine was hard and tender nearly throughout; the eyeball and forced inspiration tests were positive. She was given atropin, 0.5 mg. a day, in the form of a suppository, the first week; then 1 mg. the second and third week, and 2 mg. during the fourth week, then gradually decreasing at the same rate. The appetite improved, the intermenstrual period was four weeks, and the menstrual period lasted only three days, during which the patient was free from all disturbances.

Zeitschrift für klinische Medizin, Berlin

LXXX, Nos. 3-4, pp. 27-380. Last indexed July 4, p. 70

100 Congenital Heart Defects. L. Dünner.
101 *Serum of Thyroidectomized Goats in Exophthalmic Goiter. (Uebt das Antithyroidin eine spez. Wirkung gegenüber dem Morbus Basedowii aus?) C. Sonne.
102 Electrocardiographic Record over Long Periods. Karfunkel.
103 Neurofibromatosis. W. Lier.
104 Symptoms of Exophthalmic Goiter Occurring with Acute Infectious Thyroiditis. D. D. Pletnew.
105 Influence of Immoderate Smoking on the Heart and Vessels. (Einfluss des Nikotins auf die Gefässe und das Herz.) J. Pawinski.
106 *Estimation of the Functional Capacity of the Pancreas. A. Landau. and A. Rzasnicki.
107 Hematology of Small-Pox and Vaccinia. M. Schatzmann.
108 Left Auricular Flutter. (Ueber isolierte Vorhofstachysystolie—linkseitiges Vorhofsflattern.) O. Roth.
109 Granular Form of Tuberculosis Virus. G. Brückner.
110 Albumin Content of Sputum. G. Brückner.
111 Leukemic Lymphomatosis with Paroxysmal Hemoglobinuria. G. Gali.

101. Antithyroidin in Basedow's Disease.—Sonne reports his experience with 80 cases of exophthalmic goiter in which he administered, more or less systematically, tablets made from the blood or serum of thyroidectomized goats. The results observed, he says, suggest that any benefit derived can probably be explained by suggestion. The thyroids were removed from 87 goats for the purpose and 35 developed myxedema and lived only about fourteen months on an average. No difference in the therapeutic action of the antithyroidin from these goats was apparent in the extensive clinical tests. The details of 23 clinical cases are tabulated in which courses of each were given; that is, antithyroidin from the operated normal and from the operated myxedematous goats or horses. Improvement was noticed after each in some cases, and aggravation after each in others.

106. Estimation of Pancreas Functioning from Regurgitation of Duodenal Contents into the Stomach.—Landau and Rzasnicki have examined the stomach content for pancreas ferments after a test-breakfast in sixty-eight cases and found considerable amounts of trypsin in 55 per cent. of the cases. It was thus possible with the ordinary stomach tube to determine that the pancreas was secreting adequate amounts of its juice. Negative findings are not conclusive as to pancreas functioning. The duodenal tube may bring up trypsin when none can be found in the stomach, and this test should be applied in all dubious cases. The secretion of trypsin, diastase and lipase does not proceed regularly for each, and consequently each must be determined separately to obtain a correct oversight of how the pancreas is working. The findings are tabulated, the cases classified according to the affection in each. The list includes 10 with cancer and one with a fistula into the pancreas. In a second communication they present clinical evidence which shows beyond question that the diastase in the saliva and that in the pancreatic juice respond exactly alike to chemical tests. Hence examination of stomach content for regurgitated pancreatic diastase is absolutely futile, owing to the presence of saliva in the stomach content.

Zentralblatt für Chirurgie, Leipsic

July 11, XLI, No. 28, pp. 1177-1208

112 *Direct Access to Upper Esophagus. (Zur Freilegung des Brustabschnittes der Speiseröhre.) L. Dreyer.
113 Plastic Operation on Dog's Aorta. (Das endgültige Resultat einer Aortenplastik aus der Carotis desselben Tieres.) E. Jeger, H. Joseph and F. Schober.
114 *Occult Blood in the Feces. A. Wagner.

112. Access to the Upper Esophagus.—Dreyer has been making a study of the best means of direct access for operations on the upper esophagus, and states that nine-tenths of the diameter of the esophagus is more accessible from the right than from the left. In two cases of exploratory thoracotomy recently he found that the descending aorta hid the esophagus on the left while it lay exposed on the right side. The only large vessel that crosses the gullet on the right is the azygos vein which is easily separated from it. The ribs have to be resected for quite a stretch, of course, and to avoid mechanical disturbances afterward he bridged the gap on each rib with a plate of aluminum. This restored the wall to all effects and purposes and aided materially in the smooth recovery in his two cases; unfortunately in both the cancer was found inoperable, so the thoracotomy was merely exploratory.

114. Dry Test for Occult Blood in Stools.—Wagner has simplified the benzidin test so that it can be applied without an ether extract and thus much more conveniently, as all that is necessary is to take up a little of the solid stool on a match, smear it on an object glass and pour the reagent over it. It turns blue if there is blood present and there is no misleading green tint from fluid. The reagent is the usual Schlesinger-Holst mixture: A knife-tip of benzidin; 2 c.c. of glacial acetic acid, and 20 drops of a 3 per cent. solution of hydrogen dioxid. By this dry technic there is no danger of soiling the fingers, and the test is more sensitive than the usual "wet" benzidin test. The smear of stool is either blue or it is not. The rapidity of the color change gives some idea as to the proportion of blood in the stools; with much present the change to blue is instantaneous.

Zentralblatt für Gynäkologie, Leipsic

July 11, XXXVIII, No. 28, pp. 985-1016

115 *Improved Technic for Ovariectomy. H. Freund.
116 *Chorea during Pregnancy. W. Kolde.
117 *Differentiation of Maternal and Fetal Blood Stains. P. Perazzi.

115. Improved Technic for Conservative Ovarian Operations.—Freund has been applying for over three years a method of conservative resection of benign ovarian cysts and other tumors which permits retention of a certain amount of ovarian functioning and thus the women were spared all symptoms of the artificial menopause. Although none of his patients has passed through a pregnancy since, yet he thinks that conception may occur after this method of operating. He slits the tumor its entire length by a median incision and thus is able to inspect the ovary completely and detect any scraps of normal tissue still left. If no scraps are found then the operation has to be a complete ovariectomy, but as a rule enough can be discovered in this way and left behind to maintain ovarian functioning in appropriate cases.

116. Chorea Gravidarum.—Kolde's patient was a young woman approaching term and the chorea was of an intensely severe type. It had commenced about two weeks before, after several syncopes. Morphin had no effect on the choreic movements and she had been unable to get any sleep for three nights. Kolde punctured the fetal membranes which was followed at once by labor pains and delivery in a few hours of a healthy child. During the second stage of labor the choreic movements were so violent that the woman had to be held by two attendants. She became quieter then at once and under 2 gm. of chloral fell asleep. The chorea subsided so rapidly after this that scarcely a trace was left by the fourth day.

117. Differentiation of Maternal and Fetal Blood-Stains.—Perazzi confirms Volhardt's statements in regard to the reliability of the Neuman method of distinguishing between blood-stains by the fat and lipoid content. (It was described in The Journal, July 4, 1914, p. 71.) Perazzi found the reaction as distinct with old blood-stains as with fresh blood, even when they had been exposed to the sun for weeks or to a heat of 150 C. He advises to weigh the flake of blood on the linen before applying the test. Also to test the woman's blood, in medicolegal cases, with both the old stain and the fresh blood.

Grèce Médicale, Athens

XVI, Nos. 7-12, pp. 13-24

118 Firearm Wounds of Nerves. A. Antipas.

Rivista Ospedaliera, Rome

June 15, IV, No. 11, pp. 505-560

119 *Cerebellar Ataxia in Children. (Le sindromi cerebellari nei bambini.) L. Concetti.

119. Cerebellar Ataxia in Children.—Concetti emphasizes the importance of publishing cases of this kind, and contributes 1 of the type due to defective or arrested development; 7 of the type due to acute infectious toxic processes, and 2 due to degeneracy or progressive involution. With either of the above the process may extend to involve other parts of the cerebrospinal system, with the resulting syndromes. This does not occur with tumors, hemorrhage, thrombosis and softening. In his case of the first type, in a boy of 3½, gradual improvement was evident under thyroid treatment, bromids, iodids, calcium chlorid, valerian, mercurial inunctions, hydrotherapy and massage. Occasional flaccid paralysis of the arm or leg was the first sign of trouble, soon after birth; the paralysis lasted for a few minutes or days and then subsided for a time, and finally came to alternate with epileptiform convulsions. Even at the best the gait was like that of a drunken man with a constant tendency to fall, but improvement was realized under the measures mentioned above while the child was for several months in the clinic and it has continued to progress during the two years to date. He can now walk alone although still somewhat hesitatingly. Improvement was also realized under treatment in the 7 infectious cases: the ataxia followed typhoid, measles or pneumonia, or the child or the parents were alcoholic. No benefit was apparent in the degeneracy cases.

Brazil Medico, Rio de Janeiro

XXVIII, Nos. 23-24, pp. 221-240

120 *Clinical Study of Pyelonephritis. A. Pereira.

120. **Pyelonephritis.**—Pereira states that in fully 50 per cent. of his cases of acute gonorrhea he found the kidney pelvis also the seat of inflammation, revealed by the para-umbilical pain, elicited when the fingers are worked down toward the spine, just below the rectus muscle, on a line with the umbilicus, during expiration. Omission of this test may allow an unsuspected acute pyelitis to pass into a chronic phase. This is particularly likely in women with acute gonorrhea. Catheterization of the ureters may be required for a positive diagnosis, as he shows by a number of case reports. Cystoscopy usually differentiates the gonorrheal from tuberculous kidney trouble.

The prognosis of pyelonephritis usually depends on the length of time it has been installed, and the permeability of the ureters. He insists that local measures should not be applied to the urethra for acute gonorrhea when there is pyelitis, as the local measures are liable to increase by reflex action the congestion in the kidneys, thus aggravating the inflammation in the kidney pelvis. Bed rest should be imposed, keeping the patient's strength up on a milk-vegetable diet until the second glass of urine becomes limpid. This, he adds, may be counted on to ward off chronic pyelitis.

The chronic form once installed should be treated by dieting, hexamethylenamin or other disinfectant for the urine and tonics. In his experience, local applications of a disinfectant to the kidney pelvis cured in the recent cases and not in the others, while this could be accomplished equally well with the above medical, without local, measures. Relapses of an old pyelitis are common under any and all treatment and require repetition of the course. The pyelonephritis of pregnancy, he adds, is probably often merely the recrudescence of an old gonorrheal pyelitis which may have developed without attracting attention at the time and persisted latent until roused by the pregnancy.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

LVIII, No. 10, pp. 697-781

121 *Hearing Capacity of Schoolchildren. K. van der Wal.
122 Abuses of Workingmen's Compensation. (Misbruik en ongewenscht gebruik der ongevallenwet.) J. A. Korteweg.

No. 11, pp. 782-864

123 Rumination in Human Beings; Two Cases. (Over herkauwen bij den mensch en meer in het bijzonder bij den zuigeling.) J. C. Schippers.
124 *Simple Test for Diacetic Acid in the Urine and of the Degree of Acidosis in Diabetics. (Bepaling van den graad der zuurvergiftigung bij suikerziekte.) F. A. Steensma and J. Koopman.

121. **The Hearing of Amsterdam Schoolchildren.**—Van der Wal found normal hearing in 89.2 per cent. of the 7,433 children examined, and removal of impacted wax and of adenoids added materially to this percentage. After treatment of chronic otitis media a number of the children regained practically normal hearing. He found more or less deafness in 25.6 per cent. of the most backward children, and in 14.1 per cent. among the moderately backward, while the proportion was only 9.4 per cent. among the normally intelligent pupils. He comments on the unreliability of the teachers' estimates as to the hearing capacity of individual pupils.

124. **Estimation of Degree of Acidosis in Diabetes.**—Steensma and Koopman state that the simple bedside technic they describe will reveal even slight acidosis, and can be relied on as they show by tabulated comparative statistics from their own experience with various methods. Five c.c. of urine is mixed with 2 or 3 drops of glacial acetic acid and 1 c.c. of a 0.5 per cent. solution of starch. Then 6 drops of 1 per cent. tincture of iodin is added. Normal urine then turns blue. When no blue tint is apparent, not even for a minute, the presence of diacetic acid is revealed. By graduating the tint in a set of test-tubes it is possible to estimate the degree of acidosis. They regard this technic as the most convenient for the purpose known to date, and state that it is not affected by the presence in the urine of albumin, sugar, acetone or urobilin. [It is a slight modification of Ondrejovich's technic (published in *Deu. med. Wchnft.*, 1912, xxxviii, 1413). A recent article on this latter technic by F. Rietti extols it as exceptionally convenient and reliable with the only drawback that indican gives a positive reaction as well as diacetic acid. (*Rivista critica di Clin. Med.*, 1914, xv, 417).]

Hospitalstidende, Copenhagen

July 8, LXII, No. 27, pp. 843-864

125 *Dangers from Radium Treatment of Cancer. (Er radiumbehandling af operable Kræftsvulster tilladelig?) T. Rovsing.

125. **Radium Promotes Instead of Checking Cancer.**—This is the conclusion which has been forced on Rovsing by his tragic experiences in a number of cases in which small, hitherto indolent and benign superficial growths were fanned into rapid malignant growth apparently by the exposure to radium. He states that he has been unable to find in the literature any authentic case of an actual cure of a cancer under radium, but the chorus of encouraging reports overcame his first misgivings and he began to apply radium himself in 1912. His extremely unfavorable experiences made him fear that his technic was at fault, so he took a trip to Heidelberg to study the technic in vogue there and found that he had been applying it strictly according to rule in every respect, and yet in many instances the exposure was followed by the transformation of an indolent growth into a rapidly gnawing cancer, becoming absolutely inoperable in the course of a few days. He gives the details of ten such cases. They were selected for radium treatment on account of the apparently peculiarly favorable conditions for this. In one case a small tumor in the cheek—the recurrence of a carcinoma which had been excised less than three months before—could easily have been removed, but as it seemed to invite radium treatment this was applied for twenty hours. The tumor became in a few days absolutely inoperable and all were convinced that this was the direct result of the radium exposure, especially as case after case showed this same course.

The growth became intensely painful as a rule after the radium exposure. This was particularly evident in the case of a man of 29 who had been given radium treatment at Omaha for a suspicious lump on his lower lip noticed for two years. After the radium exposure the lump began to grow rapidly and when it was then excised, recurrence rapidly followed. This occurred again after a second operation. The small ulceration in the cicatrix and two slightly enlarged glands under the jaw were then treated with radium. The glands had been thus enlarged for two years without change but after the last radium exposure the whole region at once became transformed into a rapidly fatal cancer. Twice in the history of this case radium had been applied when the lesion was small and readily operable, and each time the malignant disease seemed to have been whipped up by the radium which the patient had insisted on as he had heard so much of the "magic" efficacy of radium treatment of cancer.

Ugeskrift for Læger, Copenhagen

LXXVI, Nos. 26-27, pp. 1143-1230

126 Diathermia. (Orienterende bemærkninger om diatermi.) J. B. Eliassen.
127 Simple Technic for Determination of Sugar Content of Urine. E. Winslow.
128 Recovery after Removal of Intraspinal Tumor. J. Collin and K. H. Krabbe.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 7 Chicago, Illinois August 15, 1914

ANATOMIC STRUCTURE AND FUNCTION*

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Work well done along any line of human endeavor is a satisfaction and a reward in itself. Still it behooves us to pause once in a while in the press of our labors in order to ascertain whether the direction which we are following is the correct one, whether there is promise of progress commensurate to the effort employed or whether a shifting of the point of attack or a change of the means employed may not give better result. This seems to apply with special force to pathology at the present moment, when we hear such warnings as that addressed to us by Yandell Henderson, who, in 1911, stated before this section that "a man trained by autopsy and microscope is inevitably a morphologist. Just in proportion as he is fitted to deal with morphologic processes he is unfitted to handle and expound functions of a physical nature—unless, of course, he happens to be an all-around genius," or when we hear the repeated admonition of such men as Meltzer to pay less attention to morphologic problems and more to functional studies. If Henderson's assertion is at all correct, present conditions are truly deplorable, because many men have been and still are being trained by necropsy and microscope and if this study unfits them to understand function in its proper light, the sooner all efforts in this direction cease the better, because I cannot conceive of any object in morphologic research except as a help to the clearer understanding of function.

The question of the relation of structure to function is the great biologic problem, if we take structure in its broadest sense as including the structure of the chemical substances which make up the living protoplasm. In the last resort our interpretation of the relation of structure to function will rest on our conception of the relation of force to matter, and, as I believe we are all agreed that these two expressions designate merely two human ways of looking at the same thing, we might come to the conclusion that the whole discussion is idle and entirely futile. I do believe that this identity, if I may say so, of structure and function is sometimes lost sight of to the detriment of scientific reasoning, although nature, if we only look at it with open eyes, constantly reminds us of this fact, no more commonly perhaps than in the field of pathology. Looking at the question from this broadest point of view it does not require much of an argument, for instance, to convince us that function determines structure just as in its turn structure determines, delimits—that is, places definite limits on function. Still, what we grant theoretically, must be worked out practically. It is with the practical imperfection of our knowledge that we are concerned and with the question of how best to improve on it.

Any student of medical history knows how much our knowledge of physiology has advanced with the gradual progress in gross anatomy and how much more many of the intricate problems were clarified by the knowledge of the finer structure of the tissues as revealed by the microscope. Our fundamental conceptions with regard to the cell as the living unit, with regard to cell life and cell activity, could not have been arrived at without the help of the microscope, and on this same solid basis of gross anatomic and histologic knowledge rests modern physiology, and with that pathology.

It is only natural that the splendid advances made by the introduction of the microscope aroused excessive expectations in the minds of some as to what might be accomplished by the use of this instrument. We certainly know now that it has its great limitations so far as power of vision and its applicability to living tissue is concerned; nevertheless, the insight which we have gained by means of it into physiologic and pathologic processes is truly remarkable.

If I may speak from the point of view of a pathologist, the condition of affairs at present seems to be something like this:

There exists quite a large and constantly growing territory in this science in which our knowledge of the gross and microscopic anatomy furnishes a very adequate explanation of the functional disturbances which we observe during life. This is especially true if we include parasitology, gross and microscopic, although here also the limit of usefulness of the microscope is being reached as shown by the experiments with filtrable virus.

It must be emphasized, however, that structural change does not necessarily mean change in function. I believe that in this regard the importance of minute histologic lesions in the tissue has been greatly exaggerated. We must constantly bear in mind, especially in the important glandular organs, the existence of a large amount of reserve tissue which must be eliminated before the function of the organ as a whole will be affected. We also have to take into account the remarkable power of regeneration and of compensatory hypertrophy which these organs possess. Even when we give due consideration to these facts, however, it is often astonishing how well an organ has functionated during life in spite of the finding at necropsy of pretty definite and fairly diffuse lesions.

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* From the Pathological Laboratory of the Stanford University Medical School.

* Chairman's address, read before the Section on Pathology and Physiology at the Sixty-Fifth Session of the American Medical Association, Atlantic City, June, 1914.

In fact, in some cases, the question arises whether the lesions which we find associated with disturbance of function are really the cause of the disturbance or merely concomitant. The mere fact that the development of clearly manifest lesions usually consumes considerable time (usually twenty-four hours and often much more) is very suggestive in this regard. If the lesions are to be the cause of the disturbance in function which we observe, they must precede the disturbance, but should not follow it. If, for instance, we produce a disturbance of the renal function by means of some renal irritant which manifests itself by albuminuria we observe the disturbances of function, if the irritation is sufficiently strong, within less than one hour, at which time even the most careful histologic study fails to reveal any change, whereas well-marked anatomic lesions develop as a rule in the course of the next twenty-four or thirty-six hours. Such lesions cannot very well be the cause of the disturbance in function; still they do indicate that by the insult the cells were injured in such a way as to lead eventually to a change in their structure. In other words, what we see is not the cause of the disturbance in function but the final result of a cell injury the actual nature of which is not demonstrable by the means at present at our disposal. This appears to me to be the reason why so many of the degenerative lesions resemble autolytic changes which take place in the dead tissue. Still, they are valuable, because after a while at least they do show us that the cells have been injured. I believe, however, that it is worth while to emphasize this fact that sometimes the lesions are secondary to a primary insult not associated with demonstrable anatomic changes because in the hurry of our teaching or in the abbreviated parlance of even scientific reports it is often lost sight of.

It has been said by some that further efforts in the refinement of our technic in this direction are apparently hopeless and a mere waste of time, and there may be some grain of truth in this statement. Still, I believe it is hazardous to prejudge a case of this kind and it would seem to be better policy to encourage men who have a natural bent along these lines, because, after all, the better the fundamental facts relating to the structural minutiae of the cells are worked out, the more secure the structure of our scientific edifice will be.

On the other hand, I know, from personal experience that there are large and important fields in pathologic anatomy which need much new work before they are anywhere near their possible completion. From this point of view, in many cases, the surface seems hardly to have been scratched. The common types have been fairly well established, but the more intricate problems, especially again in relation to the functional disturbances, have been hardly worked up at all. When we descend from the textbook picture to the individual case and to a careful scrutiny of its individual problems, we find no end of stimulation to investigation and research, even along anatomic lines.

In our study of function we cannot of course rest entirely on an anatomic basis, because evidently many problems connected with this subject are not open to anatomic investigation. The structural changes which underlie them are so minute that they cannot be approached by means of the scalpel or the microscope. Recently, for instance, studies have been carried on in our laboratory in regard to the severe disturbances in nitrogen metabolism which follow anaphylactic shock. They do not seem to be associated with any discernible lesions in any of the important organs, in spite of the fact that they persist for a considerable period of time and eventually cause the death of the animals. This is by no means an isolated example even if we exclude from consideration the central nervous system, the mysteries of which, in spite of great advances in our knowledge, are still so baffling.

In many of these problems undoubtedly chemistry or physical chemistry will step in and furnish us new clews. Judging from the material which has already accumulated along these lines the prospect for further important developments seems to be unusually bright. Still there are intrinsic difficulties in method which it will be difficult to overcome. As Meltzer has pointed out, chemical research labors under the same disadvantage as pathologic anatomy in dealing largely with dead material. There is also the distinct disadvantage of being confined so far to rather gross procedures which do not permit of a utilization of our knowledge of the finer histologic detail of the organs studied.

Microchemistry, that is, the application of chemical methods to histologic sections, has bridged over this gap in some instances and may do so in more, but, unfortunately, characteristic chemical reactions are to be obtained from bodies only when they are more or less dissociated, and the more intimately they are bound up with the living protoplasm, the less easily they are detected by chemical means without resorting to violent interference.

On account of these difficulties in the way of a direct application of exact chemical and physicochemical methods, a large body of hypotheses has developed which is based on our present knowledge in organic chemistry, but which, so far, is beyond the reach of actual demonstration. I need only to allude to our chemical conceptions with regard to enzymes, toxins and the various immunity reactions in order to bring out this point clearly. It is to be hoped that a refinement of our present methods will permit us eventually to develop this knowledge to a satisfactory conclusion, and if we do succeed, our ideas with regard to the relation of chemical structure to function will necessarily be advanced immeasurably.

Progress along any of the lines mentioned—pathologic anatomy, parasitology, biologic chemistry and biologic physics—is absolutely impossible without experimental work. In fact, the animal experiment is the touchstone to any new idea which may develop in the field of biology, including medicine. The final proof of any contention in the biologic sciences rests in the animal experiment. On the other hand, the experiment needs the control of the other methods in order to make quite certain that the experimental results are applicable to the case in question.

The experimental study of function itself is naturally of the greatest importance, quite immaterial whether we understand the underlying factors or not. For practical purposes the value of such experimental researches may be so great that it may well be questioned whether some of the energy now directed to the elucidation of more obscure general problems could not with advantage be diverted along these new and fruitful channels. If we know the modifications in function arising from physical or chemical changes in the environment of the functionating cell, we at once obtain means of controlling such function more or less, and what this means to the physician who has to deal with manifestations of disturbed function in his patients needs no amplification. In this way he frequently may obtain the desired effect in spite of the fact that the ultimate mechanism of the action is unknown, and a complete knowledge of the same possibly unattainable.

Such studies of function under carefully selected and well-controlled experimental conditions may also permit of very interesting conclusions with regard to the mechanism involved. Our knowledge of the chemical control of glandular function has been obtained in this way. There is also no question that some serious errors arising from a merely anatomic study of the parts involved have been corrected by this method, but after all it is a method with its own advantages and its own palpable limitations like all others.

In conclusion, then, I wish to emphasize that our goal of a thorough understanding of the biologic processes in health and disease cannot be reached by one method alone. Men with varying inclinations and varying training have to cooperate in order to make progress, and the more intricate our problems grow the more the necessity of such cooperation becomes evident.

It is of course an impossibility for any man to be a master in all branches of biologic research, but a fair degree of familiarity with all is necessary, to produce, if I may borrow a German expression, a friendly understanding, to avoid misconceptions and the development of that narrowness of view to which I imagine Professor Henderson wished to refer. I believe that laboratories in pathology, just like those in physiology, pharmacology, hygiene and clinical medicine, should be ready at any time to take up a problem from whichever point of view appears to be the most hopeful, with whatever methods seem to be indicated, and, if necessary, from as many points of view and with as many variations in method as seem desirable.

THE PRESENT STATUS OF PYELOGRAPHY *

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Sufficient evidence is furnished by the excellent work of Braasch and many others to establish without question of doubt the value of pyelography in the diagnosis of surgical diseases of the kidney and ureter. Additional testimony based on our own experience would mean merely a repetition of what has already been stated. Another phase of the subject, which is of equal importance and forms the theme of this paper, is the consideration of the harmful results that may follow collargol injection, its indications and limitations.

When we first began the use of pyelography, we shared the opinion of others that the injection of collargol into the renal pelvis was free from danger and employed it routinely in all cases presenting symptoms which might be due to renal pathologic conditions. In the course of time we became convinced of the error of such a procedure. With increasing knowledge acquired from our own experience as well as that of others, we have put a decided limitation on the cases suitable for injection and have formulated a technic which we believe will reduce the disastrous sequelae of pyelography to the minimum.

That collargol produces little or no irritation of the pelvic mucosa seems to be proved by clinical and experimental evidence. Following injection in twenty of our cases, the urine rapidly lost the collargol stain, and microscopic examination was normal or showed only a slight excess of leukocytes with an occasional erythrocyte. Kidd[1] reports similar results. In his discussion of Kidd's paper, Walker states that he "has operated on a number of cases within a few days of the collargol examination and in every case the lining membrane of the renal pelvis was healthy and glistening even when the pelvic contents were deeply stained with collargol. In some cases where nephrectomy was performed the mucous membrane was normal microscopically." This coincides with our own findings; in both specimens illustrated in this paper, the lining epithelium of the pelvis is normal although the kidney shows wide-spread changes. Blum,[2] on the other hand, reports extensive necrosis, but, as Strassmann[3] points out, his experiments are open to criticism in that he used post-mortem specimens, and the changes which he ascribes to collargol could well have been cadaveric. The burden of proof, therefore, is that, so far as the renal pelvis is concerned, collargol is harmless.

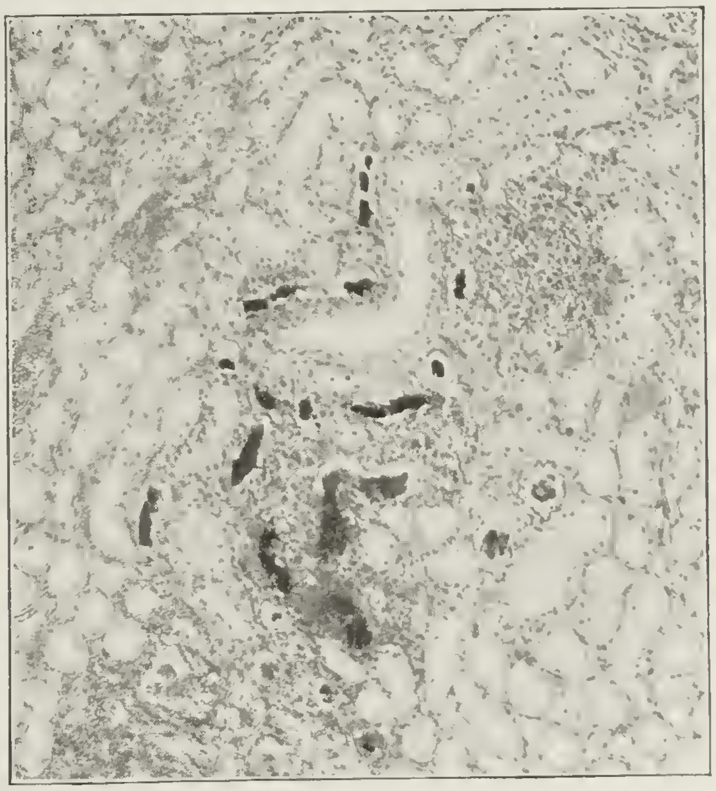

Fig. 1.—Early tuberculosis of the kidney. From photomicrograph. Intense infiltration of collargol throughout all portions of the section, with well-marked destruction of kidney structure. High pressure used in making the injection.

That the injection may have a decidedly injurious effect on the kidney has been shown repeatedly and almost without exception; the pathologic reports detail the same results, namely, the tubules filled with collargol, which may extend into Bowman's capsules, rup-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Kidd, Frank: Proc. Roy. Soc. Med., 1913, vii.
2. Blum: Wien. med. Wchnschr., 1912, No. 19.
3. Strassmann: Ztschr. f. urol. Chir., March, 1913, p. 126.

ture of the tubules, peritubular round-cell infiltration, renal infarcts or areas of cortical necrosis. Strassmann alone maintains that the tubules are free, the collargol being taken up by the renal lymphatics or tissue clefts. The experimental work of Tennant,[4] Oehlecker,[5] Kidd and others, conclusively proves that collargol gains entrance to the kidney by way of the tubules and that the extent of involvement is directly dependent on the degree of pressure exerted in making the injection as well as the time that the solution is allowed to remain in the pelvis. The same results are reported clinically by Mason,[6] Tennant[4] and Troell.[7] The accompanying photomicrographs (Figs. 1, 2 and 3) depict similar conditions. These injections were made during our earliest experience in pyelography and represent the ill results that may attend imperfect technic in types of disease in which, if used at all, the injection must be made with the greatest skill and care. Severe pain followed both injections and confirms Tennant in his statement that pain following collargol injection may have a graver significance than the mere overdistention of the pelvis, indicating the passage of the solution into the renal parenchyma.

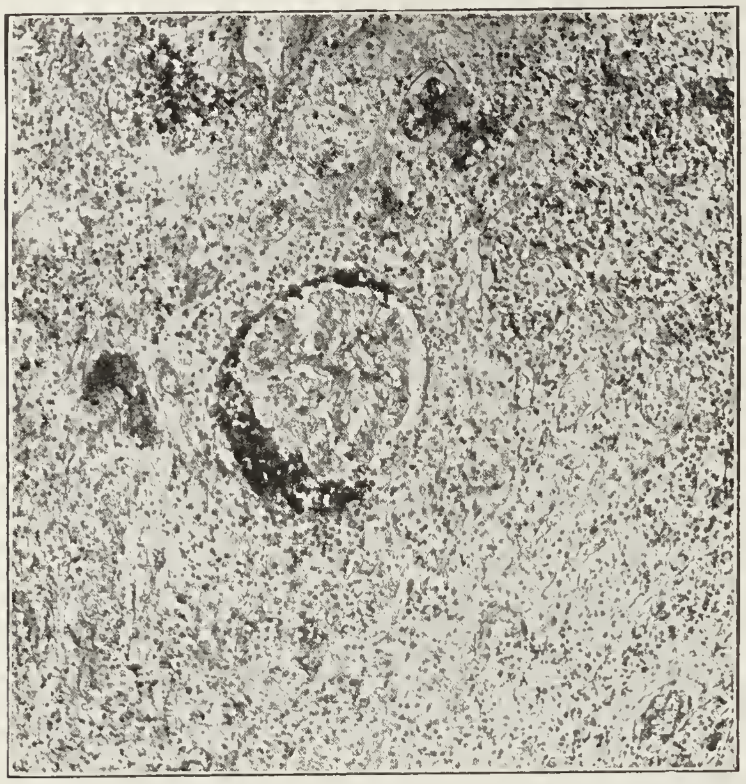

Fig. 2.—Same specimen as shown in Fig. 1. From photomicrograph. Argyrol in Bowman's capsule, also permeating the kidney tissue with a moderate degree of necrosis and round-cell infiltration.

The question naturally arises, Is the kidney permanently or seriously injured by collargol in the absence of superadded infection or such extensive lesions as infarction or necrosis? Pathologic evidence and clinical experience seem to indicate that this can be answered in the negative. Leukocytes, a few red blood-cells and hyaline casts may be present immediately following injection, but these soon disappear. Even in those cases in which violent pain and high fever have followed, such as reported by Vest[8] and Zachrisson,[9] the urine sooner or later returns to normal.

Evidence is available, therefore, which shows that wide-spread lesions of the kidney may result from collargol injection and as a rule go hand in hand with overdistention of the renal pelvis. In many cases, collargol may find its way into the straight tubules, but the resulting irritation of the renal parenchyma is usually trifling and produces no permanent injury. That a substance may be found which will be nonirritating as well as impermeable to the Roentgen ray is to be hoped for. Kelly and Lewis[10] advocate silver iodid but their report is too meager to warrant acceptance until further accurate experimental and clinical evidence is submitted.

Our experience, together with a study of the cases reported in literature, convinces us that too much stress has been put on the supposed corrosive action of collargol, while in reality the fault lies in the method of injection or its application in types of disease which favor rapid permeation of the renal tissue.

As the result of his experiments with Berlin blue and other inert anilin dyes, Marcus[11] demonstrates with what ease trauma to the pelvis and kidney may be produced by even low pressure. If no injury were present, the coloring-matter merely lay in the pelvic clefts or ascended occasionally into the collecting tubules at the papillae, but was never found in the intratubular tissue. When the dye was found in the veins of the kidney, he invariably demonstrated a traumatic site of entrance in the pelvis or renal parenchyma. Under high pressure, it was an easy matter to produce a migration of any inert substance from the pelvis to the renal vein by way of the kidney, with emboli in various organs. He also shows, experimentally, that the site of rupture determines the area permeated by the dye which may be found in the renal vein, the subcapsular space or the peripelvic tissue.

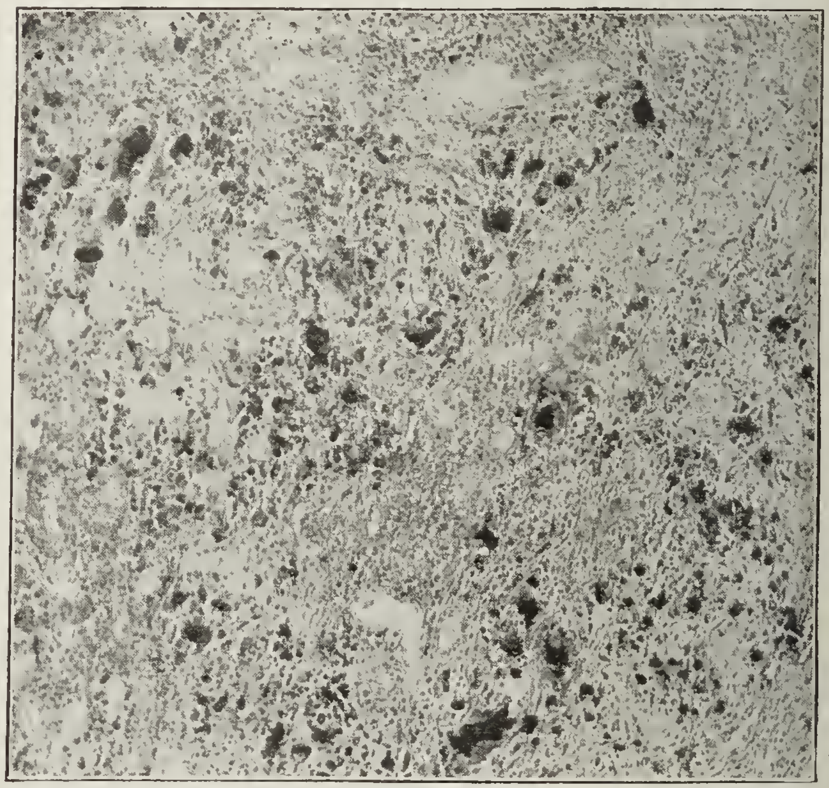

Fig. 3.—Pyelonephritis and hydronephrosis. From photomicrograph. Fifty c.c. of a 10 per cent. argyrol solution were injected under high pressure. In this section the argyrol is confined within the tubules; the kidney tissue is well preserved.

The experimental work of Lewin[12] was done along similar lines and with like results, although he does not emphasize the importance of trauma as the exciting factor in permitting the escape of the injected fluid. Emboli were found in the right heart, lungs and liver, corresponding to the recent report of Eisendrath[13] and differing only in the fact that he used an anilin dye instead of collargol. The experiments of Strassmann, Kidd and Tennant, previously referred to, substantiate the findings of these investigators and show the possibilities of danger which attends injection under high pressure, and also the relative freedom from danger when little or no distention of the pelvis is produced.

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[4] Tennant: Ann. Surg., 1913, lvii, 888.

[5] Oehlecker, F.: Fortschr. a. d. Geb. d. Röntgenstrahlen, 1911, xvii, 195.

[6] Mason, J. M.: Dangers Attending Injections of the Kidney Pelvis for Pyelography, The Journal A. M. A., March 14, 1914, p. 839.

[7] Troell: Hygiea, 1913, 75, p. 176; ref. in Zentralbl. f. ges. Chir. u. d. Grenzgeb., 1913, i, No. 16, p. 829.

[8] Vest: Bull. Johns Hopkins Hosp., March, 1914, p. 74.

[9] Zachrisson, F.: A Case of Collargol-Injection into the Tubuli Recti of the Kidney, Nord. Med. Ark., 1911, xi, ref. in Zentralbl. f. Chir., 1911, No. 50.

[10] Kelly and Lewis: Surg., Gynec. and Obst., 1913, xvi, 707.

[11] Marcus: Wien. klin. Wchnschr., 1903, No. 25.

[12] Lewin: Arch. f. exper. Path. u. Pharmakol., 1897-98, xl, 287.

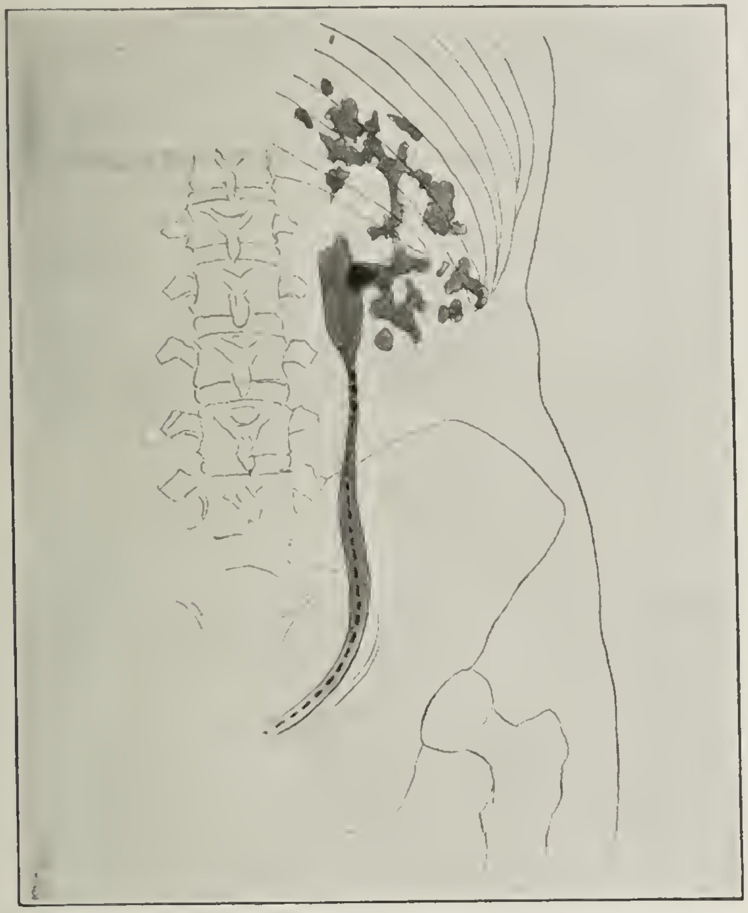
Fig. 4.—Calculus pyonephrosis showing diffuse permeation of collargol throughout kidney. Type of case unsuitable for pyelography.

It is doubtless true that, in the earlier days of pyelography, many instances of severe pain or disastrous results following injection were due to an erroneous conception concerning the capacity of a normal pelvis. At that time the limits were stated by various observers as varying from 15 to 30 c.c., while at present we know that the capacity is between 2 and 5 c.c. It is only natural to assume, therefore, that, in making the injection, the normal capacity was many times exceeded.

We are firmly convinced that solution of continuity of tissue, whether by ulceration, or direct or indirect trauma, plays an important rôle in permitting the escape of collargol from the pelvis. The work of Marcus already referred to shows how even low grades of distention can break the pelvic lining in normal kidneys. In kidneys altered by disease, whether this be a thinning out as in hydronephrosis, an ulceration as in tuberculosis or tumor, or increased friability due to pyogenic infection, it is self-evident that ruptures of varying degrees are more prone to result. Of the reports in literature of cases in which extensive changes have been produced by collargol, it is interesting to note three cases of hypernephroma (Mason, Oehlecker and Rössle[14]), one case of pyonephrosis (Troell) and one case of suppurative pyelonephritis (Schwartzwald[15]).

To these we add the cases herein reported, one of early tuberculosis and the other chronic pyelonephritis and hydronephrosis (Fig. 4). This is sufficient evidence to indicate that such lesions may act as at least contributing factors in the dissemination of collargol throughout the kidney, since they furnish ideal conditions for the production of a portal of entrance.

The effect of direct trauma by the ureteral catheter is nicely shown in the specimen of Mallory reported by Mason: "The collargol was injected into the kidney tissue as a result of running the catheter too far into the pelvis of the kidney. Evidently the point of the catheter went into a calyx and the fluid was injected under pressure into that calyx." Any one experienced in ureteral catheterization knows that unless the greatest care is used, it is an easy matter to traumatize the pelvis sufficiently to produce bleeding and thus bring about a condition similar to that seen in the specimen just mentioned.

Reviewing the cases reported in literature from the clinical point of view, pain following injection is the most frequent symptom. This may be very severe, requiring morphin for its relief, and persists for several hours or even days. Pain may follow the most careful manipulation in passing the catheter or the injection of only a few drops of collargol. In our experience this has occurred only rarely; when severe pain has resulted, it has been due to our faulty technic of catheterization or injection. When pyelography was first undertaken, we were inclined to ascribe this pain to the irritation of the collargol, and varied the percentage of the solution from 1 to 10, with no apparent relationship between the strength of the solution and the intensity or absence of pain. It was evident that some other factor was active. We found

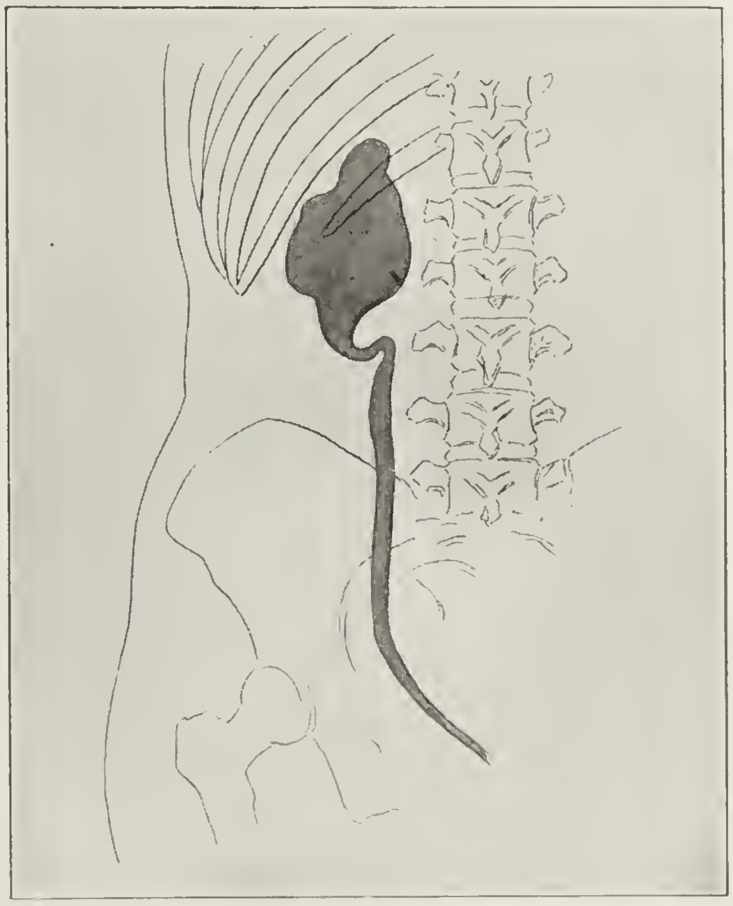
Fig. 5.—Colon bacillus pyelitis with marked dilatation of pelvis due to ureteral kink. Symptoms relieved by pelvic lavage. The usual methods of treatment together with autogenous vaccines had been unsuccessful.

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[13] Eisendrath, Daniel: The Effect of Injecting Collargol into the Renal Pelvis, The Journal A. M. A., May 2, 1914, p. 1392.

[14] Rössle: Tödliche Kollargolvergiftung, München. med. Wchnschr., 1911, lviii, 280.

[15] Schwartzwald: Beitr. z. klin. Chir., lxxxviii, No. 2.

that the frequency of pain was greatly diminished by inserting the catheter only part way up the ureter instead of into the pelvis. This plan is open to criticism in that it gives no idea of the pelvic capacity, but it does indicate that the avoidance of trauma to the pelvic mucosa is an important factor in lessening the harmful results, of which pain is often the only symptom. As further proof of the ill effects of trauma, we have observed that pain almost constantly accompanies injection in cases in which bleeding follows catheterization.

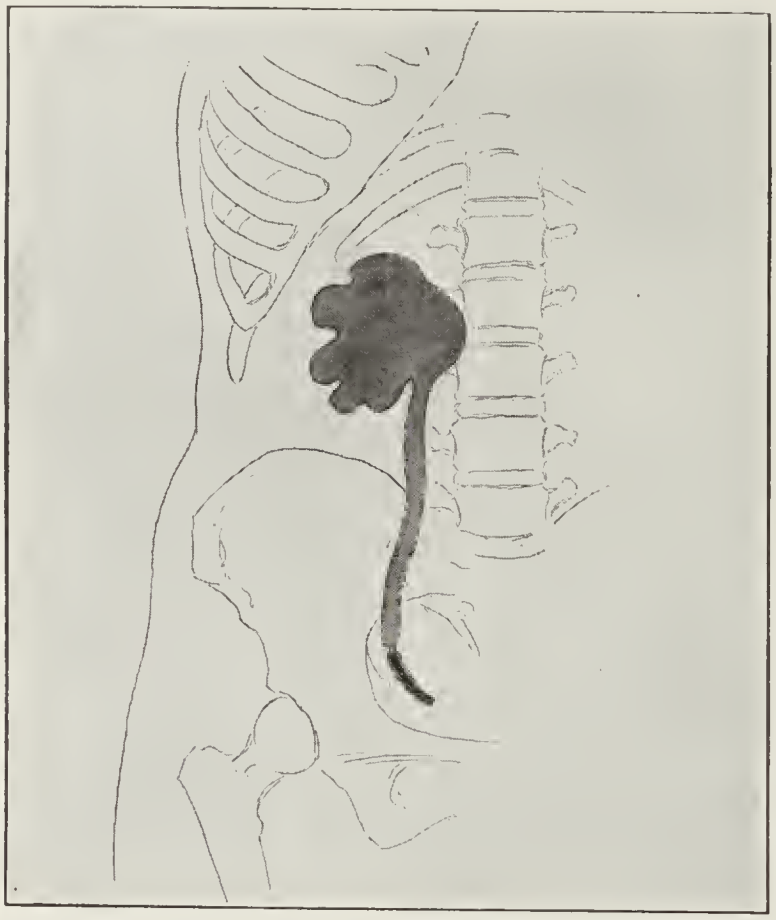

Fig. 6.—Stricture of ureter. Marked dilatation of ureter above stricture, and pyelonephritis of gonococcal origin. Pyelography was employed in order to eliminate calculus as a possible cause of ureteral obstruction. Lavage and collargol instillation resulted in temporary improvement.

The second and by far the most important cause of pain is overdistention of the renal pelvis. Whether we accept the evidence of Marcus that overdistention produces solution of continuity of the pelvic lining, or of other observers that the collargol ascends directly into the straight tubules without previous pelvic injury, the fact remains that, as a rule, the degree of permeation in the kidney is in direct relationship to the amount of pressure exerted by the distending medium.

We are in full accord with Tennant's statement that pain indicates in many instances the passage of collargol into the kidney tubules, and is not merely a colic incident to an overfilled pelvis. If the latter were true, the pain should cease shortly after the relief of pressure rather than persist for hours or days. We ascribe it to increased tension of the renal capsule, produced primarily by the sudden increase in volume of the kidney due to the entrance of collargol, and secondarily to reactive changes within the kidney incident to the injection of a mildly irritating, foreign substance. In seventy cases in which the piston syringe was employed, pain resulted in over 10 per cent.; in our last thirty cases, we have used the gravity method of injection as recommended by Thomas[16] with no pain whatever, proving conclusively its great advantage over the older method.

Several cases are reported in which fever has followed injection, persisting for days and in a few instances attended by the development of perirenal suppuration. As first pointed out by Voelcher and observed by Braasch and many others, collargol is not uncommonly found in the peripelvic tissue and produces little or no inflammatory reaction. We are convinced that a rise in temperature is due not to collargol *per se,* but that faulty technic has permitted the introduction of infection, with collargol as the medium by which it is carried to the kidney or its surrounding tissues.

Lastly, three deaths are reported as occurring after collargol injection. The often-quoted case of Rössle has been criticized by Strassmann who advances arguments which tend to disprove that collargol was the cause of death. More recently a second case is reported by Rosenblatt and Morgandies,[17] in which a state of shock developed at the time of injection with death several hours later. In this case of suspected hydronephrosis, 40 c.c. of a 5 per cent. collargol solution was injected without difficulty. A post-mortem examination was not performed nor was the kidney examined microscopically. The perirenal tissues were widely infiltrated with collargol, there was no collargol in the pelvis or ureter and only a "minimal" tear was visible in the kidney tissue. In a case reported by Vest, death resulted on the fourteenth day after operation. Acidosis and acute dilatation of the stomach were postoperative complications. Vest does not assert that death was due to collargol poisoning, but draws attention to the interesting fact that, as in Rössle's case, hemorrhagic diathesis developed a few days before death. In his preliminary report, Eisen-

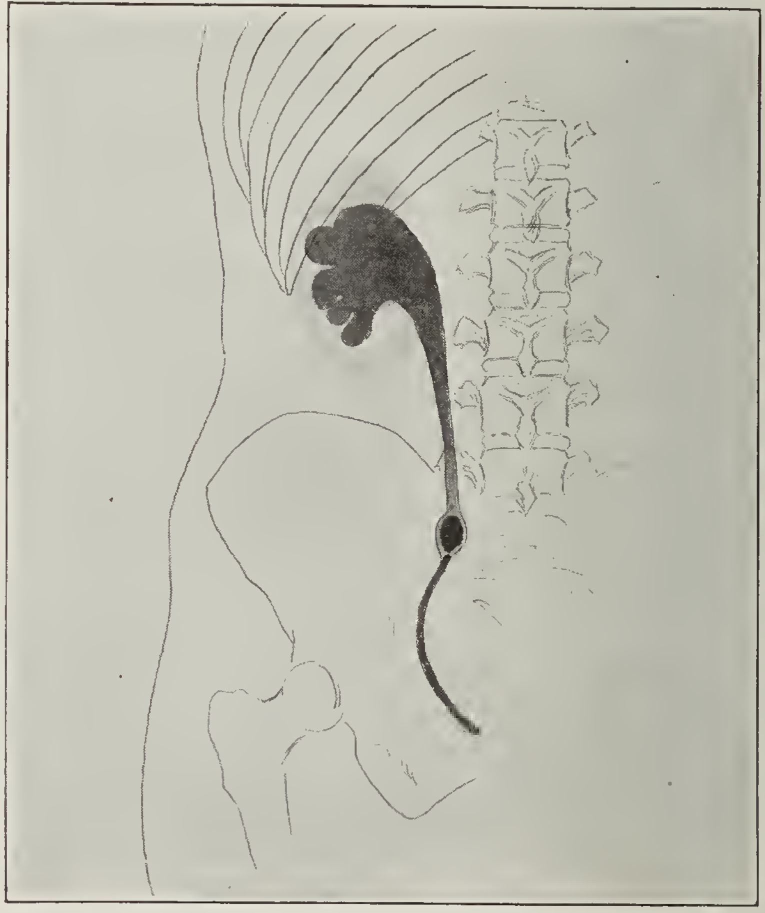

Fig. 7.—The roentgenogram failed to demonstrate a calculus. The catheter met an obstruction 13 cm. from the ureteral orifice. By means of a collargol injection, the calculus was clearly defined, together with a hydro-ureter and hydronephrosis.

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[16] Thomas, G. J.: An Apparatus for the Injection and Lavage of the Pelves and the Ureters, The Journal A. M. A., Jan. 18, 1913, p. 184.

[17] Rosenblatt and Morgandies: Verhandl. d. deutsch. Röntg. Gesellsch., 1913, ix, 81.

drath has shown experimentally that death may result from emboli in various organs, but this has occurred only when collargol was injected under very high pressure. That similar results may follow injection in man is of course true, but with ordinary care and skill, we can state without fear of contradiction that this danger can be entirely eliminated.

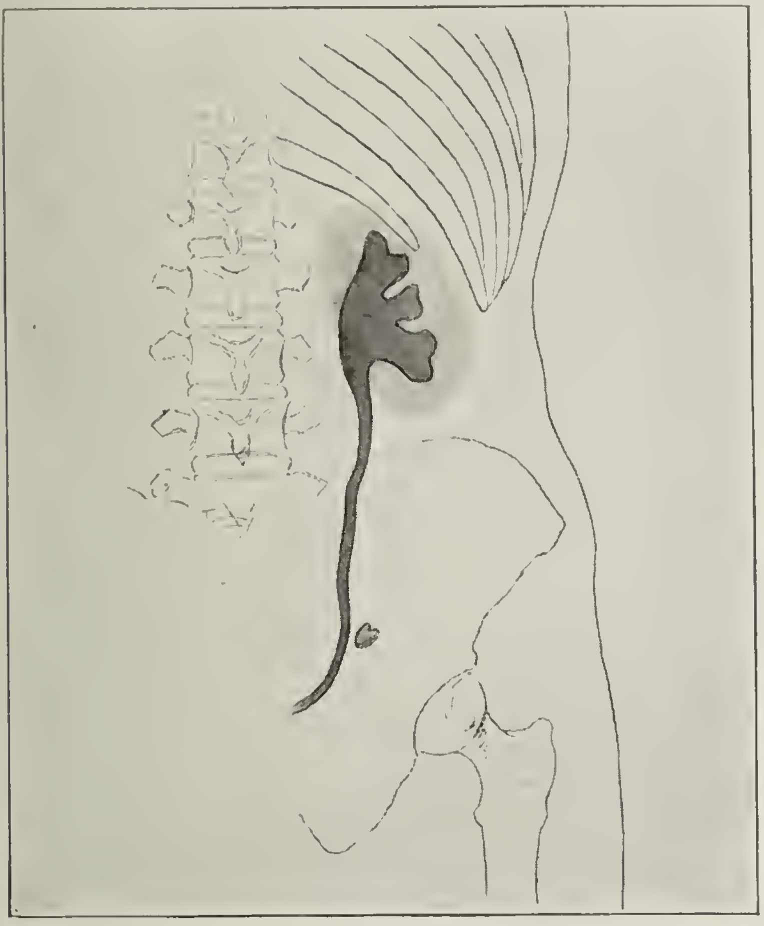

Fig. 8.—History in this case indicated ureteral calculus. A small cystic mass lay to the side of the uterus and the roentgenogram showed a shadow along the course of the ureter. Pyelography demonstrated a normal pelvis and ureter and an extra-ureteral shadow, which operation proved to be a tooth in a dermoid cyst.

CYSTCSCOPIC TECHNIC

Basing our ideas on experimental evidence as well as clinical experience, we have formulated certain points in technic which, in our opinion, are of importance in avoiding the untoward results of collargol injection. The greatest care as regards asepsis cannot be too strongly emphasized. The ureteral catheter should not exceed No. 6 in size, it must be free from rough surfaces and pliable so as easily to follow any change in the course of the ureter; to avoid trauma, we never use a stiletted catheter. The catheter is inserted for a distance of 20 cm. and its further progress is made extremely slowly until the slightest buckling occurs, which indicates that its tip has reached the pelvis. It is then withdrawn 1 or 2 cm. and the character of the urinary outflow is observed to determine, if possible, the presence or absence of pelvic dilatation. The catheter is then withdrawn 10 cm. and the injection made. By so doing the danger of wounding the pelvis is minimized and the tip of the catheter is below the level at which the majority of ureteral kinks are found.

If the urine is blood-stained, the injection is not made, a subsequent examination being advised at an interval of at least seven days. When an obstruction is encountered along the ureter, we do not attempt forcibly to overcome it, but pass a smaller catheter; if its passage is likewise impeded, the collargol is injected and in the majority of instances, will find its way upward. The forcible passage of the ureteral catheter is to be condemned under any circumstance, but this is especially true when injection is to follow. We are opposed to the routine practice of simultaneous injection of both kidneys; when bilateral disease is suspected, the injections are made at two sittings. If for any reason, the roentgenogram is unsatisfactory, we make it a rule to allow several days to elapse before attempting a second injection.

The collargol is freshly prepared for each case; the crystals are thrown into a small mortar containing boiling water and when cooled are thoroughly dissolved by stirring with a pestle. The solution is filtered through cotton and gauze and is ready for injection. The strength of the solution varies from 5 to 10 per cent., depending on the thickness of the abdominal walls. In making the injection, we use a 30 c.c. buret connected with a short tube and stopcock. To start the flow through the catheter, elevation of the buret to about 3 feet will be necessary but it is immediately lowered and allowed to flow in at an elevation of not more than 1 foot with a No. 6, and 2 feet with a No. 5 catheter. The injection is discontinued when the column of collargol ceases to fall or the patient experiences the first slight sensation of fullness in the kidney region. After the picture is taken, the collargol is drained off and the catheter removed.

We make it an invariable rule to keep our patients under observation in the hospital for twenty-four hours after injection and prescribe copious draughts of water during the first six hours. When retention from angulation of the ureter due to ptosis is suspected, the patient is required to remain in bed for twelve hours after the injection. This facilitates free drainage of any collargol that may remain in the pelvis of the kidney.

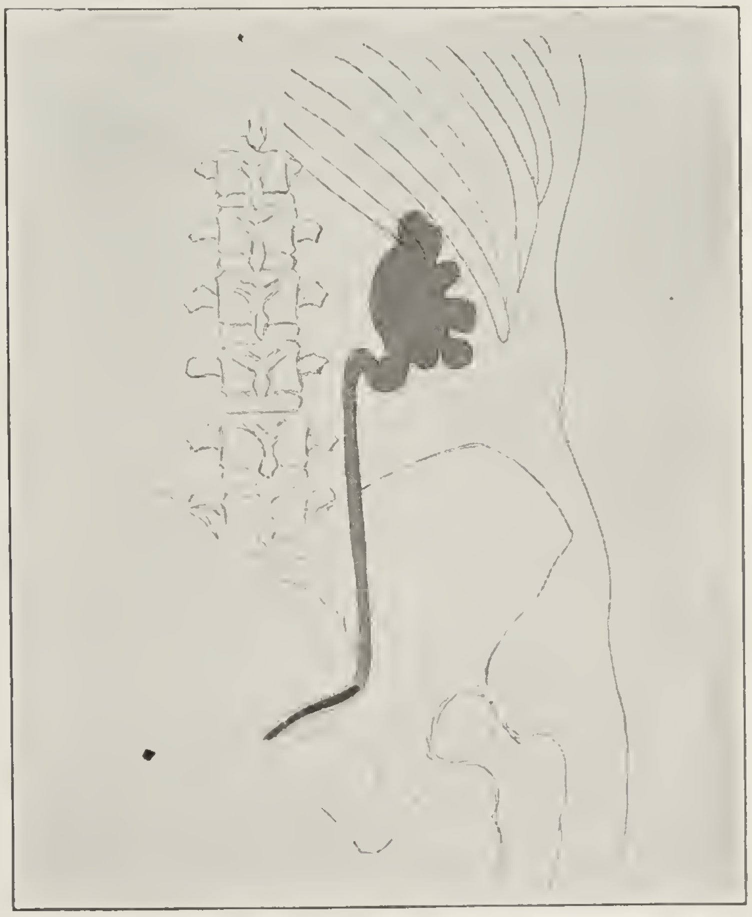

Fig. 9.—Ptosis of the left kidney with hydronephrosis. The catheter met an obstruction 4 cm. from the ureteral orifice. Pyelography demonstrated that the obstruction was not pathologic, but due to an abrupt change in the course of the normal ureter.

ROENTGENOGRAPHIC TECHNIC

The diagnosis of renal and ureteral conditions by pyelography depends on the correct interpretation of the roentgenogram made immediately after a careful ureteral catheterization and injection with the opaque solution. While each step is of equal importance, and each without the other is of little or no value, roentgenography plays but a minor part in the procedure as a whole. It is to be regarded simply as a means of accurately demonstrating and recording what the cystoscopist has done. The real value of the method arises in a very large measure from the technic of the cystoscopist in creating correct appearances for the roentgenogram to portray in order to demonstrate existing conditions accurately.

When employed as a safe and necessary procedure, pyelography has a very limited range of application as compared to the usual routine roentgenoscopy of the urinary tract. It is to be employed, as a rule, therefore, only after the usual methods have failed to show any condition satisfactorily explaining the clinical phenomena present. Certainly, whenever calculus is suspected, the usual routine roentgenoscopy should always be resorted to first, as the injection of collargol may not only be unnecessary but is likely to interfere with the detection of a stone, especially in the kidney. Instances are recorded, on the other hand, in which the colloidal silver injection has rendered a calculus sufficiently opaque to cast a perceptible shadow when it was not detected by the simple roentgenoscopy alone. We are able to cite one experience of this kind in connection with a ureteral stone which was distinctly shown by the collargol injection, whereas no shadow could be detected in roentgenograms made at previous and subsequent examinations in the usual manner. Of course, such instances are exceptional.

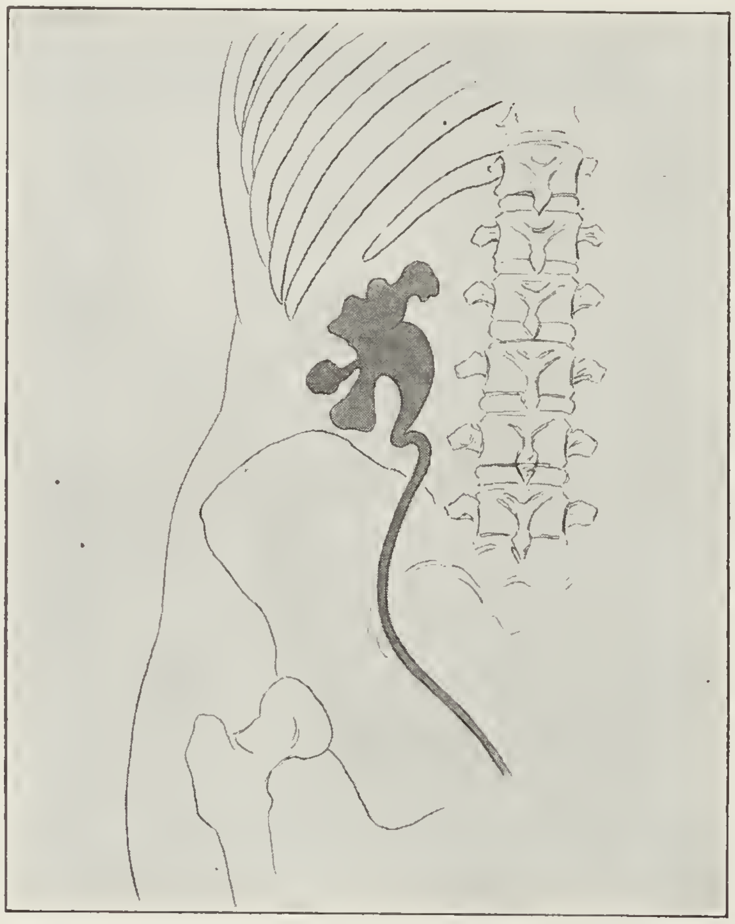

Fig. 10.—Beginning dilatation of the pelvis in a case of nephroptosis.

There is little to be said of the roentgenographic technic *per se*. Preliminary preparation of the patient is always essential, and comprises the withholding of food, pills and tablets, and the thorough evacuation of the intestinal tract. As we have found castor-oil disagreeable and not always satisfactory in removal of gas, we have recently adopted the use of compound cathartic pills pulverized and administered in capsules, and have found this procedure more efficacious.

Compression, which is so essential in the usual roentgenoscopy of the urinary tract, had best be avoided in connection with pyelography, for obvious reasons. When stout individuals are to be examined, the intensifying screen may become essential, if not used routinely.

In the early days of pyelography, Stover advocated the use of a table whereby one exposure could be made in the usual horizontal posture, and repeated immediately in the semirecumbent or vertical position by tilting the table. Such a procedure is obviously useful in the diagnosis of ureteral kinks associated with movable kidneys, but we have found it by no means essential. The substitute performance of having the patient get off the table and stand for the second exposure is to be condemned.

In our analysis of the cases reported in literature, it is evident that the harmful effects of collargol have, in many instances, been due to sins of omission or commission on the part of the operator and should not be held to the discredit of the injection itself. On the other hand, it has been shown that, even with the greatest skill and care, there are possibilities of danger which should serve as a warning against the indiscriminate injection of collargol, irrespective of the underlying pathology. For this reason, we resort to pyelography only when an accurate diagnosis cannot be made by other methods of examination.

We are opposed to its use in depicting interesting anomalies when such a procedure means merely a graphic representation of what may be accomplished by the method. We are likewise opposed to its indiscriminate use in all types of renal pathology; for experimental as well as clinical evidence indicates that possibilities of harm are certainly increased in the presence of ulceration, infection or retention of the solution in the pelvis. For this reason, with only rare exceptions is the injection made in suspected cases of neoplasm, tuberculosis or large hydronephrosis. Likewise, in those infections other than tuberculosis, we hesitate to employ collargol until other methods of diagnosis have been exhausted. It is of the utmost importance in the treatment of pyelitis to determine whether we are dealing with a mechanical dilatation of the pelvis with superimposed infection or with a true primary infectious pyelitis, and if other methods fail to reveal the desired information, the risk of pyelography is far outweighed by the accurate data which it affords.

When renal or ureteral calculi can be definitely recognized in the roentgenogram, little or no additional information will be afforded by pyelography; the injection is indicated only when the position and character of the shadow make it impossible to determine whether it lies within the kidney or ureter or in adjacent structures. This applies especially to those cases in which in addition to the shadow along the course of the lower ureter, the catheter meets with an obstruction at a corresponding level. Such evidence is of course strongly in favor of calculus, but is by no means positive, since inability to pass the catheter above a certain level is not infrequently due to an abrupt change in the course of the normal ureter. This point will be quickly determined by the presence or absence of ureteral dilatation above the site of obstruction.

The pyelograph serves its greatest field of usefulness in detecting the earlier stages of hydronephrosis due to mechanical blockage of the ureter other than that caused by stone. In fact, it is the only means at our command which permits the diagnosis to be made without question of doubt. This applies likewise to certain congenital anomalies, especially the horseshoe and the dystopic kidney. Under these circumstances, if proper technic be employed, collargol injection can be made with but the barest possibility of harmful sequelae.

That exceptions to these general rules in the selection of cases will arise from time to time, is quite obvious, but such exceptions are rare, and in no way detract from the general principles which we have formulated for our own guidance. We may err on the side of conservatism, but we are satisfied that it is likewise on the side of safety, for we are convinced that possibilities of danger exist even under the most ideal circumstances. In the majority of instances, however, disastrous results following collargol injection have been due not to the use but to the abuse of the method, and we are confident that if greater care be given to the technic of injection as well as to the selection of cases, the dangers of pyelography will be of minor importance as compared to the valuable information which its use will afford.

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ABSTRACT OF DISCUSSION

Dr. W. F. Braasch, Rochester, Minn.: Undoubtedly Drs. Keene and Pancoast should be given great credit for calling our attention to the possibility of ill results from the use of pyelography. If we remember the history of cystoscopy we shall recall that illness and death were reported, so that for a while the method fell into discredit. Ureteral catheterization also was criticised so severely that many would not permit patients to be so treated. While undoubtedly its abuse may cause harmful results, nevertheless it will remain as an invaluable method of diagnosis in conditions in the ureteral tract. It is a peculiar thing that of the deaths recently reported as the result of pyelography, the cases have been almost entirely in the hands of men of little experience. Our experience in 2,000 cases treated with pyelography has not given us serious results which could be ascribed to its use in any case. In my early use of the method I have observed three cases of cortical lesion in which I should not have used it. I have laid down the fundamental rule never to make more exploration of the tract than is necessary for diagnosis. There is a long list of conditions in which I have diagnosed obscure symptomatology which could not have been diagnosed in any other way. Our endeavor should be to find some substance which is harmless and which can be injected without causing the colloidal poisoning. If drainage is interfered with there will be trouble; if the kidney is overdistended there will be trouble. By means of the gravity method we have overcome the dangers of overdistention, but we cannot always overcome the dangers of overretention, but the dangers are reduced to a minimum. The silver iodid advised by Kelly seems to me to be a valuable adjunct. It cannot be employed in the gravity method, but must be employed with the syringe because of its viscidity. The ideal substance should be sufficiently liquid to be used in the gravity method and one which would not cause necrosis if retained. Pyelography should be in the hands only of men with wide experience in the work.

Dr. Henry Dawson Furniss, New York: There are still many dangers in pyelography, due to the mechanical insult of its performance and to the irritating effect and toxicity of the substances used. The ideal substance must be non-irritating, non-toxic and soluble in both water and the blood. Eisendrath has done some good experimental work in the injection of argyrol and collargol under pressure, and has found these substances not only in the tubules of the kidney, but also in the interstitial connective tissue, as well as in other organs of the body. The wide distribution he found due to entrance of the collargol through ruptured veins. In the Genito-Urinary Section were reported four or five fatalities following the use of collargol. In some, death was within a short time and in others followed within ten days or two weeks. In these late fatalities a hemorrhagic condition developed, with bleeding from the mouth, nose, stomach and under the skin; there were superficial ulcers in the mouth. In making pyelographs, my technic is to fill the bladder with boracic acid solution, put the patient on the table, have the Roentgen-ray plate and tube adjusted, then catheterize the ureter using a soft No. 5 or 6 catheter, clamp the cystoscope in position with a holder, and then make the injection under gravity. This saves a lot of unnecessary moving of the patient, which is disagreeable and tends to displace the catheter. The soft catheter is used, as stiff ones are capable of injuring the kidney substance so that the collargol can enter the circulation of the kidney substance. By using small catheters there is less danger of harm, as the collargol can escape alongside of the catheter. Even with the most careful technic severe pain often attends making a pyelograph. I am of the opinion that the pain is due to other factors than the simple distention, as I have never noticed such long and severe pain in the cases where I have distended the renal pelvis for diagnosis according to the method of Kelly. I agree with Drs. Keene and Pancoast that pyelography is a most valuable diagnostic aid and one to be used only when other methods do not furnish us the necessary knowledge. It is especially useful in early hydronephrosis and easily passable strictures of the ureter.

Dr. D. N. Eisendrath, Chicago: I have had occasion to use pyelography a great deal but have felt that I was not justified in using it with the syringe, unless I knew just where the danger-line was. In my first case the patient, who was 54 years old, died within half an hour after the injection. I made up my mind there must be some reason why the collargol in the urine caused trouble. We knew that the gravity method was apparently the safest and so we elevated a column of collargol 3⅓ feet above the level of the table and caused a pressure of 30 mm., injecting a certain series of animals with 10 per cent. collargol, about 8 ounces, and killed them at different intervals. We were the first to use the manometer and by measurement were able to state the exact amount of pressure used to inject the collargol into the high renal pelvis. In this first series there were no changes; we could find no collargol except in one kidney. We had proved, experimentally, that the collargol was perfectly safe so long as we did not raise the pressure above 30 mm. In the second series we increased our pressure from 30 to 70 mm. and still kept as close as we could to the capacity of the renal pelvis of the dog—from 2 to 7½ c.c.—seldom over 5 c.c. The animal lived. There was collargol in the lungs, in small quantity in the liver and in the kidney. In the animals that lived for thirty days after the experiments, what Drs. Keene and Pancoast have said, was true; the collargol did not kill off the epithelium, but we got much inflammatory reaction. Then we decided to increase our pressure. The first animal in this series we subjected to a pressure of 100 mm. and injected 20 c.c. and it died in five minutes from the time of beginning the injection. By the time the last of the fluid was in, the animal was dead. At necropsy we found that the lungs were perfectly black. They evidently had been filled completely with the collargol. The collargol filled every capillary of the lung as if injected for histologic purposes. The liver showed nodules, with quantities of collargol in the form of infarct deposits. It was evident that when the collargol was injected it went up through and between the tubules and broke into the veins. We had to make almost a hundred sections before we could get one which showed the collargol breaking into the veins. In one specimen, with 20 per cent. collargol solution injected under considerable pressure, the collargol was shown actually breaking into a vein. The other high-pressure series showed that the animals which lived longer than a few minutes or half an hour had all the pulmonary symptoms and hemorrhages corresponding to the human cases from hemorrhagic infarcts or pneumonia. I believe that the dangers lie entirely with the use of high pressure and the combination of the mechanical and toxic actions of the silver.

Dr. Arthur E. Hertzler, Kansas City, Mo.: The great toxicity of silver is just beginning to be recognized. Twelve years ago I published a paper on this subject. Silver is very active in solution of 1 : 10,000. The manner in which it works is a matter of much controversy. It used to be said that a silver albuminate is not produced. It is astonishing how small an amount of carbon will produce a large amount of black substance. A single c.c. in a large-sized rabbit will stain a whole peritoneum and cause death. The capacity of the epithelium to prevent absorption is lost and the silver continues further down. The question is, How does the silver get to most parts of the body? I have made a large number of sections of all the organs of the body and sometimes found in the connective tissue bits of silver deposit. It looks as though the silver got there in solution. Yet from the general action of silver this seems impossible. When silver breaks into a vessel it attacks the leukocytes and these leukocytes travel to the distant organs. The question is, What kills the animals? Nowhere do deposits of silver seem to be enough for this.

Dr. John G. Clark, Philadelphia: This clinical method like many others, is open to criticism if it is done badly, but, after all, does not the same criticism apply to many valuable methods in vogue in other branches of medicine? If pyelography is practiced under such careful restrictions as are laid down by Drs. Keene and Pancoast, it can only be of great benefit and in no instance have I seen a single untoward result. In one case in which the ureter had been catheterized by Dr. Keene there was acute pain followed by a slight rise of temperature. I was under the impression at the time that a collargol injection had been made and was inclined to criticise the method. I found, however, that only a simple catheterization had been done and there could therefore be no reflection on this valuable method which we are discussing. Subsequently, this same patient had a collargol injection and not the slightest reaction followed it. In gynecologic work, as was shown in a paper which Dr. Keene and I published last year, irritability of the bladder is a very common symptom; so common, indeed, that many times it is accepted without question as coming from some pelvic disability. Oftentimes a gynecologic operation is done which is not followed by relief and the patient is looked on as a neurasthenic. In many of these cases, a cystoscopic examination with a pyelographic study clears up the doubt at once and locates the difficulty either in the ureter or the kidney. A large number of such cases have come under our care and I have the very highest regard for this work and feel that it has a most important place in our diagnostic methods. Even if we assume there is occasional danger, the method is so valuable in the aggregate that I do not feel it should be discarded. It it is carried out with the care which Dr. Keene always observes in his work there is no danger. I have been delighted to hear the favorable trend of the discussion. This line of investigation typifies the accurate methods in many other branches of medicine, but only those who possess special skill should have charge of this class of cases. Even though the surgeon may be ever so skilful, he may not have the requisite training to arrive at proper conclusions if he attempts to apply this method himself, and, therefore, such cases should always be referred to men who through constant practice are especially skilled.

Dr. Henry K. Pancoast, Philadelphia: Most of the remarks we have heard have been made from the point of view of the cystoscopist, and it might be well to say something from the roentgenologist's point of view. Three things are essential for correct diagnosis by this method: (1) injection by one who thoroughly understands his work; (2) the making of the roentgenographic record; (3) correct interpretation of the findings. The roentgenologist is sometimes placed in an embarrassing position, as was recalled by Dr. Braasch's remark that the use of this method should be restricted to a few men. I feel thankful in having to do such work only in a hospital where the examinations are restricted to the services of men like Dr. Keene who know how to use the cystoscope and catheter. On one or two occasions I have seen some very poor work of this kind done. In his own office, at least, the roentgenologist should feel no hesitancy in refusing to examine cases for men who do not fully understand their part of the work.

A REPORT OF TWENTY-SEVEN UNILATERAL EXCLUSIONS OF THE PYLORIC REGION

WITH SPECIAL REFERENCE TO OPERATIVE TECHNIC *

WILLARD BARTLETT, A.M., M.D.
ST. LOUIS

It has been seven years since my first complete unilateral exclusion of the pyloric region was done by cutting tranversely across the stomach and closing the resulting ends blind. It seemed the only logical course of procedure when confronted by an enormous gastric ulcer situated a few centimeters from the pylorus and so extensively connected with the pancreas as to make resection seem inadvisable. The method proved itself valuable in several trials and naturally inspired an interest in its history. Doyen[1] was found to have been the first to record its performance in 1892, while von Eiselsberg[2] reported two operations in 1895 without making mention of the French surgeon's work. For more than a decade following this time, the idea seems to have received little or no further attention until the present wave of enthusiasm for it started a very few years ago. In the accompanying table are reported my first fifteen cases in which the above-mentioned technic was used.

While the anatomic status obtained by complete transverse division of the stomach left nothing to be desired in fifteen cases, still I could not escape the impression that I had thereby added a very definite risk of shock, hemorrhage and sepsis to the risk attending the gastro-enterostomy as such. It was about this time that a surgical complication which befell one of our ulcer cases demonstrated the possibility of *functional* exclusion of the pyloric region acting as at least a temporary substitute for the anatomic variety. It came about in this way.

Dec. 23, 1912, we resected most of the minor curvature in removing a large callous ulcer, thereby cutting the stomach more than half way in two. Careful transverse closure of the visceral wound was made, causing the pylorus to approach the cardia in the usual manner, without the lumen being encroached on; still a complete picture of obstruction ensued, persisted six days until a gastro-enterostomy was made, after which the patient speedily recovered. Dr. Soper screened this patient two and one-half months later, finding most of the food passing out through the gastro-enterostomy. (Dr. W. J. Mayo tells me he has had the same experience so often that he now considers immediate gastro-enterostomy indicated after every extensive resection in the minor curvature.)

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Doyen: Französicher Chiro Kongress, 1893.
2. Von Eiselsberg: Arch. f. klin. Chir., 1895, L.

The suggestion derived from this experience was too obvious to be ignored by one interested in exclusion. It was but natural in the next case to attempt functional exclusion by cutting partly across the stomach (Fig. 1), while at the same time a partial septum (Figs. 2, 3 and 4) was created during the visceral suture, this being the easier method of repair.

REPORT OF FIFTEEN CASES IN WHICH THE FORM OF EXCLUSION WAS TRANSVERSE DIVISION OF STOMACH AND BLIND CLOSURE OF RESULTING ENDS

No.	Name	Location of Ulcer	Present Conditio	Time Elapsed
1	Mr. A. L.	One inch below pylorus on upper concavity of duodenum	Died of perforating duodenal ulcer	5 mos.
2	Mr. T. J.	On lower curvature of duodenum 1 inch below pylorus	Died of carcinoma around the duodenal and artificial openings	6 mos., 15 days
3	Miss T. R.	In duodenum below pylorus	Has gained 26 lbs. and is improving	11 mos.
4	Mrs. L. S.	High portion of duodenum	Is greatly improved	1 year
5	Mrs. F. S.	Minor curvature of stomach close to pylorus	Became insane and died	1 yr., 3 mos., 12 days
6	Miss M. L.	Minor curvature of stomach attached to under surface of liver	Died	1 yr., 7 mos.
7	Mrs. A. A.	Highest portion of duodenum	Is in the best of health	2 yrs., 7 mos., 8 days
8	Mr. D. B.	Just behind pylorus	Has gained 13 lbs Digestion fine	3 yrs., 4 mos., 5 days
9	Miss M. P.	At pylorus	Has gained 13 lbs. Is entirely cured	3 yrs., 5 mos., 15 days
10	Mrs. R. K.	On lesser curvature near pylorus	No improvement	4 years
11	Mr. J. C.	Lesser curvature at pylorus running down to duodenum	In perfect health	4 years
12	Mr. J. L. B.	....	In splendid health since operation	2 yrs., 8 mos., 19 days
13	Mrs. M. Mc.	Two scars at pylorus	No trouble with stomach since operation	5 yrs., 1 mo., 12 days
14	Mr. J. B.	In duodenum 1 inch below pylorus	Has gained 30 lbs In excellent health	5 yrs., 3 mos., 4 days
15	Mr. J. P.	In lesser curvature 1 inch from the pylorus	Unable to trace patient	

The incision was made into the major curvature since animal experimentation[3] showed it much better suited than the minor curvature to such treatment. A critical study of these dog stomachs with Roentgen ray, before and after death, showed a high degree of obstruction, while the septa obtained were in every instance much more nearly complete than one could have expected to result from the operation performed. The next three patients were operated on by this method.

CASE 16.—*History.*—March 31, 1913. Mr. E. A. B., aged 58. Weight 140; always loses a few pounds at this season. For eight years has had pain in stomach coming irregularly after eating and stomach felt distended. Worse in past two years and coming also at night. Lately had attack resembling an obstruction. Good appetite, eats regular substantial food. Is bloated, belches any time and is relieved. Pains come suddenly any time and localize in epigastrium. Is nauseated and takes medicine or induces vomiting to relieve pain. Has a sense of fulness and weight but rests on either side. Bowels are constipated, has been taking aperient for past few months, stools formed, gas easily passed.

Operation.—April 7, 1913, a greatly distended gall-bladder was exposed, the lower end of which together with the cystic duct, pyloric and duodenal regions was buried in fibrous adhesions. Just below the pylorus was a large indurated area in the posterior wall of the duodenum which was plastered to a mass in the head of the pancreas, the stomach being dilated and displaced downward. Posterior gastro-enterostomy and exclusion of the pyloric antrum. The gall-bladder was brought up to the skin and fastened to be opened later.

June, 1914: Feels better than he has for past ten years. No pain or vomiting.

CASE 17.—*History.*—Nov. 28, 1913. Mrs. F. C. D., aged 38. Is losing weight and strength. Since 1912 has had attacks of pain and vomiting after eating relieved by vomiting or gastric lavage. Six weeks ago was in bed for ten days. Stomach strapped up ten weeks ago gave relief for ten days. Can retain solids longer than liquids. Appetite poor, has pyrosis, pain in side and heaviness in stomach relieved by vomiting and lavage.

Gastric Analysis: Free hydrochloric acidity 23, total acidity 61. No occult blood.

Bowels: Progressively constipated.

Physical Examination: Stomach ptotic, kidneys easily palpable and low. Abdominal wall flaccid and loose. Abdomen sore to pressure, more so in the right upper quadrant.

Operation.—Dec. 3, 1913. We were unable to deliver the pyloric portion of the stomach or duodenum, which were completely surrounded by adhesions. The stomach was dilated and low. A posterior gastro-enterostomy was done and the pyloric one-fifth excluded.

June, 1914: Gained 23 pounds since operation. Is greatly benefited but has some pain although it is more neuralgic she thinks.

CASE 18.—*History.*—June 4, 1914. Miss M. B., aged 24. About fifteen months ago trouble began with violent pain in stomach, of short duration; had several about every four weeks. Discomfort after eating. Typhoid in September, went to work in November. Stomach O. K. till three months ago. Suffers all the time when at work; better if resting. Appetite not very good, belches right after eating and has a little regurgitation of bitter acid. The pains start high to right midline about one-half to one hour after eating. The gnawing pain begins gradually and passes off suddenly. Food relieves and although there is much nausea only occasional vomiting of small amounts one-half hour after meals. Bowels, regular.

Physical Examination: Muscles rigid, tender to the right of midline.

Operation.—June 8, 1914, an ulcer was found on the upper curvature of the duodenum 0.5 cm. from the pyloric vein, about the size of a dime, marked by stellate veins and a projection of it extended down across the viscus. A posterior gastro-enterostomy was done, also an exclusion of the pyloric region made.

The foregoing three patients, operated on by cutting into the greater curvature and inverting a septum, made uneventful recoveries. One was so treated only seventeen days ago. A second is free from stomach symptoms at the expiration of fourteen and one-half months, while the third is greatly improved some seven months after operation. The method is surely simpler, cleaner, attended with less bleeding and safer than complete transverse division; still it leaves much to be desired, as far as technic is concerned.

Experience, both clinical and experimental, has demonstrated the desirability of keeping away from both curvatures if a perfectly bloodless operation is to be done. A large series of dogs have been operated on[3] in an attempt to build a septum, just proximal to the pyloric antrum, half way across the stomach, leaving a quarter free at the minor and at the major curvatures.

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[3] Bartlett: Am. Jour. Med. Sc., 1914.

This has succeeded beyond our expectations as far as technic, safety and anatomic result are concerned; hence the method was used on the following seven patients. (The technic varied somewhat in different instances; for the sake of simplicity, however, only the one which we regard as standard is given (Figs. 5, 6, 7, 8 and 9):

Case 19.—*History*.—May 29, 1913. Mr. J. T. W., aged 53. He is very anemic and has lost weight in the past month. Blood-pressure 100. Has had indigestion for years, which is worse in spring and fall. For some weeks he has been vomiting and three weeks ago began to have violent cramps. He has vomited all food, has much constipation and been confined to bed.

Gastro-Intestinal: He has a poor appetite and the pains begin suddenly any time in the upper abdomen and localize in the stomach. These pains are accompanied by nausea and vomiting. Food does not seem to have any influence; vomiting and morphin relieve.

Physical: General condition and nutrition are bad. The muscles are rigid, and in the gall-bladder region is a small tender mass.

Operation.—May 30, 1913, the stomach was found low and dilated, the pyloric region being involved in a mass of adhesions to the anterior abdominal wall. The pancreas was large and hard. The gall-bladder could not be found. A posterior gastro-enterostomy was done and the pyloric one-sixth of the stomach excluded by the skewer method.

June 1, 1913: Patient in a very serious condition. Blood-pressure has dropped below 70. Blood transfusion raises pressure to 100.

June 3, 1913: Patient died of subphrenic abscess which had existed three weeks before operation, that is, chronic perforation.

Case 20.—*History*.—Sept. 17, 1913. Mr. J. P., aged 32. Began five years ago with sudden pain in upper abdomen and vomiting, lasting four or five days. Could not eat during attacks. Then followed a period of good health. From four to five months later had similar attack and several others at shorter intervals. Stools black. Blood in vomitus of last attack.

Good appetite, belches after alcoholics, pains start suddenly in epigastrium, radiate to both lumbar regions and localize in the epigastrium. These are accompanied by fever, nausea and projectile vomiting of water, bile, mucus, coffee, etc., from three to four stools daily, formed with blood and mucus.

Physical: Well-nourished but anemic, breath sour, teeth poor, heavy brown coat on tongue. Tenderness in mid epigastrium, examination otherwise normal except a right inguinal hernia.

Operation.—Sept. 17, 1914, we found in the lesser curvature, not far from the pylorus, a round indurated area the size of a half dollar fixed in position by a close firm adhesion to the head of the pancreas. There were old adhesions between the liver, pyloric antrum and pancreas. Exclusion of the pyloric one-fourth of the stomach by the skewer method and a posterior suture gastro-enterostomy were done.

June, 1914: Gained 35 pounds. Feels splendid.

Case 21.—*History*.—Oct. 24, 1913. Mr. H. P. M., aged 39. Weight, 110 pounds. Smokes to excess, causing cough and shortness of breath. Began sixteen years ago with burning pain around umbilicus, coming on about three hours after eating and lasting until vomiting or opiate gave relief. There were two periods when he was entirely free from pain, in 1911 and last March lasting few weeks. The attacks are becoming more frequent.

Has lost ten pounds in nine months. His appetite is variable. Has had irregular pyrosis for past nine months. Is bloated and has a feeling of fulness. The pains start suddenly in the epigastrium about three and one-half hours after eating and pass off suddenly. The influence of food is variable. Induced vomiting from three to four hours after eating gives relief. Rests best on the left side.

Bowels regular. Occult blood, positive.

Roentgenoscopy shows deep peristaltic waves with the antrum well filled. Position moderately low.

Wassermann: Faintly positive.

Operation.—Nov. 5, 1913, we removed a very long appendix which was completely retroperitoneal and tied down in the right fossa. The pylorus, anteriorally, showed a thick white scar about the size of a dime which firm adhesions an inch in length connected to the under surface of the liver. The gall-bladder contained nothing, so a posterior gastro-enterostomy was done and the pyloric one-fourth was excluded.

June, 1914: Gained 13 pounds. Feels perfectly well.

Case 22.—*History*.—Nov. 19, 1913. Miss V. R., aged 34. Was never strong, lost 30 pounds in past year. Has headache, roaring in ears and a tickling cough. Eight months ago, began to have soreness and heaviness in upper abdomen, worse at once after eating but also present on empty stomach. No acute attacks, no fever or vomiting. Progressive weakness and anorexia. Weight, 120 pounds.

Appetite poor for nine months. Has pyrosis one-half hour after eating which lasts only a few minutes, is relieved by belching and has slight regurgitation of bitter acid. The pains begin slowly any time in the upper abdomen and liver region which at times radiate deep in the back and never entirely disappear.

Bowels: Constipated; no occult blood.

Operation.—Nov. 21, 1913, the gall-bladder and duodenum were found tightly adherent together, the former being attached to the anterior abdominal wall. The stomach was large, the pylorus wide open; nothing could be seen of an ulcer, but on account of stomach specialist's positive statement, we did an exclusion of the pyloric one-fourth and a posterior gastro-enterostomy.

Ten days after operation, stomach contents appeared in the abdominal wound and she died of exhaustion forty-one days later, after an attempt to repair the damage.

Necropsy.—Jan. 10, 1914: Partition extending almost entirely across the axis of the stomach cavity at the right angles to it and dividing the viscus into two pouches, the pyloric one being one-sixth as large as the other. At the minor curvature the tip of one finger can be introduced into a communication between the two pouches. The septum is lined with intact mucous membrane and there are no adhesions to the exterior of the stomach. There is necrosis at the point of the gastro-enterostomy; through this the contents leak into the wound and peritoneal cavity, giving rise to a purulent peritonitis.

Case 23.—*History*.—March 27, 1914. Miss A. B., aged 23. Fair appetite, eats only light diet, pyrosis after meals lasting one-half hour. She is bloated, feels full, belches after meals without relief. Has continuous dull ache which begins gradually at the right costal margin, localizes in the gall-bladder region, is worse after eating. She is nauseated and vomits spontaneously; food taken especially after the evening meal and vomiting relieve her.

Gastric Analysis: Free hydrochloric acid 40, total acidity 60. Occult blood, positive. Bowels constipated, occult blood positive.

January 16: Appendix removed without relief of symptoms.

Physical Examination: Right side rigid, stomach dilated, gall-bladder region suspicious.

Roentgenoscopy: Hyperperistalsis of stomach marked. Barium remains in stomach after six and one-half hours. The stomach is long and sags with no barium going through pylorus. Transverse colon ptotic.

Operation.—April 7, 1914: Stomach and duodenum dilated. Pylorus wide open. There was a peritoneal band extending from the minor curvature of the pylorus down and to the right. At the insertion of this band there was thickened area, the size of a nickel, on the posterior wall of the duodenum very near the pylorus; hence we did a posterior gastro-enterostomy as well as an exclusion.

June, 1914: Gaining in weight and improving steadily.

Case 24.—*History.*—April 14, 1914. Mr. F. R., aged 23, has lost 19 pounds in thirty-six months, is nervous and does not sleep well. Weight 127 pounds.

Has had constipation for seven or eight years which began with pain low in mid abdomen; none last three years. No natural movement and must have one daily or has great discomfort from gas, etc. Appetite is fair, belches after meals. He is bloated, feels full, has regurgitation at times. Has bad pain below umbilicus which begins and passes off slowly. Food has no influence. Has nausea.

Gastric Analysis: Free hydrochloric acid 70, total acidity 92; occult blood and mucus present.

Roentgenoscopy: Ill-marked pyloric antrum, pylorus wide open, stomach normal in position and size. Empties in one hour, colon distended with bismuth and normal position.

Operation.—April 24, 1914, we exposed a stomach of moderate size considerably thickened and with a tight pylorus. The peritoneum was injected. From a point just below the pylorus on the minor curvature, there was a scar extending up to under surface of the liver and inside the duodenum; at this point was an area the size of a dime so thickened that it felt like cartilage; on the minor curvature, near the pylorus were a number of hard glands varying in size from a pea to a hazelnut. We did an exclusion of the pyloric antrum and a posterior suture gastro-enterostomy.

June, 1914. Steadily improving.

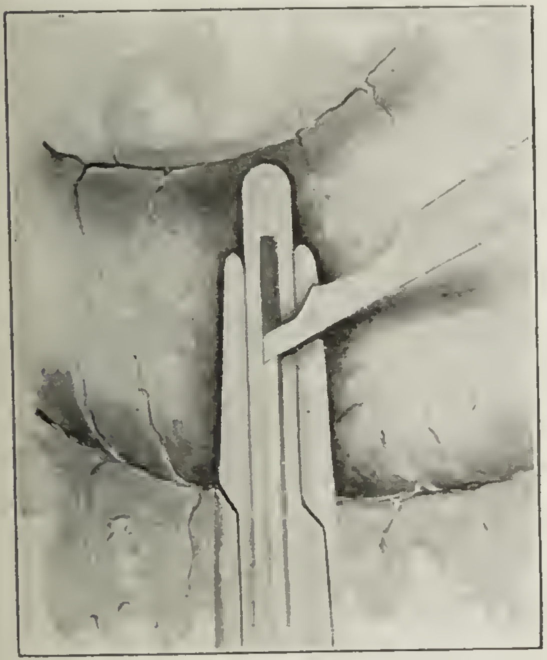

Fig. 1.—Just proximal to the pyloric antrum, an incision is made from the greater curvature two-thirds the way across the stomach through a slit clamp, on either side of which is a crushing-clamp.

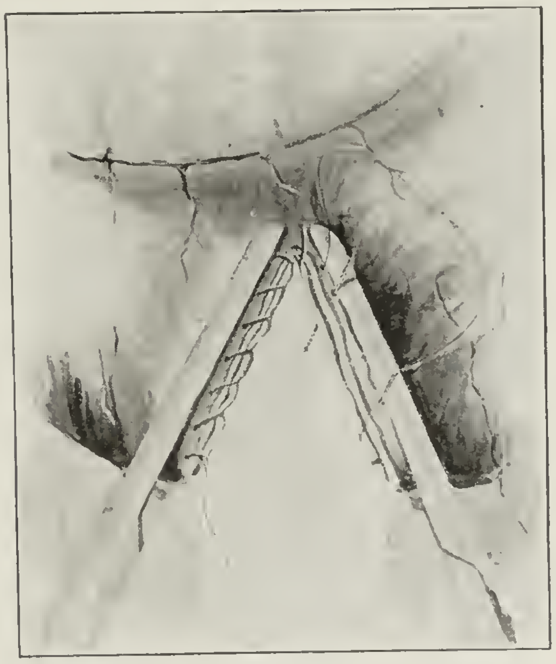

Fig. 2.—The crushing-clamps are separated far enough to permit the introduction of a buttonhole stitch through all the layers.

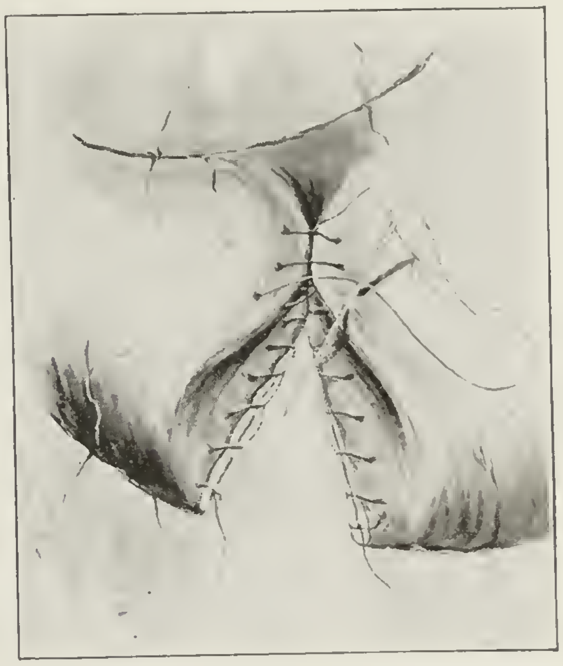

Fig. 3.—The first row is hidden and the V closed by a Lembert row, which runs down the anterior and up the posterior walls.

Case 25.—*History.*—June 1, 1914. S. L., aged 38. Very poor health, has been losing weight and now weighs 115 pounds. Has frontal headaches. Never strong. Fell ten years ago, some abdominal trouble since. Backache and stomach trouble, feels as if eating would help. Four years ago bleeding piles appeared, free of them about three years.

Gastro-Intestinal: Appetite fair at times, pyrosis after meals sometimes lasts several hours, has choking sensations, belches bitter acid which gives some relief. Sharp, cutting pains localize in the epigastrium and passes off gradually. Nothing relieves, food influence varies. Bowels constipated Bleeding hemorrhoids very troublesome.

Physical: Right abdomen full, narrow costal angle, tender below umbilicus, tone of muscles increased.

Operation.—June 5, 1914: There was a spastic closure of the pylorus and a duodenal ulcer on the lower curvature posteriorly very close to the pyloric ring. A posterior gastro-enterostomy was done after which the pyloric antrum was excluded.

This method of making a septum has seemed in these seven experiences to be easier, cleaner and drier than any other cutting procedure known to me. In no instance has a leak occurred at the site of obstruction. One patient died four days after operation from exhaustion consequent on a long-standing subphrenic abscess. Another died fifty-one days after operation from what may have been a perforated jejunal ulcer. In both instances the septum was almost complete (there being a small mucosa lined canal at either curvature) with no evidence of any complication about it. Of the five who are alive, two are known, as result of fluoroscopic examination, to be completely obstructed seven months and two months, respectively, after operation. Of the five last mentioned, one was operated on only twenty days ago, another is greatly improved at the expiration of two months and eight days, while the other three are free from stomach symptoms at nine months, seven months and two months, respectively. There is no denying the theoretical objection that mucosa is interposed between layers which are expected to heal together; still I have used it on fifteen dogs[3] and seven human subjects without a leak developing.

Two patients made rapid and satisfactory recoveries after exclusion by a strip of fascia after the Wilms method; it is, however, too early to draw conclusions. One of them is improved at the expiration of two and one-half months, while the other is free of stomach symptoms for the first time in years, twenty-four days after his operation. Details are omitted since there was nothing original about them.

Ligation of the pylorus with a strip of fascia as devised by Wilms is a simple procedure on the normal dog. I found it, however, anything but easy to apply on one human subject. There was much thickening of the tissues behind the pylorus so that it was only with great difficulty that a forceps could be introduced. A large blood vessel was ruptured by the instrument, to say nothing of time lost and difficulty encountered in ligating the same. It is much easier to exclude the pyloric antrum than to ligate the pylorus with fascia. Further considerations of importance are difficult wound closure if the fascia comes from an edge of the laparotomy incision, or the making and closing of a second incision if fascia lata be used.

My animal experimentation, tending to show whether or not obstruction produced in this manner be permanent, is still incomplete.

The exception taken to the exclusion method of Doyen[1] and von Eiselsberg,[2] tried out by Haberer,[4] Jonnesco,[5] Jianu,[6] Girard,[7] Leriche,[7] Bressot,[7] Grossman,[7] and Küttner,[8] is the difficulty of execution and the increased percentage of mortality.

Kolb,[9] Bircher,[10] Hercher,[11] Hoffmann,[12] and Göbell[13] have tried out the Wilms[14] method with the strip of living tissue, and Naselli,[15] using various tissues in six experiments, found the closure only temporary.

Brewer[16] excluded the pylorus in nine dog experiments with an aluminum strip, finding the lumen nonpatent at necropsy not later than two months and ten days.

Berg,[17] Pool,[18] Momburg,[19] Corner,[20] Renton,[21] Ward[22] and Parlavecchia[23] have used a non-elastic ligature to occlude the pylorus, and report good results; but the large majority of men who have experimented with this method find that the ligatures rapidly cut through into the lumen and are passed along with the intestinal contents.

Infolding or kinking methods as practiced by Blad,[24] Mertens,[25] Sequinot[26] and Mariani[27] give only a temporary occlusion of the pylorus.

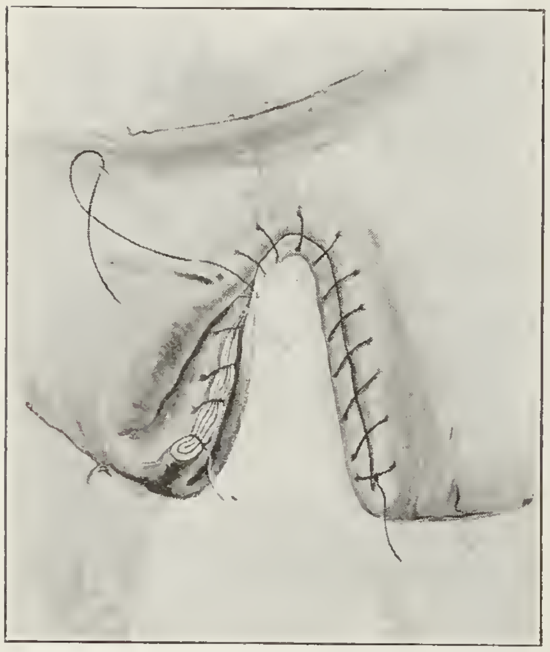

Fig. 4.—The step here described may be used instead of that shown in Figure 3. Here the first row of sutures described in Figure 2 is inverted in the ordinary manner, the V being left open.

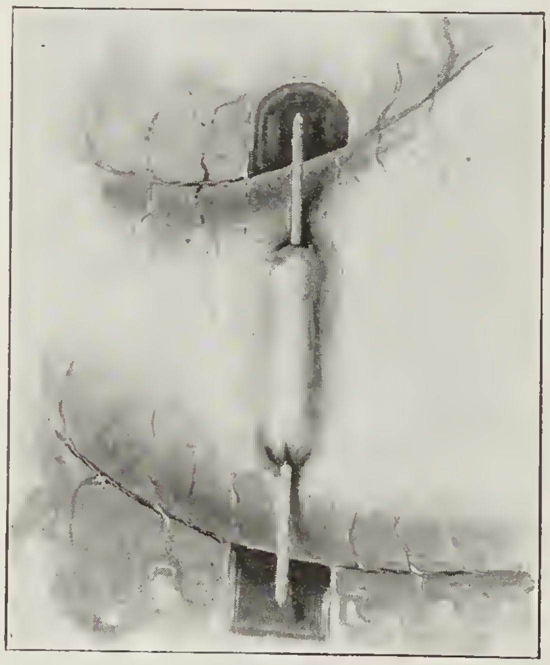

Fig. 5.—A spatula is thrust behind the stomach from below upper and a skewer driven through both walls of the viscus and out again, in such a way that it holds up about half of it when measured transversely. The highly vascular portion of the stomach is not interfered with.

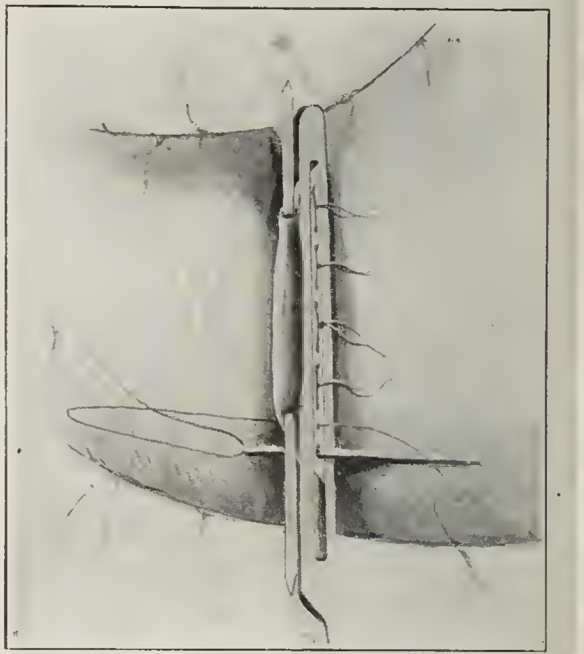

Fig. 6.—A slit clamp is applied behind the skewer and several mattress-sutures introduced through all the layers of the anterior and of the posterior walls.

Not a few workers in this field seem to be convinced that the best technic is that which temporarily closes up the pylorus, thus permitting the lesion to heal while allowing the pylorus to become permeable after all danger of irritation of the ulcer is past.

I have seen W. J. Mayo and Mr. Moynihan infold with a purse-string, ulcers of the duodenum. Both seemed of the opinion that in this way temporary obstruction was produced and the value of the gastro-enterostomy enhanced. No theoretical deduction can be lightly weighed in the balance against any statement based on the practical results of two surgeons whose experience has been so rich and whose powers of logical deduction have proved so valuable.

A study of the intricate physiologic arrangement which exists for taking care of the acid stomach contents inclines one to preserve the same in the absence of weighty reasons to the contrary.

Apparently the stomach contents are sharply divided for a long time into two parts. Unacidified salivary digestion may go on two hours in the cardiac half according to Pawlow.[28]

The anatomic ground for this was suggested by Klemensiewicz,[29] who was the first to attempt isolation of the pyloric and fundus pouches, to get two pure secretions. In 1875 he excluded (bilaterally) a pylorus sack in the dog and withdrew an alkaline secretion. He kept no dog more than seventy-two hours. Heidenheim[30] kept one of six operated on thus for six months and got the same alkaline fluid with pepsin and rennin. He[31] found that pyloric secretion had no effect on the wall about the fistula. Not satisfied with this knowledge, he[32] isolated a fundus sack in eight dogs, kept one several weeks and withdrew a secretion containing pepsin and hydrochloric acid of higher concentration than the normal from a whole stomach (mixed with saliva and alkaline pyloric juice). It digested the tissues about his fistula.

Sick[33] withdrew through the tube, separately, the contents from fundus and pyloric portions. He found the two samples (in healthy stomachs) to be quite

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4. Haberer: Arch. f. klin. Chir., 1913, c, No. 1.
5. Jonnesco: Revue. de Chir., 1907.
6. Jianu: Wien. klin. Wchnschr., 1910, xxiii, 1223. Girard: Verhandl. d. Deutsch. Gesellsch. f. Chir., Berlin, 1911, xl, 268. Leriche and Bressot: Lyon Chir., October, 1911. Leriche: Lyon Chir., 1913. Jianu and Grossman: Arch. f. Verdauungskr., April, 1910, xvi, 147.
7. See Footnote 6.
8. Küttner: Deutsch. chir. Kongr., 1913.
9. Kolb: Deutsch chir. Kongr., 1913.
10. Bircher: Zentralbl. f. Chir., October, 1913, No. 40, p. 1547.
11. Hercher: Zentralbl. f. Chir., November, 1913, No. 44, p. 1707.
12. Hoffmann: Zentralbl. f. Chir., August, 1913, No. 40, p. 1331.
13. Göbell: Zentralbl. f. Chir., August, 1913, No. 40, p. 1332.
14. Wilms: Deutsch. med. Wchnschr., 1912, xxxviii, 101.
15. Naselli: La Clinica Chirurgica, May, 1913.
16. Brewer: Surg., Gynec. and Obst., 1914, xviii, 145.
17. Berg, A. A.: The Influence of Gastro-Enterostomy on Gastric and Duodenal Ulcers, The Journal A. M. A., March 22, 1913, p. 881.
18. Pool: Ann. Surg., 1913, lviii, 663.
19. Momburg: Zentralbl. f. Chir., 1913, No. 42.
20. Corner: Lancet, London, 1913.
21. Renton: Brit. Med. Jour., April, 1912.
22. Ward: Lancet, London, July 7, 1906.
23. Parlavecchia: Policlinico, Rome, April, 1910, xvii.
24. Blad: Ugesk. f. Laeger, 1912, xxv.
25. Mertens: Zentralbl. f. Chir., 1913, No. 40, p. 1545.
26. Sequinot: Thèse de Paris, January, 1913.
27. Mariani: Zentralbl. f. Chir., 1913, No. 44, p. 1706.
28. Pawlow: The Work of the Digestive Glands, London, 1910.
29. Klemensiewicz: Sitzgsber. d. Wiener acad., March 18, 1875.
30. Heidenheim: Arch. f. d. ges. Physiol. (Pflüger's) viii, 169.
31. Heidenheim: Hermann's Handbuch der Physiologie, Leipsic, 1881.
32. Heidenheim: Arch. f. d. ges. Physiol. (Pflüger's), xix, 148.
33. Sick: Deutsch. Arch. f. klin. Med., lxxxviii, 169.

different, physically and chemically. He got no or little hydrochloric acid from the pyloric portion, but obtained pepsin and rennin from it, though perhaps not so much as from the fundus.

In view of this knowledge, we must consider the pyloric antrum (as far as its secretion is concerned) as part of the intestine. Now many unfortunate experiences have proved that secondary jejunal ulcers are commoner, the lower, stomach contents are dumped into the bowel by gastro-enterostomy. In other words, the farther we go from the mucosa, in which acid secretion originates, the less automatic protection we find against its immediate effects.

We find far the greater part of all ulcers in the pyloric antrum and upper duodenum, regions which produce no acid, but which are regularly and frequently exposed to its action.

Cohnheim,[34] using from 6 to 8 cm. water, finds steady pressure on the contents of the fundus, while in the pyloric antrum, regular, powerful, peristaltic waves run along at regular intervals (six to the minute) according to Cannon[35] toward the pylorus and inject the food far into the duodenum.

Pawlow[28] agrees with Cannon[35] that it is the acid in the duodenum which causes the pylorus to close and the gradual alkalinization of the duodenal contents to a given point which causes this sphincter to open again. One must, in view of such reasoning, hesitate *especially in the presence of high acidity* before permanently dumping stomach contents onto a mucous surface ill-prepared to receive the same.

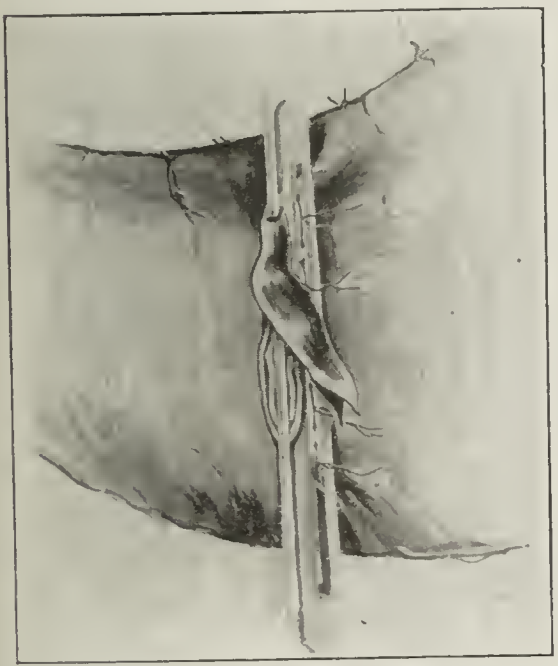

Fig. 7.—The skewer is cut out and the edges cauterized to avoid hemorrhage.

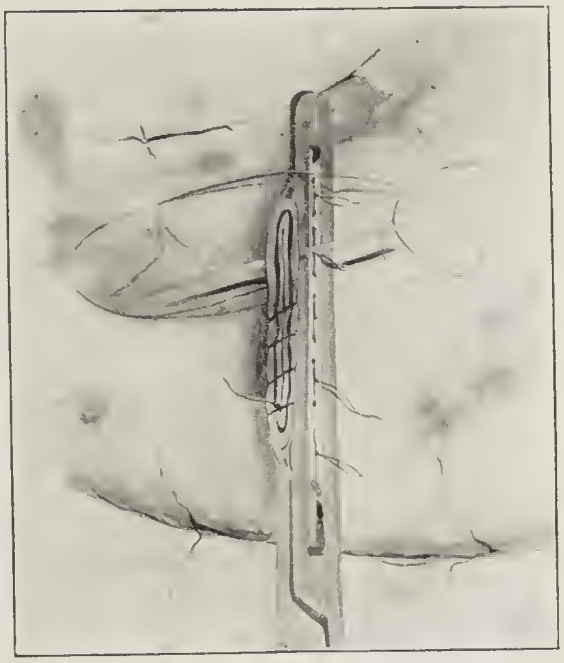

Fig. 8.—A hemostatic buttonhole stitch is introduced through all four layers.

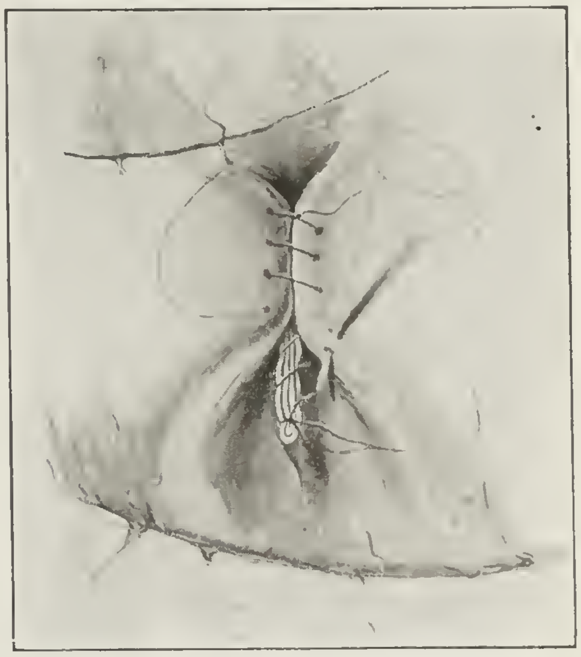

Fig. 9.—The cut surfaces are hidden by a row of Lembert sutures.

CONCLUSIONS

1. Our real knowledge of ulcer is so meager at present that we are not prepared to deal with remedial conditions which do more than temporarily relieve the anatomic condition which is the expression rather than the origin of this disease. In the duodenum infolding (temporary obstruction) and gastro-enterostomy accomplish this without forever diverting stomach contents to a mucosa ill prepared to receive it. This is shown by a study of the enormous material of the Mayos and Moynihan.

2. Closure of the pylorus itself cannot protect a gastric ulcer proximal to it, even in the presence of gastro-enterostomy, since the pyloric antrum drives stomach contents as far as possible toward the closed pylorus before letting it fall into the new opening. *Gastro-enterostomy alone* seems to have done less good the farther from the pylorus a stomach lesion has been found. However, my experience with unilateral exclusion of the affected area in such cases has been most satisfactory.

It takes the place of excision of gastric ulcer, or pylorectomy where the latter presents extreme technical difficulties.

A large ulcer perforating deeply into the structure of the pancreas, liver or other organs is most simply treated by exclusion.

It prevents the gastric contents passing over an ulcer; stops pain, prevents hemorrhage and puts the excluded portion at rest, allowing the ulcer to heal, thus decreasing the likelihood of secondary cancer.

3. Any form of exclusion of the pyloric antrum which prevents food passing over it accomplishes as much as does complete transverse division of the organ. Cohnheim teaches that the innervation of the stomach and pyloric musculatures is chiefly governed by automatic centers in the organ. This much is known although the exact action of the stomach's nerve mechanism is not understood. We cannot hope to stop secretion in the pyloric antrum by complete transverse division of the organ since Pawlow has shown that foods stimulate gastric secretion after the stomach is completely isolated from nerve connections, and hence through intrinsic ganglion by reflex nervous origin.

4. Both the methods I am proposing are simpler, take less time and encounter fewer blood-vessels than does transverse complete division of the organ. Experimentally they produced results similar to it, while clinically they seem to have been equally successful.

5. My first method (Figs. 1 to 4, inclusive) may seem the more convincing on theoretical grounds. The second (Figs. 5 to 9, inclusive) is the easier to perform and is less bloody, but it violates the time-honored principle that mucous surfaces are not to be approximated. The two methods seem to have given

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[34] Cohnheim, Nagel: Handbuch der Physiologie, Braunschweig, Ger. 1905-1909, Vol. II.

[35] Cannon: Mechanical Factors of Digestion, London and New York, 1911.

equally good results in experimental work; the same seems to be the case in my clinical work, although this is not so easily ascertained. I leave the reader to choose between the two, after trying them.

400 Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. William L. Rodman, Philadelphia: So many methods have been proposed from time to time to exclude the pylorus that we must agree that it is questionable if they do exclude. We know that the early methods which were introduced were absolute failures. Practically all methods except within recent years were looked on as failures, beneficial only for a time. So von Eiselsberg devised the radical procedure of cutting across the pylorus, sewing up the pyloric and the duodenal ends, thus making the two openings in the gastro-intestinal tract to close. I am satisfied that the method described by Dr. Bartlett is excellent and, moreover, less mortality would follow his method than that of many others, and yet, he has had two deaths. The cases are too few, the time too short to say what the ultimate results will be, but I am inclined to agree with him that when the stomach is bound down by adhesions and a resection cannot be done, it would, perhaps, be well to use his second method. There would, I think, be less mortality than after the first. I have never performed pyloric exclusion, but if I do, shall use Dr. Bartlett's method, as it appears quicker, safer and seems to accomplish all that is accomplished by von Eiselsberg's operation. The question arises, Why operate, when, by removing a little more tissue than is removed in von Eiselsberg's operation, the ulcer-bearing area may be excluded. Dr. Bartlett's operation or any method of exclusion cannot prevent subsequent hemorrhage perforation or cancer of the stomach. There are, annually, 75,000 deaths in the United States from cancer, and more than 25,000 of them are from cancer of the stomach. Why shall we leave a lesion with so great potentialities in the stomach if it can be removed with practically the same mortality as these other methods, ingenious in a way, but which do not go to the root of the trouble? It has simply been from an exaggerated fear of the mortality. Is that justified? Recently, before the American Surgical Association, I reported a large number (375) of pylorectomies and partial gastrectomies done by American surgeons with a mortality of 4 per cent. I do not think one can do the von Eiselsberg operation with a smaller mortality and yet, in that operation, you are leaving the lesion behind. The fact stated by that great pathologist, Virchow, must be constantly kept before the mind, that 35 per cent. of all cancers in the human body are in the stomach. The time to operate on cancer of the stomach is when it is an ulcer. It has been conclusively shown that a vast preponderance of gastric carcinomas are preceded by ulcers. All precancerous lesions should be attacked radically, for in this way only shall we be doing our full duty.

Dr. W. D. Haggard, Nashville: I have not applied Dr. Bartlett's procedure to the human subject but expect to use it in suitable cases. There have been many attempts to exclude the pylorus; the old ligature has been unsatisfactory. Dr. Bartlett's operation is simple and seems worthy of trial in some cases. I would not differ with Dr. Rodman in doing partial gastrectomy in suitable cases, but the surgeons of this country ought to reserve that for the extreme case. Now it cannot be denied that an operation of that magnitude in average hands is not going to be attended by the minimum mortality of 4 per cent. that has been gathered from the great clinics of the country. This Association is to establish certain lines of procedure for the average American surgeon. While it is true that of those cases of ulcer which develop cancer, 70-odd per cent. have developed on ulcer, it does not mean that all cases of ulcer will develop into cancer. Witness the very few cases that have ever been reported of a secondary malignant degeneration of an ulcer that has been operated on by gastro-enterostomy or any of the other well-recognized measures. Now, if, at the time of operation, you are clinically or pathologically undecided as to whether or not the case is malignant, then Rodman's operation is the operation of election. It seems to me, however, that in the average case the principles laid down by Dr. Bartlett are the ones we should apply. Any measure that has just been introduced is, of course, going to have a hard voyage, but I do believe that if we practice this operation we shall find it applicable to a large number of patients who will do better than if we perform gastrojejunostomy.

Dr. W. C. Jones, Chicago: What evidence does Dr. Bartlett have that his method produces complete pyloric obstruction? This point seems doubtful to me. I have been doing some experimental work with Dr. Carl Beck of Chicago, in making an artificial tube from the greater curvature of the stomach, using this tube for gastro-enterostomy instead of connecting the intestine with the unaltered stomach. In this work, the pyloric end of the stomach was narrowed as much or more than occurs in Dr. Bartlett's operation; yet we found by means of the Roentgen ray that the stomach contents passed largely through the pylorus. Passing a ligature around the pylorus did no good, as might have been expected. The most satisfactory and the simplest method we found of making the obstruction sure was complete incision of the pylorus and infolding of the cut ends. This procedure is very simple, is absolutely certain, and on the whole, leaves little to be desired.

Dr. Willard Bartlett, St. Louis: I was probably not understood when I stated that I had the stomachs from two necropsies and the stomachs of 17 or 18 dogs in evidence of the fact that the obstruction produced seems to be as complete as the operation of complete transversion with folding in of the ends. I cannot explain the difference, however, between this and Dr. Jones' method, but I shall be glad to study it.

A MICROCEPHALIC IDIOT WITH MALFORMATION OF BRAIN*

REPORT OF A CASE

ARTHUR K. PETERY, M.D.
NORRISTOWN, PA.

The case which I report is that of a patient who has aroused considerable curiosity among those who have seen him. The parents of the patient were interviewed by myself and furnished what information they could, freely and willingly. They appeared to be working people of the average intelligence, the father being 59 years of age, healthy, a blacksmith, a steady worker and a moderate user of alcoholics, though he has never been intoxicated. His mother is still living, aged 83, while his father died at the age of 62 from rheumatism. The patient's mother is living at the age of 55 and at present is passing through the menopause; she was the mother of eight children, who, with the exception of the patient, are all living and normal. She is strictly temperate in habits; her father was killed at the age of 38 in a railroad accident and her mother died at the age of 70, the result of heat exhaustion.

There is no history of any miscarriages, tuberculosis, malignancy or mental diseases in the family, and the only explanation that the mother can offer for the condition of the patient is that when she was four or five months pregnant they moved from one house to another, and she did a lot of hard work and heavy lifting, but was not injured and nothing unusual occurred.

REPORT OF CASE

Personal History.—The patient, the third child in a family of eight, was born April 17, 1884, at full term. "Birth was easy"; the child weighed about 6 pounds. The family noticed that the head was quite small and had "no openings on top," but thought nothing of it. The child was breast-fed to the age of 2 years when he was weaned, but it has always been necessary to feed him with a spoon. He never made any effort to learn to talk and first began to walk at the age of 3 years. He never walked a great deal, but when he did try, it was on his toes, never placing his foot flat on the ground. His condition first attracted the special attention of his parents at about the age of 5 years when they were told that the child would never talk or be of any account in the world. As soon as he was able to sit alone he would place his feet under him and when in bed would lie with the lower extremities contracted. He constantly pounded with his hands on anything near him and the parents explain his large hands by this action. As he grew older he learned to know the various members of the family by sight; was usually good-natured, but at times showed a temper. When strangers came into the house he would notice the difference; would laugh and become noisy and excited.

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* Read before the Philadelphia Psychiatric Society, March 13, 1914.

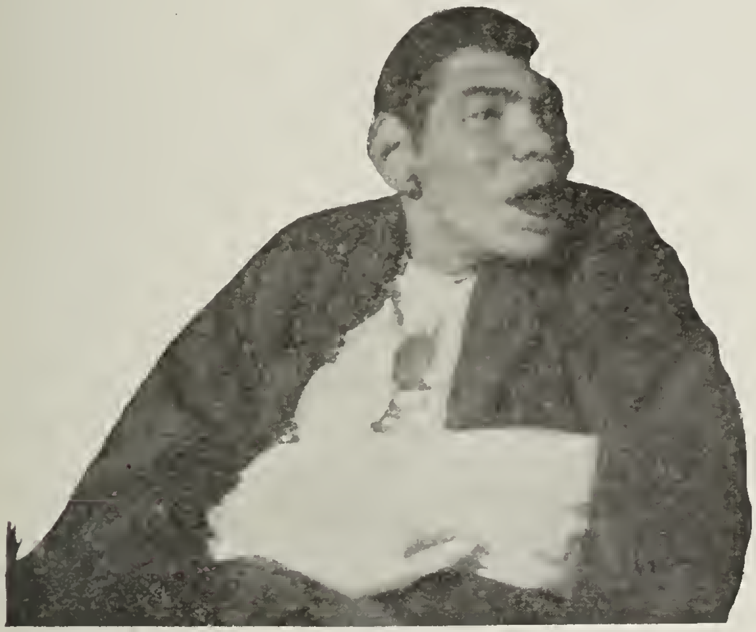
Fig. 1.—Facial expression of patient in animation.

It was always necessary to tie him to his chair, otherwise he would get into mischief by pulling things over and destroying them, and if the other children came within reach he would pull their hair with both hands, though he seemed to enjoy watching them playing about him. He was inclined to be destructive at every opportunity and if he found a small hole in his clothing would work at it until the garment was destroyed. He was never able to talk or to care for his personal wants.

Owing to illness in the family and a further inability on their part to care for him properly, he was taken to the Norristown State Hospital, Jan. 28, 1905; he was then 21 years of age. The records of the hospital at that time, while rather meager, state that he was an idiot and could not talk or walk, had to be fed, was unclean; quiet and did not make any sound. He weighed 65 pounds and was about 4 feet 2 inches in height. His chest was pterygoid in type, the lungs normal, the heart-action regular, but rapid; no murmurs were elicited; the pulse was rapid, but regular; the hands and feet were cold and cyanotic; he had abnormally long arms; the ears were quite large and head was small. He showed athetoid movements of the upper extremities. The muscles of the lower extremities were apparently paralyzed and showed contractures; the knee-reflexes were exaggerated and showed ankle-clonus; the pupils responded to light.

A review of his physical condition a short time before his death, Dec. 20, 1913, showed the following cranial measurements: biparietal, 12 cm.; occipitobregmatic, 13 cm.; occipitomental, 20 cm., and cranial index 923. The head was covered by a loose thick scalp. The ears were quite large; palate arch high; the arms were rather long and the hands large and coarse. The fingers were heavily calloused from being continually bitten. The musculature of the lower extremities was poorly developed and showed marked contractures; extremities were cold and cyanotic. The patient's actions were rather jerky. The chest was round with the sternum quite prominent; the left apex showed a cavity formation. The abdomen was apparently normal, while the genitalia were unusually well developed.

In appearance he resembled more closely a monkey than a human being and this led to his being called "the monk"; he might easily have been used as a specimen to carry out the Darwinian theory.

The ward notes as to his mental condition varied but little during his time in the hospital, the substance of them being that he was entirely helpless, unclean in his habits, usually dull, but at times appeared to observe what was going on about him, took no special interest in any one thing, would watch people going about and could be attracted by strange noises such as the dangling of keys, etc., when he would look toward the source of the noise. He was always more or less destructive and would tear his clothing, using both hands in doing so. Frequently would hold the cloth with one hand and tear with the other.

About April, 1913, the ward physician was able to interest several of the other inmates in this patient's condition in an effort to observe just what effect constant personal effort in the patient would bring out. These inmates devoted most of their time to him and would perform all sorts of antics for his amusement. Gradually he appeared to watch them, and would become excited, jump in his chair and laugh at their actions; at times would grunt as if in an effort to speak; he also seemed to know these particular men, for when they would approach him he would become excited, but when a stranger approached he paid no attention and hung his head.

These men would also throw a handkerchief to him and he gradually learned to watch for it, catch it and then throw it back, but without any definite direction; at times they would cover his head with it and he would pull it off and throw it at times with one hand, and again the other, and seemed to wait for them to replace it, apparently enjoying its performance. He would only do these things, however, with the persons with whom he was acquainted. Generally, he became much brighter and watched any moving object and at times would become quite noisy, and this state continued until his final breakdown and death.

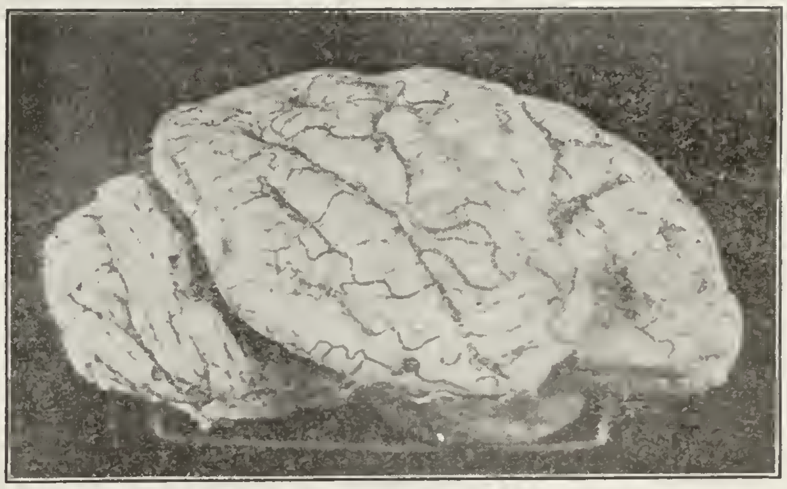
Fig. 2.—Lateral view of brain.

Post-mortem Findings.—The head is covered by short thick brown hair. The scalp is thick, average 8 mm., contains much fat, and shows many transverse folds. The epicranium is thick, white and tough. The skull is hard and contains a fair proportion of diploe. It measures 5 mm. in thickness in the frontal region, 2 mm. in the parietal region, 9 mm. in the occipital region. All the sutures are indistinct, in places entirely obliterated. The dura is generally a little thick, but strips from the calvarium readily. The internal measurements of the skull, at level of section, are 10.5 cm. anteroposteriorly, and 8 cm. transversely at the parietal eminences. The anterior basal fossa measures 3 cm. anteroposteriorly, 3 cm. transversely at the widest portion, and is perfectly flat. The middle fossa measures 5 cm. anteroposteriorly, 3 cm. transversely, 1.5 cm. in depth. The posterior basal fossa measures 3 cm. anteroposteriorly, 4 cm. transversely, and 2 cm. in depth. The pia-arachnoid is slightly opaque over the sulci, and here the subarachnoid space contains an excess of fluid. The brain is extremely small. The posterior lobes do not cover the cerebellum and the latter protrudes 1 cm. behind the occipital pole on the left side and 1.5 cm. on the right side. The cerebral hemispheres measure 9 cm. from frontal to occipital pole and 4 cm. in width. The convolutions are rounded and extremely elementary and vary considerably in width. The fissure of Sylvius is well defined. The posterior limb extends upward and backward, reaching the neighborhood of the great longitudinal fissure just behind the middle of the superior edge of cerebrum. Its course closely resembles that of the normal fissure of Rolando. There is depression at the site of the ascending limb of this fissure. A well-defined fissure lies anterior to the posterior limb of the sylvian fissure on the left side, which probably corresponds to the rolandic fissure. From this, two short fissures run at right angles, probably corresponding roughly to the upper and lower frontal fissures. The right frontal lobe is similarly marked, but less distinctly. The orbital surfaces of the frontal lobes show two short, shallow anteroposterior sulci, separating it into three convolutions. The olfactory bulb and tract are small. The trigonum olfactorium is larger and more distinctly formed than normally. The temporal lobe is rather well defined. Three horizontal fissures run roughly parallel to the sylvian fissure. The superior temporal fissure is well defined. There is a distinct supramarginal and angular gyrus. A small depression probably corresponds to the intraparietal fissure. On the mesial surface of each hemisphere, one irregular sulcus is seen, corresponding to the callosomarginal fissure, which approaches the superior edge of the hemisphere behind the position of the sylvian fissure. No distinct parieto-occipital, calcarine or parallel fissures are found, so that it is impossible to define the mesial and lower aspects of the parietal and occipital lobes. The hippocampal convolution is also poorly defined, but wide. There is one depression in the lower surface of the temporal lobe near the temporal pole. If this marks the width of the uncus, this convolution measures 1.5 cm. in width and is the widest convolution of the brain. Elsewhere the convolutions measure 0.5 to 1 cm. in width.

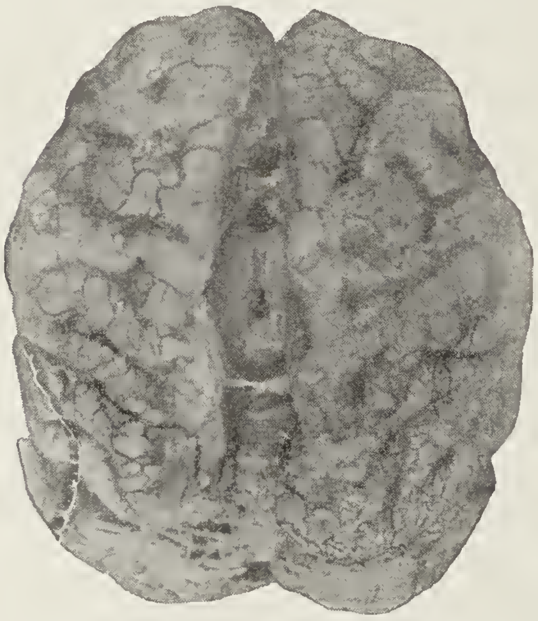

Fig. 3.—Looking down in hemispheres. Note absence of corpus callosum.

No corpus callosum connects the hemispheres, the pia-arachnoid of which was slightly adherent. The pia-arachnoid is reflected from one hemisphere to the other, and beneath this a thin membrane, apparently the tela choroidea, is seen. When this is incised the third ventricle is exposed. The fornix is not fused and can be seen over each thalamus, running anteriorly and downward as the descending pillars. The cortex lies close to the fornix above. No anterior horn of the lateral ventricle is apparent and the head of the caudate nucleus is not seen. At the normal position for the foramen of Monro, beneath the descending pillars of the fornix, fringes of the choroidal plexus are found, likewise on the under surface of the velum interpositum, in the midline. The thalami are seen, also the anterior, middle and posterior commissures, the region of the habenular nuclei, a small pineal body, and corpora quadragemina.

Sections of the right hemisphere show the absence of the anterior horn of the lateral ventricle. The caudate and lenticular nuclei, internal and external capsule, claustrum and optic thalamus are in normal relations. The lenticular nucleus is relatively large. The posterior and inferior horns of the lateral ventricle form one large horn extending from the level of the surface of the optic thalamus. The shelving fornix and the choroidal plexus extend downward into the temporal lobe. A distinct small cornu ammonis is present. The cerebral cortex varies from 2 to 4 mm. in width.

The cerebral peduncles and pons are small, but the whole medulla is relatively large, approaching the normal adult size. The cranial nerves appear at their normal positions and are small, except the third and fifth, which are relatively thick. The pituitary body is relatively large, and of normal size. The circle of Willis and vascular supply are normal.

The cerebellar hemispheres measure 45 cm. anteroposteriorly by 4 cm. transversely. In gross appearance, both the vermis and hemispheres are normally marked and small, but not in proportion to the cerebral hemispheres. The brain weighs 220 gm.

The preceding description is based on a comparison with the normal adult brain. The scale of development, compared to the brain of the monkey and ape has not been sufficiently studied. Dr. E. A. Spitzka states that the brain is as small and elementary in cortical development as he has seen in a human brain. He believes that it has no distinct occipital lobe and agrees that it is incallosal. The cortical development is much below that of the higher apes. A more complete comparative and pathologic study of the brain will be undertaken and reported.

For the preceding report of the necropsy I wish to express my appreciation to Dr. Charles J. Swalm, Pathologist to the State Hospital.

FUNDAMENTAL INTRAPELVIC PERINEORRHAPHY *

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CHICAGO

Friedrich Schatz[1] in 1883, standing chiefly on the work of Luschka,[2] it appears, was the first gynecologist to point out in detail the anatomy of the female pelvic floor in general and that of the levator ani in particular, to define its functions and to describe the injuries which it receives, chiefly during parturition, in its posterior, lateral and anterior sections. He makes it clear that injury of the levator ani may occur independently of the perineum (submucous tears), but more usually with tears in the latter, and that truly intrapelvic work is needed to accomplish the best that can practically be done with them. The next most notable promotion of the subject occurred in 1889 by R. L. Dickinson,[3] who corrects some misconceptions of the anatomy and presents the results of tests of the contractile power and lifting capacity of the levator ani. The results of these tests I regard as necessarily due partly to the concurrent actions of the bulbocaver-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* This article has been abbreviated by the omission of some of the illustrations. The article will appear in full in the Transactions of the Section and the author's reprints.

[1] Schatz, Friedrich: Arch. f. Gynäk., xxii.

[2] Luschka: Das Becken.

[3] Dickinson, R. L.: Am. Jour. Obst., September, 1889.

nosus muscles and inner borders of the trigon, that could not be excluded.

Next, Charles P. Noble,[4] in 1897, published a method in which he made a modified Emmet denudation and passed interrupted sutures transversely, taking in the vaginal wound edges with those of the levators beneath, with the aim to attach the latter to the former rather than to unite the levator borders. After this, in 1901, I[5] emphatically reiterated the superficial character of all the former standard perineorrhaphies and dwelt on the necessity of utilizing the more deeply seated but available portions of the levator ani and its fasciae, by true intrapelvic operating. I described and illustrated the various steps of an operation performed by myself for six years previously. During the past twelve years, most operators have obviously modified their former methods with an effort to engage the levator ani (with doubtful success), and a goodly number have abandoned their old methods entirely for a new and modern technic, professing to deal with the levator ani efficiently. While this has been achieved by some, in more instances it is evident from their descriptions and illustrations that they have mistaken some more superficial structures for the levator ani. This is one reason why I am again speaking on this subject, after a pause of thirteen years. A second is that recent and greatly superior anatomic studies and publications on the female perineum need to receive more general recognition, and a third reason is that the importance of the fasciae in the woman's perineum and pelvic diaphragm is recognized and emphasized by only few clinicians in their writings. The new and superior anatomic works referred to are by Halban and Tandler,[6] W. Liepmann,[7] Hugo Sellheim[8] and Edward Martin.[9] Waldeyer, Holl and Rieffel, whose authority is largely recognized in these newer studies, divide the female perineum and pelvic diaphragm grossly into three layers from within outward:

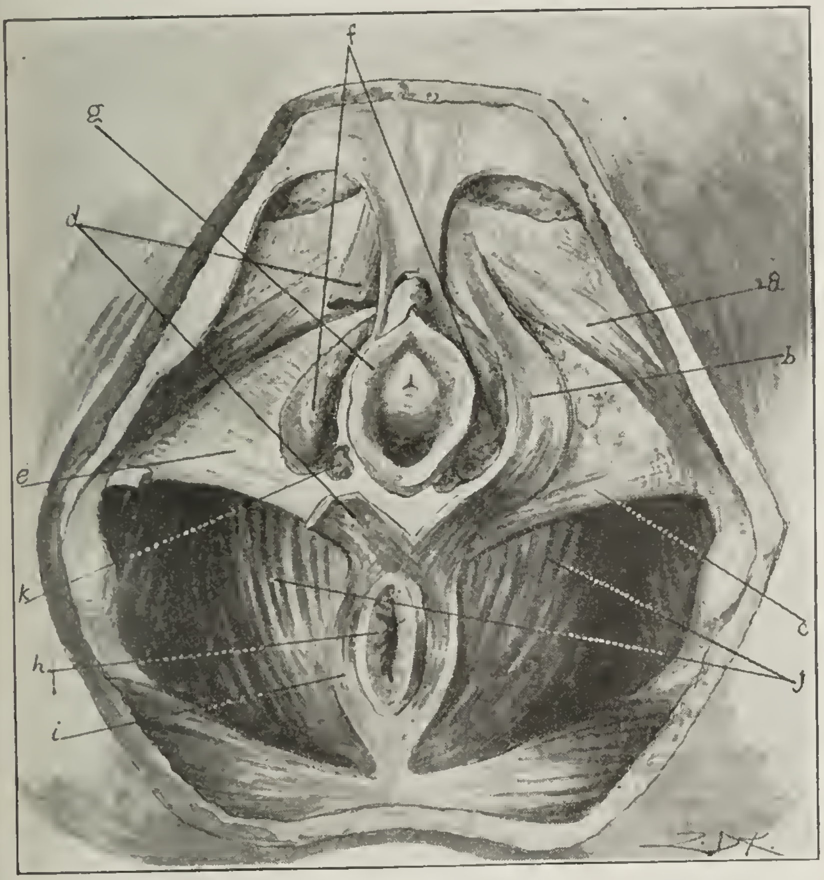

Fig. 3 (Plate 13 of Edward Martin's Atlas).—Labia, skin, subcutaneous fat, superficial perineal fascia and contents of the ischiorectal fossae removed. The ischiocavernosus (*a*), bulbocavernosus (*b*) and the superficial transversus perinei (*c*) muscles (belonging to the superficial perineal stratum) are intact on the left side; but the latter two are cut away (*d*) on the right side to expose the urogenital trigon (*e*) on that side. The bulbi (*f*), Bartholin's gland (*k*), vulva (*g*), and the anus (*h*), with the external sphincter (*i*), are intact. The levator ani (the innermost stratum) is divested of its outer fascia.

First, the principal part, a shallow funnel-shaped muscular layer (Fig. 4) composed of coccygeus and levator ani muscles, is invested on the upper or visceral side by a layer of pelvic fascia, called fascia endopelvina by some and rectovesical fascia by Gray; and on its lower or peripheral surface by another layer of pelvic fascia called the ischiorectal or anal fascia by Gray, it having a connection with the upper sphincter. This main portion of the pelvic diaphragm is usually clearly shown in most anatomies and particularly in Figure 4. The levator ani is subdivided by some into the ischiococcygeus, ileococcygeus, pubococcygeus and puborectalis muscles. It is the latter that is chiefly engaged in plastic restoration of the injured pelvic floor.

The second layer, the urogenital diaphragm or trigon in the *male* perineum is clearly set forth in our general anatomies; but in the female perineum it is dismissed with a mere mention of a triangular ligament, but no proper conception at all is given as in the anatomic studies above mentioned (Figs. 2 and 3), that in the female there is also a virile urogenital diaphragm or trigon composed of two potent layers of fascia, the outer one being even aponeurotic, with the muscle of the urogenital trigon (or transversus perinei profundus) between them. This composite

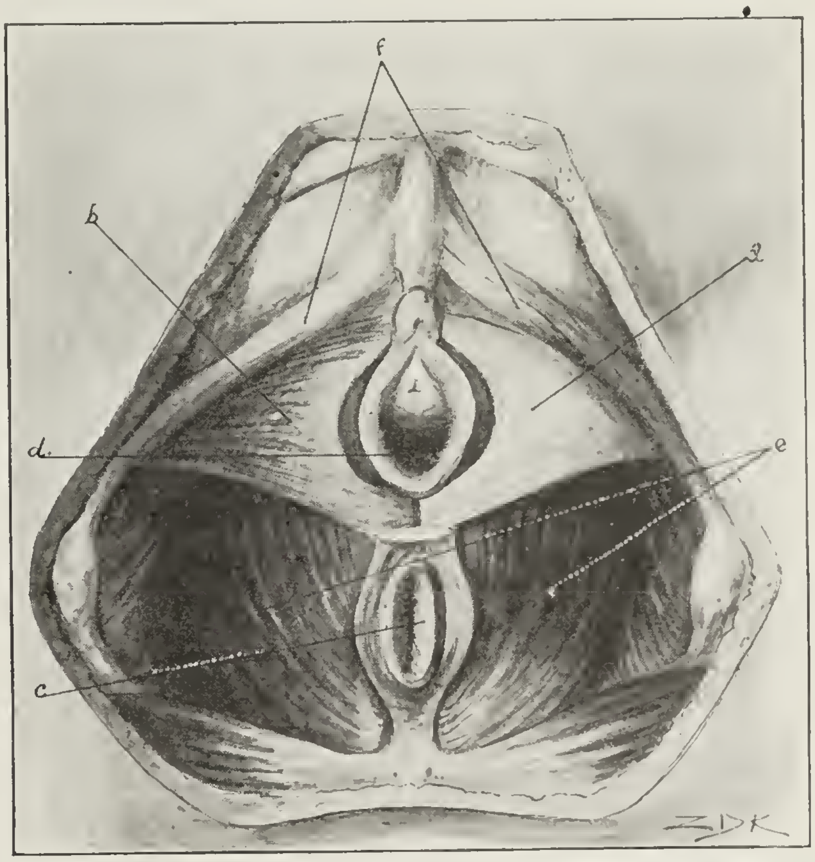

Fig. 4 (Martin, Plate XIII).—Chief muscles of the outer stratum or layer and the bulbi removed. The urogenital trigon (the middle stratum) composed of two layers of fascia with muscles between them, is intact on the left side (*a*), but has the outer aponeurotic layer removed on the right side, to show the fibers of the transversus perinei profundus (*b*) within. The anus (*c*), the vulva (*d*) and the levator ani (*e*) are intact as before. The crura of the clitoris (*f*) are shown, the left one in its relation to the ischiocavernosus muscle.

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[4] Noble, Charles P.: Am. Jour. Gynec. and Obst., April, 1887.

[5] Goldspohn, Albert: Am. Gyn. and Obstetrical Jour., June, 1901.

[6] Halban and Tandler: Anatomie und Aetiologie der Genitalprolapse beim Weibe, Vienna and Leipsic, Braumüller, 1907.

[7] Liepmann: Atlas der Operations: Anatomie und Operations Pathologie der weiblichen Sexualorgane, Berlin, Hirschwald.

[8] Sellheim, Hugo: Deutsche Frauen-Heilkunde, I, Die Geburt des Menschen, Wiesbaden, Bergmann.

[9] Martin, Edward: Der Haftapparat der weiblichen Genitalien, Berlin, Karger.

fascial and muscular plate, closing the pubic angle formed by the descending rami of the pubis and ascending rami of the ischium, reenforces the levator ani from below. Like the latter, it has a median urogenital aperture whose borders are firmer, more distinct and less yielding than are the borders of the genital cleft of the levator. It composes the trigon in the female perineum, and beneath it lie the subfascial (superficial) muscles—the superficial transversus perinei, the ischiocavernosus and the bulbocavernosus composing the *third layer* (Fig. 2). The bulbocavernosus, surrounding the vulvar opening, reenforces the inner margin of the trigon; and these together are what some operators have mistaken for the levator ani, whose anterior median edges lie farther within, are less distinct and extend more in an inward and upward direction. This mistake is apparent from the illustrations and described technic of Robert T. Morris,[10] Arnold Sturmdorf,[11] C. A. Hall,[12] George B Somers[13] and C. W. Barrett.[14]

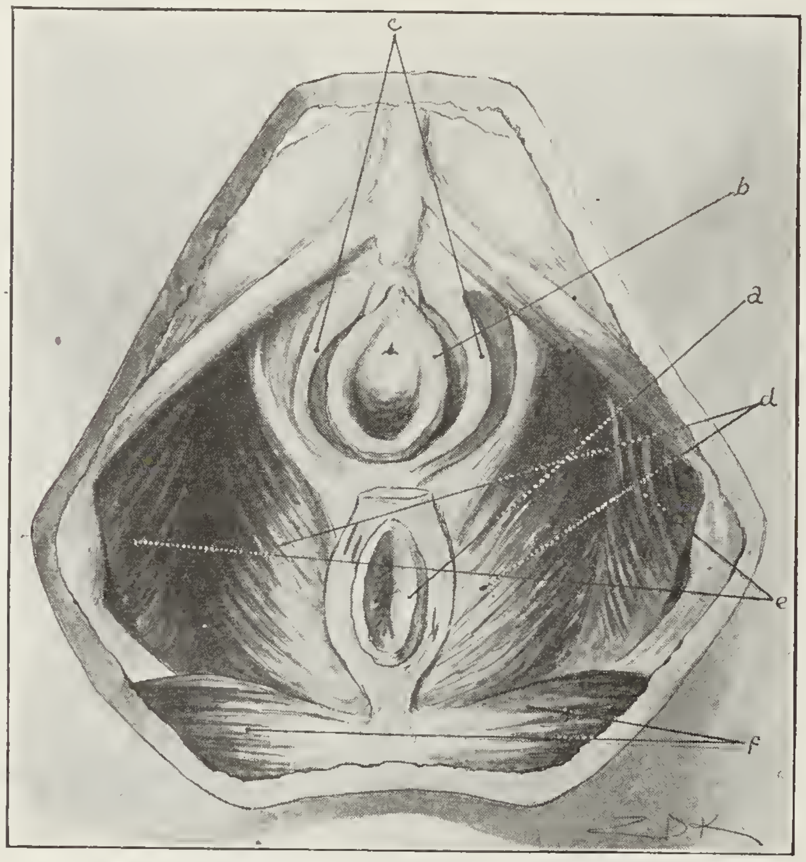

Fig. 5 (Martin, Plate XIV).—All the structures of the superficial and of the middle strata removed up to the margins of the rectum (*a*) and vagina (*b*), that have been carefully preserved, the latter as a projecting collar, which is surrounded by the remaining edge of fascial trigon (*c*). The ischiorectal fossae have been cleared out and the muscles composing their walls—the levator ani (*d*), the internal obturators (*e*) and the pyriformi (*f*)—have been divested of their fascial covering.

Edward Martin has made some of the best dissections and sections *en masse* of hardened female pelves under the direction of Waldeyer. Copies of some of his plates are here presented. He says, "The distinct edge which is felt in the vagina is not the levator edge, but the inner border of the urogenital diaphragm," that is, the fascial trigon. The levator ani lies beyond this structure farther within the pelvis, more like a curtain hanging down over the lateral bony walls of the pelvis. The needle or sharp volsellum that picks it and its fasciae up right will sometimes hook into the periosteum beneath it, and will then require releasing a little. These bilaterally receded parts of the levator that we need to bring together and unite in the median line back of the vagina and in front of the rectum always lie from 4 to 5 cm. or more away from the muco-skin junction, where the operation begins; and their efficient union requires that a flap of posterior vaginal wall be raised extending from that line inward at least 6 to 8 cm. and laterally near to the arcus tendineus or white line in the pelvic fascia. These deep-seated receded parts of the levator ani with its fasciae are best caught up on each side and drawn

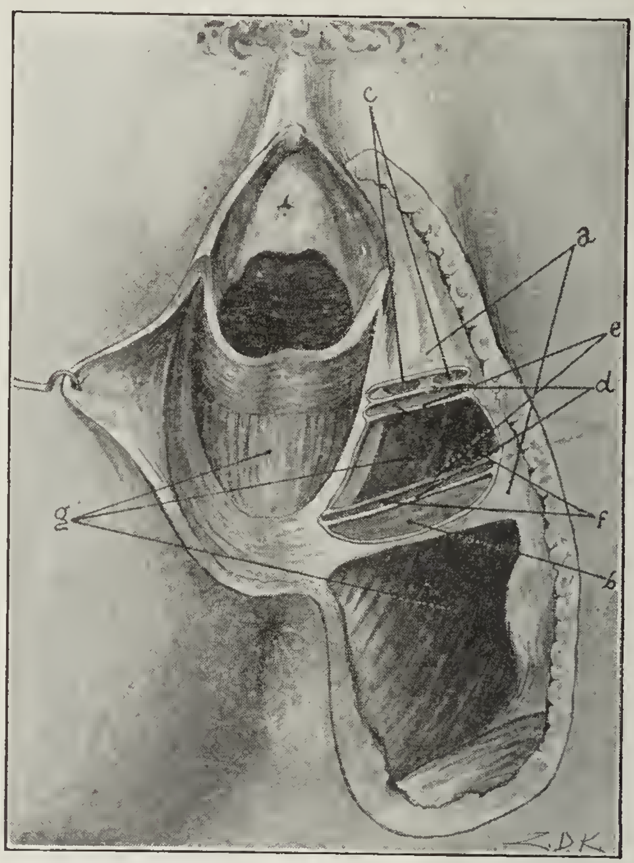

Fig. 6 (Martin, Plate XV).—Section showing the three main strata of the structures in the female pelvic floor, and the three layers of the trigon (middle stratum); *a*, superficial fascia; *b*, superficial transversus perinei muscle, and *c*, sections of bulbocavernosus and ischiocavernosus muscles, composing the outer stratum; *d*, the outer fascia (aponeurosis) of the trigon; *e*, inner fascia of the trigon; *f*, transversus perinei profundus muscle lying between these fasciae and completing the trigon (middle stratum); *g*, the levator ani, the innermost and chief stratum.

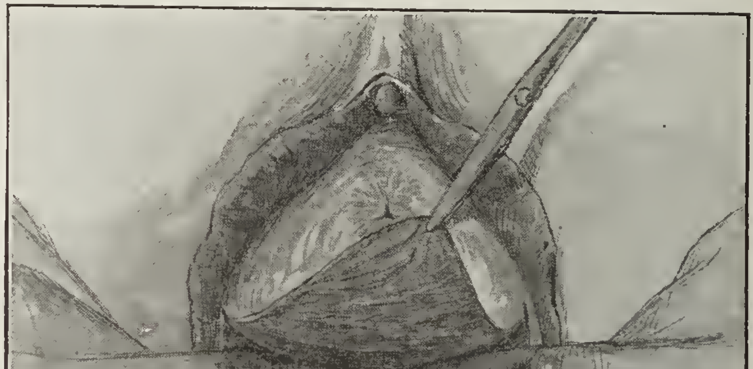

Fig. 9.—The posterior vaginal wall must be raised to a distance of from 7 to 8 cm. inward, and laterally to the level of the white line in the pelvic fascia of each side.

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10. Morris, R. T.: The Female Perineum from a General Surgeon's Point of View, The Journal A. M. A., May 18, 1912, p. 1508.
11. Sturmdorf, Arnold: Am. Jour. Obst., September, 1912.
12. Hall, C. A.: Surg., Gynec. and Obst., February, 1909.
13. Somers, George B.: Repair of the Perineum, The Journal A. M. A., Nov. 11, 1905, p. 1462.
14. Barrett, C. W.: Am. Jour. Obst., April, 1909.

toward the median line preliminary for suturing, by curved volsellum forceps with semisharp teeth, so as to avoid puncturing hemorrhoidal veins unnecessarily, the rectum being held out of the way by the index-finger of the left hand.

Union of these parts thus brought into view is made by three or four turns of continuous or interrupted strong sutures of catgut chromicized or treated with formaldehyd, the third and fourth of which and all succeeding sutures catch enough of the areolar tissue over the rectum below and beneath the vaginal flap above to obliterate the dead spaces and to gather the broad vaginal flap into small anteroposterior folds and to fasten it sufficiently on top of the newly made bridge of levator beneath. The fasciae of the levator are really the most important part in the bridge, as its comparative inelasticity shows when it is thoroughly made. All of this bridge, if it is really composed of levator ani, will be within the pelvis beyond the more prominent and palpable ridges or strands that are commonly felt in the perineum passing up along the sides of the lower section of the vagina.

As the suturing of the wound continues from the bridge mentioned above downward, these inner edges of the fascial trigon, as the second layer in the pelvic floor, are also united, and likewise the bulbocavernosus and transversus perinei muscles (of the third layer) that should coalesce in the tendinous center of the outer perineum in front of the rectum. The technic of the operation in detail is shown in the illustrations. Suffice it to say that the buried sutures, whether interrupted or continuous (with a tie at every third or fourth turn), should not penetrate the vaginal flap, but merely catch into the submucous tissues beneath it. No figure-of-eight sutures should be employed anywhere in this operation.

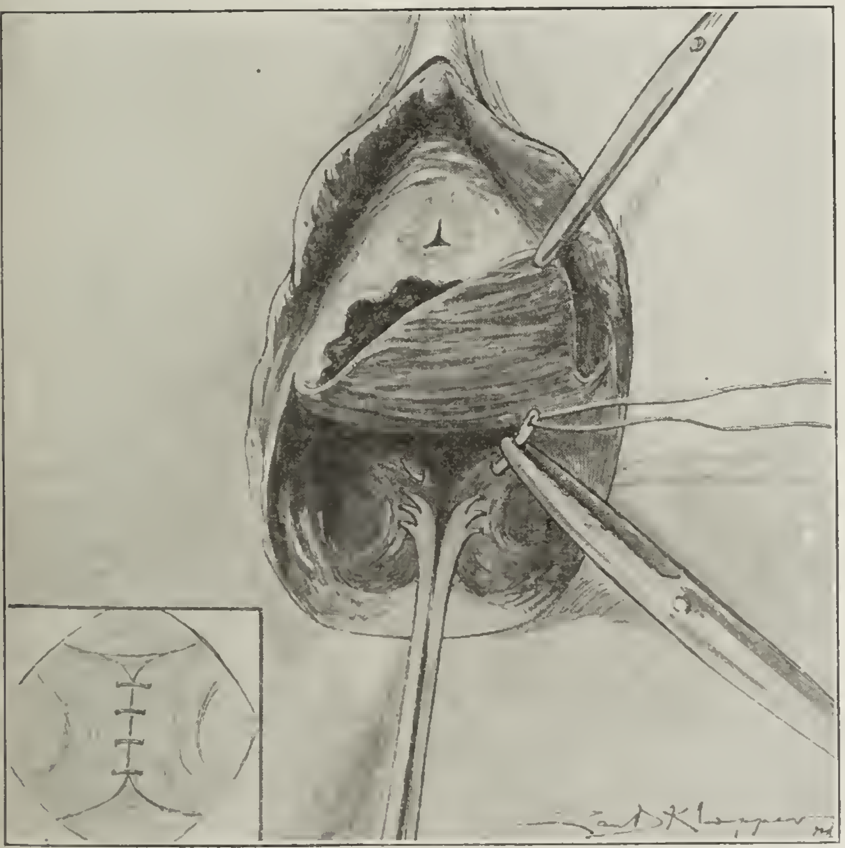

Fig. 10.—The corresponding portions of the levator ani with its fasciae are each caught up from the bony walls of the pelvis at a depth of from 5 to 8 cm. within, by a semisharp volsellum forceps curved sidewise. They are approximated and separately united near the median line, by three or four interrupted or continuous strong catgut sutures.

In cases of complete tear through the sphincter ani, the operation, first suggested by a German for this injury, is first performed as follows: A shallow incision varying in outline between an inverted V and a semicircle is made from a little outside of the point of retracted sphincter end of one side to the corresponding point or sphincter end on the other side, and at a distance of from 1.5 to 2 cm. away from the edge of the tear in the rectum. From this curved line downward to the border of the tear a thin flap is very carefully dissected up without perforations, and turned downward over the cleft in the sphincter and rectum to protect all sutures from contact with the bowel lumen or its mucous membrane. The raw surfaces and exposed ends of torn sphincter are then brought and united together by interrupted catgut sutures, over the raw surface of the flap. It is well to place a silkworm-gut suture in the rectovaginal septum beyond the first incision to relieve the tension on the other sutures.

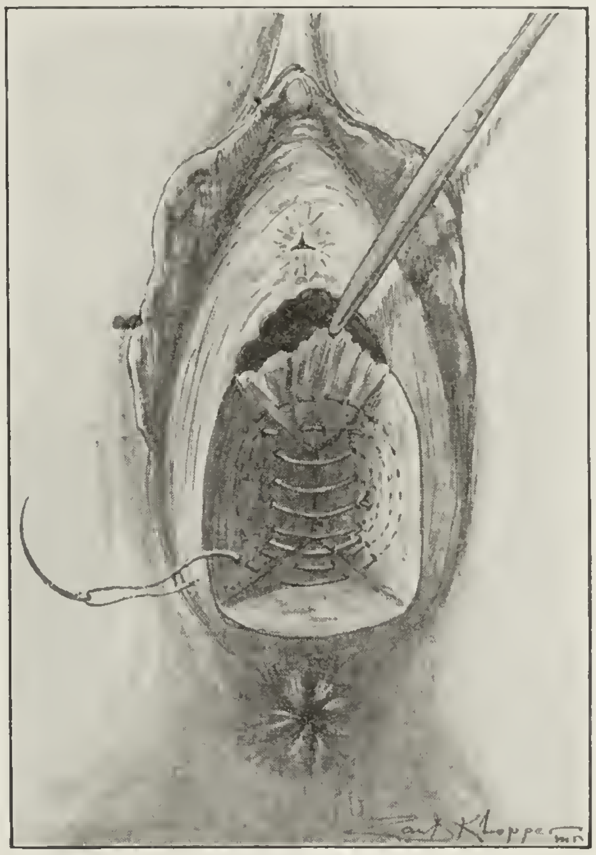

Fig. 11.—After the levator has been sutured separately, the remaining wound is closed from side to side, from within outward, by continuous catgut sutures passed circuitously and knotted at every third or fourth turn, and the skin wound is closed vertically by interrupted silkworm-gut sutures.

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CHIEF FACTORS IN FAILURE OF OPERATIONS FOR RETRODISPLACEMENT OF THE UTERUS*

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This paper makes no pretense to novelty. It is just an emphasis on things said before. I like to ask "why," to dig up causes and to handle them with bare hands, and so I present just a few facts, recall a few failures and make a few suggestions.

First, the facts. They are alphabetic, but one needs initials to spell so big a word as "success."

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

I. ANATOMIC FACTS

The first group of facts is anatomic.

1. The normal uterus is a freely movable organ and is suspended in the pelvis between the abdominal cavity and the pelvic floor by the harmonious action of its several supports, that is, (*a*), the pelvic floor; (*b*), the adjacent pelvic organs; (*c*), the retentive power of the abdominal cavity; (*d*), the several ligaments, and (*e*), the normal relation which the uterine axis bears to the axis of the vagina.

In the erect posture of the woman, bladder and rectum being empty, the os externum is in the plane of the ischial spines, or a little below it and slightly posterior to a central position in the pelvis. The cervix projects into the vagina and is directed toward the last sacral vertebra, and is held in this position by the uteropelvic and the uterosacral ligaments, and the vesicovaginal fascial plate. The upper and posterior aspect of the fundus is at or a little above the level of the plane of the brim. The axis of the uterus is at nearly a right angle with that of the vagina, the body resting on the pubic (fascial) shelf.

The axis of the uterus has a wide range of inclination dependent on the degree of fulness of the bladder and rectum. With bladder and rectum moderately full the uterine axis conforms to the axis of the pelvis. With the bladder empty the axis of the vagina is almost horizontal and runs almost directly backward, while the uterus is directed forward at an acute angle and is in a position of marked anteversion, slightly anteflexed. The attachments of the uterus are for the most part of yielding character which allows great freedom of motion in all directions, rising and falling with the respiratory movements and changing its position with the different positions of the body. A full rectum pushes the uterus bodily forward and a full bladder displaces it backward.

The ligamentous supports of the uterus are the round ligaments, muscular bands covered with peritoneum which tend to hold the fundus forward, acting as "guy-ropes" to prevent it from falling backward.

The uteropelvic ligaments, which consist of bands of muscle-fibers running outward from the supravaginal portion of the cervix to the pelvic fascia within the base of each broad ligament, prevent the uterus from undergoing lateral changes in position and help to sustain it in its proper plane.

The broad ligaments, which act in some measure to steady the uterus in or near the median section of the pelvis, and the uterosacral ligaments made up of muscle and cellular tissue and covered with peritoneum, pull the cervix upward and backward and prevent its downward displacement.

The pelvic floor, which preserves the position and integrity of all of the organs and soft parts of the pelvis, indirectly supports the uterus. The pelvic floor, the uterosacral ligaments and the uteropelvic ligaments are the chief supports against downward displacement.

These facts are recalled mainly to rivet our attention on this fundamental fact—that nature has provided women with these ligaments and supports for certain definite purposes, and when such supports and position are at fault it is the duty of the gynecologist to determine before operation what are the digressions from the normal.

II. HISTORICAL FACTS

The second group of facts is historic. The pioneer work in this department of gynecology was done by Alquié about 1840. More than a quarter of a century afterward came Koeberle, 1869; Adams, 1880. The real work in this line, however, originated with Alexander, when in 1881 he performed his first operation, reports of which he published in 1884. In 1886, Kelly and Ohlshausen devised intra-abdominal operations for suspension of the fundus. Wylie, in 1886, intra-abdominally shortened the round ligaments for retrodeviation, and reported his cases in 1888-9; and in 1889 Freund shortened the uterosacral ligaments. More recently we have plication of the round and broad ligaments after the method of Coffey; also plication of the vaginal wall after the method of Emmet-Baldwin.

These were the pathfinders in our specialty, and although there have been a multitude who, since their work, have cried "lo! here" or "lo! there," I am persuaded that every procedure in operating for retrodisplacement is only a modification or adaptation of the procedure of one of these six primary methods.

III. FAILURES

And now as to the failures; but why speak of failures? Because, they are facts, big, bulky facts which ought not to be, and again because they are our most efficient if not our most delightful teachers. In the world of economics the word to conjure with to-day is "efficiency," and as we analyze the curriculums of the schools of commerce where this new science is being studied, we discover that the student is taught that waste is worth while, that every failure has a cash value. Let us liquidate ours and we have a goodly asset in this department of surgery. The proportion of failures was brought very forcibly to my attention at a recent meeting of the New York Obstetrical Society, at which time a symposium was held on "The End Results of Operations for Retrodisplacement within the Last Five Years," done by different notable gynecologists at the various hospitals in Greater New York. A summary of the results of this symposium is soon to be published in the *American Journal of Obstetrics*.

And now what is the cause of our failures? First, a plain neglect of the alphabetic facts of anatomy such as I have summarized above, a failure to take counsel with Nature's simple physiologic mechanics. Secondly, what might be called a passion for originality, in which the enthusiastic operator permits himself to be obsessed with his own idea to the forgetfulness of the work done by the pathfinders in our department.

The following points should be passed on before determining what shall be the operative procedure in a given case:

1. What is the age of the patient? If the woman is in the child-bearing period, no operative procedure should be undertaken which will cause any interference with pregnancy; whereas, if the woman is past the menopause, the simplest operative procedures which will hold the cervix upward and backward and the fundus forward should be undertaken.

2. What is the condition of the pelvic floor? It is trite to say that it is absolutely essential that a corrected or overcorrected pelvic floor of a firm muscular type, as for instance an Emmet-Holden, must accompany any operative procedures for retrodisplacement when there is a relaxed pelvic floor existing.

3. What is the position of the cervix, and can it be replaced up in the hollow of the sacrum? It has been interesting within the last year or so in Dr. Polak's Clinic at Long Island College Hospital, to see

the number of cases in which we have not, on discharge of the patients from the hospital, found the uterus in an anatomically perfect position. On investigation we have almost universally satisfied ourselves that the reason for such disappointment has been that we had a cervix which did not go backward when the fundus has been brought forward by the operation which we had selected for the given case, and on further observation we are satisfied that in these cases we have not achieved the desired result, because we did not appreciate the fact that there was a congenital short anterior invagination of the cervix which prevented it from taking its normal position, even though there was a firm pelvic floor and the fundus was brought well forward. Such cases we have time and time again seen recur. It is the information gained from this particular type of case which stimulated me to thought with reference to failures, and if possible by analysis to minimize my own failures.

Reynolds, in his original article "Anteflexion of the Cervix and Spasm of the Uterine Ligaments in Relation to Retroversion, Dysmenorrhea and Sterility," dated May, 1911, read before the American Gynecological Society, called attention, in connection with the treatment of sterility, to the advantage to be gained by lengthening the anterior vaginal wall and thereby allowing the cervix to be placed in normal position. I am of the opinion that Reynolds' article has not received the attention of which it was worthy, and so the facts of his procedure have not been appropriated to the correction of retrodisplacement of the uterus. With this idea in view I have tried to emphasize the advantages to be gained by the Reynolds' operation in conjunction with other operative procedures. I say advisedly that long ago the pioneers in this department of surgery laid it down as primary that, it matters not how far forward or by what method the fundus is brought anteriorly, cases will recur if the cervix is not placed upward and backward in the hollow of the sacrum, and my own observation goes far to commit me unqualifiedly to the same conclusion.

To be practically specific and illustrate the reasons for frequent failure, I mention the following complications and failures in some of the well-known methods which we have used:

1. The Webster-Baldy operations: Two tubal pregnancies due to angular constriction of the tube in its isthmic portion arresting the impregnated ovum in its transit to the uterus.
2. Lateral version of the uterus, due either to unequal primary development of the ligament, present but unnoticed or unappreciated at the time of operation, or to torsion of the ligament from defective technic.
3. Large ovaries slung over the encircling band formed by the round ligaments tend to fall low in the pelvis by lengthening of the utero-ovarian ligament, and become adherent to the posterior surface of the uterus or broad ligament.
4. The sigmoid may become adherent to the ligamentous loops, causing left-sided pain and digestive disorders.
5. The ligaments passed behind the uterus may become edematous from constriction and offer an inflammatory surface for intestinal adhesions.
6. Ovarian enlargement as a result of venous stasis of the broad ligaments.
7. A large uterus may sink in the pelvis through the encircling ligamentous loop and the ovaries are carried upward and to the median line and thereby become adherent to one another, forming a sensitive mass on the posterior wall of the uterus.

In the 437 Webster-Baldy operations performed by Polak and his associates, twenty-six patients had thrombosis of the pelvic veins, which had extended to the femoral and saphenous. The type of cases in which we have used this operation successfully is that in which there is a small uterus and two well-developed round ligaments.

Coffey plications of the round ligaments have been followed by the following complications: exudates in the uterovesical space and painful uteri with limited motion. Dyspareunia has been one of the chief complaints.

In the two cases in which the abdomen was reopened the pathology was interesting; in one the uterus was prolapsed and hanging from the anterior vaginal wall by two ribbon-like bands, the round ligament was not appreciable, being similar to those bands found after simple ventrosuspension, while in the other case the uterus was buried in adhesions.

This operation is useful in covering over raw surfaces on the anterior uterine wall after myomectomy, etc., in conjunction with a uterus which tends to sag backward.

The chief objection we have found in the operation is that it brings the whole organ forward in the pelvis yet does not exaggerate the anteversion and subsequently the cervix slides up under the symphysis followed by the backward displacement of the fundus.

We have had a number of failures by the Gilliam, and the Montgomery-Gilliam, for the reason that the cervix is not carried up into the hollow of the sacrum.

When prolapse is associated with retrodisplacement in a woman near or at the menopause the transposition operation has been very satisfactory. The Emmet-Baldwin plication of the anterior vaginal wall has been done very seldom but is considered a very satisfactory procedure because it places the cervix well backward and upward.

IV. CONCLUSIONS

It is obvious that I have only gleaned in the field which stretches to the horizon of surgery, but this much grain may be gathered from what I have gleaned.

1. The gynecologist must be strong in the grace of discriminating; he must receive as alphabetic the proposition that the cervix must be placed upward and backward in the hollow of the sacrum.
2. No one operation already devised or to be devised will cure all sorts and conditions of cases. As individual as is the patient, so individual may be the patient's displacement, and this element of individuality must be seen clearly and bulk large in the operator's diagnosis—hence, the absolute necessity for the fundamental grace of discrimination.

I beg leave to report a personal interview which I had with an operator of note two years ago, at which time I asked the following question, "Do you do your operation on all cases of retrodisplacement of the uterus?" and the answer was in the affirmative.

The gynecologist must possess in a great degree the grace of self-elimination. The passion for spurious originality must be brought to heel like a well-broken dog. In my opinion the six procedures recalled in the historical survey, with the addition of the Reynolds operation in those cases in which a short anterior invagination of the cervix exists, present a sufficient number of points of departure for, loosely speaking, every case. Given an intelligent appreciation of the essential element in each one of these six alphabetic procedures one is on the line of approach to the cure of every case.

3. Adaptation, modification and synthesis. Having made his selection of the main procedure it remains only for the operator to apply that procedure which with its individual modifications is called for by the case before him. The opportunity for modification is infinite, as various as the cases themselves. The modification may consist of an exclusive use of one of the main procedures, or by synthesis of the whole or part of two or more of the main procedures. In short, success in this particular operative field, and that must always mean success for the individual patient, is to be achieved by an unqualified commitment to fundamental anatomic facts, by elimination of self and by adaptation of existing procedures to individual cases by a process of modification and synthesis.

1С8 Lincoln Place.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GOLDSPOHN AND HOLDEN

Dr. George R. White, Savannah, Ga.: Our failures in these cases, whether they be of retroversion or prolapse—the two conditions are very closely associated—are because we do not take cognizance of natural methods. I disagree with Dr. Holden in placing the emphasis on the anatomic parts. It has been mentioned that the perineum supports the uterus; the uterus stays up as well when the perineum is cut right through. The uterosacral ligament is not much of a factor. The emphasis should be placed on the uteropubic ligaments, the so-called cardinal ligaments. The easiest way to do the operation is to make a small incision in the broad ligament, opening it up fully and putting in a retractor. Down under the coronary ligaments are the supports of the ligament, and there the deviations of the uterus may be straightened. The tissues here are strong and firm and will hold during pregnancy. Operation is done in different ways, by the Marcy operation, by the adnexal operation, etc. Both operations are good and either can be done if the ligaments have not broken loose by a difficult delivery and become contracted in the side of the pelvis. To get at them one must come down over the broad ligament and pull them out until reaching firm tissue; then use them where they belong. On that line I believe we shall make our advance in the treatment of retrodisplacement and prolapse.

Dr. H. Grad, New York: I was glad to hear Dr. Holden's paper because it deals with the failures. Dr. Holden referred to the papers on Retroversion of the Uterus, which were written for the New York Obstetrical Society, and I had the pleasure of looking up the operation for retroversion in one of our hospitals. I found that at the Woman's Hospital about 800 women had been operated on in five years. Only a small number of these could be traced. The studies of the cases that could be traced showed that no matter what method of operation was employed for the uncomplicated cases of retroversion, success was obtained in about the same proportion of cases. Anatomic results were obtained in a large number of cases. The symptomatic results in the Alexander operation were about the same as in the Gilliam operation, almost the same as in ventrosuspension. It seemed to make little difference what operation was done in the uncomplicated cases of retroversion. It makes no difference whether one plicates the round ligament or cuts the broad ligament and stitches it together, they all give about the same result. The trouble comes when complications enter, when the cervix has fallen down, when the cardinal ligaments which Dr. White spoke of have retracted and allowed the pelvic floor to sink. In these cases failures will follow. A large proportion are due to the fact that the anterior wall of the vagina is short, as Dr. Holden pointed out. Here we must treat the complications. Dr. White said that the uterosacral ligaments did not give much support to the uterus. This may be true, but when one utilizes them in operations they give good results. About three years ago Dr. Jellet of Dublin published reports of twenty cases in which the uterosacral ligaments were used. Since that time we have been using the method of shortening the uterosacral ligaments in complicated cases in which the pelvic floor has been split and with excellent results. It is of first importance, therefore, to distinguish between lacerations of the perineum and of the pelvic floor, as laceration confined to the perineum is always a laceration in the median line. If superficial it will give rise to but few or no symptoms, but if deep enough it will separate the transversus perinei muscles which coalesce at this point with other muscular structures and by retraction of their torn ends will cause a gaping vulvar orifice. When, as is usual, both of these anatomic structures are involved, the laceration of the perineum being central and that of the pelvic floor lateral, it is of first importance to make the dissection not alone within the vagina to restore the pelvic floor, but likewise to carry it down low enough so that the retracted transversus perinei muscles can be included with the overlying fascia and sutured at the same time the pelvic floor is repaired.

Dr. John M. Fisher, Philadelphia: Dr. Goldspohn very properly calls attention to the fact that in order to appreciate the symptomatology and clinical significance, as well as the operative procedure adapted to the proper repair of the pelvic floor, it is of first importance to have a clear conception of the anatomy of the parts. Evidently he has not read the article on Diseases of the Vulva and Vagina in Keen's Surgery, volume 5, in which I described minutely the very thing to which he calls attention, the triangular ligament, or as I term it, the vaginal septum. In the study of vulvovaginal injuries we must take into consideration this triangular ligament in its relation to the muscular structures of the vulva. If this is not done, especially in operating on the pelvic floor alone when there has been laceration of the perineum in addition, we still have to deal with a gaping vulvar orifice.

Dr. C. M. Echols, Milwaukee: A word about the Reynold's operation which Dr. Holden has had occasion to do. I have been looking for indications during the last year to do this operation but very rarely have found a suitable patient, especially among multiparous women, who constitute the majority of patients on whom we have to operate. Most of these women I have to operate on have a little tendency to cystocele, and the Reynold's operation is contraindicated in all such cases.

Dr. John A. McGlinn, Philadelphia: In the matter of the history of the operation referred to as the Reynolds operation, Dr. B. F. Baer of Philadelphia did this operation at the same time as Dr. Reynolds, and I feel that it really deserves to be termed the Reynolds-Baer operation.

Dr. Channing W. Barrett, Chicago: Dr. Goldspohn and I agree that the importance of this question lies in the fact that perineal work is in the developmental process instead of a finished condition. He laid stress on the inefficiency of many of the standard cardinal operations, and I agree with him thoroughly. Dr. Goldspohn did pioneer work some years ago, but he stopped by getting deep enough, and then, instead of isolating muscles and fascia—and he gives the reason for that—he left it at that point, closing by side to side sutures. I emphasize the point that this is mural work, dealing with the lower wall of the abdomen, and that it is hernioplasty. Several years ago, having a condition of this kind, I devised a procedure of making a longitudinal incision posteriorly and closing it transversely.

Dr. Brooke M. Anspach, Philadelphia: The attention which has been given in recent years in perineorrhaphy to the dissection and coaptation of the actual fibers of the levator ani muscle and the deep layers of the pelvic fascia, has undoubtedly improved the results of the operation. In all operations of this type, it is desirable to place some sutures in such a fashion that the anterior wall of the rectum is drawn well up toward the cervix. Dr. Ward of New York has laid stress on this point. It is undesirable in these operations to remove any more than a minimum amount of the vaginal mucous membrane. If the vaginal mucosa is extensively removed in the denudation and dissection preceding the introduction of sutures, the redundancy of the vaginal wall which nature has provided in the vaginal sulci is lost, and a repetition of the laceration in subsequent childbirth is almost inevitable.

Dr. Albert Goldspohn, Chicago: I am convinced that many gentlemen who are not dealing with the levator ani in their operations think that they are. They are honest about it but they are mistaken. While Dr. Barrett may now be going deep enough to seize the levator, he has repeatedly mistaken the inner edges of the trigon and bulbocavernosus muscle as the levator ani muscle in his illustrations. Edward Martin says in his new Atlas, "*Haftapparat der Weiblichen Genitalien*" that this is a common clinical mistake. With regard to the remark of Dr. Fischer, concerning the article in Keen's Surgery, no proper conception at all is there given of the urogenital trigon—a three-ply structure—as constituting the most tangible, the middle stratum, of the female perineum. Waldyer's division of the female pelvic floor and perineum into three strata, makes the anatomy much clearer. What has been mistaken, by many operators for the levator ani, is the prominent vaginal edge of the fascial trigon (of the second stratum) reenforced by the bulbocavernosus muscle. These two together can be felt as a firmer structure than the levator ani ever is, at both sides of the vaginal entrance to the pelvis; but they lie more superficially, about in a plane extending between the pubic rami and only about 2 to 3 cm. from the skin border; while the levator lies within the pelvis, more laterally and at twice that depth.

In retroversion work we should choose methods that are anatomically correct. Any procedure that consists in doubling up the thick uterine end of the round ligament in the shortening process, and then depends on the terminal frayed-out useless peripheral end of the ligament to do any holding, is anatomically irrational; not only because the round ligament is so diminutive there, but also, it has no attachment or anchorage outside of the parietal peritoneum, except areolar tissue in its curved course to the inguinal canal. It will yield indefinitely to any pull that is sufficient to dislodge the parietal peritoneum. The Webster-Baldy and the Emil Ries' operations, therefore, I regard as inconsistent on anatomic grounds. Very much better are attempts to get at and to cross the sacro-uterine ligaments in front of the cervix, by way of the vagina. Retroversion is most efficiently dealt with by some transplantation of the round ligament into the abdominal wall, in some one of ten or more different ways. Even in cases in which perhaps it is not ideally the best thing theoretically, practically it is the best thing, because we make use of the thick end of the round ligament to do service; and because this type of operations has borne a good clinical test.

Dr. Frederick C. Holden, New York: My main object was to emphasize the importance of the proper selection of cases and of operations. Many men are doing one operation in all cases. They may not know that they get failures, but I think others find them. I would say to Dr. McGlinn that I did not mean to rob Philadelphia of any of the glory in the Wylie-Baer operation. I knew that Drs. Wylie and Baer were doing this work simultaneously, but I believe Dr. Wylie was the first to report his results. We do not do the Reynolds operation in the presence of cystocele.

Physical Examinations and Efficiency.—We are already beginning correctly to evaluate the importance of periodic physical examinations in maintaining a continuous state of physical efficiency. Whenever these have been carried into effect, they have resulted in the detection of numerous defects, or diseases, in their incipiency, and made it possible to apply suitable remedies before irretrievable damage has been done. —J. W. Schereschewsky, *Public Health Rep.*

ENUCLEATION WITH TRANSPLANTATION OF FAT INTO THE ORBIT *

EDWARD STIEREN, M.D.
PITTSBURGH

The loss of an eye is to any one a dire calamity, but to the laborer or artisan it has its economic side as well, since employers are usually adverse to giving employment to a man who possesses but one eye.

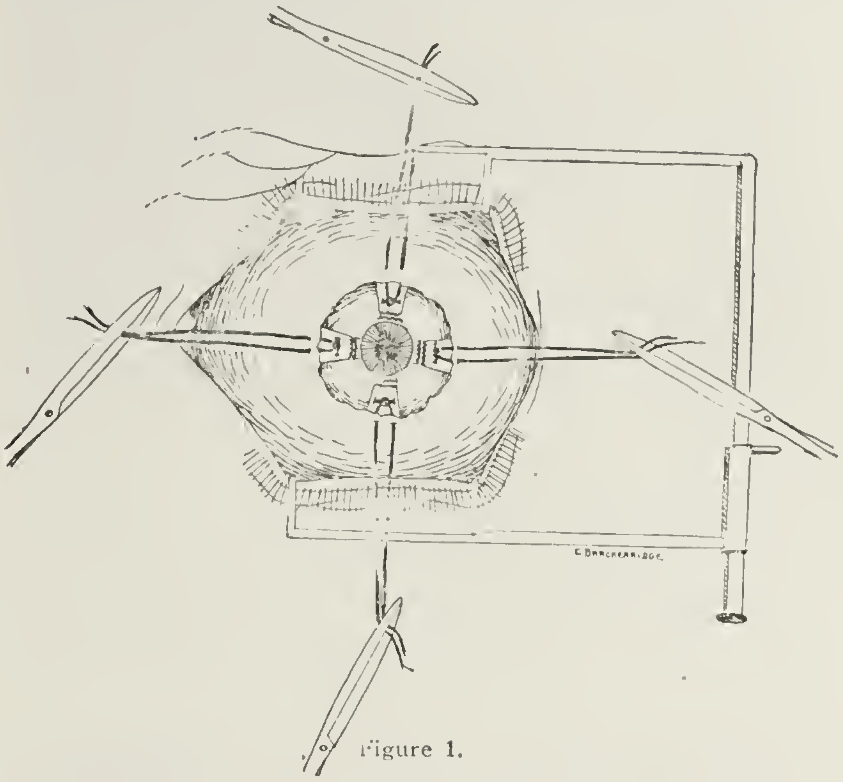

Figure 1.

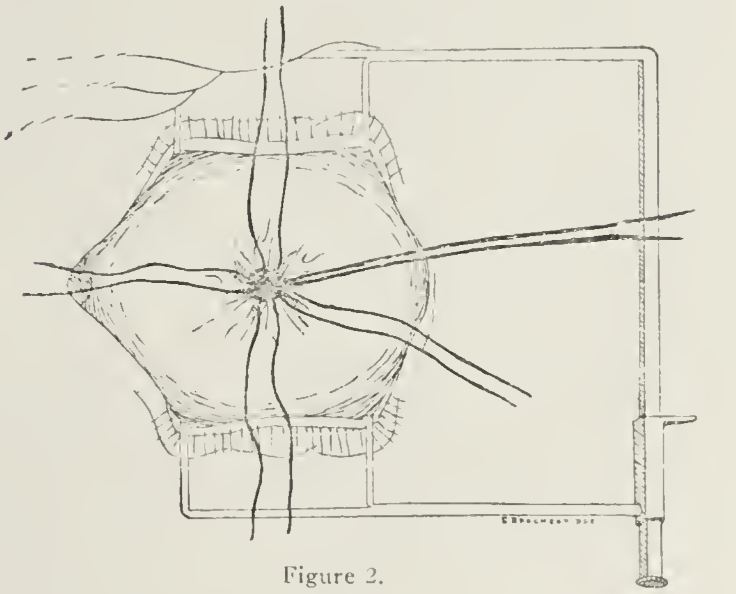

Figure 2.

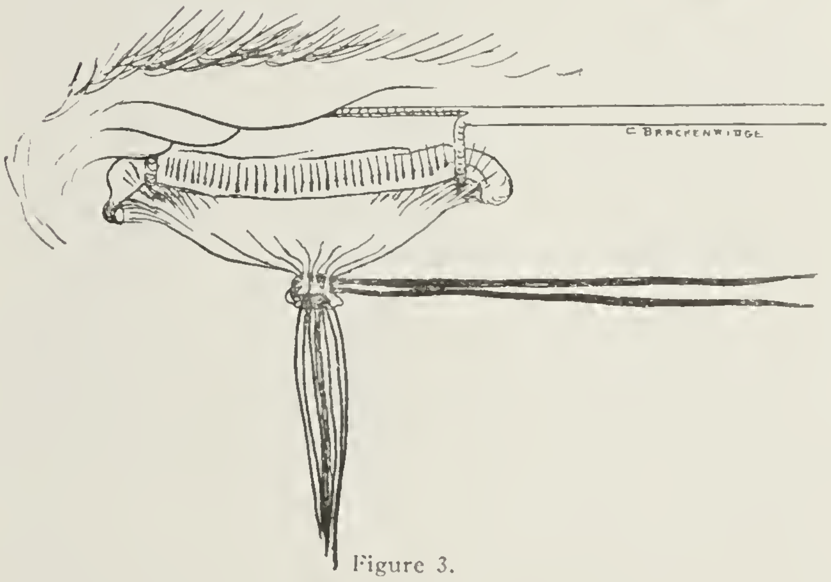

Figure 3.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

It becomes our duty therefore when called on to remove an eye to provide for a cosmetic after-result that will simulate as nearly as possible a normal appearance, and to strive not only for mobility of the artificial eye but to provide as well a sufficient cushion or stump for it to rest on and thus do away with the tell-tale depression of the upper lid, so conspicuous in simple enucleations.

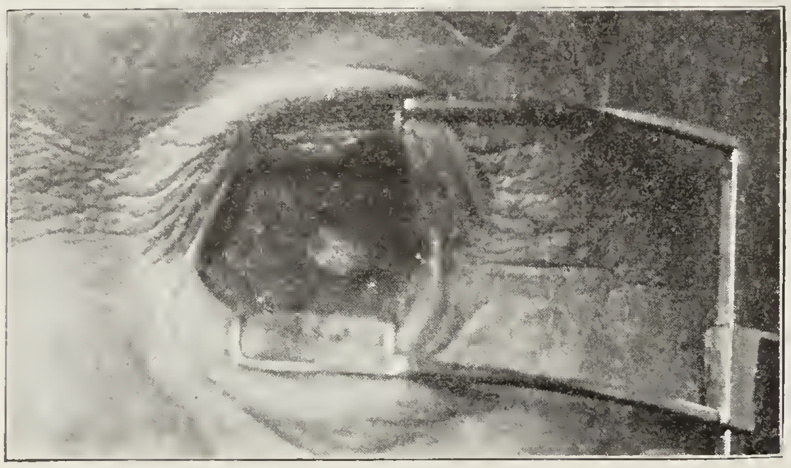

Figure 4.

For the past two years and a half I have transplanted fat into the orbit in all of my cases of enucleation, sixty-six in all.

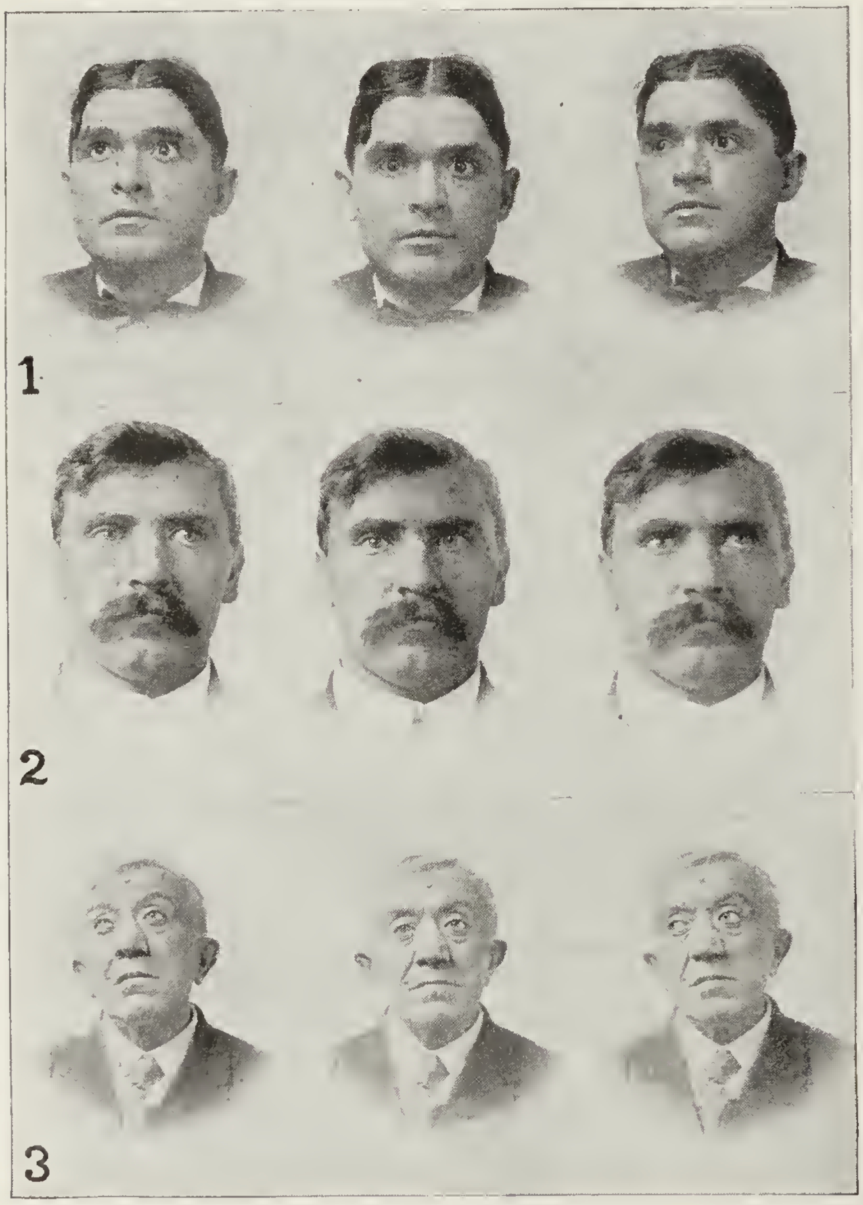

Fig. 5.—In this and Figure 6, cases selected at random from the last twenty-six illustrate the adaptability of the operation to all conditions requiring enucleation. 1. Left eye, exudative iridocyclitis with increased tension; eye blind and painful. 2. Right eye, phthisis bulbi following penetrating injury through cornea and ciliary region. 3. Left eye, absolute glaucoma.

In the last twenty-six cases I have departed from the usual technic as originally proposed by Barraquer, since with it I noticed too frequently a shrinkage of the cushion from absorption of the fat. I reasoned that the old technic which required the fat to be enclosed within Tenon's capsule provided for entirely too little fat, and also that the fat was not favorably placed to secure the best nourishment. The success with the improved technic, which calls for a much larger piece of fat and direct union of the fat to the conjunctiva, has been most gratifying.

I divide the conjunctiva close to the limbus, dissecting it and Tenon's capsule back as far as possible. A strabismus hook is then introduced under the superior rectus, which is held by an assistant while a double-armed No. 00 twenty-day chromic catgut suture is passed through the muscle from below upward close to its lateral margins behind the hook and loosely tied on top. The suture is then passed through the conjunctiva about 2 mm. from its edge directly over the muscle; it is not tied at this time, but only disarmed and the ends held in a pair of hemostats. The internal, inferior and external recti muscles with their overlying conjunctiva are similarly treated (Fig. 1). The eyeball is then forced out of the socket by pressing the speculum backward, drawn toward the nose, and the optic nerve severed. The oblique muscles and any adherent tissues are severed and the socket turned over to an assistant, who, making gentle traction on the four catgut sutures and retracting the conjunctiva and muscles, checks the hemorrhage by packing the cavity with hot moist boric acid cotton compresses.

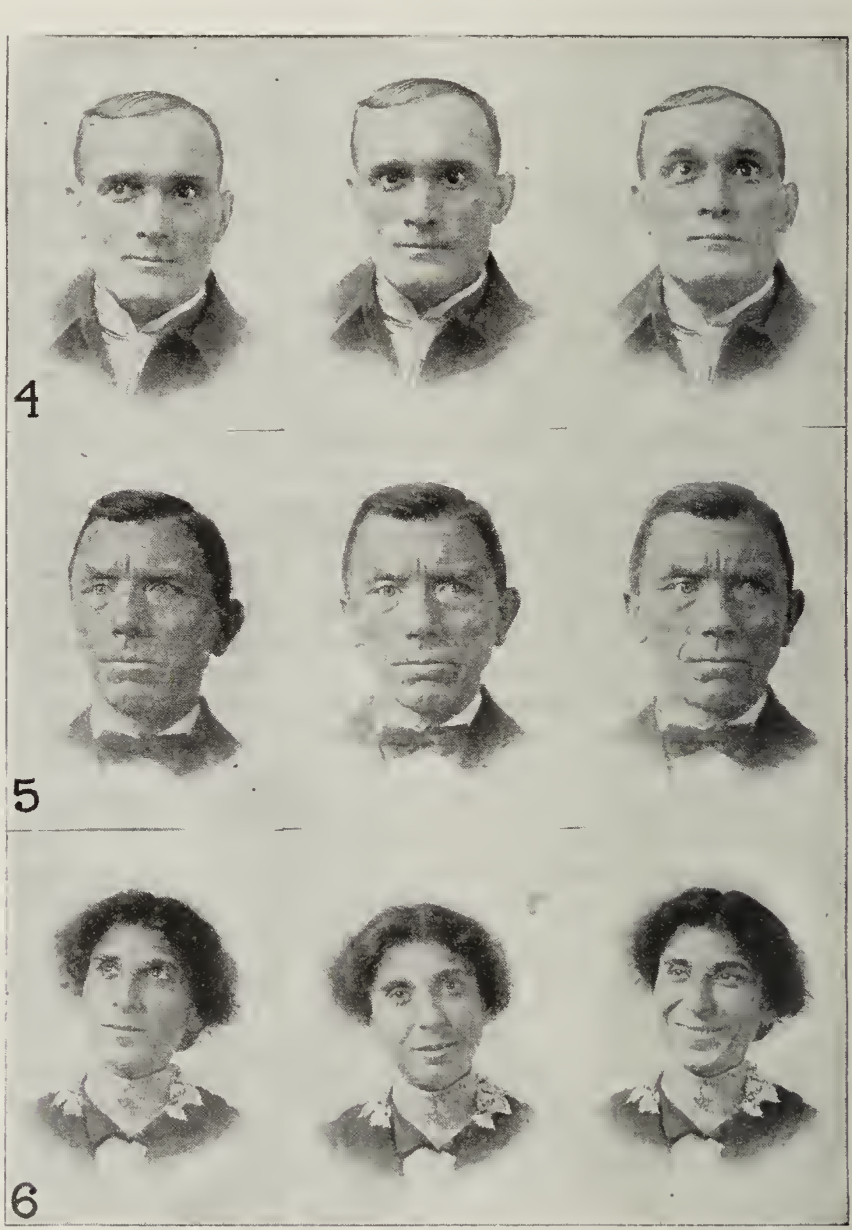

Fig. 6.—4. Left eye, melanosarcoma of choroid. 5. Right eye, incised wound through upper lid, cornea and sclera; lid sutured and eye enucleated with transplantation of fat at the same time; mobility good, but upper lid thickened and stiff from scar. 6. Right eye, large opaque staphyloma of cornea.

The abdomen, which has been prepared previously, is now bared and a vertical incision is made in the median line beginning just below the umbilicus and carried downward about 2 inches, cutting through to the aponeurosis of the rectus abdominalis. At the bottom of this incision a similar one is made at right angles and a flap dissected which contains the full thickness of the abdominal fat. A piece of fat which should include the subcutaneous tissue and which should be *about the size of the enucleated eye* is then excised. The abdominal wound is turned over to a second assistant who checks hemorrhage and sutures the integument. The excised mass of fat is then introduced into the orbit (hemorrhage from which is usually checked by this time) *with the subcutaneous tissue upward*, so as to provide for union between it and the edges of the severed ocular muscles and conjunctiva. The catgut sutures are then tied together, traction is made on them and a purse-string suture of No. 0 twenty-day chromic catgut is passed through the conjunctiva and firmly tied (Figs. 2 and 3). Figure 4 shows the appearance of the stump three weeks later, after absorption of the sutures. I allow wearing of the prosthesis as soon as this occurs.

There is no reaction following the operation; the lids do not become swollen or ecchymosed, the only precaution which I insist on being to fill the eye with my modification of White's ointment[1] after the operation and daily thereafter for a week. The time required in the operation is usually about thirty minutes.

There will result a certain amount of absorption of the fat, varying from a third to a quarter of its bulk, but this usually ceases within six weeks after the operation, leaving a soft, mobile cushion on which the ordinary Snellen eye rests comfortably and moves with the sound eye.

Westinghouse Building.

ABSTRACT OF DISCUSSION

Dr. John A. Donovan, Butte: Some years ago the British Ophthalmological Society appointed a committee to investigate and report on enucleation operations. If my memory is correct, they spent three years careful study and at the end of that time reported in favor of complete enucleation of the eyeball, stitching the tendons together and using the Snellen reform eye. Though I have in season and out of season, preached against so many enucleations yet we have not yet reached the place at which it has become an obsolete operation, so we consider first the safest method, then that giving best cosmetic results. I must admit I have, as a rule, been very well satisfied with the operation as approved by the British Society. Stieren's operation when it is properly performed as far as the eye is concerned appears to be perfectly safe and probably does correct considerable of the cosmetic results of enucleation; this undoubtedly has good features. Though it, in my opinion, entails an extra operation on the abdomen—this though slight, adds a slightly greater risk—this replaced tissue also must conform to all the requirements of surgical perfection thus entailing again some risk within the orbital cavity. All of which I do not feel, considering the very good results obtained otherwise, to be at all times justifiable. Of course, in infected cases, as most cases are, I presume Dr. Stieren himself does not recommend it. In the operation I prefer to fix each tendon in a curved advancement forceps, cut it and leave it in the forceps till all are cut, then, after removing the globe, stitch these tendons and conjunctiva together by through-and-through suture. This method saves considerable time over that of inserting the stitch in each when reached. I put in a Snellen eye about the fifth day and change its size in a few weeks. I consider the early and constant wearing of a full-sized eye one of the essentials to a neat, successful termination.

Dr. John Green, Jr., St. Louis: An implantation operation has a primary and a secondary object: first, to form a prominent and mobile stump, which shall impart some of its mobility to the prosthesis; second, to produce a socket which shall be shaped to promote and not hinder the drainage of tears and mucus. A mild degree of conjunctival irritation due to contact between the glass eye and mucosa is the rule. After simple enucleation the secretion almost invariably finds its way behind the prosthesis and sinks to the bottom of the socket, there to form a medium for the cultivation of micro-organisms. The Frost-Lang operation, namely, the implantation of a hard sphere of glass, platinum or gold into Tenon's capsule, seems best to meet the indications. Fox, and more recently Sweet and Greenwood, have warmly endorsed this procedure. The latter's experience has led him to adopt a larger sphere than hitherto used. With the sutures disposed in three layers a purse string around Tenon's capsule, muscle sutures, and continuous conjunctival stitches—there is hardly any danger of extrusion. The appearance of the patient after this operation is all that could be desired. Mobility is excellent, there is no depression of the upper lid, and drainage of secretions toward the lid margin is promoted. Some may be deterred from performing this operation by the fear of sympathetic ophthalmia, but, as has been shown by both Sweet and Greenwood, this fear is groundless. Dr. Stieren believes that after a little primary shrinking the implanted fatty mass retains its volume indefinitely. Is such an assumption justifiable? Is it not a fact that after simple enucleation the orbital fat slowly becomes less in volume, the process of shrinkage covering several years, and that which appears after, say, two years, to be a fair result, is shown after five or more years to be a deep cavity into which we place an artificial eye that deceives no one as to its artificiality. Dr. Stieren's oldest cases date back only two and a half years. What will be the appearance of the socket in, say, two and a half years more? Let us not forget too that with advancing years much of the body fat disappears. Is it reasonable to suppose that the implanted fat will be exempt from this process? When cosmetic considerations are of prime importance, I believe the Frost-Lang operation as modified by Greenwood is the operation of choice.

Dr. W. E. Lambert, New York: I have had a limited experience with this operation, and the immediate result has been satisfactory. I have not been able, however, to follow them up. My impression is that it is not permanent. Has Dr. Stieren followed up his cases, and what is the permanent result? What is his experience with secondary implantation, putting the fat in two, three, or four months after the enucleation? That is being practiced by some and they make great claims for it. I am doubtful as to its being an efficient or a wise operation.

Dr. Edward B. Heckel, Pittsburgh, Pa.: I have done a number of fat implantations or transplantations and have come to the conclusion that it is a case of "love's labor lost." I think if we will stop to consider the mechanics of the movements of the artificial eye, our ideas will change as to trying to produce an artificial stump to take the place of the enucleated eyeball. In the case of an eyeball the movements are brought about by a pull, in the artificial eye it is a matter of a shove. The artificial eye moves because the tissues on one side are withdrawn and the tissues on the other side are shoved so that when the artificial eye moves out it does so because it is shoved out, and down because it is shoved down,

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[1] As I stated in an article on "The Treatment of Ulcer of the Cornea," (Pennsylvania Med. Jour., June, 1907), I have modified and I believe improved the formula originally suggested by Dr. White of Richmond by adding a small amount of lanolin in which to dissolve and work up the mercuric chlorid and sodium chlorid, as follows:

Hydrargyri chloridi corrosivi	gr. i
Sodii chloridi	gr. v
Adeps lanae hydrosi	q.s.
Petrolati	℥ vi

The sodium chlorid and mercuric chlorid are dissolved and rubbed up in about 1 dram of lanolin; the petrolatum is boiled for five minutes, the impregnated lanolin added and, after boiling for five minutes longer, the liquid ointment is poured into jars. After it has cooled it will be found to be of a proper consistency to introduce under the lids, becoming slowly melted by the heat of the body and permeating to all parts of the conjunctival sac.

etc. To get the greatest mechanical advantage for these movements the muscles should be spread apart and not bound together about a small ball of fat or what not. I much prefer to do a simple enucleation without any sutures. After the eyeball has been removed and the bleeding stopped, I allow the lids to collapse and place over them a small roll of sterile gauze about as large as my little finger and cover all with a tight bandage, which is permitted to remain in place for seventy-two hours or even longer. By this method the recti muscles are forced apart and find attachment in the stump where the mechanical advantages for the movements of the artificial eye are greatest. My results for motility of the artificial eye are excellent.

Dr. Edward Stieren, Pittsburgh: I am opposed to all implantation operations; I mean the introduction of any foreign substance, as a glass ball. I believe it is surgically incorrect. I make a distinction between implantation and transplantation, as of autogenous fat. With regard to Dr. Green's question, whether the results are permanent, my experience extends over three years now. The case of staphyloma illustrated by Figure 6 was done over two years ago. The picture was taken just before the paper was sent in last March. The mass of fat is still as good. There will be a certain amount of shrinking, probably one-third. Time will tell whether this is a satisfactory operation with permanent results. I am so pleased with it that I shall go on with it. I have had no experience with late transplantation. At the last meeting of the American Ophthalmological Society, Dr. A. N. Alling, who reported two cases in 1910, said to me that he thought the mobility would be as great if the four recti muscles were not sutured together. I tried it since then in one case and the result was disappointing. While the cushion is satisfactory, still the mobility of the eye is poor. I find that to fix the implanted fat thoroughly to the conjunctiva helps to nourish the fat.

REPORT OF A CASE SIMULATING ELEPHANTIASIS *

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History.—M. D., colored woman, aged 29, single, factory-hand, came under my observation at my clinic at the Richmond City Jail Hospital in February, 1913. Her father had died of prostatic enlargement; her mother was living and in good health, aged 45; one brother and one sister had died in infancy. The patient had had the diseases of childhood, and with the exception of an attack of malaria at 16 years of age, had never otherwise been sick. Menstruation began when she was 12 years of age, and was regular and normal in amount until the patient was 21, when it became irregular, appearing frequently twice a month and lasting as long as seven days. For the past year it had been scanty, lasting only three days, and accompanied with a great deal of pain which was usually worse on the last day, at which time she would expel a clot. The patient uses alcohol, drinks tea and coffee, uses tobacco, and probably is a prostitute, though she denies the history of any venereal disease.

Present Illness.—About three months prior to this time, February, 1913, the patient noticed a swelling of each labium which was not painful, but itched continually. The right labium began to swell about one week before the left, and then both increased in size very rapidly for two months, after which time there was little change noted. Coincident with the time that their growth checked, there appeared on the right labium, or anterior growth, an ulcerated area, accompanied by a profuse lymphorrhea. The left, or posterior growth, was painful at times, and the patient suffered with a pain in her back and an uneasy feeling in the tumors.

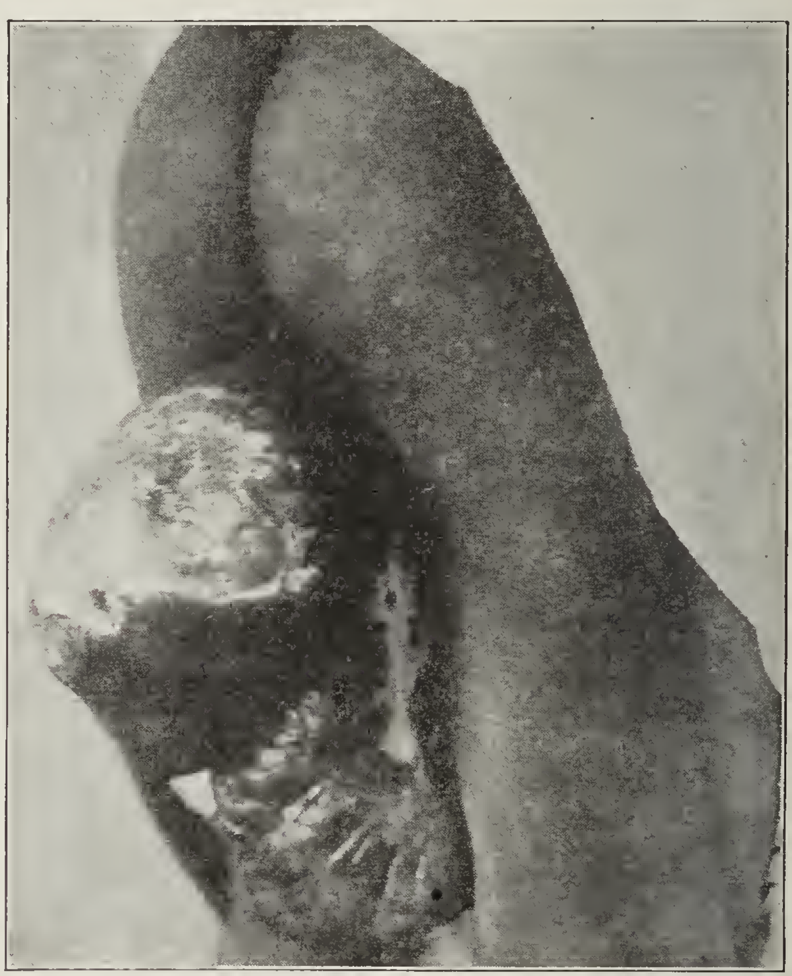
Physical Findings.—Pendulous growths were noted from each labium which hung almost to the knees when the patient was standing, the one from the right labium hanging in front and the one from the left, behind. The posterior growth was not quite so large as the anterior, but more irregular in outline, and did not hang quite so low. It showed several large ulcerated areas, apparently the result of friction in walking, from which lymph continually exuded.

Owing to the location of the growths, a vaginal examination was not possible. There was no abnormality noted in any organ of the body. The patient, however, had lost about 20 pounds in weight since the appearance of the growths in December, 1912.

Examination of the urine was also omitted because it was impossible to secure a satisfactory specimen.

Blood examination revealed: white cells, 7,200; red cells, 3,400,000; differential count: polymorphonuclear neutrophils, 63.5; lymphocytosis, 17.3; large mononuclears, 15.4; eosinophils, 3.2; basophils, 0.6. The *Filaria sanguinis hominis* was not found. The Wassermann test was positive.

The specimen of tissue from the growths consisted of fibrous connective tissue showing an extreme condition of edema. There were small perivascular collections of round cells around the blood- and lymph-vessels.



View of growth from the rear, patient stooping.

Diagnosis.—When the case was first brought to my attention I felt confident that it was one of elephantiasis, and it might be well to review briefly this condition. Of course, it is a disease of the tropics, although sporadic cases are seen in the southern portion of the United States. Dr. Kelly reports quite a few well-defined cases. It is caused by the animal parasite, *Filaria sanguinis hominis,* of which there are two varieties, the *Filaria sanguinis hominis diurna* and the *Filaria sanguinis hominis nocturna.* The diurnal variety is found in the superficial vessels only during the waking hours, and the nocturnal is found only when the patient is asleep. It was a source of confusion to know how this curious phenomenon could be explained, and the puzzle was finally solved when a man who had the nocturnal variety was accidentally killed in the daytime, and the blood from his deeper vessels was examined, and was found to be swarming with filariae where they had gone in hiding until the patient slept, when they would migrate to the superficial vessels where they were easily found.

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* Read before the Richmond Academy of Medicine and Surgery.

In this condition the lymph-vessels are greatly dilated because of the blocking or choking of these channels, forming a varix, usually around the base or pedicle, together with large blood-spaces or sinuses, affording an excess amount of pabulum to the structures supplied, which accounts for the rapid growth of connective tissue. Accompanying this lymphedema, wherever there is a break in the continuity of the surface, there is usually a profuse lymphorrhea.

There is a condition caused by syphilis known as syphilis infiltrous in which the pathologic findings are identical with the foregoing, but in which the filaria is absent, and after numerous consultations I concluded this to be the correct diagnosis in this case.

Treatment.—Having arrived at this diagnosis, I determined to remove these growths and this was done by making an incision through the skin on the outer side of each growth the shape of the letter Y inverted so that the flap to be left had the appearance of an inverted V. This was done to allow for the retraction incident to the weight. Large venous blood-spaces were encountered with every stroke of the knife. They were easily controlled with clamps and many did not require ligatures. Care was taken not to injure the vaginal pouch, which I found pulled down and almost obliterated, but which retracted to a certain extent as soon as the growths were removed. A very satisfactory approximation of the skin-flaps was secured, rubber drainage-tubes were left *in situ,* and the usual dressings applied. In order that we might watch the immediate result of the operation, salvarsan was not given for one week, at the end of which time there was a general lymphedema and a profuse lymphorrhea with every indication of a rapid return of the condition. One week after the administration of salvarsan a marked improvement was noted, and in three weeks after the operation, a second dose was given. This was followed by a prompt disappearance of the edema, and the patient was soon able to be about her duties. The combined weight of the growths was 12 pounds. The patient passed from my observation in May when she left the city jail to serve a sentence in the state penitentiary.

Recently I was given an opportunity to secure a photograph which shows the patient to be in a very satisfactory condition. The labia are absent and only a small portion of the clitoris is left. The vagina is normal, and the patient has no leukorrhea or discomfort of any kind. Her general condition is excellent.

701 Grace Street West.

Traumatic Neuroses.—A. Ciampolini, the medical inspector for the state railroad system of Italy, has recently published in *Ramazzini,* 1914, viii, 1-108, an analytic study of 160 out of a total of 200 cases of neurosis following railroad accidents. The majority were commercial travelers and postal clerks; they seem to acquire what might be called a professional dread of accidents, and this is an important factor in the neurosis. The susceptibility to suggestion is extreme and a physician's incautious remark may start or aggravate the neurosis. The jar of the trains does not seem to predispose the trainmen to nervous trouble, as these formed only 12 per cent. of the total. Only 0.465 per thousand developed neuroses among 25,793 employees who met accidents of various kinds in 1909, and the proportion has been the same since. Ciampolini states that after the question of indemnity had been settled the neurosis gradually subsided with final complete recovery.

INFECTION OF NASAL CAVITY FROM DISEASED TOOTH-ROOT

SPECIMEN SHOWING PATHWAY OF INFECTION THROUGH THE MAXILLARY SINUS*

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The possibility of the passage of an infection upward from a decayed tooth-root through the maxillary sinus to the nasal cavity is a matter of common medical knowledge. The rhinologist frequently finds in this sequence of events a long-delayed explanation, especially of trifacial neuralgias as well as various nose and throat conditions.

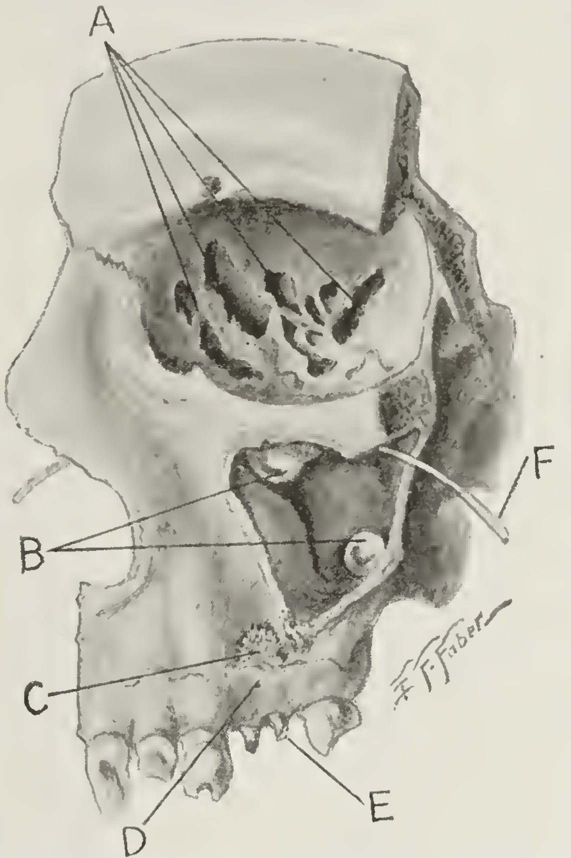

Fig. 1.—Specimen showing: *A,* ethmoidal sinuses opened from orbital aspect and found to be free from any evidence of disease; *B,* polypi (upper one located at the lip of the ostium); *C,* area of necrosis around tooth-root; *D,* fistula from tooth-root opening on the gum; *E,* diseased first bicuspid; *F,* bristle passed from the maxillary sinus into the nose through the normal ostium.

The accompanying illustrations are from a post-mortem specimen in which the pathway of such an infection is strikingly marked out by pathologic changes, namely, a necrotic area around the root of a first (or second) bicuspid tooth, a fistula from this area opening on the gum, changes in the mucous membrane of the maxillary sinus adjoining this area and with polyp formation especially around the ostium, both on the maxillary sinus side and in the nasal cavity.

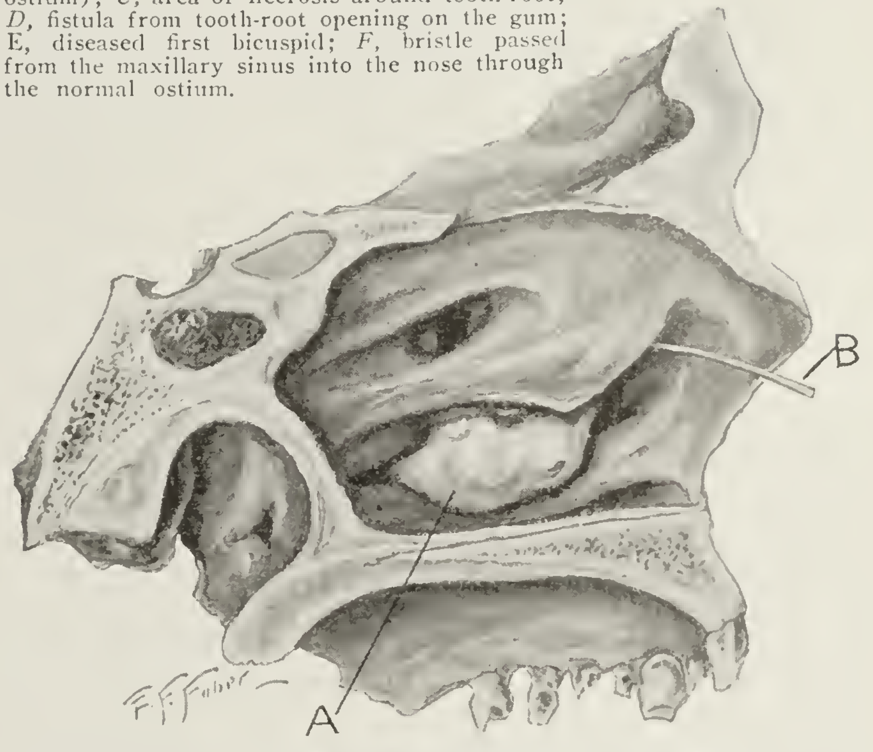

Fig. 2.—Specimen showing: *A,* polyp in middle fossa of the nose growing from the lip of the unciform groove; *B,* bristle passing through the maxillary ostium beneath the middle turbinate.

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* Exhibited before the Section on Oto-Laryngology of the Philadelphia College of Physicians, and the Philadelphia Pathological Society.

The ethmoidal sinuses, opened from the orbital aspect, are seen to be uninvolved.

A point of interest in Figure 2, which, however, has no relation to the foregoing, is this: The sphenoid sinus in this case is represented by a very small depression on the back wall of the nasal cavity (hidden in the illustration) while the space below the sella turcica, usually occupied by the sphenoid sinus, consists of a thick mass of cancellated bone. The cavity shown in this region is not the sphenoid sinus, but was made artificially with the curet in searching for it. It is comforting to the surgeon working in this region to know that when the sphenoidal sinus is absent its territory is usually occupied, as shown in Figure 2, by a thick mass of bone.

1701 Chestnut Street.

CEREBROSPINAL EXAMINATIONS IN "CURED" SYPHILIS

CASES IN WHICH THE BIOLOGIC METHOD AS A CONTROL HAS BEEN USED *

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Since the application of the Wassermann reaction to the blood-serum as a biologic control in the treatment of syphilis, we have rested securely in the thought that this method of management, if applied correctly, was the last word in the prognosis of this disease. All authorities have recommended it as the most dependable aid which we have in the control of our treated cases of syphilis, and truly it is; but as discovery after discovery has followed in quick succession, each marking an epoch in our knowledge of syphilis, it is but natural that our opinions should change.

Noguchi's[1] demonstration of the *Spirochaeta pallida* in the brains of paretics has opened up a new phase of the infection, and whereas we before thought that this localization was only the end-result of the infection, we now know differently. That the spirochetes involve the central nervous system early, in a large percentage of cases, was little dreamed of three years ago, and only within the last year and a half has the management of this class of infections been given serious thought by the average syphilographer.

Since the application of lumbar puncture with spinal fluid examinations, many cases showing a negative blood-serum Wassermann for from eighteen months to two years without treatment show subarachnoid involvement. In the light of our present knowledge, lumbar puncture with spinal fluid examinations is demanded in all cases of syphilis, no matter at what stage of the disease, as a control on future complications of the nervous system.

An apology is offered for referring to the diagnosis of syphilis at the time of the presence of the primary lesion, as every syphilographer knows exactly the value of an early diagnosis, especially before the Wassermann is positive; but ever since the arrival of the easy water-soluble neosalvarsan, the treatment of this disease has passed out of the hands of the specialist into the hands of everybody with a medical degree. It is safe to prophesy that our insane hospitals in the future will contain a larger percentage of cases with involvement of the central nervous system than they do to-day. Too little heed is paid to this golden opportunity, and too great a dependency is placed on a few ill-timed "shots" with no consideration whatever of the subarachnoid space.

Since October, 1913, I have performed lumbar puncture with spinal fluid examinations on as many patients "biologically cured" as I could induce to return for examination. Of these so-called "cured cases," excluding syphilis with cerebrospinal manifestations, I have found spinal fluid involvement in 18.3 per cent. Many patients resting securely in the faith of a persisting negative Wassermann and good health refused to permit this procedure.

DISCUSSION OF THE TABLE

The accompanying table shows 6 cases of primary syphilis, 18 of secondary syphilis, 4 of tertiary syphilis, 14 of latent syphilis, 1 of congenital syphilis, and 6 of syphilis with cerebrospinal manifestations; of the last 6 cases, 2 are of incipient tabes, 1 of tabes, 2 of cerebrospinal syphilis and 1 of complete optic atrophy.

The original object of this investigation was to ascertain whether or not the "cure" had been complete, and if not, the reason.

Mott[2] long ago called attention to two factors which play a rôle in the involvement of the nervous system: (*a*) the specific form of spirochete, and (*b*) poor resistance on the part of the host. Having studied these cases with this idea in mind, I have deduced the conclusions which are given below.

PRIMARY SYPHILIS

All the cases herein recorded went to a satisfactory termination, and I believe are permanently cured. The largest quantity of salvarsan given to a single patient, together with rubbings, was 4.2 gm.; the smallest was 2.4 gm.

SECONDARY SYPHILIS

In Case 8 the patient, D. H. D., of average nutrition, had been infected nine years, and spirochetes were demonstrated in the mouth lesions before treatment was begun. On account of the length of infection before treatment, the patient being a confirmed alcoholic, subarachnoid involvement might be suspected. Examination was negative.

In Case 9 the patient, H. R. A., aged 38, was strong and robust, and spirochetes were present after five years. Jan. 27, 1914, spinal fluid examination was positive. After intensive intravenous salvarsan, spinal fluid examination April 29, 1914, showed Wassermann negative, cells 3 per cubic millimeter, Nonne negative. The total quantity of salvarsan given was 4.5 gm.

Patient 10, G. K. L., aged 51, was very well preserved. There was cerebrospinal involvement at eighteen months. This patient has had fourteen injections of salvarsan intravenously, being a total of 7 gm., together with rubbings by a professional, and four injections intraspinally, one after the Swift and Ellis[3] technic, 20 c.c. of serum being given, and three after the method of Ravaut,[4] 4 mg. being given at each injection. The spinal fluid is still involved.

Patient 11, C. G., aged 28, strong and vigorous, came under observation during the secondary period. The blood Wassermann always vacillated; spinal fluid examination, December, 1913, was positive, Nonne positive, and lymphocytes 25 per cubic millimeter. Since severe persistent intravenous medication, spinal fluid examination, March 24, 1914, revealed Wassermann negative, Nonne positive, and lymphocytes 3 per centimeter. Total quantity of salvarsan injected was 8.55 gm.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Noguchi, Hideyo: The Transmission of Treponema Pallidum from the Brains of Paretics to the Rabbit, The Journal A. M. A., July 12, 1913, p. 85.

[2] Mott: In Power and Murphy's System of Syphilis, Oxford Press, 1908, ii, iv.

[3] Swift and Ellis: New York Med. Jour., 1912, xcvi, 53.

[4] Ravaut: Ann. de méd., 1914, i, 49.

Patient 13, E. G. M., aged 24, was in good physical condition after two years' treatment, including five injections of salvarsan and mercury rubbings, the latter by a professional rubber, and showed a positive Wassermann on the spinal fluid. Later this patient received five intravenous injections at intervals of a week, making a total 5 gm. salvarsan. Second spinal puncture was refused.

In cases 14 and 15 (man and wife), each was treated differently; both show negative spinal fluid examination.

Patient 19, E. M. M., aged 28, robust and vigorous, had severe ulceration in larynx after four years. Spinal fluid examination is negative; blood Wassermann is still positive.

Case 23, F. E., is a reinfected case of syphilis, treated in 1911 for first infection, plaques and secondaries and positive blood Wassermann at this time. Patient since had negative blood Wassermanns Feb. 8, 1912, Feb. 4, 1913, Dec. 30, 1913. Second infection, exposed Feb. 15, 1914, secondaries with sore throat, May 22. Wassermann on blood-serum, positive. Spinal fluid examination negative.

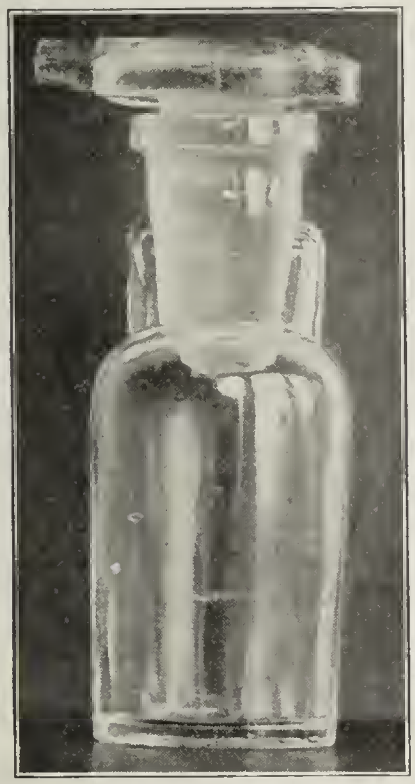

Fig. 1.—Dropping-glass, having the advantage of keeping the salvarsan excluded from the air at all times.

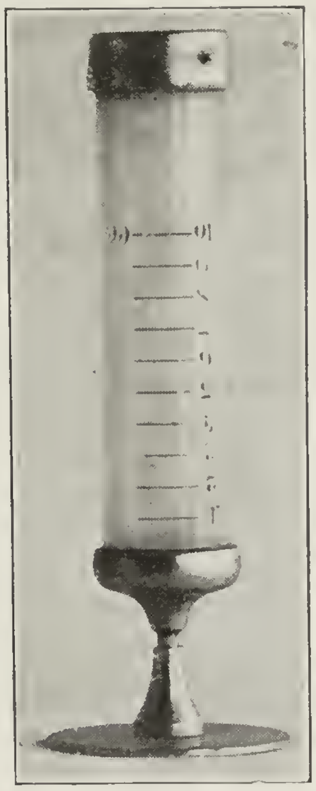

Fig. 2. — Converted syringe receptacle.

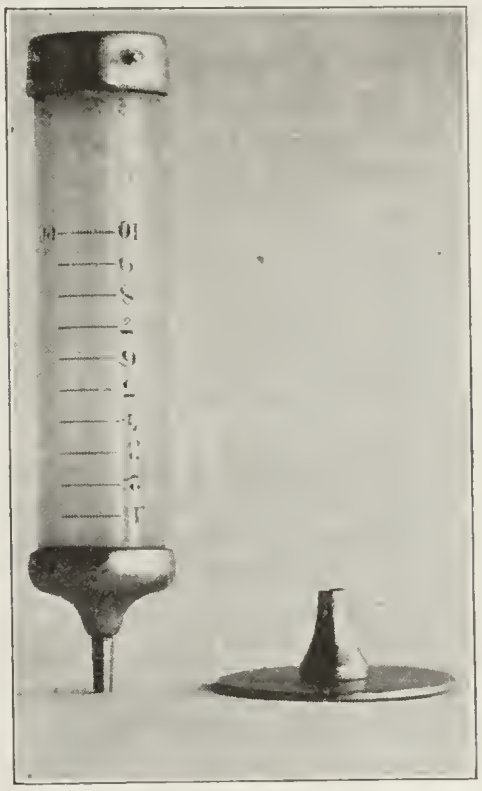

Fig. 3.—Record syringe with cap attachment.

TERTIARY SYPHILIS

Case 26, M. H. O., average weight 105 pounds, is the only patient in this series who showed involvement, and she is the wife of H. O., Case 36 under latent syphilis. Both show positive Wassermann on the spinal fluid.

Case 27 (M. D. H.) strong and vigorous, with a gumma on neck, was infected sixteen years before any treatment was begun. Spinal fluid is negative. One would suspect positive here.

LATENT SYPHILIS

Cases 30, 31, 37 and 38 are all cases of neglected treatment, in which one would suspect positive spinal fluid tests. All are negative.

Case 40 (F. O. B.) after provocative salvarsan shows positive blood and spinal fluid Wassermann.

Case 41 (Mrs. E. A., wife of E. A.) shows marked involvement of spinal fluid. I was unable to obtain husband's spinal fluid, at this time, but he is extremely irritable and spinal fluid involvement is possible.

CONGENITAL SYPHILIS

One would certainly suspect infection in Case 43 (H. H.), as treatment was not begun systematically until the patient was 13 years of age. At this time he had large gummas over both shins. Spinal fluid examination was negative.

SYPHILITICS WITH CEREBROSPINAL MANIFESTATIONS

Case 47 (N. DeH.) has a negative Wassermann; there have been two slight attacks of paralysis. The patient shows marked involvement of spinal fluid, and has been treated by the Swift and Ellis technic and Ravaut method.

Patient 49 (Mrs. E. S.), whose husband died of paresis, has occasional headaches, but is otherwise well. Wassermann is negative; there is enormous spinal fluid involvement. The patient has been treated with the Swift and Ellis technic and the Ravaut method.

Since beginning lumbar puncture with spinal fluid examinations I have made over 100 examinations.

Among some other cases that I have examined, three cases of secondary infection show involvement of the subarachnoid space; in three cases of latent infection with scarcely any treatment at all, spinal fluid examination is negative.

Considering the relation between the positive and negative spinal fluid examinations in the marital infections alone, one would be strongly suspicious of a specific spirochete. That poor resistance on the part of the host plays a rôle in all infections is an absolute certainty, but who is going to point out the "weak"? I am sure I am not able to in my little experience.

That all infections with the *Spirochaeta pallida* are not potentially in the subarachnoid space should be readily conceded. Flexner[5] has compared infections of this space with those of anterior poliomyelitis and those of pneumococcic origin. He shows clearly the futility of systemic medication in the latter infections. While the same holds true, in a measure, with syphilis, we are dealing with an infection that is slower in its progress, and as a consequence, our method of attack need not be so heroic at first. It is a mistake to begin injecting, intraspinally at the onset, every case of early syphilis in which there is spinal fluid involvement without symptoms.

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[5] Flexner, Simon: The Local Specific Therapy of Infections, The Journal A. M. A., Nov. 22, 1913, p. 1873.

The recent experiments with vital stains,[6] trypan red and blue, show that it is possible to find these substances in the subarachnoid space after intravenous medication, as well as intraspinal injections, only in the latter it is more diffused and intense. For this reason I have preferred to adopt at first an intensive intravenous form of treatment, when no particular clinical manifestations are demonstrated, withholding intraspinal injections for the more severe and stubborn cases.

TREATMENT

The two methods of treatment available are intensive intravenous injections and intraspinal medication. In intensive intravenous injections, the plan which I have adopted is to give, in the early cases, as suggested by Collins,[7] from five to seven doses of 0.5 to 0.4 gm. weekly, and then to rest three or four weeks, at the end of which time a puncture is made. If this shows a negative reaction, the treatment is resumed every other week for the same period of time, later once a month for three months, and still later, every other month. If a negative spinal reaction is maintained for a year, all treatment is suspended, but spinal examinations are recommended every six months. That this method is efficient is shown by examination of the blood-serum for salvarsan. Frequently it has been demonstrated in the blood-serum by the Abelin[8] test ten days after the last injection.

While the time is relatively short to draw definite conclusions in regard to the merit of injections of salvarsanized serum, in intraspinal medication, most physicians who are familiar with the method realize the great value that comes from this form of treatment.

In another paper read before the Illinois Medical Society at Decatur in May of this year, my experience in the treatment of tabes on the service of Dr. Julius Grinker at the Cook County Hospital is given. The technic is the same as that used by Swift and Ellis, only the quantity used was from 15 to 20 c.c. undiluted with saline solution. Often pooled homologous serums were used.

Realizing the necessity of obtaining an equally efficient, as well as more rapid and simple means of medication, I have adopted the method of Ravaut as recommended by Wile,[9] for direct intraspinal injections of neosalvarsan.

I dissolve 0.15 gm. of neosalvarsan in 5 c.c. of water (a hypertonic solution) in the dropping-glass (Fig. 1). This has the advantage of having a glass stopper and lessens the exposure to air.

A spinal puncture is made and the fluid is collected into the converted syringe receptacle (Figs. 2 and 3) up to 5 c.c.; the mandrin is reinserted to stop the flow, the desired dose is dropped into the syringe, the piston is placed in position, the syringe is inverted, fluid shaken up, the mandrin is withdrawn, connection made and the fluid reinjected. In following out the method, I have followed the practice of giving salvarsan every fourteen days intravenously, to take care of any possible systemic infection that might be present.

CONCLUSIONS

1. Too little attention is still paid to the diagnosis of syphilis at the time of the presence of the primary lesion.

2. A great majority of physicians fail to realize the golden opportunity that an early diagnosis presents.

3. Control of the treatment by the biologic examination of the blood-serum must be supplemented by spinal fluid examinations.

4. Intensive intravenous injections should always be tried first, in early cases, before intraspinal injections are resorted to.

5. Based on clinical observation, there is a strong possibility of a specific spirochete for the nervous system.

ADDENDUM

Since making the foregoing report at the session of the American Medical Association at Atlantic City in June, four out of seven cases under treatment show the following: One case with cerebrospinal fluid involvement, without symptoms, after 2 mg. of neosalvarsan injected according to the Ravaut technic as described above, showed bladder paralysis which still persists after six weeks; one case of tabes shows marked incoordination with marked numbness and anesthesia of the lower extremities; another patient with tabes is unable to walk at all; numbness and anesthesia are markedly increased; a fourth case shows the same symptoms, but, under strychnin, 1/60 grain three times a day, the patient has improved somewhat.

In the last three cases, the dose given was always 0.004 mg. and no symptoms appeared until after the third injection, the injections being made at intervals of two weeks.

In view of this later experience, which is somewhat comparative, I believe that the Swift and Ellis technic is superior and should be adhered to. If the Ravaut method is to be used at all, the dose should be extremely small and should be dissolved in at least 15 c.c. of spinal fluid.

32 North State Street.

THE TREATMENT OF SYPHILIS OF THE NERVOUS SYSTEM*

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While it was recognized soon after syphilis became pandemic that the nervous system played a part in the morbid process, it appears that Knorre was the first, in 1849, to call attention to the fact that paralyses might occur in constitutional syphilis soon after or synchronously with the earliest symptoms. He cited five cases in three of which paralysis occurred three months after infection. Since then numerous publications by neurologists and syphilologists have appeared giving clinical evidence of the early involvement of the nervous system. Nonne[4] has observed cerebral syphilis developing four months after infection and mentions a case occurring simultaneously with the roseola. Leudt reported brain lues in two old persons three months after the appearance of the initial lesion. Mott[5] has observed meningitis even before the primary sore was healed, and he is sponsor for the statement that the most severe cases of brain and spinal syphilis occur within the first twelve months. Naunyn collected 209 cases from the literature, to which he added forty-five of his own. From his analyses he came to the conclusion that infection of the nervous system took place in the majority of instances during the first year, after which there was a decrease in frequency. Braus' statistics, made up of 100 cases in which a history was obtainable, showed that in nearly one-half the nervous system was involved within the first year. In Fournier's clinic twenty-six cases were shown to have developed within from three to six months after infection. Hutchinson's fifteen cases of spinal syphilis appeared from six months to three years after infection, while Savard found that out of seventy-seven cases of myelitis, twenty-six appeared from six to eight months after the chancre. These observations on the clinical side have been considerably augmented during the past few years by laboratory findings.

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[6] Tilney, F.: Long Island Med. Jour., 1914, viii, 121. Schnaudigel, O.: Arch. f. Ophth. (von Graefe's), 1913, lxxxvi, 93.

[7] Collins, Joseph: Syphilis and the Nervous System, The Journal A. M. A., Sept. 13, 1913, p. 860.

[8] Abelin: München. med. Wchnschr., 1912, lix, 81.

[9] Wile, Udo J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, The Journal A. M. A., April 11, 1914, p. 1165.

* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* On account of lack of space this paper has been abbreviated for The Journal. It will appear in full in the Transactions of the Sections and in the author's reprints.

[4] Nonne: Syphilis and the Nervous System, translated by Ball, 1913.

In 1903 Ravaut[6] undertook a systematic examination of the spinal fluid in secondary syphilis and found abnormal changes in about 70 per cent. of the cases. At the same time he made note of an apparent parallelism between the type of cutaneous eruption and the findings in the spinal fluid, having been impressed by the more frequent occurrence of abnormalities with papular, pigmentary and psoriasiform lesions than with the roseola. Plaut[7] also obtained a rather high percentage; namely, a definite pleocytosis in one-third of the cases and border-line results in another third, leaving only one-third negative. Nonne and Mantoux placed their positive findings at 40 per cent. From the examinations of Altmann and Dreyfus,[8] chemocytologic changes were present in about 80 per cent. of patients in the secondary stage with remains of the initial lesion. Gennerich[9] found positive findings in about 90 per cent. He is of the opinion that all early constitutional cases, that is, those in which the Wassermann has become positive, will after an injection of salvarsan or mercury develop an increase in lymphocytes and globulin. In other words, a provocative or Herxheimer reaction will be obtained in the fluid. This concurs with the studies of Ravaut, Levy-Bing, Duroex and Dogny. Altmann and Dreyfus made similar observations. One of their cases in the initial stage with a negative blood and spinal fluid showed, sixteen days after treatment with 1 gm. salvarsan, fifteen cells. Another with a negative blood and fluid sixteen days after 1.4 gm. salvarsan had a marked increase in pressure. Two months later, during which time an additional 1.5 gm. had been given, twelve cells were found. Another patient in the early secondary stage with normal fluid was given 0.4 gm. salvarsan. Seven weeks later the patient had facial and acoustic paralysis with 180 cells and a strongly positive Wassermann. This was a characteristic neurorecidive, a number of which cases were reported early in the salvarsan era, but are no longer met under our more intensive methods of treatment.

My own investigations up to the present time do not coincide with the high percentage of anomalies reported by other observers. In the absence of clinical symptoms pointing to involvement of the central nervous system in the early secondary stage, I have found abnormalities in the spinal fluid in less than 20 per cent. The headaches of the early secondary period are frequently unattended by changes, and appear to be due to a hypertension rather than a meningitis. In the later secondary and tertiary periods the cephalalgia is accompanied more usually by a lymphocytosis and other findings and is the precursor of cerebral accidents. I still have this subject under investigation and will report on it later. My view at this time, however, is that too much importance has been attached to trivial changes, as differences in pressure or slight increase in globulin, and that probably no larger percentage show marked anomalies than later develop definite nerve changes. That such cases may be the subject for years of a chronic meningitis without objective signs has been shown by the researches of Vincent,[10] who was able to follow for a number of years patients with marked fluid changes and no clinical symptoms, who later developed severe organic changes in the central nervous system, some paresis. It therefore seems probable that cases of syphilis of the nervous system are recruited from those with a chronic meningitis or latent residua, for we know that the older the infection becomes the greater is the tendency to localization or tertiarism. Whether or not a new infection or dissemination of spirochetes can take place from an old focus we must submit for future enlightenment. In this connection may be mentioned the positive inoculation obtained by Uhlenhuth and Mulzer[11] in a rabbit with the blood of a woman with latent syphilis, who had been delivered shortly before of a syphilitic child. Her infection dated back four years.

Clinical observations have taught us that only a minority of syphilitic individuals develop obtrusive nervous symptoms. Even under the old and inadequate methods of treatment the percentage is not very high. This may be accounted for partly by less complete methods of diagnosis, as the majority of statistics were compiled before the application of the Wassermann reaction or the lumbar puncture. Hjelmann placed his figures of cerebral syphilis at from fifteen to twenty-five per thousand. Raumont found that of 3,400 cases, 290 suffered from syphilis of the nervous system. Fournier's investigations of 4,329 cases of tertiary syphilis elicited diverse nervous manifestations in 1,085, of which 416 showed involvement of the cerebrospinal axis with more or less diffuse lesions. Pick and Bandler followed the fate of 2,066 cases in the Prague clinic between the years 1879 and 1899 and found that 4.25 per cent. had developed parasyphilis. Most valuable are the statistics of Mattauschek and Pilcz.[12] In an admirable and painstaking manner they investigated the course of the disease in 4,134 officers in the Austrian army who had been infected during the years 1880 to 1900, and found that 198 developed paresis and 113 tabes, not counting those who later became paretic. Of the total number of tabetics 11.93 per cent. developed paresis; 8.18 per cent. had optic atrophy, not including the cases of taboparesis; 132 patients suffered from cerebrospinal lues, most frequently the endarteritic form, and eighty other cases showed various psychoses.

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[5] Mott: A System of Syphilis, iv.

[6] Ravaut: Ann. de derm. et de Syph., 1903, iv, 1.

[7] Plaut, Rehm and Schotmüller: Leitfaden zur Untersuchung der Zerebrospinalflüssigkeit, Fischer, 1913.

[8] Altmann and Dreyfus: München. med. Wchnschr., 1913, Nos. 9 and 10, pp. 464 and 531.

[9] Gennerich: Die Liquorveränderungen in den einzelnen Stadien der Syphilis, Berlin, Hirschwald, 1913.

[10] Vincent: Des méningites chroniques syphilitiques, thèse, 1910.

[11] Uhlenhuth and Mulzer: Beiträge zur experimentelle Pathologie und Therapie der Syphilis mit besonderer Berücksichtigung der Impf-Syphilis der Kaninchen, 1913.

[12] Mattauschek and Pilcz: Ztschr. f. d. ges. Neurol. u. Psychol., 1913, xv.

Dreyfus examined 104 patients with latent syphilis, none of whom had symptoms pointing to involvement of the central nervous system. He found 77 per cent. normal. Of the remaining 23 per cent., only 12 per cent. showed marked changes. Inferring that the majority of patients suffer from meningeal involvement at the beginning of the infection, we must also infer that in a large percentage, cure takes place in spite of lack of or insufficient treatment, for in the cases under discussion Dreyfus mentions that treatment had been only symptomatic and far from adequate according to our present notions.

This leads us to another angle of the problem, namely, the question of "lues nervosa." It has long been the belief of syphilologists and neurologists that in nerve syphilis we are dealing with a different form of the infection. This had its origin in the observation of conjugal and family groups of metasyphilis as well as in persons infected at a common source. The question has been whether the factors which determine the later development of nervous syphilis reside in the infecting agent or in the host. Nichols[13] has recently expressed the opinion that such spirochetes possess a highly invasive power rather than a neurotropic action. His deduction rests on the results he obtained with a strain isolated from the nervous system. He found that they had a thicker form and a shorter incubation period, producing in rabbits hard lesions with necrotic centers and showing a tendency to generalize with lesions of the skin and eye, following local inoculation of the scrotum and testicle. Steiner's experiments with rabbits showed that in only a few cases the nervous system is involved, in some the lesions are in the brain, in others in the cord. Dörflein's work with the spirochetes of relapsing fever is perhaps also pertinent in showing that species, geographically separated, possess different biologic properties which are not distinguishable morphologically.

I have many times noted the involvement of the nervous system coincidently in husband and wife, and have at present under observation a woman with cerebrospinal syphilis whose husband had a paraplegia, a man with paresis whose child had hydrocephalus and a couple with taboparesis. Fischer[14] found among 500 paretics conjugal metasyphilis in 10.2 per cent. In Fischler's[15] analysis, husband and wife had general paralysis 26 and tabes 31 times; the husband tabes and the wife paresis 4 times, vice versa 15 times; both cerebrospinal syphilis 4 times; husband tabes and wife cerebrospinal syphilis once, and husband paresis and wife cerebrospinal syphilis once. Of the hereditary cases he found that when one parent had paresis the child had paresis 12 times and tabes 5 times. When one parent had tabes the child had tabes 10 times and paresis 3 times. It has been noted that when the types of conjugal metasyphilis are dissimilar, the man more often suffers from paresis and the woman from tabes.

Experience has demonstrated that many luetic affections of the nervous system are amenable to the treatment ordinarily employed, that is, mercury by injection or inunctions or by a combination of mercury with potassium iodid internally. The lesions which are responsive to treatment of this kind are certain types of endarteritis, localized gummas, periostitis involving the meninges and disseminated forms of meningitis. There are, however, some forms of gummas and chronic meningitis with severe headaches and endarteritis with symptoms, such as irritability, loss of memory, and inability to concentrate, which do not yield to the old treatment, as well as the types of syphilis formerly described under the names of parasyphilis or metasyphilis. The latter were so resistant to treatment that it had long led to the belief that they were only indirectly related to the infection—rather the result than the direct effect of the action of the organisms. The investigations of Noguchi and Moore demonstrating the presence of spirochetes in the lesions of paresis and tabes have, however, definitely placed these so-called parasyphilitic affections among the active lesions of syphilis.

In the treatment of syphilis of the nervous system the important points to emphasize are first, accurate diagnosis with serologic findings, second, necessity of prolonged treatment, third, the avoidance of too large initial doses until the susceptibility of the patient has been determined, and fourth, persistence in treatment in spite of absence of amelioration following the first few injections.

The criticism of the results of treatment of the nervous system by writers who have noted no improvement or an aggravation of symptoms depends on the superficial way in which it has been carried out. No judgment can be rendered until patients have been subjected to a sufficiently long treatment to influence permanently the pathologic changes in the cerebrospinal fluid. They must be kept under continuous observation for a period of years, and until the four phases of Nonne have become negative, no assurance can be given against relapses. In other words, since the infection of the nervous system is more difficult to reach, and hence more persistent, the treatment should be carefully controlled not only by clinical results but also by lumbar puncture. We cannot form any conception of the activity of the process from the symptoms alone. The latter sometimes are out of all proportion to the laboratory findings. There are at present under my care two patients in both of whom the only complaint was headache and a feeling of malaise. In the one a cell-count of 314 with double plus globulin and positive Wassermann to 0.2 cc. was found. In the other there was present a pleocytosis of 746 cells, a great excess of globulin and a positive reaction to 0.025 c.c.

It is not possible at present to give a characteristic serologic picture for cerebrospinal lues, tabes and paresis. Bearing in mind that there are transitional or border-land forms, it is necessary to supplement laboratory findings with careful and minute clinical examinations. To obtain a proper conception of the serologic findings in early tabes, repeated examination of the fluid should be made in all patients presenting symptoms pointing to involvement of the nervous system. Many cases of tabes give a previous history of oculomotor paralysis, facial palsy, headaches, somnolency, irregularity of the pupils or other evidence of meningitis of the base. In other cases in which the process is limited to the lower cord, these early symptoms are lacking. With the acquisition of further data we may be able from a group of symptoms and spinal fluid findings to foretell the subsequent development of tabes. Gummas or endarteritic changes in the nervous system frequently occur, but recovery takes place without secondary tabes or paresis, while cases with meningitis of the base may be followed by either of these conditions. The closer these conditions are studied from a serologic and anatomic point of view, the less likelihood is there that they are due to a primary neuron degeneration. Nonne[16] is of the opinion that they are the result of a meningitis and refers to the work of Schröder, Meyer and Oppenheim demonstrating inflammatory changes in the pia and connective tissue passing from it to the blood-vessels. Nageotte also found a true inflammation with lymphocytes and plasma-cell infiltration about the root-fibers, as well as inflammatory changes in the arteries and veins. Stargardt likewise demonstrated a true inflammation of the sheath and endoneurium of the optic nerve in cases of tabes and paresis. It is possible for the specific infection to be limited to the cerebrospinal fluid, the blood being entirely free from the infection. This is proved by the negative findings in the blood and the positive ones in the fluid. It has also been demonstrated that the interchange between the blood and the spinal fluid is so slight that drugs introduced by the blood-stream diffuse themselves very little if at all in the spinal fluid. This fact explains the resistance of certain types of syphilis to the ordinary methods of treatment. Why this is so in one case and not in another is difficult to explain, unless we assume a more pronounced endarteritis in one case than in another or greater permeability of the choroid plexus. No matter what the theoretical considerations are, practical results show that the cells and other abnormalities can be influenced by intravenous treatment, although this takes place more slowly than with the direct method. That the latter is not only local in its action is shown by the change of a positive to a negative reaction in the serum by the exhibition of this treatment only.

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[13] Nichols, Henry J.: Jour. Exper. Med., 1914, xix, No. 4.
[14] Fischer, Oscar: Ztschr. f. d. ges. Neurol. u. Psychol., 1913, xvi.
[15] Fischler: Deutsch. Ztschr. f. Nervenheilk., 1905, xxviii.

The intraspinal method has placed the treatment of syphilis on a more accurate and scientific basis. As first applied by Swift and Ellis,[17] it consisted of injecting into the subarachnoid space salvarsanized serum, that is, the serum from a patient treated intravenously with the drug one hour before. Diluted with normal saline it is given in strengths varying from 40 to 100 per cent. This method has been modified by Dr. Hanson S. Ogilvie by incorporating salvarsan with human serum direct *in vitro,* and has the advantage of standardizing the dose. For the procedure his technic is as follows:

Fifty c.c. of blood are drawn into a centrifuge bottle and centrifuged twice. It is important to have the serum clear and free from fibrin and blood-cells. To obtain the requisite amount of the drug, old salvarsan is mixed in the usual way in the proportion of 0.1 gm. to 40 c.c. of fluid, care being taken not to over alkalinize; 0.4 c.c. of this solution is the equivalent of 1 mg., and is taken as the standard for measuring the dosage. For this purpose a 1 c.c. pipet graduated in hundredths should be employed. The desired amount of salvarsan is added to from 12 to 15 c.c. of the serum, shaken to and fro to mix thoroughly, and then placed in the incubator at 37 C. (98.6 F.) for one hour, after which it is inactivated for half an hour at 56 C. (132.8 F.). The latter is a most important step in the technic, as Swift and Ellis demonstrated that the spirocheticidal properties of the serum were markedly increased by heating.

In experimenting with trypanosomes, Stühmer[18] found that the curative action of unheated salvarsanized serum lasted twenty-four hours, and its protective action forty-eight hours, while in the heated serum the curative action was still present at the end of three days and the protective action four days. In comparing the relative values of salvarsan and neosalvarsan, he found that whereas the former was still active after forty-eight hours and often seventy-two hours, neosalvarsan lost its parasiticidal powers after twenty-four hours.

Salvarsanized serum prepared according to the method of Ogilvie must be used fresh, that is, within three hours of the time that it is made up. Patients should be prepared for its administration as for the intravenous injection, with a laxative the night before and only a light meal two hours prior to the treatment.

A lumbar puncture is made and an amount of fluid equivalent to the amount introduced is withdrawn. While the needle is *in situ*, the barrel of a Luer syringe is connected by means of a piece of rubber tubing. Spinal fluid is allowed to fill this to expel the air and the serum is then permitted to flow in by gravity. After its administration the patient should lie flat without any pillows, the foot of the bed being elevated for several hours. He must be kept in bed for at least twenty-four hours, in some cases forty-eight or seventy-two hours. Failure to do this may result in unpleasant symptoms, as pain in the extremities, headache, anesthesia, and bladder and rectal paresis.

The proper dose is still in a stage of evolution and a note of warning must be sounded against employing too large amounts. From my experience during the last months I feel that the limits of safety lie within 0.5 mg. It is better to begin with a dose of 0.25 mg., repeating or gradually increasing according to the tolerance of the patient. The intervals should be two weeks or longer. In a number of patients, when larger doses were given and the intervals were only a week apart, unpleasant by-effects were noted. These may come on within a few hours or be delayed for six days and may persist several weeks. The symptoms consist of root-pains, numbness, bladder and rectal paresis in some, irritability of the bladder in others, and ataxia. The numbness in some cases involved the whole lower portion of the body, in others the gluteal region and the legs with areas of hyperesthesia on the inner thighs.

On the Continent, where neosalvarsan is employed intraspinally, Marinesco and Minea[19] and Ravaut[20] have given as much as 12 mg. at a dose. These large doses were followed in a number of cases by severe reactions.

On account of the technical difficulties connected with subarachnoid injection it is well to inaugurate the treatment of nerve syphilis with a few mercurial injections and follow this up by a course of intravenous injections of salvarsan, beginning with a dose of not more than 0.25 or 0.3 gm. and repeating these injections at varying intervals of from one to two weeks. At the end of six or eight such injections lumbar puncture should be repeated; and if a marked effect has not been obtained either clinically or serologically, a course of intraspinal injections should be seriously considered, the number and intervals to be governed by the reaction produced. Should at any time symptoms of irritation manifest themselves, the patient should rest until they entirely disappear.

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[16] Nonne: Die Lues-Paralyze-Frage, Arch. f. Derm. u. Syph., 1914, cxix, 215.

[17] Swift, H. F., and Ellis, A. W. M.: Jour. Exper. Med., 1913, xviii, No. 4; The Treatment of Syphilitic Affections of the Central Nervous System with Especial Reference to the Use of Intraspinous Injections, Arch. Int. Med., September, 1913, p. 331.

[18] Stühmer: München. med. Wchnschr., 1914, No. 14, p. 745; ibid., 1914, No. 20, p. 1101.

[19] Marinesco and Minea: Bull. de l'Acad. de méd., Feb. 2, 1914.

[20] Ravaut: Ann. de Méd., 1914, No. 1, p. 49.

In the types of disease in which the symptoms are urgent and an immediate effect is desired, there can be no objection to beginning the intraspinal treatment without the antecedent intravenous employment of the drug, but better results are obtained by combining the two routes of medication. It must be borne in mind that a definite plan of treatment has not yet been formulated but that we are in a state of developing a method which seems to offer far more hope of influencing these resistant forms of syphilis of the nervous system than any heretofore employed.

Cases of tabes which are rather acute in their development, and have a high pleocytosis and positive Wassermann are advantageously treated by the combined use of mercury with the method outlined. In those accompanied by marked degenerative changes mercury may hasten the process. It therefore must be employed only after a careful analysis of the symptoms and serologic findings. An indication for intraspinal treatment alone would seem to be present in those cases in which we have a negative Wassermann in the blood and a positive one in the cerebrospinal fluid.

As I believe the results obtained with neosalvarsan are inferior to those obtained with salvarsan, I have practically given up the use of the former. It has been shown by Stühmer that, owing to its quicker elimination, its action is much shorter than that of salvarsan. While in each the maximum effect is produced within the first twenty-four hours, it practically ceases on the second day in the case of neosalvarsan, whereas in the case of the old he still found active traces at the end of a week.

The following group of cases is submitted to show the effect of intravenous and of intraspinal medication. Many of the patients had been treated for long periods of time by mercury and potassium iodid without improvement, and while the results are not uniform in all cases, in a number the improvement in the clinical and serologic symptoms is so striking as to encourage us in the further development of the method.

Case 1.—Tabes. Man, aged 40, married, salesman. Syphilis eight years ago.

Symptoms: For one year pains in the legs, girdle sensation and marked ataxia. Absent reflexes; Argyll Robertson pupils.

Cerebrospinal Fluid; March 11, 1913: Cells 70, globulin ++, Wassermann ++ to 0.4 c.c.; serum ++.

Treatment: From March to June, eight injections of neosalvarsan, totaling 5.7 gm., and weekly injections of salicylate of mercury. No benefit resulted and treatment was discontinued. From Sept. 5 to Oct. 11, 1913, four injections of salvarsan amounting to 1.6 gm. Condition showed no change. Nov. 21, 1913, he was given an intraspinal injection of a 40 per cent. exogenous salvarsanized serum fortified with 0.25 mg. salvarsan. The effect of this treatment was cessation of the girdle-pains. Subarachnoid injections were continued until the middle of April, when he received the eighth with 1 mg. of salvarsan.

Cerebrospinal Fluid; April 16, 1914: Cells 0, globulin —, Wassermann ++ to 0.4 c.c.; serum ±.

Clinically a most radical change had taken place. The patient's nutrition had improved, he had gained in weight and no longer suffered from pain. The improvement in his gait was marked and he was able to go about unassisted.

Cerebrospinal Fluid; May 29, 1914: Cells 0, globulin —, Wassermann ++ to 0.8 c.c.; serum ++.

Treatment: Two intraspinal injections of 3 mg. and 3.5 mg., respectively. The latter was followed by severe root-pains.

This case is a very striking illustration of the value of subdural treatment, as there was absolutely no amelioration in the symptoms from the other forms of treatment but a steady progression. Attention is called to the benefit obtained from the small doses and the error made in the large increase.

Blood-serum examined June 10, 1914, ——.

Case 3.—Tabes. Man, aged 55, married. Syphilis, 1901. Symptoms of tabes since 1906.

Treatment: From 1906 to 1912 injections of mercury. From April to October, 1912, six injections of salvarsan.

Cerebrospinal Fluid; Oct. 19, 1912: Cells 87, globulin ++, Wassermann ++ to 0.6 c.c.

Treatment: Three injections of neosalvarsan during the next year.

Cerebrospinal Fluid; Oct. 28, 1913: Cells 97, globulin ++, Wassermann ++ to 0.2 c.c.

Treatment: Five injections of neosalvarsan; Feb. 9, 1914, 0.5 mg. and March 10, 1914, 0.75 mg. salvarsan intraspinally.

Cerebrospinal Fluid: Cells 7, globulin ++, Wassermann ++ to 0.1 c.c.

Clinically: Improvement after intraspinal treatment marked. The pains in the legs disappeared, the patient no longer suffered from insomnia which had troubled him for many months and in every way his condition improved. This case also emphasizes the necessity of systematic and energetic treatment, as shown by an intensification of the process revealed by puncture under an irregular treatment of only three injections of neosalvarsan during the year.

Case 6.—Tabes. Man, aged 55, married, broker. Syphilis twenty-six years ago with mild secondary eruption.

Symptoms: For past ten years pains and unsteady gait. During past year double vision, paralysis of the right external rectus, slight facial paralysis and attacks of vertigo. Knee-jerks absent; Romberg; pupils small, fixed to light and irregular outline, atrophy of the right nerve.

Cerebrospinal Fluid: Cells 45, globulin ++, Wassermann ++ to 0.4 c.c., serum Wassermann weakly +.

Treatment: From Feb. 16 to March 26, 1914, weekly injections of salvarsan averaging 0.3 gm. Early in April the patient had several attacks of motor weakness in the legs accompanied by temporary loss of consciousness, visual disturbance and attacks of aphasia. These symptoms were probably due to endarteritis and change in blood-pressure. May 5 he was given an intraspinal injection of 1 mg. of salvarsan, which was followed by retention of urine and vomiting lasting several days. May 14, 1914, 1 mg., May 20, 1.5 mg., and June 10, 0.5 mg. salvarsan were given subdurally.

Cerebrospinal Fluid: Cells 8, globulin ++, Wassermann —.

Clinically, the aphasia and motor weakness of the right upper extremity have disappeared, he is free from pain and his ataxia has improved some.

Case 7.—Tabes and optic atrophy. Man, aged 52, married. Syphilis twenty-eight years ago.

Symptoms: For past sixteen years pains in the legs. Several years ago diplopia. Knee-jerks absent; marked ataxic gait. Pupils small and immobile, optic nerves pale, the right more so. Vision, right, 18/200, left 18/20.

Cerebrospinal Fluid; March 31, 1913: Cells 150, globulin ++, Wassermann ++ to 0.8 c.c., + to 0.6 c.c.; serum —

Treatment: April 9, 1913, 0.45 gm. neosalvarsan, April 16, 0.6 gm. neosalvarsan. Latter was followed by increase in pain, diminished secretion of urine, delirium, and tremor of the hands, continuing until the 21st. From May 13 until June 23, six injections of neosalvarsan, a total of 2.85 gm., without any reaction.

Cerebrospinal Fluid: June 26, 1913: Cells 15, globulin +, Wassermann ++ to 0.2 c.c.

Treatment: Sept. 22, Sept. 29, Oct. 6 and Oct. 18, 1913, 30 c.c. of from 40 to 80 per cent. salvarsanized serum intraspinally, after the method of Swift and Ellis.

Cerebrospinal Fluid: Cells 8, globulin —, Wassermann —.

A period of rest followed this treatment.

Cerebrospinal Fluid; May 13, 1914: Cells 5, globulin ++, Wassermann very weak + with 1.0 c.c.; blood-serum very weak +.

Clinically, the pains have all gone, the ataxia is unchanged and the sight has remained stationary during the past year.

Case 8.—Tabes. Man, aged 32, single. Initial lesion fourteen years ago; no secondaries.

Symptoms: Four years ago slight numbness of the toes. Six months later loss of coordination and now the typical symptoms of tabes.

Cerebrospinal Fluid: Cells 34, globulin ++, Wassermann ++ to 0.2 c.c.; serum ++.

Treatment: From Feb. 12 to May 5, 1913, ten injections of neosalvarsan, 7.1 gm., sixteen injections of mercuric chlorid, from 1/3 to 1/2 grain, and twenty-five inunctions.

Result: Marked improvement. The patient was stronger and had regained confidence, his walk had improved markedly and he was able to return to his work.

Cerebrospinal Fluid; June 2, 1913: Cells, 7, globulin —, Wassermann, —; serum —.

From that time until he presented himself again in March, 1914, he had had no treatment.

Cerebrospinal fluid, negative; serum ±.

There had been no clinical relapse except slight pains in the legs. Under a provocative injection of 0.3 gm. salvarsan, his blood-serum became strongly positive. After two more injections he was again punctured.

Cerebrospinal Fluid: Cells 5, globulin ±, Wassermann ++ with 1 c.c.

This case illustrates several points: first, the possibility of influencing the serologic findings along with the clinical symptoms by intense and regular treatment; second, the necessity of keeping patients under observation after negative findings are obtained, and third, the value of provocative injections. Since the latter the patient has had five intravenous injections of salvarsan, averaging 0.4 gm. each. He no longer suffers from pain, the bladder and bowels are normal, sexual power has steadily improved during the past year and there is scarcely any perceptible ataxia in his walk. When he first came under treatment his ataxia was so pronounced that he could not get about without assistance. He now walks daily from 5 to 7 miles, registered by a pedometer.

Case 9.—Optic atrophy. Woman, aged 48, married, housewife. No history of infection; husband infected six years ago.

Symptoms: Five years ago double vision and other ocular disturbances. When seen in October, 1912, the patient had optic atrophy. Vision of the right eye 20/50; left, fingers at 4 inches.

Cerebrospinal Fluid; Oct. 16, 1912: Cells 24, globulin +, Wassermann ++ with 1 c.c., + to 0.6 c.c.

Treatment: Fourteen injections of neosalvarsan, 9 gm., and seven injections of salvarsan, 2.5 gm., accompanied by injections and inunctions of mercury.

A very noticeable improvement had taken place in the physical condition of the patient. All the headaches had ceased; the vision in the right eye was 20/20 and in the left fingers at 2½ feet.

Cerebrospinal Fluid; July 17, 1913: Cell 1, globulin —, Wassermann ++ with 1 c.c., and + with 0.8 c.c.; serum ++.

The benefit which this patient derived from treatment greatly exceeded the hopes of those familiar with this class of cases. The condition has been stationary for a year, without treatment, but the positive reaction of the spinal fluid and of the blood show the necessity of further combating the disease to hold the ground gained.

Case 14.—Tabes. Man, aged 31, married, salesman. Syphilis nine years ago with secondaries.

Symptoms: Three years ago blurred vision and dilatation of left pupil. Now Argyll Robertson pupils; gastric crises; absent reflexes; slightly ataxic gait. Serum ++.

Treatment: In February, 1911, three injections of salvarsan, each 0.35 gm., followed by mercury.

Cerebrospinal Fluid; Oct. 10, 1912: Cells 43, globulin ++, Wassermann ++ to 0.4; blood-serum ±.

Treatment: Eight injections of neosalvarsan, 5.25 gm., along with mercurial treatment.

Clinically, the first two treatments were followed by a temporary improvement, but after several months there was a return of leg-pains, insomnia, loss of sexual power, weakness, etc. After the second course a definite change took place. The patient has gained in weight, the gastric crises and pains have ceased and his gait is normal.

Case 15.—Taboparesis. Man, aged 38, married, manufacturer. Syphilis December, 1903, followed by secondaries. A marked cutaneous relapse in August, 1904; persistent eruption of the palms in 1905.

Symptoms: When seen in November, 1911, he had suffered from delusions of grandeur for two weeks. Eye-reflexes sluggish; knee-jerks absent.

Treatment: From Nov. 11, 1911, to Oct. 7, 1912, eleven injections of salvarsan, 4.2 gm., and seven injections of neosalvarsan, 4 gm., with mercury in the form of inunctions and injections.

Cerebrospinal Fluid; Oct. 10, 1912: Cells 86, globulin ++, Wassermann ++ to 0.2; serum ++.

Physical Examination. No sensory changes, station and gait normal. No paresthesia, no bladder or rectal trouble; both pupils very sluggish to light and accommodation. Mental examination negative except for a few obsessions with slight tendency to depression. No speech or writing defect.

Treatment: Injections of mercury to Jan. 31, 1913, and then discontinued.

Relapse: March 3, 1913 there was an epileptiform convulsion, and the patient was unconscious for twenty minutes. Nervous and excitable.

Treatment: Seven injections neosalvarsan, 4.65 gm., two salvarsan, 0.9 gm.

Relapse: In June, 1913, the patient became disoriented. Delusions and hallucinations both visual and auditory were very marked. He was extremely noisy and at times violent so that it was necessary to place him in a sanatorium and keep him under the influence of sedatives.

Treatment: July 16, 1913, an intraspinal injection of 30 c.c. of a 40 per cent. solution of salvarsanized serum after the method of Swift and Ellis; July 26, second injection; he became quieter and more tractable; August 4, third injection; distinct improvement the following week. He took his food and slept better, and grandiose ideas were less marked, but delusions of persecution persisted. August 14, fourth injection. After thirty minutes a mild convulsion. August 22, fifth injection. Steady improvement and only a tendency to be aggressive toward attendants and physicians. August 29, sixth injection. September 4, an intravenous injection of 0.45 gm. and on the following day an intraspinal injection. During the succeeding week a definite improvement in every way. He was brighter, had an insight into his condition, grandiose ideas practically disappeared and he was permitted to return to his home. Five more intravenous and five intraspinal injections were given.

Cerebrospinal Fluid; Oct. 21, 1913: Cells 6, globulin +, Wassermann ++ to 0.2 c.c. The first of the year he returned to business and during the month of February had one intravenous and one intraspinal treatment of salvarsanized serum.

Relapse: The latter part of March his brother died suddenly. This was followed by marked depression, insomnia and loss of weight.

Treatment: April 4, 1914, 0.75 mg. salvarsan subdurally; April 9, 0.4 gm. intravenously. April 23 the patient had a convulsion. April 25, 1.5 mg. intraspinally.

Cerebrospinal Fluid; April 25, 1914: Cells 15, globulin ++, Wassermann ++ to 0.05 c.c.

Treatment: May 12, 2 mg., May 22, 3 mg. intraspinally. The latter was followed by vesical incontinence persisting for several days.

Cerebrospinal Fluid: Cells 4, globulin ++, Wassermann ++ to 0.05 c.c.

Summary: Patient has received twenty-one injections of salvarsan, totaling 8.65 gm fifteen of neosalvarsan, 9.25 gm., thirteen intraspinal injections of salvarsanized serum varying in strength from 40 to 100 per cent. (Swift-Ellis method), and five intraspinal injections in dosage from 0.75 to 3 mg. salvarsan, besides several courses of mercury by injection and inunction. At present he is normal again excepting for slight mental indecision.

Case 18.—Cerebrospinal syphilis. Man, aged 29, single, clerk. Syphilis five years ago with secondaries.

Symptoms: Pupils sluggish, knee-jerks hyperactive, impotence for last two years.

Cerebrospinal Fluid: Feb. 2, 1913: Cells 46, globulin ++, Wassermann ++ to 0.6 c.c., ± to 0.4; serum —.

Treatment: Six injections neosalvarsan, 4.5 gm., six injections of salvarsan, 3 gm., and 100 grains of mercury salicylate from March 1 to June 1, 1913. This was followed by a period of rest to Nov. 4, 1913.

Cerebrospinal Fluid: Nov. 4, 1913: Cells 0, globulin —, Wassermann —.

This case shows the importance of lumbar puncture, for the blood was repeatedly negative and remained so under provocative treatment, as well as the effects of a concentrated therapeutic attack.

Clinically, the symptoms gradually improved.

Case 20.—Cerebrospinal syphilis. Man. A patient in the City Hospital. Syphilis three and one-half years ago.

Symptoms: For three weeks headaches and leg weakness; pupils fixed to light and accommodation. Patient also has multiple gummas of right leg.

Cerebrospinal Fluid: Cells 746, a very marked excess of globulin, the fluid coagulating almost solid, and a positive Wassermann to 0.05 c.c.

Treatment: Salvarsan, 1.5 mg. intraspinally; one week later the cell-count was down to 174 with a reduction in the globulin but no change in the Wassermann. The headaches were absent and the weakness in the legs had improved. After an injection of 3 mg. salvarsan intraspinally the cells dropped to 70, but the Wassermann was not influenced. The patient is now being systematically treated.

Case 22.—Cerebrospinal lues. Man, aged 58, married, manufacturer. Syphilis thirty-five years ago. Deafness twenty years ago.

Symptoms: Fifteen months ago pains in lower extremities and ataxic gait; about a year ago partial paralysis of the left arm and leg and left side of face. This was followed two months later by a second hemiplegic attack with an epileptiform convulsion; patient unconscious for two hours. Pupils irregular and sluggish, knee-jerks absent, marked Romberg, pains and bladder weakness.

Treatment: Oct. 11, 1911, 0.2 gm. salvarsan and Nov. 3, 1911, 0.35 gm. salvarsan. These were both followed by an aggravation of symptoms, namely, the pains and twitching in the legs and vesical insufficiency. Two weeks later there was a remission in these symptoms and gradual improvement. Jan. 1, 1912, 0.3 gm. salvarsan, which was not followed by any reaction except loss of control of bladder during the night following the injection. During the next few months there was a gradual improvement in every way.

Cerebrospinal Fluid: Oct. 6, 1912: Cells 18, globulin ++, Wassermann ++ to 0.8 c.c.; blood-serum —.

Treatment: Six injections of neosalvarsan, 2.5 gm., were given. When seen in January, 1914, the patient had had no treatment for a year, the pupillary reflexes had become more active and the bladder function normal. His gait improved as well as his coordination. He is able to ride horseback and walk miles without fatigue. His blood-serum was —. It was not possible to do another puncture at this time.

Case 23.—Endarteritis. Man, aged 49, married, manufacturer. Syphilis twenty-two years ago.

Symptoms: A year and a half ago the patient developed an attack of "pounding" in the ears followed instantly by sharp, severe pains in the head and unconsciousness for twenty-four hours. His vision remained blurred for many weeks and he had difficulty in articulating. He was very weak but had no definite palsies.

Treatment: Seven injections of neosalvarsan and mercury. Steady improvement took place.

Cerebrospinal Fluid; Feb. 20, 1913: Cells 6, globulin —, Wassermann ++ to 0.6 c.c., blood-serum ++.

Treatment: From Feb. 24 to March 22, 1913, he had five more injections of neosalvarsan, totaling 3.6 gm.

Clinically, no headache, no dizziness and patient feels normal.

In estimating the results obtained by the intensive treatment of syphilis of the nervous system one must not forget the influence of the psychologic effect of a new method of treatment and the fact that in many cases of tabes and paresis there are periods of remission covering months or years. Observations of this kind, however, were made before we employed the more precise methods of diagnosis and controlled our treatment by means of the examination of the spinal fluid. Furthermore, many of our most striking results have been obtained in patients who had long-continued and marked symptoms such as girdle sensation, pains and impairment of locomotion. The change in the clinical symptoms as well as the serologic findings would certainly give us strong presumptive evidence that the results were due to an actual improvement in the condition and not a normal remission.

Each case is a problem in itself and must be approached in an individual manner. Different pathologic conditions are present, so that while on the one hand we have an active process, on the other there is a degenerative one, complicated perhaps with an endarteritis, softening or scar formation. Symptoms which are due to interference with nutrition or pressure we cannot expect to influence.

When salvarsan is employed it should be done so intensively and combined with mercury. The criticism of certain writers against the employment of salvarsan in the secondary stage of syphilis is entirely fallacious, for we know that when it is given in the proper manner combined with mercury, the so-called neurorecidives do not occur. In an experience of over two years, during which this method of treatment has been followed, not a single case of nerve recurrence has been observed.

The cases submitted show that it is possible in some instances by intravenous medication alone to influence the clinical and serologic findings, and when this does not take place the only alternative may be intraspinal medication. Until we are more familiar with the effects of serum fortified *in vitro*, the Swift and Ellis method of salvarsanizing serum *in vivo* should be the one of choice. In certain cases the serum from a patient so treated may be reinforced with from 0.25 to 0.5 mg. of salvarsan. It must always be borne in mind that the spinal cord reacts intensively to irritants even of a mild grade. When a degenerative process is present the resistance of the cord is much below that of a normal one and the brunt of the irritation falls on the degenerated areas.

I am convinced that the intelligent and energetic treatment of the infection in the early stages properly controlled by the serum reaction would do much to prevent the subsequent development of nerve syphilis. It must, however, be thorough to eliminate the possibility of residual foci, which experience has taught have a predilection for the meninges. The early history of salvarsan shows that these accidents occur more precipitately after its use than under the older and milder methods of treatment.

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THE SERO-ENZYME TEST FOR SYPHILIS *

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DETROIT

Through the parenteral incorporation of foreign or changed protein into the organism we may observe the formation of enzymes in the blood of the body. These enzymes do not occur in the blood normally, but their presence is contingent on the entrance of blood-foreign substances. Conversely we are able to prove the occurrence of these enzymes in the blood by dialyzing such serum against the protein which gave rise to the enzymes.

The formation of these enzymes may be stimulated in the experiment at the will of the investigator, or it may take place in diseases of infectious origin, when the organisms themselves or the products of their action on the cells of the body, or both, are swept into the blood-stream and there cause the development of ferments which are capable of breaking up the complex foreign substances into their simpler non-specific component parts, which are either assimilated or thrown off. In this respect the normal and abnormal functions of the body differ quantitatively—for while, under normal conditions, the cells of the body split the complex specific molecules into simpler non-specific parts, there is added, under certain conditions, either physiologic or pathologic, the action of the ferments present or increased in the blood-serum which have the same function, namely, to split specific bodies into their non-specific components.

The work of Abderhalden has called attention to the formation and action of these ferments in pregnancy, in the course of which either chorionic epithelium or the products of the active metabolism as occurring in the syncytium may find their way into the blood-stream. Later Abderhalden extended his investigations to the diagnosis of neoplasms.

The controversy concerning the applicability of the dialyzing method for diagnostic purposes has found a fertile field in the sero-enzyme reaction for cancer, and a large number of observations have been made, which speak against the reliability of this method of diagnosis in this disease as far as it has been possible to determine, the failures may be due to a variety of causes, aside from possible errors in technic.

It is practically impossible to obtain cancer-tissue free from the connective-tissue stroma. The reaction for connective tissue is the same. This may be the reason why certain serums give positive reactions in other conditions than those clinically apparent. As the cancer invades an organ, there is usually degeneration of the neighboring tissue-cells and a consequent occurrence of protective enzymes in the serum of the patient against this cell protein. In addition, the cancer-cell may retain traces of the functional activity of the tissue from which it originated. Finally, the occurrence of protective enzymes in the serum is dependent on the breaking up of tissue in the blood and on the resorption of such broken-down tissue. Thus, an actively growing neoplasm may not give off cancer protein at all or may give it in such small quantities that the enzymes directed against it are not demonstrable. For these reasons the choice of the sero-enzyme diagnosis for neoplasms may not have been a happy one to bring the conflicting conclusions into any relation. The use of homologous cancer-tissue, that is, tissue from patients who had the new growth in the same relation as that of the suspected patient, may possibly shed some light on this line of work. At least these contradictory results are no reason for excluding this method of diagnosis from all clinical application.

The extraordinary significance of the work of Abderhalden from a clinical and purely scientific point of view should be a stimulus to further research to determine the factors which have given rise to these divergent results.

The infectious diseases offer a more promising field for this line of investigation, since, in the course of such diseases, the causative organisms find their way into the circulation and there give rise to the protective enzymes capable of digesting them. Aside from this, we have in syphilis a disease simulating many other conditions in which cell proliferation and destruction occur, so that the resorption of these broken-down foci by the blood will further stimulate the formation of enzymes against the protoplasm of the cells undergoing degeneration as the result of the presence of the *Spirochaeta pallida* in the body.

Two hundred serums, obtained mostly from patients of the outdoor clinics of St. Mary's Hospital, form the basis for this investigation. While work reported in a previous paper,[1] the majority of serums tested were obtained from known syphilitics, it has been my aim in this work to test serums of patients suffering from various complaints to determine the extent to which this reaction could be relied on as a diagnostic means.

The technic followed in the course of this work has been the same as was employed for the fifty-five cases already reported. The tissue employed was the same, namely, the "gummas" resulting from the inoculations of syphilitic tissue or blood into the testes of rabbits. These lesions become, in the course of a few transplantations from rabbit to rabbit, free from secondary infection. They are practically non-vascular and contain the *Spirochaeta pallida* in large numbers.

Tissues from syphilitic patients, such as condylomas, gummas, etc., are usually secondarily infected and very vascular, for which reasons they are not suitable as tissues for the sero-enzyme reaction. The testicular tissue which has undergone mucoid degeneration due to the presence of the *Spirochaeta pallida* is of special advantage in the sero-enzyme test in that we are making use of a highly specialized tissue, against which protective enzymes are not likely to be found in the serum of patients. Thus the sero-enzyme test becomes a specific biologic test for the diagnosis of this disease. While the Wassermann reaction is a valuable aid in the diagnosis of syphilis, the principles underlying this reaction are not yet understood after years of investigation and general use.

Table 1 gives the clinical diagnosis as well as the serologic findings of the two hundred cases.

Eighty-five, or 42.5 per cent. of the entire number of cases gave a history of specific infection. Table 2 gives the number of each case as well as the serologic findings.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Baeslack, F. W.: A Sero-Enzyme Diagnosis of Syphilis, THE JOURNAL A. M. A., March 28, 1914, p. 1002; Urol. and Cutan. Rev., May, 1914, p. 234.

TABLE 1.—DIAGNOSIS AND SEROLOGIC FINDINGS IN 200 CASES

Name	Case	Date	Age	Sex	Stage of Syphilis	History	Treatment	Wassermann Reaction	Sero-enzyme Test			Other Diseases and Complaints
									Syph.	Tuberc.	Goiter	
A. K.	1	2/ 4/14	25	♂	Primary, 5 weeks	+	—	+++	+	..	..	....
M. D.	2	2/ 4/14	38	♂	Latent	+	+	+++	+	..	..	....
L. S.	3	2/ 5/14	22	♀	Primary, 4 weeks	+	—	—	+	..	..	....
C. S.	4	2/ 5/14	37	♂	Cerebral lues	+	+	+++	+	..	..	....
Th. R.	5	2/ 6/14	76	♂	Gumma of testis	—	..	+++	+	..	..	....
A. Y.	6	2/ 9/14	50	♀	....	—	?	+++	+	..	..	Headache
A. C.	7	2/ 9/14	26	♂	Secondary	+	+	++	+	..	..	....
Th. M.	8	2/16/14	35	♂	Latent	+	+	+++	+	..	..	....
M. M.	9	2/16/14	43	♀	....	—	—	+++	+	..	..	Uncontrolled shaking of hands
J. M.	10	2/17/14	33	♂	Primary, 5 weeks	+	—	—	+	..	..	....
G. C.	11	2/17/14	38	♂	Primary, 6 weeks	+	—	++	+	..	..	....
F. W.	12	2/20/14	34	♂	Gumma on arms	+	+	++	+	..	..	....
M. D.	13	2/20/14	40	♂	Latent	+	+	++	±	..	..	....
M. T.	14	2/23/14	36	♂	Latent	+	+	++	+	..	..	....
B.	15	2/23/14	27	♀	Ulcers in mouth	+	—	++	+	..	..	....
A. H.	16	2/24/14	23	♂	Primary, 5 weeks	+	—	+++	+	..	..	....
S.	17	2/24/14	25	♂	Primary, 5 weeks	+	—	+++	+	..	..	....
N. H.	18	2/25/14	23	♀	Primary, 4 weeks	+	—	++	+	..	..	....
L. B.	19	2/27/14	31	♀	Latent	+	—	—	+	..	..	....
B. S.	20	2/27/14	40	♀	Cerebral lues	—	—	++	+	..	..	....
A. R.	21	2/27/14	25	♂	Prim-second	+	—	++	+	..	..	....
J. E. J.	22	2/27/14	40	♂	....	—	—	++	—	..	..	Lupus vulgaris?
H. D.	23	2/27/14	..	♂	Latent	+	+	+++	+	..	..	....
E. J.	24	3/ 2/14	21	♂	Primary, 2 weeks	+	—	—	—	..	..	....
B.	25	3/ 2/14	33	♀	Has child syphilitic	—	—	—	+	..	..	Sore throat
E. G.	26	3/ 4/14	33	♂	Latent	+	+	++	+	..	..	....
L. Th.	27	3/ 4/14	53	♀	....	—	—	++	+	..	..	Pleurisy l. side
A. S.	28	3/ 4/14	39	♂	Luetic neuroretinitis	+	+	+	+	..	..	....
J. R.	29	3/ 6/14	21	♂	....	—	—	—	—	..	..	Headache
H. T.	30	3/ 6/14	38	♂	Latent	+	+	++	+	..	..	....
K.	31	3/ 6/14	29	♂	....	—	..	—	—	..	..	Chancroid?
D.	32	3/ 9/14	45	♂	Primary	+	—	++	+	..	..	....
Th. M.	33	3/ 9/14	60	♂	Cerebral lues	+	+	++	+	..	..	....
P. L.	34	3/ 9/14	19	♀	....	—	—	—	—	..	..	Epileptic attacks
S.	35	3/10/14	..	♂	Latent	+	+	+	+	..	..	....
M.	36	3/10/14	..	♂	....	..	—	—	—	..	..	Diabetes
D.	37	3/10/14	..	♂	Latent	+	+	++	+	..	..	....
N.	38	3/10/14	40	♂	Ulcers on legs	+	—	—	+	..	..	....
M. R.	39	3/ 2/14	42	♂	....	—	—	+++	—	..	..	Retinitis
B.	40	3/ 2/14	36	♂	Tertiary	+	+	++	+	..	..	....
F.	41	3/ 2/14	..	♀	Latent	+	+	++	+	..	..	....
C.	42	3/ 2/14	32	♀	....	—	—	—	—	..	..	Infiltration of skin about the nose
Ch. H.	43	3/12/14	50	♂	Cerebral syphilis	+	+	++	+	..	..	....
A. N.	44	3/16/14	32	♂	....	—	+	++	+	..	..	Epithelioma of tongue
E. J.	45	3/16/14	21	♂	Secondary	+	..	—	—	..	..	....
A. H.	46	3/16/14	48	♀	Tabes	+	+	+++	+	..	..	....
A. J.	47	3/18/14	29	♀	....	—	—	—	—	..	..	Pain in arms and legs
M. G.	48	3/18/14	56	♀	....	—	?	++	—	..	..	Senile dementia
D.	49	3/19/14	28	♂	Tabes	+	+	++	+	..	..	....
S.	50	3/19/14	55	♀	Syph. neuritis	+	+	+++	+	..	..	....
C. M.	51	3/20/14	19	♂	....	—	—	—	+	..	..	Mixed infection
D.	52	3/21/14	43	♂	....	—	—	+++	+	..	..	Tuberculosis
S. L.	53	3/21/14	29	♀	....	—	—	++	+	..	..	Visceral ptosis
S. M.	54	3/23/14	32	♂	Primary	+	—	±	+	..	..	....
F. O.	55	3/23/14	23	♂	....	—	—	—	—	..	..	Sore throat
Ch. B.	56	3/23/14	26	♂	Primary and second	+	—	++	+	..	..	....
A. H.	57	3/23/14	29	♂	Latent	+	+	++	+	..	..	....
R.	58	3/24/14	..	♂	....	—	?	+++	+	..	..	Stomach disturbances and falling of hair
H. W.	59	3/25/14	27	♂	Secondary	+	+	+++	+	..	..	....
S. F.	60	3/25/14	19	♂	....	—	—	+++	+	..	..	Ulcers of legs
S. C.	61	3/25/14	29	♂	Cerebral lues	+	+	+	+	..	..	....
J. C.	62	3/25/14	31	♂	Primary and secondary	+	—	+	+	..	..	....
G. F.	63	3/25/14	25	♂	Secondary	+	+	++	+	..	..	....
J. H.	64	3/25/14	43	♂	....	+	?	—	+	..	..	Periostitis on r. olecranon
A.	65	3/25/14	38	♀	Tertiary	+	+	++	+	..	..	....
K.	66	3/25/14	29	♂	Primary	—	—	—	+	..	..	....
H. P.	67	3/25/14	..	♂	....	—	—	—	+	..	..	Arthritis
W. K.	68	3/25/14	19	♂	Secondary	+	—	++	+	..	..	....
G. G.	69	3/27/14	52	♂	....	+	?	—	—	..	..	Exostosis on r. tibia. Headaches
S. Ch.	70	3/27/14	29	♂	Cerebral lues	+	+*	+++	—	..	..	....
N. A.	71	3/30/14	26	♂	Syph. anemia	—	—	++	+	..	..	....
P. OC.	72	3/30/14	42	♂	....	—	—	—	—	..	..	Black-water fever
N.	73	3/30/14	28	♂	Secondary	—	—	++	+	..	..	....
R.	74	3/31/14	35	♀	....	—	—	++	—	..	..	Pain in r. arm and leg
J. K.	75	4/ 1/14	33	♂	....	—	—	—	+	..	..	Frozen foot, refused to heal
A. B.	76	4/ 1/14	32	♀	....	—	—	++	±	..	..	Coryza
S. C.	77	4/ 1/14	38	♂	....	—	—	+	+	..	..	Pain in left shoulder
J. C.	78	4/ 3/14	36	♂	....	—	—	+++	+	..	..	Epileptic
J. McG.	79	4/ 3/14	50	♂	Tertiary	+	+	+++	+	..	..	....
N. C.	80	4/ 3/14	50	♂	Secondary	+	+	++	+	..	..	....
181	81	4/ 6/14	..	♂	....	—	—	—	—	..	..	Gonorrhea
J. L.	82	4/ 6/14	32	♂	....	—	—	—	—	..	..	Ulcerations on l. arm and fingers
J. M. C.	83	4/ 7/14	24	♂	....	—	—	—	—	..	..	Erosion of post-nasal bones. Ozena
C. R.	84	4/ 7/14	28	♀	....	—	—	—	—	..	..	Extoses of head
Sch.	85	4/ 8/14	32	♂	....	—	—	—	—	..	..	Tuberculosis
Ch. L.	86	4/ 8/14	53	♂	....	—	—	+	+	..	..	Creton Alopedia
W. O.	87	4/ 8/14	21	♂	....	—	—	++	+	..	..	Gonorrhea
I. F.	88	4/ 8/14	35	♂	....	—	—	—	+	..	..	Pulm. H. advanced
G. Cl.	89	4/ 9/14	25	♂	Secondary	+	—	++	—	..	..	....
493	90	4/10/14	..	♂	....	+	+	—	+	..	..	....
W. N.	91	4/13/14	23	♂	Secondary	+	+	++	+	..	..	....
W. Sch.	92	4/13/14	24	♂	Latent	+	+	++	+	..	..	....
C. P.	93	4/14/14	36	♂	Cerebral lues	+	+	++	+	..	..	....
H. T.	94	4/14/14	42	♂	Tabes	+	+	+	+	..	..	....
S. F.	95	4/15/14	19	♀	Cong. syph.	+	?	++	+	..	..	....
H.	96	4/16/14	48	♀	....	—	—	++	+	..	..	Pain in pelvis
S. J.	97	4/16/14	24	♂	Secondary	+	+	—	—	..	..	....
S.	98	4/17/14	..	♂	Latent	+	+	+++	+	..	..	....
M. R.	99	4/17/14	52	♀	Secondary	+	—	+++	+	..	..	....
A.	100	4/17/14	22	♂	Secondary	+	+	++	+	..	..	....

TABLE 1.—DIAGNOSIS AND SEROLOGIC FINDINGS IN 200 CASES—(*Continued*)

Name	Case	Date	Age	Sex	Stage of Syphilis	History	Treatment	Wassermann Reaction	Sero-enzyme Test			Other Diseases and Complaints
									Syph.	Tuberc.	Goiter	
M. M.	101	4/20/14	24	♀	...	—	—	++	+	..	..	Lupus vulgaris?
F. K.	102	4/20/14	48	♂	...	—	—	++	+	..	..	Frontal and parietal headaches
J. H.	103	4/21/14	46	♂	...	—	?	++	±	..	..	Total blindness
Sch.	104	4/21/14	..	♂	...	—	?	++	+	..	..	Necrosis of toes
O. P.	105	4/21/14	62	♂	Tabes	+	+	++	+	..	..	...
D.	106	4/21/14	46	♀	...	—	—	++	+	..	..	Aphasia on left side of face, occ. pain
A. C.	107	4/21/14	16	♂	Tabes	..	—	+++	+	..	..	...
F. G.	108	4/21/14	?	♀	...	—	—	—	—	..	..	Pulm. tuberculosis
M. F.	109	4/21/14	..	♀	...	+	+	+++	+	..	..	Pain in back
M. L.	110	4/22/14	38	♀	...	—	—	—	—	..	..	Epileptic
McP.	111	4/22/14	29	♂	...	—	—	+++	±	..	..	Dizziness
W. M.	112	4/22/14	53	♂	Tertiary	+	+	+++	+	..	..	...
P. C.	113	4/22/14	36	♂	...	—	—*	+++	—*	..	..	Blindness in rt. eye
P.	114	4/22/14	62	♂	Tabes	+	+*	+++	—*	..	..	...
Sch.	115	4/23/14	40	♂	...	—	—	++	+	..	..	Mitral and aortic regurgitation
C. B.	116	4/24/14	22	♀	...	—	—	—	—	—	+§	Goiter
H.	117	4/24/14	24	♀	...	—	—	++	—	..	..	Wart-like growth under right thumb, 7 years
J. J.	118	4/29/14	34	♂	...	—	—	—	—	+	..	Tuberculosis pulm.
S. J.	119	4/29/14	24	♂	Secondary	+	+	—	+	+	..	...
H. V.	120	4/29/14	27	♂	Rec. primary?	+	+	—	—	+	..	...
D. J.	121	4/29/14	35	♂	...	—	—	—	—	—	..	Saddle nose
G. L.	122	4/29/14	40	♀	Tabes	—	?	—	+	+	..	...
H. T.	123	4/30/14	47	♂	Tabes	+	+*	+++	—*	—	..	...
J. M.	124	4/30/14	..	♂	...	—	—	—	—	—	..	Burn sec. degree
A. G.	125	4/30/14	18	♂	...	—	—	+	—	+	..	Acne, Tuberc. pulm.
C.	126	4/30/14	3	♂	Congenital?	—	—	—	—	..	..	...
W. L.	127	5/ 1/14	35	♂	Latent	+	+	—	+	..	..	...
Ch.	128	5/ 1/14	57	♂	...	—	—	+	—	+	..	Tuberc. pulm.
L. B.	129	5/ 1/14	25	♀	...	—	—	—	—	—	+	Goiter
G. M.	130	5/ 1/14	30	♂	Malignant secondary	+	—	+++	—	+	..	...
A. J.	131	5/ 1/14	19	♂	Latent	+	+	—	—	±	..	...
G. S.	132	5/ 2/14	25	♂	Primary 5 weeks	+	—	+	+	+	..	...
J. B.	133	5/ 2/14	8	♂	...	—	—	—	—	+	..	Tuberc. periost. tibia, dextra
O.	134	5/ 2/14	28	♀	...	—	—	+	—	+	..	Tuberc. right knee
S.	135	5/ 2/14	25	♂	...	—	—	—	—	±	..	Tuberc. pulm.
G.	136	5/ 2/14	35	♀	...	—	—	++	+	+	..	Tuberc. pulm.
L.	137	5/ 2/14	21	♀	...	—	—	—	—	+	..	Tuberc. pulm.
L. B.	138	5/ 2/14	..	♀	...	—	—	+	—	+	..	Tuberc. pulm.
A. W.	139	5/ 2/14	..	♂	...	—	—	+	—	+	..	Tuberc. pulm.
J. H.	140	5/ 2/14	..	♂	...	—	—	+	—	+	..	Tuberc. pulm.
M. L.	141	5/ 4/14	30	♂	...	—	—	+++	+	+	..	Gonorrheal arthritis
W. W.	142	5/ 4/14	21	♀	...	—	—?	+	±	+	..	Ulcerative cond. of toes.
D. J.	143	5/ 4/14	20	♂	...	—	—	+++	+	+	..	Gonorrhea
A. B.	144	5/ 4/14	31	♂	...	+	?	+++	+	—	..	...
J. F.	145	5/ 4/14	20	♀	Latent	—	—	—	—	+	+§	Headache
M.	146	5/ 5/14	25	♀	...	—	—	—	—	—	+‡	Pregnant
L.	147	5/ 5/14	35	♂	...	+	+	++	+	±	..	...
H. S.	148	5/ 5/14	56	♀	Latent	—	—	+	—	..	..	Pain in right shoulder
L. G.	149	5/ 5/14	..	♀	...	—	—	—	—	+	..	Tuberc. pulm.
A. S.	150	5/ 5/14	..	♂	...	—	—	—	—	+	..	Tuberc. pulm.
—	151	5/ 5/14	..	..	...	—	—	+	—	+	..	Tuberc. pulm.
L. P.	152	5/ 6/14	27	♂	...	—	—	++	+	..	..	Macroglossia
G.	153	5/ 6/14	22	♂	...	+	+	+++	+	..	..	...
McG.	154	5/ 8/14	28	♂	Secondary	—	—	—	—	+	..	Run down
F. M.	155	5/ 8/14	22	♂	Primary	+	—	—	—	+	..	...
L. D.	156	5/ 8/14	42	♂	Sec. palmar syph.	—	—	++	+	+	..	...
G. L.	157	5/ 9/14	29	♂	...	—	—	—	—	..	..	Ulcer on forehead
M.	158	5/11/14	21	♂	...	—	—	—	—	..	..	Normal
W. H.	159	5/11/14	..	♂	...	+	+	+++	+	..	..	Ulcer Toe
A. A.	160	5/13/14	50	♂	...	—	—	++	—	..	..	Asthma
A. M.	161	5/14/14	43	♂	...	—	—	++	—	—	..	Cancer of throat
A. S.	162	5/15/14	30	♂	Secondary	+	+	+++	+	—	..	...
A. T.	163	5/15/14	35	♂	Latent	+	+	+	+	—	..	...
30	164	5/17/14	35	♀	...	—	—	++	—	±	..	Pain in r. elbow and wrist
32	165	5/17/14	38	♂	...	—	—	+++	+	+	..	Ulceration of nose and throat
L. C.	166	5/17/14	20	♀	...	—	—	—	—	—	..	Cold
33	167	5/17/14	..	♀	...	—	—	—	—	—	..	Warts on wrist and arms
34	168	5/17/14	..	♂	...	—	—	—	—	—	..	Normal
R. R.	169	5/19/14	40	♀	...	—	—	—	+	+	..	Run down
H.	170	5/19/14	..	♀	...	—	—	—	—	—	..	Stomatitis
W.	171	5/19/14	..	♀	Latent	+	?	+++	+	+	..	...
H. H.	172	5/19/14	21	♂	Primary	+	—	—	±	±	..	...
F. D.	173	5/20/14	24	♂	Latent	+	+	—	+	+	..	...
H.	174	5/21/14	34	♂	Latent	+	+	++	+	..	..	...
P.	175	5/21/14	..	♀	...	—	—	—	+	..	..	Facial paralysis
McG.	176	5/21/14	37	♂	...	—	—	+	—	+	..	Tuberc. of Kidney?
K.	177	5/22/14	27	♀	...	—	—	—	—	..	+§	Goiter
E.	178	5/22/14	25	♂	...	—	—	++	+	..	..	Gonorrhea
J. S.	179	5/22/14	25	♂	Primary	+	—	—	+	—	..	...
M.	180	5/22/14	58	♂	...	—	+	++	—	+	..	Rheumatism
P. W.	181	5/22/14	18	♀	...	—	—	—	—	+	..	Pleurisy
W.	182	5/22/14	43	♀	...	—	—	—	—	—	..	Stomach trouble
McG.	183	5/25/14	37	♂	...	—	—	+	—	+	..	176
H. B.	184	5/21/14	..	♀	Primary	..	—	—	—	+	..	...
G.	185	5/25/14	43	♀	...	—	—	—	—	+	..	Injury to head by blow
F. M.	186	5/25/14	25	♂	Secondary	+	+	++	+	..	..	...
P. J.	187	5/25/14	56	♂	...	—	—	—	—	+	..	Hemoptysis
G. McD.	188	5/25/14	30	♂	...	—	—	—	—	+	..	Tuberc. pulm.
R.	189	5/25/14	55	♀	...	—	?	++	—	+	..	Pain in legs and arms
D.	190	5/26/14	27	♂	...	—	—	+	—	+	..	Gonorrhea
J. M.	191	5/26/14	29	♂	...	—	—	—	+	+	..	Gonorrhea
B. U.	192	5/26/14	34	♂	Latent	+	+	+++	+	..	..	...
J. H.	193	5/26/14	30	♂	Secondary	+	+	+	—	..	..	...
J. W.	194	5/26/14	26	♂	...	—	—	—	+	..	..	Ulcer on r. tonsil
Z.	195	5/26/14	..	♂	Primary	—	—	—	+	..	..	...
P. L.	196	5/27/14	19	♀	...	—	—	++	+	..	..	Epileptic
McD.	197	5/27/14	34	♂	Secondary	—	+	—	+	..	..	...
B. C.	198	5/27/14	29	♂	Paresis	—	+*	+++	—	..	..	...
J. A.	199	5/27/14	33	♂	Secondary	+	+	+	+	..	..	...
Ch.	200	6/ 1/14	54	♀	...	—	..	..	+	..	..	Multiple sclerosis epileptic

* Spinal fluid. † The husband of this patient was syphilitic. ‡ Placenta. § Thyroid.

TABLE 2.—SEROLOGIC FINDINGS IN 85 CASES WITH HISTORY OF SPECIFIC INFECTION*

Primary:							
1 ++	3 0+	10 0+	11 ++	16 ++	17 ++	18 ++	24 00
32 ++	54 ±+	120 00	132 ++	155 00	172 0+	179 0+	
Secondary:							
7 ++	15 ++	21 ++	45 ++	56 ++	59 ++	62 ++	63 ++
68 ++	80 ++	89 ++	90 00	91 ++	97 00	99 ++	100 ++
119 0+	130 +0	153 ++	162 ++	186 ++	193 +0	199 ++	
Tertiary:							
12 ++	28 ++	40 ++	50 ++	64 0+	65 ++	69 00	75 ++
112 ++	159 ++						
Latent:							
2 ++	8 ++	13 +±	14 ++	23 ++	26 ++	30 ++	35 ++
37 ++	41 ++	57 ++	92 ++	98 ++	127 0+	131 00	144 ++
147 ++	163 ++	171 ++	173 0+	174 ++	192 ++		
Cerebral Lues:							
4 ++	33 ++	43 ++	61 ++	70 +0 Sp. f.	93 ++		
Tabes:							
46 ++	49 ++	94 ++	105 ++	107 ++	109 ++	114 ++ Sp. f.	123 ++ Sp. f.
Congenital syphilis:							
++ 95							

* The designation to the left indicates the findings with the Wassermann reaction; to the right the result of the sero-enzyme test.

Table 3 gives the arrangement of these eighty-five cases according to the serologic findings.

TABLE 3.—ARRANGEMENT OF 85 CASES WITH HISTORY OF SPECIFIC INFECTION ACCORDING TO THE SEROLOGIC FINDINGS*

No. of Cases	Percentage	Wassermann Reaction	Sero-Enzyme Test
62	72.94	+	+
5	5.88	+	—
7	8.23	—	+
8	9.41	—	—
1	1.16	±	+
2	2.32	—	±

* In this table + = positive; — negative; ± doubtful.

Out of the 5 cases which gave a positive Wassermann reaction and a negative sero-enzyme for syphilis, 3 were cerebrospinal fluid which does not contain enzymes—Cases 70, 114, 123. The 7 cases giving a negative Wassermann reaction and a positive sero-enzyme syphilis reaction were, 3 in the primary, 1 in the secondary, 1 in the tertiary and 2 in the latent stages of syphilis. Case 54, primary chancre, gave a doubtful Wassermann reaction and a positive sero-enzyme. Cases 13 and 172, also primary chancre, gave a negative Wassermann reaction and a doubtful sero-enzyme reaction for syphilis.

TABLE 4.—ARRANGEMENT ACCORDING TO SEROLOGIC FINDINGS OF 115 CASES IN WHICH THE SPECIFIC HISTORY WAS NEGATIVE

Number	Percentage	Wassermann Reaction	Sero-Enzyme for Syphilis
31	26.95	+	+
23	20.00	+	—
13	11.3	—	+
44	38.26	—	—
4	3.47	+	±

Out of the 115 cases giving no history of specific infection 24 presented clinical symptoms of the disease.

In summarizing the findings of Table 5 we find the Wassermann reaction positive and sero-enzyme reaction positive in 12 cases or 50 per cent.; Wassermann reaction positive and sero-enzyme reaction negative in 3 cases or 12.5 per cent.; Wassermann reaction negative and sero-enzyme reaction positive in 8 cases or 33.33 per cent.; Wassermann reaction negative and sero-enzyme reaction negative in 1 case or 4.16 per cent.

TABLE 5.—CASES IN WHICH SPECIFIC INFECTION WAS DENIED, DIAGNOSED CLINICALLY AS SYPHILIS

1	Alopecia areata, gastric disturb.	58	+++	+
2	Alopecia areata	86	+	+
3	Aphasia, l, side of face	106	++	+
4	Blindness in right eye, Sp. fluid	113	+++	—
5	Cerebral lues	20	++	+
6	Gumma of testes	5	+++	+
7	Latent, husband known to be syph.	19	—	+
8	Latent, child syphilitic	25	—	+
9	Macroglossia	152	++	+
10	Necrosis of toes	104	++	+
11	Palmar syphilide	156	++	+
12	Páresis Sp. fluid	198	+++	—
13	Primary lesion	66	—	+
14	Primary lesion	184	—	—
15	Primary lesion	195	—	+
16	Retinitis	39	+++	—
17	Secondary syphilis	73	++	+
18	Secondary syphilis	101	++	+
19	Secondary syphilis	197	—	+
20	Syphilitic ulcers on legs	38	—	+
21	Syphilitic ulcers on legs	60	+++	+
22	Syphilitic ulcers in nose and throat	165	+++	+
23	Syphilitic ulcers on right tonsil	194	—	+
24	Tabes	122	—	+

The 3 cases giving a positive Wassermann reaction and a negative sero-enzyme syphilis reaction include 2 cases, that is, Cases 4 and 12, in which spinal fluid was tested. The cerebrospinal fluid does not contain the protective enzymes. The 8 cases giving a negative Wassermann reaction and a positive sero-enzyme syphilis reaction were: 2 cases of primary syphilis (Cases 66 and 195), 1 secondary (Case 197), 2 latent (Cases 19 and 25), 2 had syphilitic ulcers (Cases 38 and 194), and 1 case of tabes (Case 122). Aside from the 12 cases found to be positive to the Wassermann reaction and sero-enzyme test for syphilis in the series clinically syphilitic, 19 others were found among the remaining 91 whose serums reacted positive in both tests, or 16.52 per cent.

TABLE 6.—WASSERMANN REACTION AND SERO-ENZYME TEST POSITIVE IN CASES IN WHICH SPECIFIC INFECTION WAS DENIED

		No.	Case
1	Anemia	1	71
2	Arthritis	1	141
3	Epilepsy	3	78, 196, 200
4	Epithelioma of tongue	1	44
5	Gonorrhea	3	87, 143, 178
6	Headache	2	6, 102
7	Mitral and aortic regurgitation	1	115
8	Pain in shoulder	1	77
9	Pelvic pain	1	96
10	Pleurisy	1	27
11	Tuberculosis	2	52, 136
12	Uncontrollable shaking of hands	1	9
13	Visceral Ptosis	1	53
		19	

WASSERMANN REACTION POSITIVE, SERO-ENZYME DOUBTFUL

1	Blindness (total)	1	103
2	Coryza	1	76
3	Dizziness	1	111
4	Ulcerative condition of the toes	1	142
		4	

Of the 4 cases giving a positive Wassermann and a doubtful sero-enzyme reaction, Case 142 gave a single positive Wassermann while the remaining 3 gave double positive results. These latter 3 patients may be suffering from specific infection although no clue to it could be elicited in their history.

The Wassermann reaction was positive and the sero-enzyme test for syphilis negative in 20 out of 115 cases, or 17.39 per cent. It is interesting to note that 9 cases of tuberculous condition, in Table 7 gave a positive Wassermann reaction which, though faint, was distinct. Tuberculosis is capable of giving a positive Wassermann reaction. If we subtract the 9 cases of tuberculosis in Table 7 and Case 161, cancer of the throat, we have left 10 cases which possibly might be syphilitic.

TABLE 7.—WASSERMANN REACTION POSITIVE, SERO-ENZYME TEST NEGATIVE

		Case	No.
1	Asthma	1	160
2	Cancer of throat	1	161
3	Gonorrhea	1	190
4	Gon. rheumatism	1	180
5	Lupus vulgaris	1	22
6	Pain in arms and legs, elbows, wrist	3	74, 164, 189
7	Pain in left shoulder	1	148
8	Senile dementia	1	48
9	Tuberculosis	9	125, 128, 134, 138, 139, 140, 151, 176, 183
10	Wart under thumb-nail	1	117
		20	

Six serums of patients suffering from the conditions indicated in Table 8 gave a negative Wassermann reaction and a positive sero-enzyme test.

TABLE 8.—WASSERMANN REACTION NEGATIVE, SERO-ENZYME TEST POSITIVE

		Case	No.
1	Facial paralysis	1	175
2	Frozen foot refusing to heal	1	75
3	Gonorrhea	1	191
4	Mixed Infection (Gon.)	1	51
5	Run-down condition	1	169
6	Arthritis	1	67

Out of the remaining 42 cases, 36, or 39 per cent., were both negative for Wassermann reaction and the sero-enzyme test for syphilis. The clinical condition of these cases is given in Table 9.

TABLE 9.—SPECIFIC INFECTION DENIED. WASSERMANN REACTION AND SERO-ENZYME TEST NEGATIVE

	Case	No.
Acne rosacea	1	42
Black-water fever	1	72
Burn Sec. Degree	1	124
Chancroid	1	31
Coryza	1	166
Diabetes	1	36
Epilepsy	2	34, 120
Exostosis on head	1	84
Gonorrhea	1	81
Goiter	3	116, 129, 177
Headache	2	29, 145
Injury to head	1	185
Normal	3	126, 158, 168
Ozena, erosion of nose	1	83
Pain in arm and legs	1	47
Pregnancy	1	146
Pleurisy	1	181
Run down condition	1	154
Saddle Nose	1	121
Sore throat	1	55
Stomatitis	1	170
Stomach trouble	1	182
Tuberculosis	11	85, 88, 108, 118, 133, 135, 137, 149, 150, 187, 188
Ulcers on 1. arm and fingers	1	82
Ulcer on forehead (Epithelioma?)	1	157
Warts on arm and hands	1	167

SUMMARY

1. In conclusion I would point out that in the sero-enzyme test for syphilis, when carried out with syphilitic testicular tissue, is probably a specific reaction, since the somatic cells are highly specialized, presupposing a specific enzyme for their cleavage. Thus, in the use of the gumma produced in rabbits by inoculation, we make use of a substratum which, when free from contamination, is superior to tissue prepared from the tissue of syphilitic patients, which of necessity is contaminated and is likely to give rise to positive reaction in other conditions.

2. The reaction is not applicable in cases in which cerebrospinal fluid is to be tested.

3. The reaction is more specific than the Wassermann reaction, for it has always given a positive reaction with the serum of tabetics, while the Wassermann reaction in this condition is negative in about 40 per cent. of cases. I would also point out the nine cases of tuberculosis which gave a positive Wassermann reaction although no sign of syphilis could be found in any of these patients. The specificity of the test is further shown in the 8 cases giving a negative Wassermann reaction and a positive sero-enzyme test (Summary of Table 5).

4. The technic of the reaction demands cleanliness and careful control of shells, tissue, serum and the carrying out of the ninhydrin reaction. As one becomes acquainted with the test one's confidence in it increases.

5. The sero-enzyme test for syphilis represents, with the exceptions indicated, a true biologic test for this disease.

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THE INTRAVENOUS ADMINISTRATION OF MERCURY IN SYPHILIS *

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This method was first used by Bacelli in 1893, and subsequently by Blaschko, Lewin, Chopping, Lane, Abadie, Campana, and Stoukowwenkoff and others. The method in recent years has apparently fallen into disuse, very few articles on the subject being found in the literature. This may be due to the rather discouraging attitude of Fournier, who looked on the method with disfavor. He is under the impression that a toxic agent, such as mercury, suddenly placed in contact with the endometrium, may possibly exert a deleterious effect on it. His supposition is based on the experiments of Ullman. While Ullman has never seen an animal die after the intravenous injection of large doses of mercury, yet in a few cases in which death occurred later, there were no lesions which would account for the death of the animal, and Fournier reasons that death might have been caused by paralysis of the heart, engendered by the previous injections of mercury. Two comparatively recent articles on the intravenous injection of mercury in the treatment of syphilis are by Meyer, whose results were disappointing,

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

and Lydston, whose results in eight cases were very gratifying. Wernigk appears enthusiastic, after twelve years of experience with the intravenous injection of mercury. Balzer, at the French Medical Congress of 1904, endorsed it for cerebral and ocular syphilis. Ravant uses the cyanid of mercury, intravenously, as a preliminary to salvarsan therapy.

Our experience with this method is derived from its use at the New York Skin and Cancer Hospital, in a large number of cases of cutaneous syphilis. We first used the bichlorid in doses of $\frac{1}{6}$ to $\frac{1}{3}$ grain in distilled water. On an average, six injections were given in each case. Our best results were attained with this salt. We also used the benzoate in a 1 per cent. solution in normal saline, of which the dose was from 2 to 12 c.c. While the results with this salt were good, they were inferior to those obtained with the bichlorid. Enesol[1] in our hands proved very unsatisfactory, and a proprietary preparation of mercuric oxycyanid also gave inferior results.

The technic of the injection is simple, provided that the subject has prominent veins, otherwise the percentage of failure to get the needle in the lumen of the vein is in proportion to the experience of the operator in intravenous work. The most prominent vein at the bend of the elbow of either arm is selected, the region sterilized with alcohol, and a constricting band, preferably a piece of rubber tubing, applied to the lower third of the arm. The patient closes the fist tightly so as to increase the tension in the veins. The filled glass syringe with needle attached, is inserted in a vertical direction through the skin, and then directed obliquely into the vein. The direct flow of blood into the barrel of the syringe is sufficient indication that the needle is within the lumen of the vein. The constricting band is removed, and the mercurial solution with the admixed blood is slowly injected. The amount of solution used varies of course with the particular dose which we wish to give, but it rarely exceeds 12 c.c.

The advantages of the intravenous method are: immediate introduction of the curative agent in the circulating blood, rapid therapeutic results, mathematical dosage and absence of pain. The most important disadvantage is the occasional occurrence of phlebitis, and periphlebitis, which seemed more frequent after the use of the bichlorid than of the benzoate; this complication, however, occurred only in our early cases, when the solution used was more concentrated. A small number of the patients suffered from ptyalism and a few others developed mercurial diarrhea, but, in none of the cases did these complications cause anything more than a temporary disturbance.

The results in our hands in cases where the rapid removal of lesions was desired were uniformly good. Among the cases we recall was one with an extensive palmar lesion of the right hand of ten years' duration; it entirely disappeared after two injections of 4 and 7 c.c., respectively, of a 0.5 per cent. solution of benzoate of mercury. Another case with two large serpiginous, greatly infiltrated, and crusted lesions, several inches in diameter, on the left hand and wrist, cleared up entirely after the third injection. Still another lesion, involving half the palm of the left hand, which had resisted mixed treatment for four months, cleared up entirely after the third injection. A gumma of the right thigh disappeared entirely after three injections. An extensive secondary eruption of the pustular type resolved after four injections, leaving scales of dried pus, which were easily removed, disclosing an entirely healed lesion beneath. An extensive raised, grouped, papular lesion of the left cheek was rapidly resolving, and had lost all of its infiltration; the lesions were even with the skin after three injections. An ulcerated, serpiginous lesion, 4 inches long by 1 inch broad, and greatly crusted, healed entirely after two injections.

These are a few of the many cases which impressed us with the rapid therapeutic results obtained with this method, and we are strongly convinced that despite its obvious disadvantages it is of great value in selected cases. It is not to be used indiscriminately, however, and we do not recommend it for routine administration.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WHITE, HAZEN, NICHOLS, BAESLACK, FORDYCE, CORBUS, AND KINGSBURY AND BECHET

Dr. William T. Corlett, Cleveland: Dr. White emphasized the fact that patients themselves are often responsible for much of the misery and many of the late lesions that follow in the course of syphilis. His statistics show that in a large percentage of cases, patients come to the hospital for treatment for only a few days. In our experience at the Lakeside Hospital, in a large percentage of cases, patients were treated for only three days, a still larger percentage for two or three weeks, etc. This confirms the experience of Dr. White and shows that the patients themselves do not realize the importance of their disease or the value of thorough treatment from the beginning. We have endeavored to educate such patients by distributing a printed circular setting forth some of the possible dangers of the disease, if left untreated, and also emphasizing the precautions that they should take to guard against infecting others, and the probable length of time that it will be necessary to follow out a systematic course of treatment. Furthermore, even physicians are not alive to the importance of treatment during the primary stage of the infection. We have endeavored, especially, to give heroic treatment in appropriate cases at the outset of the disease, and while it is extremely difficult to speak with assurance on this point, we believe that in a few instances we were successful in curing the disease in this way, as a few patients have been kept under careful observation for at least two years without showing further manifestations of syphilis. I believe that 99 per cent. of the physicians in this country are incapable of treating the disease according to the advocated standard, and that the root of the trouble lies with the medical schools and hospitals. The haphazard way in which the delicate technic advocated by Dr. Fordyce and required in intraspinal treatment, is carried out in many hospitals where the work is often left to young inexperienced interns and without intelligent supervision, is appalling. In the light of this symposium more than ever do I believe that the hospital treatment and medical-school teaching of syphilis, in all its phases, should be under the guidance of one particular man with the cooperation of the other members of the staff.

Dr. S. Pollitzer, New York: In a paper read before the New York County Medical Society in January, 1911, I developed the theory that the spirochetes soon after infection were distributed throughout the entire system, involving every organ and tissue reached by the blood-stream. There most of them were probably destroyed by the natural forces of resistance, but many doubtless passed over into a resting or spore stage in which they remained indefinitely without harm to their host till under some local stimulus, such as a trauma, they renewed their activity and produced the lesions of tertiary syphilis. This theory seems to me a necessary conclusion from the known facts of biology and the clinical course of syphilis. To obviate the late lesions of the disease every case should be treated at its very inception by the most intense medication at our command. The question of the best method of treating tabes and paresis is by no means settled. Treatment by intraspinal methods is still in an experimental stage and the present state of our knowledge of these methods does not justify their general adoption. The working out of the details should be left to those who are qualified by their larger opportunities to carry them out. The intraspinal methods give promise of usefulness; but we must realize that no possible treatment can restore nerve fibers and cells that have been destroyed. I employ the Ravaut method, direct injection of hypertonic solutions of neosalvarsan, and while I have had some very unpleasant immediate symptoms, I have had no permanently bad results from it. Meanwhile it is well to remember that these forms of syphilis are immensely benefited by energetic treatment by other methods. For the past two years I have had a patient with paresis under observation whom I took out of the psychopathic ward at Bellevue Hospital and gave sixteen injections of salvarsan, in all 10 gm., in sixty days. That man is to-day apparently well; his blood-Wassermann is negative, his spinal fluid contains three cells to the cubic millimeter, globulin negative, Wasserman -negative with all but the maximum quantity of fluid. I shall report on the final outcome of this case in ten years. It is unfortunate that the treatment of syphilis in its early stage is almost exclusively in the hands of the general practitioner, who so often contents himself with prescribing some pills and loses sight of the patient with the disappearance of the first symptoms. It is unfortunate that he does not realize his opportunity and his responsibilities. There is reason to believe that, in its earliest stage, syphilis can be cured by excision of the chancre and a single energetic course of salvarsan and mercury. It is equally true that the specialists for the eye and throat treat their cases of syphilis badly, that is, symptomatically. They also stand in need of education on this subject.

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[1] See Enesol, an Arsenic and Mercury Preparation of Uncertain Composition, Propaganda Department, The Journal A. M. A., July 26, 1913, p. 292.

Dr. C. Augustus Simpson, Washington, D. C.: The percentage of syphilis among the negroes of Washington is very high, as they rarely persist in the prescribed treatment. I think that the number of cases among the white population is not so great as in some other sections of the country, and that the amount of syphilis among the white patients that visit Freedmen's Hospital of our city is no indication of the number of cases there, as very few white patients can be treated in a negro hospital and the class that does apply for treatment is, as a rule, the very class in which one would expect to find a large number of syphilitics. The frequency of syphilis of the nervous system in the future will depend a good deal on the thoroughness and conscientiousness with which the medical man carries out his treatment and blood-tests. If he cannot distinguish between a negative provocative Wassermann and a negative plain Wassermann he will soon get into trouble. The latter means little or nothing so far as a cure is concerned. An effort should be made to get a negative luetin reaction, while a negative provocative test should be insisted on before the patient is allowed to stop his treatment.

Dr. A. Ravogli, Cincinnati: The syphilitic patient usually gets what he deserves. Patients who refuse to undergo proper treatment for the prescribed length of time and who drink alcoholics and neglect themselves are very apt to suffer in the future. There is no doubt that syphilis is very common among the negroes, and in my hospital work it is exceptional to find an adult negro who is free from the disease or does not give a history of a past infection, while among the negro children, evidences of hereditary syphilis are very frequently observed. In the colored race, syphilis is probably more severe than in the white, and this I am rather inclined to attribute to the nonchalance with which the former usually regards his infection. He looks on the disease with apparent unconcern, and usually cannot be restrained in the hospital for more than a few days. There is no question that we have obtained very good results in the mercurial treatment of syphilis in the past. Some time ago I was asked by a French writer how many of my syphilitic patients had developed tabes or general paresis, and on reviewing my books, I found very few. In many of my cases, intramuscular injections of a 1 per cent. solution of mercuric chlorid, and later, gray (mercurial) oil and calomel, gave very satisfactory results, and now, of course, in salvarsan, we have another powerful weapon. The use of intravenous injections of mercuric oxycyanid, as recommended by my teacher, Professor Baccelli, and used by Ernest Lane of London, apparently gave no better results than those I have obtained by the older methods of intramuscular injections and I think the intramuscular injections are preferable to the intravenous. This does not apply, however, to salvarsan, which gives its best results when injected into the veins, and does not produce so severe pains as it does when injected into the muscular masses. I have never used the intradural injections, and I was much interested in the results obtained by this method.

Dr. Thomas W. Murrell, Richmond, Va.: Every southern man feels a vital interest in syphilis in the negro which is more important to him than leprosy, and this condition has been practically forced on the negro by the national government. Before the Civil War, the negro was a commercial problem. His physical as well as his moral condition was well looked after, as is shown by his conduct up to that time. Then he was turned loose, his naturally strong sexual instincts were no longer held in control, he began to drink to excess, to eat poor food, to live in a hovel, to be insufficiently clothed, and gradually he went from bad to worse until now the death rate among the negro is higher than that of the white race, while the birth rate, in spite of the well known procreative power of the black race, has steadily grown smaller. Syphilis is very common among them and insanity in the State of Virginia has increased 1,000 per cent. since 1865. Its increase, in fact, is one of the problems of the state. In our dispensary work in Richmond we make the Wassermann test in negroes as a routine measure, and it is almost invariably positive. Of all the specimens of blood taken, probably 75 per cent. show a positive Wassermann. We can sometimes reason out things, even if we are not laboratory men, and I believe that some of us have a mistaken idea as to the relative value of salvarsan and mercury in syphilis. Salvarsan is a spirillicide, but I do not think the same can be said of mercury. In England, at one time, the accepted method of treatment was to give mercury to the point of salivation. We can keep a patient saturated with mercury, and yet we do not kill the spirochetes, and in any bacterial invasion of the body we have the formation of toxins which are produced either by the bacteria or by the body. In our efforts at treatment, we must destroy the organism, neutralize the toxins and strengthen the bodily resistance, and the action of mercury is to neutralize the syphilitic toxins and allow the bodily resistance to take care of the situation. One error that is too often made is to rely too much on drugs and leave the condition of the patient out of consideration.

Dr. Claude O. Abernethy, Raleigh, N. C.: I do not think that the intraspinous method of treating late syphilis should be generally adopted, at least in the present state of our knowledge, nor do I think it necessary. I have at present under my observation a case of progressive paralysis of the lower extremities in a patient with late syphilis who is rapidly improving under intravenous injections of salvarsan, combined with mercury and the iodids.

Dr. H. H. Hazen, Washington, D. C.: My paper was really intended as a provocative one, for we are not paying the proper attention to all of the aspects of syphilis. This malady is certainly not properly treated in the hospitals, the economic side of it has never been carefully studied, and the methods of prevention are very crude, to say the least. For instance, in my clinic we frequently see women with active secondary lesions, including mucous patches, attending to the babies of ignorant or foolish parents. This is not right and we should have some authority to stop it. With regard to the relative frequency of syphilis among the whites and blacks, the statement that I made was that, in spite of the showing of certain localized statistics, general statistics showed that the negro suffered from syphilis one and one-half times as often as the white. At present we are having a good many Wassermanns made, but unfortunately have not as yet been able to adopt it as a routine measure. In the negro our statistics show about 30 per cent. positive, while at Johns Hopkins I understand nearly 50 per cent. in this race are positive. I am inclined to think that mercury is a spirillicide, because if one makes a dark-field examination of a lesion and finds a great number of organisms, then gives an intramuscular injection of gray oil, and again searches for the parasites, in twenty-four to forty-eight hours he will find a great reduction in their numbers.

Dr. Henry J. Nichols, Washington, D. C.: I see no reason why the spirochete should not remain in the body for many years as a spirochete, and the weight of evidence is rather against a spore stage. Still, there are several gaps in our knowledge of the subject and further experiments will be necessary to complete the chain of evidence.

Dr. John A. Fordyce, New York: I wish to emphasize what I said with regard to the Ravaut method of intraspinal injections as compared with the Swift-Ellis method. It seems to me that the latter method is not so apt to be followed by any of the bad consequences of the Ravaut method.

D. B. C. Corbus, Chicago: Since last fall, when I began to work along these lines, I have seen quite a number of patients with syphilis who were supposed to be cured and who gave a negative blood-Wassermann reaction, but who, on spinal puncture, showed subarachnoid involvement. I desire, therefore, again to call attention to the importance, especially in this class of cases, of an examination of the cerebrospinal fluid, the technic of which should be more generally understood and applied.

Dr. Paul E. Bechet, New York: Dr. Ravogli, in discussing the intravenous injection of mercury in syphilis, mentions pain as a prominent factor in patients treated by a confrère of his. The pain was undoubtedly caused by the invasion of the perivascular tissue, by the mercurial solution. If the needle is within the lumen of the vein, there is no leaking of the solution outside of it, and the operation is consequently absolutely painless.

THE ETIOLOGY OF PHLYCTENULAR OPHTHALMIA

IS TUBERCULOSIS REALLY AS IMPORTANT A FACTOR IN THE CAUSATION OF THIS DISEASE AS IS NOW COMMONLY TAUGHT? *

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Few questions in ophthalmology have been more discussed in recent years than the etiology of phlyctenular ophthalmia. This is accounted for by the fact that during this period the theory has been advanced, and has been supported by many eminent ophthalmologists, that phlyctenulosis is a tuberculous manifestation.

The advocates of this doctrine unceremoniously reject the older view of the etiology of this affection, which led especially German writers on diseases of the eye to designate it as ophthalmia eczematosa, and, in conformity with their convictions, urgently commend in its treatment the employment of tuberculin, as the most efficacious remedial agent at our command. This being the case, it is evident that the true nature and causation of phlyctenular ophthalmia is not merely an academic question, but is one of very practical importance; for, after all, if it is really *not* tuberculous, the use of tuberculin in its treatment is sure to do more harm than good, and is most distinctly contra-indicated.

Let us, then, consider the evidence which has been advanced in support of the new doctrine, and try, impartially if we can, to determine its import. And here it may be premised that the advocates of the tuberculous theory no longer contend that the conjunctival or corneal phlyctenules are examples of true ocular tuberculosis, since they are compelled to admit not only that they never contain tubercle bacilli, and that tuberculosis has never been produced in animals by inoculating them with the contents of the phlyctenules, but that histologically the phlyctenules bear no resemblance whatever to true tuberculous tissue. What they do maintain is that phlyctenulosis is a pseudotuberculous or paratuberculous affection, caused by the action of the toxins of tubercle bacilli present somewhere in the body.

In support of this belief they cite:

1. The frequency—from 70 to 90 per cent., according to different investigators—with which the subjects of phlyctenulosis give a positive reaction to diagnostic tests with tuberculin, the von Pirquet test being chiefly relied on.
2. The efficacy of tuberculin in the treatment of phlyctenulosis, and especially its efficacy in controlling chronic cases and those showing a tendency to recurrence.
3. The development of phlyctenular conjunctivitis and keratitis after the application of tuberculin to the eye, and after other diagnostic tuberculin tests.
4. The occasional occurrence in phlyctenular ophthalmia of focal reaction following diagnostic or therapeutic injections of tuberculin and after the von Pirquet test.
5. The chronicity and tendency to recurrence of the disease, its predilection for the poorly nourished and for those in whom the existence of the so-called strumous or scrofulous diathesis is manifest, and the glandular complications which frequently accompany it.

Before taking up this summary of the evidence advanced in support of the tuberculosis theory, let us, for a moment, consider the significance of the admitted non-existence of tubercle bacilli in the phlyctenules, and, further, the present assertion that phlyctenulosis is a pseudotuberculous affection, due to the toxins of the tubercle bacillus.

Dr. John W. H. Eyre,[1] Hunterian professor, and examiner in bacteriology, Royal College of Surgeons, in his Hunterian lecture on "Tuberculosis of the Conjunctiva," makes this very emphatic pronouncement:

> That many of those subject to phlyctenules give evidence of the existence of tuberculous infection in some portion of their tissues is no evidence that the conjunctival lesion is also tuberculous, and until some responsible observer has demonstrated the presence of the tubercle bacillus in an extended series of phlyctenules, I see no valid reason for regarding phlyctenular conjunctivitis, *per se*, as a form of tuberculosis of the conjunctiva.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Eyre, John W. H.: Lancet, London, 1912, i, 1319.

Dr. L. V. Hamman, chief of the Phipps Tuberculosis Dispensary of the Johns Hopkins Hospital, and one of the authors of Hamman and Wolman's authoritative work, "Tuberculin in Diagnosis and Treatment," in conversation with me, has expressed a similar view. The substance of his statement was that if the phlyctenules are a tuberculous manifestation they certainly *sometimes* should show the presence of the tubercle bacillus; otherwise the theory that they are of tuberculous origin is without warrant. He also drew attention to the fact, as bearing on the contention that the phlyctenules are a pseudotuberculous manifestation due to the toxins of the tubercle bacillus, that this view of the action of toxins is rapidly losing ground, and that very many pathologic lesions formerly accounted for in this way have since been proved to be due, not to the action of toxins, but to the presence in these lesions of the bacteria themselves.

Let us now take up in order the evidence on which the doctrine of the tuberculous nature of phlyctenular ophthalmia rests.

1. *The frequency with which the subjects of phlyctenulosis give a positive reaction to the von Pirquet and other diagnostic tuberculin tests.*

To this evidence the advocates of the doctrine can hardly attach much weight, since Hamburger of Vienna and others have shown that about the same percentage of positive reactions to the von Pirquet test is encountered in healthy persons as has been found in those with phlyctenulosis. On this point Eyre, already quoted, says:

> I have come to regard a positive reaction to these [tuberculin skin] tests when occurring in an individual more than 1 or 2 years old as quite useless for purposes of diagnosis.

And, just as emphatically, Hamman and Wolman[2] say:

> A positive reaction [to von Pirquet's test] is of considerable value in diagnosis during the first year of life, of less during the second, of little in childhood, and of none in adult life.

It is, perhaps, hardly necessary to remark that, in the absence of definite evidence of clinical tuberculosis, no competent and conscientious physician would feel himself warranted in employing tuberculin therapeutically, simply because the von Pirquet test elicited a positive reaction.

2. *The efficacy of tuberculin in the treatment of phlyctenulosis, especially in chronic cases and in preventing recurrent attacks of the disease.*

It has not been possible for me to make even an approximately thorough study of the extensive literature of the past few years dealing with the theory of the tuberculous nature of phlyctenular ophthalmia. Two important papers published in this country, however, which together include a summary of the results obtained in ninety cases of phlyctenulosis treated with tuberculin, seem to afford fairly conclusive evidence as to the efficacy of this treatment.

Fifty of these cases were reported by Dr. Richard J. Tivnen[3] of Chicago in a paper read before the Section on Ophthalmology of the American Medical Association in 1911. It is to be regretted that, though the author in the tabular report of these cases heads a column "Therapeutic Duration of Treatment," he gives under this heading only the date when the treatment was *begun*, and does not in a single instance mention its *duration*. Measurably to offset this omission, however, he states elsewhere that the shortest period of treatment of any case was "about three weeks," and the longest six months.

Turning to the column in which the duration of the disease before treatment was begun is given, we find that eleven of the fifty cases had existed three months or less. Of these only two had lasted this long, five were of two months' duration, one of six weeks, one of one month, one of two weeks, and one had existed only two days. None of these cases can be regarded as chronic in character, and that not one of them, not even that of two days' duration, was cured in less than "about three weeks" seems to afford but poor evidence of the value of the treatment employed. Indeed, when it is borne in mind that in addition to the administration of tuberculin the usual ocular treatment, such as yellow oxid of mercury, atropin, etc., was employed, that constitutional measures, such as regulation of the diet and hygienic conditions, were not overlooked, and further that "tonics" were administered, it is difficult to escape the conviction that the tuberculin was a definite handicap to the other very proper therapeutic measures, and that the results would almost surely have been more satisfactory had it not been employed. It may be added, as of interest, that in only six of the cases (12 per cent.) was there a history obtained of either active or latent tuberculosis.

The other paper referred to was by Davis and Vaugan,[4] published in September, 1912. Like Dr. Tivnen, they also head a column in their tabular summary of forty cases of phlyctenular ophthalmia treated with tuberculin "Therapeutic Duration of Treatment," but, under this head, mention only when the treatment was begun. For this they make partial amends by stating, in another part of their paper, that the duration of treatment varied from "a few weeks" to eight months.

It is interesting to note that of the forty cases the result of the von Pirquet test was positive in only twenty-seven (67.5 per cent.), and was negative in thirteen cases (32.5 per cent.), hardly as large a percentage of positive results as might be expected in the same number of healthy persons.

Turning to their column showing the duration of the disease before treatment, we find no less than fourteen cases (35 per cent.), in which this is given as two months or less. Of these the duration of four was two months, three "off and on" for two months, four one month, one two weeks, and two one week. The same comment applies to these cases as to the acute cases of Dr. Tivnen's table. It seems remarkable that not one of these comparatively recent cases was cured in less than "a few weeks." That their results were even less favorable than those of Dr. Tivnen is doubtless accounted for by the fact that they employed no constitutional treatment but tuberculin and "but little local treatment," atropin having been used in but two cases. It may be added, as worthy of note, that but *one* of their cases showed clinical signs of active or inactive tuberculosis—tuberculous glands of the neck being present in this case.

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[2] Hamman and Wolman: Tuberculin in Diagnosis and Treatment, p. 126.

[3] Tivnen, Richard J.: Tuberculin as a Diagnostic and Therapeutic Agent in the Treatment of Conjunctivitis Eczematosa (Phlyctenular Conjunctivitis and Keratitis), The Journal A. M. A., Dec. 9, 1911, p. 1886.

[4] Davis, A. Edward, and Vaugan, Harry: Phlyctenular Conjunctivitis and Keratitis, with Special Reference to Etiology and the Value of Tuberculin as a Diagnostic Agent, Ophth. Rec., 1912, xxi, 476.

One of the best-equipped and most careful students of ocular tuberculosis in this country, Dr. George S. Derby of Boston, has probably had as large an experience with tuberculin in the treatment of phlyctenular ophthalmia as any one in America, and he has expressed his views very plainly as to its value in this condition. In discussing Dr. Bruns' paper on "Phlyctenular Ophthalmia and Its Etiology," in the Section on Ophthalmology of the American Medical Association, at Atlantic City, in June, 1912, he said:

> I have had considerable experience with tuberculin in the treatment of these [phlyctenulosis] cases during the past five years, and I feel doubtful whether any of the cases have been much benefited by it.

And, again, in discussing Dr. Will Walter's paper, "Phlyctenular Ophthalmia and Episcleritis," before the same Section, in 1913, he said:

> The use of tuberculin in phlyctenular disease is not often necessary. Most of these patients recover without tuberculin. Even though tuberculin is used, *it is often extremely difficult to prevent repeated attacks in obstinate cases*. . . . It is not nearly so important as general hygiene.

I have taken the liberty of italicizing this observation of Dr. Derby as to the inefficacy of tuberculin in preventing repeated attacks in obstinate cases of phlyctenulosis, for it is to be borne in mind that its efficacy in accomplishing just what Dr. Derby's experience shows that it does not accomplish has been cited as one of the proofs of the tuberculous nature of phlyctenular ophthalmia.

3. The development of phlyctenular conjunctivitis and keratitis after application of tuberculin to the eye and after other diagnostic tuberculin tests.

On this point Hamman and Wolman[5] say:

> In several thousand [ocular] instillations [of tuberculin] we have had but two untoward results, one patient developing phlyctenular conjunctivitis, which subsequently completely healed, the other, an episcleritis, which also healed, and which we are not sure was due to the test.

In my own mind there is little doubt that had the instillations in these several thousand eyes of persons whose condition seemed to demand a tuberculin test consisted of a 2 per cent. solution of silver nitrate or copper sulphate, a considerably larger number of phlyctenular cases would have developed; for every one of large experience in the management of ocular maladies has seen cases of phlyctenular keratitis or conjunctivitis which were provoked by the application of unduly severe remedies to the eye, and I can recall others in which the attack followed a slight traumatism, such as an abrasion of the cornea or bulbar conjunctiva.

Some who teach the tuberculous doctrine of phlyctenulosis hold that "some external, local stimulant is necessary to bring out the phlyctenules." If this view is correct, why, I would ask, should not the tuberculin employed in the Calmette test, acting simply as a stimulant or irritant, occasionally produce this effect?

It is, perhaps, not so easy to explain satisfactorily the development of phlyctenules after the skin or subcutaneous tuberculin tests. It is to be said, however, that this is an unusual occurrence, and it may be questioned whether it ever happens, except in persons whose systemic condition is such that an outbreak of phlyctenulosis may be regarded as imminent. Under such circumstances it is readily conceivable that any added constitutional disturbance, such as the systemic effect of tuberculin, or that which might follow the ingestion of unwholesome food, may turn the scales, and precipitate the ocular inflammation, just as, under like circumstances, the application of any irritant to the eye may do.

4. The occasional occurrence in phlyctenular ophthalmia of focal reaction following diagnostic or therapeutic injections of tuberculin or after the von Pirquet test.

Dr. Tivnen in his paper, already quoted, mentions the occurrence of focal reaction after the von Pirquet test in four of his fifty cases of phlyctenulosis, but describes the reaction in three of these as being "slight." Drs. Davis and Vaugan in their forty cases mention three instances of focal reaction, one of these being "slight." If we interpret, and this seems not unwarrantable, the three "slight" reactions of Tivnen's series and the one of Davis and Vaugan's as "doubtful," we have in the combined series of ninety cases but three definitely positive focal reactions—a percentage of only 3.33. Although I am aware that it is not in accord with the commonly accepted view, I cannot persuade myself that any constitutional disturbance comparable to that produced by the von Pirquet test would not have influenced unfavorably the ocular inflammation quite as often and quite as markedly as happened in these ninety cases after the tuberculin test.

It is worthy of remark that in neither of the papers in question is there mention of focal reaction having resulted, in a single instance, from the *therapeutic injection of tuberculin*. If such reactions had been observed, it seems most improbable that they would not have been recorded as evidence in favor of the authors' views regarding the etiology of phlyctenular ophthalmia; if no such reactions occurred, the circumstance is certainly of much significance.

5. The chronicity and tendency to recurrence of phlyctenular ophthalmia; its predilection for the poorly nourished and for those in whom the existence of the so-called strumous or scrofulous diathesis is manifest, and the glandular complications which frequently accompany it.

As is universally recognized, phlyctenular ophthalmia is essentially a disease of childhood. In the exceptional cases encountered in adults it will generally be found that the affection first manifested itself in childhood, and has recurred from time to time in after years. These, in my experience, are the cases in which the "scrofulous" diathesis, the glandular complications, and not infrequently, I am willing to admit, definite clinical signs of tuberculosis, are found. On the other hand, the much larger number of cases encountered in childhood, which commonly respond promptly to treatment, and which, if they recur at all, do so only during childhood, do not show, or, at all events, very rarely show, any signs of scrofula or tuberculosis. These are the cases, I contend, which must be regarded as typical, and it is from the study of these cases that we must draw conclusions as to the etiology of the affection, and not from the exceptional and atypical cases encountered in adult life.

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[5] Hamman and Wolman: Tuberculin in Diagnosis and Treatment, p. 209.

What, then, does the study of these cases of childhood show? In the first place, it may be said that the children brought to our clinics with phlyctenulosis are usually not puny and ill nourished; on the contrary, they are commonly well nourished, and not infrequently have ruddy cheeks. Nine times in ten we find, as evidence of systemic disorder, in addition to the ocular inflammation, facial eczema, eczema perhaps elsewhere, and very often an eczematous nasal catarrh. On inquiry it will be learned that they are fed on nearly everything that a child should not eat, and that they are much too closely confined in rooms or dwellings that are thoroughly insanitary. Further, it will often be found that their tongues are furred, their bowels in a torpid condition, and that their stools are foul-smelling.

Perhaps I have already said enough to make it evident that I am a firm believer in the view formerly held by most ophthalmologists, and especially by German ophthalmologists, that phlyctenular ophthalmia, certainly as it is encountered in children, is an ocular eczema, and that it has just as much, and just as little, to do with tuberculosis as has the facial eczema which is its usual accompaniment.

Like the attendant eczema, phlyctenulosis is certainly the result of an endogenous infection, and without doubt—in my mind, at all events—this infection is from the alimentary canal—intestinal intoxication, as it is phrased nowadays. The investigations of Weeks and others, who have usually found the *Staphylococcus aureus* or *albus* present in the phlyctenules, as well as in the eczematous nodules, make it clear that these are the micro-organisms which, having gained entrance to the blood-stream, are commonly responsible for both the skin and the ocular lesions.

How much significance should be attached to the frequent presence of indican in the urine of those suffering with phlyctenular ophthalmia I do not pretend to decide; but investigators who do attach importance to this symptom, and who look for it systematically, report its presence, in large or moderate amounts, in nearly every case of the disease.

If there is any tuberculous affection—or, if you please, pseudotuberculous affection—that responds to local and constitutional treatment in the prompt manner that phlyctenular ophthalmia commonly does, I do not know of its existence. Certainly, true ocular tuberculosis shows no such response, even though tuberculin be employed; on the contrary, it is very intractable and difficult to control.

There are, indeed, few ocular maladies, in my experience, more amenable to judicious therapeutic measures than phlyctenular conjunctivitis and keratitis, and especially is this true of the many cases occurring in childhood. The measures which I employ are regulation of the patient's diet and habits of life, an energetic purgative, which should contain calomel, given at the outset and repeated, perhaps, in forty-eight hours, followed by the administration of syrup of the phosphates of iron, quinin and strychnin—rather than the commonly prescribed syrup of the iodid of iron—and atropin and yellow oxid of mercury ointment as routine local applications. I may add that I feel not a little "disgruntled" if the majority of my patients are not well in considerably less than three weeks.

CONCLUSIONS

The evidence adduced in support of the doctrine that phlyctenular ophthalmia is a tuberculous or pseudotuberculous lesion is far from convincing.

The frequency with which the subjects of phlyctenulosis give a positive reaction to diagnostic tuberculin tests is of little significance in view of the fact that the same tests show a scarcely smaller percentage of positive reactions in healthy persons.

There is excellent authority for the contention that "until some responsible observer has demonstrated the presence of the tubercle bacillus in an extended series of phlyctenules," or, at least, until it has been shown to be sometimes present, the assertion that the affection is, in any sense, tuberculous is without warrant.

In the present state of our knowledge of the etiology of phlyctenulosis, the employment of tuberculin as a therapeutic agent in this affection is unjustifiable, not only because the ill-considered use of tuberculin is capable of doing much harm, but also because the clinical evidence shows pretty clearly that, if it is not actually harmful, it surely is not helpful. Definite clinical signs of the existence of tuberculosis, apart from the ocular inflammation, may justify the administration of tuberculin, but even in such circumstances the effect on the eye could be only indirect.

As phlyctenulosis is essentially a disease of childhood, and the typical cases occur not in adult life, but in children, it is from the study of these cases that trustworthy conclusions as to the etiology of the affection are to be drawn. The study of these childhood cases shows, from the almost constant association of facial eczema with the ocular inflammation, that phlyctenular ophthalmia, as was formerly very generally held, is an ocular eczema, due, for the most part, like the facial eczema, to intestinal intoxication, and that tuberculosis is seldom, if ever, an etiologic factor.

Cathedral and Howard Streets.

ABSTRACT OF DISCUSSION

Dr. W. E. Gamble, Chicago: It is most timely that Dr. Theobald has called our attention to this subject in the way he has. I believe the use of tuberculin in phlyctenular disease is not justified. In my hands, patients get well without tuberculin as quickly as with it. That this disease is tuberculosis is largely speculation. We are no nearer to-day knowing the etiology of these cases than we were forty years ago. There is some basis for the conclusion that this is ocular eczema, and yet we see cases with palpable cervical glands as the only comitant. The only cases of this disease that might possibly warrant the use of tuberculin would be when large, soft cervical glands, i. e., tuberculosis glands are present.

Dr. A. E. Davis, New York: While the tubercle bacillus is not yet known to be the direct cause of phlyctenular ophthalmia, yet the tuberculotoxins are capable of causing the trouble. Phlyctenular ophthalmia is the result of some grave constitutional dyscrasia, and is not a simple affection of the eyes brought about by intestinal intoxication, and curable in a few days by regulation of the diet and the patient's habits, the giving of calomel and tonics, and local treatment with atropin and yellow mercuric oxid ointment. It is a grave disease, so far as sight is concerned; and, while the prognosis is favorable so far as concerns any single attack it is rendered unfavorable, as a whole, by the frequent recurrences.

In persons who have had many recurrences of conjunctivitis eczematosa the corneae often bear signs of past attacks. Thus the sight is impaired, squint or myopia often develops, and children fall behind in development. A frequent outcome is secondary blindness, often many years after the inflammation has passed, representing the after-results of the corneal scars with inclusion of the iris.

1. Dr. Theobald entirely overlooks the fact that many healthy persons are infected with tuberculosis. Hamburger has shown by post mortem on 848 children, that "from newborn infants up to 14 years, an average of 40 per cent. had been infected. Infection up to 3 months of age in only 4 per cent., steadily increased with age until from 11 to 14 the percentage reached 70. The distinction between infection and clinical disease in these cases is important. It is significant that phlyctenular ophthalmia is rarely seen in children under 1 year. Stomach disturbances are most frequent up to this age, while tuberculous infections are fewest. Stomach troubles, therefore, seem not to be the true cause.

2. In the forty cases in which Dr. Vaughan and myself reported "cures" only after a "few weeks" treatment, even in acute cases, we continued the treatment, after the phlyctenules had disappeared, to prevent recurrences. The phlyctenules would often disappear in a few days, but no case is really cured until the patient reaches maturity, and sometimes not then.

3. Focal reaction to my mind is positive evidence of the tuberculous nature of the disease. This is most impressive, when, following the primary reaction of a diagnostic dose, the phlyctenules on the third or fourth day melt away as by magic. These patients should not be considered cured on the first disappearance of the phlyctenules, and subsequent smaller doses should be given to complete the cure.

Dr. Theobald thinks it significant that neither Dr. Tivnen nor Dr. Vaughan and I observed a single instance of focal reaction in the ninety cases reported by us, from the therapeutic injection of tuberculin. Dr. Vaughan and I purposely refrained from giving too large therapeutic doses, in order to avoid decided reactions. Focal reaction to tuberculin injections can be explained on no other ground than as the action of a true antigen on the specifically tuberculous diseased eye.

4. He who does not believe in the administration of tuberculin until the clinical signs of tuberculosis are present, fails to recognize the most essential feature of the tuberculin treatment. I would just as soon delay treatment in a suspected case of syphilis, after a positive Wassermann, until clinical signs of that disease appeared.

Dr. George H. Derby, Boston: With regard to the necessity of showing the tubercle bacillus in the phlyctenules, I will remind you of the difficulty of finding the tubercle bacillus in chronic tuberculosis of the eye. Certainly the tubercle bacillus which may be responsible for phlyctenule is very different from the tubercle bacillus responsible for acute tuberculosis of the eye and also in chronic ocular tuberculosis. The pathologic picture is atypical, but the fact that it is not typical does not prove that these lesions may not be tuberculous. I have seen a few cases in children starting as a phlyctenular keratitis and later on becoming a deep-seated, chronic ocular tuberculosis. I recently talked with one of the social workers of the Massachusetts Charitable Eye and Ear Infirmary to whom the phlyctenular cases had been assigned on account of her previous experience in a tuberculosis hospital. She called attention to the fact that in a large percentage of the families she visited in which there was phlyctenular disease, one or more members of the family showed tuberculosis. Even if we are not sure that phlyctenular disease is actually due to tuberculosis it would be better if we assumed that it was, because the problem is essentially the problem of tuberculosis. If the children are treated as tuberculous they recover much more quickly and it is better for all concerned. In long-standing cases that are resistant and show repeated attacks of the disease, there is nothing better than sanatorium treatment. If the patients can be sent to a sanatorium for three, six or nine months they come back entirely different children and are more apt to be free from the disease afterwards.

Dr. Harry Vaughan, Morristown, N. J.: I wish to say concerning the point that the germ cannot be found in the lesion, that the products or ferments of tuberculosis do not digest surrounding tissues, as do the products of the staphylococcus, streptococcus and other bacteria. I think that fact makes it difficult to find the germ. Possibly the germ is not present, but the by-products cause the lesion. We do not give the tuberculin treatment to every child. We study our cases carefully to see whether tuberculous symptoms predominate. We examine the glands and take the temperature, and surely the local, the focal and the constitutional effect of the tuberculin test must mean something. We have had cases in which in twenty-four hours the lesions would be lighted anew. In many instances we could find tuberculosis in two or three generations. I really believe when tuberculous symptoms predominate, when we have a local, focal and constitutional von Pirquet, with large glands and a tuberculous history, tuberculin will be found to be not a sovereign remedy, but a great help, as much so as the Flexner serum in meningitis. It has not cured all the cases but it has reduced the mortality. So with tuberculin.

Dr. Richard J. Tivnen, Chicago: Dr. Theobald is correct when he insists that every item of Koch's law be fulfilled before the tuberculous etiology of phlyctenulosis be accepted. Some, however, are unwilling, even in the absence of direct confirmation, lightly to cast aside the clinical evidences exhibited by these cases, which suggest some type of tuberculous origin. The symptom-complex exhibited by these cases, the clinical course of the malady, its predilection for the poorly nourished, its glandular complications, its association with tuberculous processes in other parts of the body, its tendency to recurrence, its response to tuberculin—strongly support the theory of tuberculosis, even though alone they are not conclusive. What positive proof is at hand conclusively to determine that phlyctenulosis is produced by intestinal intoxication alone? That the tuberculous theory has not as yet been scientifically established is not a reason for ignoring all the strongly suggestive evidences in its favor. There are many reasons why final judgment on this question should be withheld. We still have much to learn in our clinical observations and interpretations, and particularly in our laboratory diagnoses. May it not be that the refinements of diagnosis necessary in this investigation have not been sufficiently exhausted; that some anatomic variation of the ocular tissue presents peculiarities not yet recognized or understood; that some vagary of the invading organism presents difficulties in the way of establishing its identity; and may not the tuberculous process itself exhibit vagaries which we are unable, with our present methods of investigation, to discover? Is it wise, therefore, lightly to cast aside a theory of etiology which has considerable evidence in its favor, simply because it lacks confirmation? Dr. Theobald refers to eleven cases which my table reports as existing "three months or less" and, applying my statement that none were cured in less than three weeks, observes that it "affords but poor evidence of the value of the treatment employed," and further that because other constitutional and local measures were also used, it is difficult to escape the conviction that the tuberculin was a definite handicap to the other therapeutic measures, and that the results would almost surely have been more satisfactory had it not been employed. Many difficulties surrounded the treatment of my cases; the patients were mostly ambulatory and a regular, systematic plan of treatment was impossible. It may thus be understood why many of them failed to show improvement in less than three weeks. Dr. Theobald will see, in my final report of these cases, that not one of the eleven failed to show improvement and five of them were listed as "cured." These results are fully as satisfactory as the usual methods advocated that fail to check the recurrences of this disease, which are the crux of the problem, for with each recurrent attack, perceptible inroads on the patients' visual acuity results.

In view of the almost absolute failure of the present treatment to prevent recurrences of this disease, the advocates of the tuberculous theory feel the need of a more definite plan of therapeusis and believe that sooner or later the theory of tuberculosis as the dominant etiologic factor in the disease will be recognized, and that tuberculin will constitute the essential therapeutic agent in its treatment.

Dr. Walter B. Weidler, New York: I spoke on this same subject at Minneapolis when discussing Dr. Davis' paper, and I wish again to put myself on record as believing thoroughly in the use of tuberculin from my experience in the Manhattan Eye and Ear Infirmary. I think the attitude assumed by Dr. Theobald with regard to phlyctenulosis is unfortunate. Three years ago Dr. Bruns thought none of these cases were tuberculous. Dr. Tivnen thinks that almost all of them are and Dr. Theobald that probably few or none are. I think the fact that the tubercle bacillus cannot be demonstrated is a poor argument. Dr. Gamble says he would be willing to use tuberculin in cases with enlarged glands. As far as I know, the tubercle bacillus has been demonstrated in these glands before they have broken down and pus has formed. My feeling is that in cases of phlyctenulosis with recurrences the majority of the patients will give a history of tuberculosis in some member of the family if we will only take the trouble to trace it back. That has been my experience in my work at the Manhattan. At present I believe that many of these cases are due to a toxin or an endotoxin from a tuberculous focus somewhere else in the body, not of necessity in the eye. In the eye we can readily see the manifestation of any tuberculous process in other tissues of the body. The one reason that so many do not believe in tuberculin therapy in these cases is that they do not follow their cases long enough. I have seen probably three hundred cases in the last three years. They will recur, but my feeling is that with tuberculin we produce an indefinite immunity, and just how long it lasts we do not know. With a tuberculous tendency and inheritance I do not believe we can eradicate it by one course of tuberculin treatment no matter what the manifestation is in the eye. I made the statement at the New York Academy of Medicine last winter that when I had a positive von Pirquet I have never failed to cure the lesion, whether a tuberculous choroiditis or iridocyclitis, of which latter we have four under observation at present, or the severest form of keratitis or ulcer of the cornea. Unfortunately this statement must be corrected as I have had, since that time, a youth of 10 with fibrous connective tissue exudate in the pupillary area, which did not absorb under tuberculin treatment but the active iridocyclitis cleared up with the use of tuberculin. This, however, cannot be claimed as a cure due to tuberculin.

Dr. Thomas H. Curtin, New York: I have seen all of Dr. Weidler's cases and he has seen mine. For the past three years we have been making a systematic study of phlyctenular cases and other cases which we regarded as tuberculous, using usually the von Pirquet test for diagnosis. On the phlyctenular cases over 80 per cent. (in children under 10 years of age) reacted positively to this test. A certain percentage of cases, which, from the general appearance of the patients was due in my opinion to gastro-intestinal conditions, did not react. These cases readily cleared up under the use of calomel, rhubarb and soda and yellow mercuric oxid. But we see also the recurrent cases, and some which had been previously treated by the ordinary method did not return when put on tuberculin, showing that the tuberculin treatment had proved more efficacious than the ordinary treatment. I do not believe that all phlyctenular cases are tuberculous, but that phlyctenular conjunctivitis is allied to tuberculosis, as are cases of strumous or scrofulous diathesis. These cases may not be tuberculous *ipso facto*, but dependent on an underlying condition which may be tuberculous and which I believe in 80 per cent. is tuberculous. As Dr. Davis said, the injection of tuberculin into the arm does not mean that the tuberculin is disseminated throughout the tissues of the body, but that it stays at the point of injection and manufactures antibodies which neutralize the toxins of the tubercle bacilli and destroy the tubercle bacilli themselves. In my experience and in the observation of a great many others I have yet to see or hear of any ill effects produced by tuberculin either in the use of the von Pirquet test or the subcutaneous test for diagnosis or in the administration of tuberculin when properly used for the treatment of any tuberculous disease of the eye. Tuberculin was formerly used in too large doses. We should begin with from 1/80,000 to 1/50,000 mg., gradually increasing, keeping the patients under treatment for from six months to two years. We cannot cure them in a short time, and they should return again at intervals and have the tuberculin injected in order to keep up the production of these antibodies, which is the keynote of the therapeutics.

Dr. William Tarun, Baltimore: Four facts should be borne in mind in considering phlyctenular ophthalmia: 1. We have no way of making a diagnosis of lymphatic tuberculosis except by the skin reaction or the subcutaneous test. 2. The anatomic structure of the conjunctiva is practically the same as that of adenoids and tonsils. 3. The enlarged glands are caused by the secondary infection by pyogenic organisms. 4. In all cases of phlyctenulae we have intestinal intoxication as indicated by the presence of indican in the urine.

Dr. Theobald has stated that, so far, we have no positive evidence that phlyctens are tuberculous because of the absence of the tubercle bacilli. It is evident that there is a tuberculous basis plus a secondary infection by a pyogenic organism—*Staphylococcus aureus*. To those who are not yet convinced that there is a tuberculous basis I would suggest the study of an article on this work done by Rubert (*Monatsbl. f. Augenheilk.*, September, 1912). It is a continuation of work done by some one else in which he has produced tuberculosis in lower animals, using a normal one as control. Instillations of staphylococcus cultures or toxins into the conjunctival sac of these animals produced phlyctens in a majority of the tuberculous and none in the normal. These phlyctens had the same histologic structure as that of Fuchs. The presence of the tubercle bacillus is not known. As to treatment, tuberculin should be used when we cannot handle the cases in any other way. The initial dose will depend on the reaction by the von Pirquet test. In those cases in which you are afraid to use tuberculin I would suggest the treatment outlined by Dr. Derby—that the cases be sent to a sanatorium. I grant that the treatment as outlined by Dr. Theobald does some good. They are relieved from their symptoms, but they still have a more serious condition remaining—a tuberculosis. A case in point. I was called to see a plethoric, healthy-looking child of 2½ years with a typical phlycten for which I prescribed the usual treatment, but advised the physician that the child had a tuberculosis as the basis of the trouble. Three months later the child died of a tuberculous meningitis. Those of you who do not recognize the tuberculous basis of phlyctenular ophthalmia are not doing all you should do for your patient.

Dr. Mark D. Stevenson, Akron, O.: The one thing that demands challenge in the conclusions of Dr. Theobald is whether or not this disease is tuberculous. This can not be settled; it must be speculative. The elusiveness of the germ is well understood, not being necessary in the lesion. The other symptoms of tuberculosis are present. The full pathology of tuberculosis like that of many other diseases is not entirely written. When it is I think it will be found that phlycten is one of the tuberculous lesions, and the thing that especially appeals to me, although it might be speculative, is that it responds to general tuberculosis treatment. I have seen these conditions respond quickly and I think it would be most unfortunate if the idea should go out from this section that it was at all proved that these lesions are not of a tuberculous nature.

Dr. Samuel Theobald, Baltimore: I still think there are very few maladies of the eyes that respond so promptly and so satisfactorily to treatment as phlyctenular disease. Of course I recognize that there are exceptions to this rule, but it does not strike me that it is a very serious affection. The patients that recover do not take three weeks. The majority are cured within little more than one-third of this time. When recurrences take place this is due, in the majority of cases, to the carelessness of parents or those in charge of patients in not following out the directions of the medical attendant. I do not think I could have understood Dr. Davis correctly when he said a positive Wassermann reaction and a positive von Pirquet, so far as treatment is concerned, are equivalent. Everybody knows that in the absence of chlinical signs of tuberculosis a positive tuberculin reaction does not call for treatment for tuberculosis. It does not mean clinical tuberculosis at all, but that at the same time a tuberculous infection of the system has occurred. On the other hand, a positive Wassermann means syphilis and is a clear indication for antisyphilitic treatment. Dr. Stevenson spoke especially of the elusiveness of the tubercle bacillus. The authorities I have quoted do not pretend to say that the bacillus must be found every time. One says it must be found some times. The other says that, at least, some responsible investigator should find it in a series of cases. After I had written the paper I wrote letters to seven eminent authorities on tuberculosis throughout the country asking their experience as to the association of phlyctenular ophthalmia with tuberculosis. In their replies several spoke of having encountered cases of phlyctenulosis in children in the so-called scrofulous condition, and in association with glandular and bone lesions of a tuberculous nature; but they all agreed that it was seldom found in association with pulmonary tuberculosis. One of the most definite replies received was from Dr. Cullen, in charge of the Maryland State Tuberculosis Sanatorium. He wrote: "We see surprisingly little phlyctenular disease in association with tuberculosis. We have had only six cases in the past year in handling about eight hundred cases of tuberculosis. Of this number fifty were in children. We have had but three cases among our children."

A STUDY OF THE EFFECT ON HETEROPHORIA OF THE CORRECTION OF AMETROPIA

WITH A CONSIDERATION OF SOME ASSOCIATED CONDITIONS *

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This analysis was undertaken to determine the effect on heterophoria of the correction of ametropia. In the development of the paper the relation of other factors to the problem brought in additional data. The opportunity which this afforded of analyzing these correlated conditions was embraced and the results incorporated.

The material used was supplied from my private case-records. No case was used unless at least a month had elapsed between the original and final tests. In more than two-thirds of the cases several years intervened, the second determination being made on the patient's return for a change of glasses. Only cases were used in which there was equal and normal, or better than normal, vision in each eye, and in which no actual deviation of the visual axes existed. No case in which prisms had been worn was considered available. Presbyopia was excluded. Only cases were used in which uniform tests had been employed in the various determinations.

As there is a marked discrepancy between some of the results given here and those heretofore published by other writers, it is well to state the methods employed by me in making the various tests. In testing both the far (6 meters) and the near (1/3 meter) status of the muscle balance a colored Maddox rod was used, a light 1 cm. in diameter serving for the distant object and a small electric lamp for the near object. Loose prisms or the phorometer, along with the Maddox rod, was used to measure the degree of imbalance for both the vertical and lateral muscles at infinity and the rotary prism at near. Abduction and adduction were determined by loose prisms. In the past few years when a patient with but slight effort reaches an adducting power of 15 degrees it has been recorded 15 + as experience has shown that these patients readily acquire a high prism adduction by exercise or by knack.

TABLE 1.—MUSCLE BALANCE AT FIRST AND AT FINAL TEST

Ametropia	Far		Near		Hyperph. Per Cent.	Ab.	Ad.
	First Test	Final Test	First Test	Final Test			
H+Ah	Es. 2.5	Es. 1.75	Ex. 5.0	Ex. 4.5	26	6.0	17
H+Ah	Ex. 1.62	Ex. 1.5	Ex. 8.0	Ex. 9.0	59	6.5	14
H+Ah	Orth. 0.0	Ex. .37	Ex. 6.5	Ex. 6.0	40	6.0	17
H+Ah	Es. 2.0	Es. 2.62	Es. 6.62	Es. 3.62	25	5.5	20
H+Ah	Es. 6.0	Es. 4.62	Es. 2.5	Ex. .75	57	7.0	20
Ah	Es. 1.37	Es. 1.0	Ex. 4.0	Ex. 4.5	50	6.0	..
Ah	Ex. 2.50	Ex. 1.87	Ex. 7.0	Ex. 4.0	50	...	..
M+Am	Es. 2.25	Es. 1.50	Ex. 1.5	Ex. 1.25	35	6.0	19
M+Am	Ex. 2.75	Ex. 3.0	Ex. 10.0	Ex. 11.0	61	7.0	10
Amh	Es. 1.75	Es. 1.62	Ex. 2.37	Ex. 4.75	20	7.0	12
Amh	Ex. 1.62	Ex. .62	Ex. 13.0	Ex. 13.0	20	7.0	14
Amh	Orth. 0.0	Ex. .50	Ex. 7.0	Ex. 7.0	20	7.0	15
Anisom	Es. 2.0	Es. 1.37	Ex. 6.0	Ex. 5.62	50	6.0	16
Anisom	Ex. 2.5	Ex. 1.25	Ex. 9.0	Ex. 10.0	40	7.50	12

The average hypermetropia in the cases of H+Ah with esophoria for distance and exophoria for near equals 1.50 D.

The average hyperopia in the cases of H+Ah with exophoria for distance and near equals 1.12 D.

The average myopia in the cases of M+Am with esophoria for distance equals 1.87 D.

The average myopia in the cases of M+Am with exophoria for distance equals 2.12 D.

For the purpose of study the cases were divided into groups having like ametropia, and these were subdivided into groups having similar muscle imbalance for distance (Table 2).

TABLE 2.—GROUPS AND SUBGROUPS OF CASES

Ametropia	No. of Cases	Muscle Imbalance for Distance	Per Cent.
H+Ah	236	Orthophoria	10
		Esophoria	62
		Exophoria	28
Ah	20	Esophoria	60
		Exophoria	40
M+Am	87	Esophoria	60
		Exophoria	40
Amh	30	Orthophoria	24
		Esophoria	52
		Exophoria	24
Anisometropia	24	Orthophoria	15
		Exophoria	25
		Esophoria	60

There were 145 cases of H + Ah, with esophoria for distance and exophoria for near. The average esophoria for distance at the first test was 2.5°, and at the final test 1.75°. The average exophoria for near at the first test was 5°, and at the final test 4.5°. Average abduction was 6°, adduction 17°. Hyperphoria in 26 per cent.

There were 66 cases of H + Ah, with exophoria for distance and near, greater for near. Average exophoria for distance at the first test, 1.62°, at the final

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

test 1.5°. Average exophoria for near at first test 8°, at the final test 9°. Average abductions 6.5°, adduction 14°. Hyperphoria in 59 per cent.

There were twenty-one cases of H + Ah with orthophoria for distance and exophoria for near. The average exophoria for distance at the final test was 0.37°. Average exophoria for near at the first test 6.5°, at the final test 6°. Average abduction 6°. Average adduction 17°. Hyperphoria in 40 per cent.

There were thirteen cases of H + Ah in which there was esophoria for both distance and near with a greater degree for near. The average esophoria for distance at the first test was 2°, at the final test 2.62°. The average esophoria for near at the first test was 6.62°, at the final test 3.62°. Average abduction 5.5°. Average adduction 20°. Hyperphoria in 25 per cent.

There were ten cases of H + Ah with esophoria for both distance and near with a greater degree for distance. The average esophoria for distance at the first test was 6°, at the final test 4.62°. The average esophoria for near at the first test was 2.50°. This was converted into an average exophoria at the final test of 0.75°. Average abduction 7°. Average adduction 20°. Hyperphoria was present in 57 per cent.

There were twelve cases of Ah with esophoria for distance. The average esophoria for distance at the first test was 1.37° and at the final test 1°. The average exophoria for near at the first test was 4° and the final 4.5°. Average abduction was 6°. Hyperphoria was present in 50 per cent.

There were eight cases of Ah with exophoria for distance. The average exophoria for distance at the first test was 2.50° and at the final test 1.87°. The average exophoria for near at the first test was 7° and at the final 4°. Hyperphoria present in 50 per cent.

Of eighty-seven cases of M + Am, fifty-six had esophoria for distance and thirty-one had exophoria for distance.

Of the fifty-six cases of M + Am with esophoria for distance the average esophoria at the first test was 2.25° and at the final test 1.50°. The average exophoria for near at the first test was 1.50° and at the final 1.25°. Average abduction 6°. Average adduction 19°. Hyperphoria in 35 per cent.

There were 31 cases of M + Am with exophoria for distance, and greater exophoria for near. The average exophoria at the first test was 2.75°, and at the final test was 3°. The average exophoria for near at the first test was 10°, and at the final test 11°. The average abduction was 7°. Average adduction was 10°. Hyperphoria was present in 61 per cent.

There were 30 cases of Amh. In 16, with esophoria for distance. The average esophoria for distance at the first test was 1.75°, and at the final test 1.62°. The average exophoria for near at the first test was 2.37°, and at the final test 4.75°. The average abduction was 7°. The average adduction 12°. Hyperphoria was present in 20 per cent.

There were 7 cases of Amh with exophoria for distance and near. The average exophoria for distance at the first test was 1.62°, the average at the final test was 62°. The average exophoria for near at the first test was 13°, and at the final test 13°. The average abduction 7°. The average adduction 14°. Hyperphoria was present in 20 per cent.

There were 7 cases of Amh with orthophoria for distance and exophoria for near. The average exophoria at the final test for distance was 0.50°. The average exophoria for near at the first test was 7°, and at the final test 7°. Average abduction was 7°. The average adduction 15°. Hyperphoria was present in 20 per cent.

There were 24 cases of anisometropia, in which the average difference in refraction of the two eyes was 2 D. In 15 there was esophoria for distance. The average at the first test was 2°, and at the final test 1.37°. The average exophoria for near at the first test was 6°, and at the final test 5.62°. The average abduction was 6°. The average adduction was 16°. Hyperphoria was present in 50 per cent.

In 6 cases of Amh there was exophoria for near and far, greater for near. The average exophoria for near at the first test was 2.5°, at the final test 1.25°. The average exophoria for near at the first test was 9°, and at the final test 10°. The average abduction was 7.5°, and adduction 12°. Hyperphoria was present in 40 per cent.

An analysis of these findings with a view of determining the influence of the correction of the ametropia on associated heterophoria shows that: When in H + Ah esophoria existed for far and exophoria for near the esophoria was reduced on the average of 0.75°, or about 33 per cent. of the original amount, whereas the exophoria which was present for near was reduced 0.5°, or 10 per cent. of the original amount, a negligible amount. The esophoria in this status of the muscles has been held by some to be an apparent esophoria, the real difficulty being an insufficient convergence power. The correction of the H + Ah would tend further to reduce the positive portion of convergence, and we might expect to find the exophoria for near, at least, somewhat increased; but it remained practically unchanged. The esophoria, however, was reduced, rather indicating that it arises from the convergence associated with the accommodation required for distinct distance vision.

When exophoria existed for both distance and near with a greater amount for near, practically no change occurred in the distance exophoria, and the exophoria for near was increased 1°, or 12 per cent. of the original amount. Here we have a convergence insufficiency with a beginning divergence excess, and the correction of the H + Ah would tend to increase the exophoria for near by reducing the call on the accommodation. Practically the only cases calling for prism exercise fell within this group. Almost all were relieved of symptoms, and in nearly all of those in which the exophoria was not greater than 2° for distance, it was either overcome or a low esophoria was established; but this did not persist for any great length of time after the prism exercise was discontinued. The relation of prism abduction and adduction was in almost every instance 1:2 (6:13), not very different, however, from those in which prism exercise was not required (6:15).

When orthophoria existed for distance and exophoria for near, an average exophoria of 0.37° developed for distance, and the exophoria for near increased 2°, or 33 per cent. of the original amount.

Here we have practically the same condition and the same result as in H + Ah with exophoria for distance and a greater exophoria for near.

When esophoria existed for both distance and near, but was greater for near, the esophoria for distance decreased on the average 0.62°, or 33 per cent. of the original amount, and the esophoria for near was decreased, on the average, .3°, or 45 per cent. of the original amount.

These are cases of convergence excess in which the esophoria for near is decidedly decreased by correction of the H + Ah.

When esophoria existed for distance and near, but was greater for distance, the esophoria for distance decreased, on the average, 1.37°, or 23 per cent. of the original amount, and the esophoria for near was converted into an exophoria of 0.75°, a change of 133 per cent.

This group represents a convergence excess with a relative divergence insufficiency, the correction of the ametropia markedly decreasing the esophoria for near.

In Ah with esophoria for distance, the correction of the ametropia had no effect on either the distance or near heterophoria.

In Ah with exophoria for distance, the exophoria for both distance and near was appreciably diminished, probably the result of the improvement in vision from the correction of the astigmatism.

When in M + Am esophoria existed for distance and exophoria for near, the esophoria for distance was reduced 0.75°, or 33 per cent. of the original amount, and the exophoria for near was reduced 0.25°, or 16 per cent. of the original amount.

The cases in this group are largely accommodative convergence insufficiency without the later-imposed divergence excess. The decrease in the esophoria for distance was due to the beginning development of a divergence excess, 16 per cent. of the cases showing a change from esophoria to exophoria, and 50 per cent. a decrease in the esophoria for distance. The average exophoria for near was but little influenced, but the cases showing a moderate amount of exophoria for near at the first test nearly all showed an increase in the exophoria.

When in M + Am exophoria existed for distance and for near, the exophoria for distance was reduced 0.25°, or 9 per cent. of the original, and the exophoria for near was increased 1°, or 10 per cent. of the original.

In this group there was a convergence insufficiency and a divergence excess, the elements making for the development, in time, of a divergent strabismus. The average change was so slight, however, as to indicate an arrest of this progress, although in a few cases it had made advances.

When in Amh esophoria existed for distance and exophoria for near, the esophoria remained practically unchanged and the exophoria for near increased 2.37°, or 100 per cent. In this group the slight esophoria for distance which was present may be considered a static condition. The exophoria increased to a marked degree, and this may be due to the accommodative effort occurring in the course of the altering refraction which these cases undergo.

When in Amh, exophoria existed for distance and for near, but was greater for near, the exophoria for distance was reduced 1°, or 60 per cent. of the original, and the exophoria for near remained unchanged.

When orthophoria existed for distance and exophoria for near, exophoria of 0.50°, or 60 per cent. of the original, developed, and the exophoria for near remained unchanged.

These two groups show but little change, probably because these cases showed little change in the refraction in the very few cases in which an opportunity had been presented to re-refract after the lapse of time, and a disturbance of the relation between accommodation and convergence was not induced by the correction of the refraction error. When the few cases were assembled into three groups, the number in each was so small that deductions were difficult to make.

When in anisometropia esophoria existed for distance and exophoria for near, the esophoria for distance decreased 0.50°, or 25 per cent. of the original, and the exophoria for near was practically unchanged.

When in anisometropia exophoria existed for near and distance, but greater for near, the exophoria for distance decreased 1.25°, or 50 per cent. of the original, and the exophoria for near increased 1°, or 11 per cent.

These cases showed no greater degrees of heterophoria than the other forms of ametropia, and were little changed by the correction of the error of refraction, except that those showing exophoria for distance had this decreased by equalization of the visual acuity of the two eyes.

In a short series of cases such as was here analyzed, it is possible for a few cases of marked heterophoria to produce an average relatively too high or vice versa. It was thought that this might, in a measure, be a possible source of error, and be neutralized by giving the percentages, in the two main groups, M + Am and H + Ah, of cases showing a similar change. These groups were further analyzed to determine the relation existing between the abducting power and the distance imbalance.

Of the cases of H + Ah with esophoria for distance and exophoria for near, in 25 per cent. there was an increase in the esophoria, the average being 2.37°, and the greatest 4°. In 57 per cent. there was a decrease of esophoria, the average being 2°, the greatest 9°. In this series there was a much larger number of cases showing an appreciable decrease of esophoria than was the case in other of the H series. The average abduction equaled 6°. In 30 per cent. in which it was above the average, the esophoria equaled 2.37°. In 70 per cent. in which it was below the average, the esophoria equaled 2.62 per cent. In a series in which abduction was 5° or below the average, esophoria equaled 3.5°, and in a series in which it equaled 7° or more than the average, esophoria equaled 1.75°.

Of the cases of H + Ah with exophoria for distance and near, in 35 per cent. there was an increase in the exophoria. The average was 1.37°, and 40 per cent. showed a decrease, the greatest being, 2°, the least 1°.

The average abduction was 6.5°. In 50 per cent. it was above the average, and in 40 per cent. it was below the average, but in both the average exophoria equaled 1.5°. In a series in which it was 5° or below, the average exophoria for distance was 3.5°.

Of the cases of M + Am with esophoria for distance, in 30 per cent. there was an increase in the esophoria, the average increase was 1.12°, and the greatest was 3°.

Abduction was below the average in esophoria associated with ametropia of any form, and was of equal degree both in the myopic and hyperopic groups.

Abduction was above the average in exophoria associated with ametropia of any form, and was about equal in exophoria for distance both in the hyperopic and the myopic groups.

Abduction was above the average and of equal degree in Amh, no matter what the distance balance. In 45 per cent. there was a decrease; the average was 2.25°, the greatest 7°.

From the frequency with which right hyperphoria occurred in the foregoing cases, it was evident that right hyperphoria prevailed to a marked degree. As in a tabulation of one hundred cases on another occasion the percentage of right hyperphoria was found to be about 70 per cent., a further series of 200 cases, none of which had been employed in the previous computations, was used. In 105, or 52 per cent., there was orthophoria for the vertical muscles. In 95, or 48 per cent., there was hyperphoria. In 76 per cent. of these it was R. H., and in 24 per cent. L. H. As in making the tests the rod had been invariably placed before the right eye, it was thought that this might in some way be the cause of the preponderance of R. H., but Dr. Holloway found the same preponderance of R. H. when the rod was placed in front of the left eye. Possibly the fact that the right eye is usually the dominant eye is a factor. Forty-six per cent. of H + Ah, 50 per cent. of Ah, 53 per cent. of M + Am, 40 per cent. of H, 38 per cent. of Amh and 50 per cent. of anisometropia showed hyperphoria.

In 74 cases (78 per cent.) it was less than 1°, in 38 cases (40 per cent.) it was 1.4°, in 9 cases (9.5 per cent.) it was 1°, in 3 cases (3 per cent.) it was 1.5° and in 5 cases (5 per cent.) it was 2°. In 4 cases (4 per cent.) it was over 2°. It was found that in less than 1 per cent. was the hyperphoria appreciably altered by correction of the ametropia.

Hyperphoria was present more often in exophoria for distance than in esophoria for distance in the proportion 46:36. It was least frequent and occurred in the same ratio (20 per cent.) in all forms of heterophoria associated with Amh.

CONCLUSIONS

On the whole, it cannot be said that the correction of ametropia greatly influences the associated heterophoria, some of the change here noted being the result of the natural progress of such associated conditions, as evidenced by the fact that a study of a series in which but two weeks intervened between the tests before and after the ametropia had been corrected showed even less change. In a short series of H + Ah with esophoria for distance, exophoria first test 1.37°, final test 1.25°; exophoria for near, first test 6.5°, final test 6.5°.

Considering only the heterophoria, it may be said that the correction of the ametropia reduces the esophoria for distance when associated with H + Ah, and tends to increase the exophoria for near.

When esophoria exists both for distance and near, the heterophoria at both distances will be reduced and the esophoria for near may be converted into an exophoria. Esophoria for distance and likewise an exophoria for near will be reduced by the correction of M + Am.

Exophoria for distance and near will be practically unchanged by the correction of a coexisting M + Am.

Esophoria for distance will be little changed or may go over into an exophoria by the correction of an associated Amh. An exophoria for near, under like conditions, will be increased.

Exophoria for distance in anisometropia will be decreased by the correction of the ametropia.

In no group of cases did the average abduction exceed 7°; the average in all groups was 6.5°.

Hyperphoria occurs in less than 50 per cent. of cases of ametropia. It is somewhat more frequent in H + Ah. In more than three-fourths of the cases it is less than 1°, and in less than 10 per cent. it is 2° or more. Right hyperphoria vastly predominates.

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ABSTRACT OF DISCUSSION

Dr. A. E. Davis, New York: The value of Dr. Zentmayer's observations are added to also from the fact that the tests have been uniform, have been made by one surgeon and the cases are from private practice, insuring a greater degree of intelligence and help from the patient than can possibly be obtained from hospital subjects. It seems to me that Dr. Zentmayer does not give himself due credit, nor does he attach enough importance to the influence that the proper correction of ametropia has on heterophoria. In his conclusions, he says: "On the whole, it cannot be said that the correction of ametropia greatly influences the associated heterophoria, etc. Turning to the body of the paper and looking at that group of cases of H and Ah (by far the largest group in the series, 145 cases), in which there was an associated esophoria for the distance and an exophoria for the near, we find that the correction of the refraction reduced the esophoria in the average ¾ of a degree, or about 33 per cent. of the original amount, whereas the exophoria which was present for near was reduced ½ degree, or about 10 per cent. of the original amount, a negligible amount." Now I hold that an improvement of 33 per cent. in the esophoria for far and 10 per cent. in the exophoria for near, both of which improvements are in the direction of orthophoria, is a very important factor in helping to bring about relief from asthenopia, if the asthenopia is due to the so-called muscle imbalance. Again, in other groups, "when esophoria existed for both distance and near, but was greater for near, the esophoria for distance decreased on the average 0.62 degrees, or 33 per cent. of the original amount, and the esophoria for near decreased, on the average, 3 degrees, or 45 per cent. of the original amount." Take another group of cases reported by Dr. Zentmayer, H. plus Ah., in which esophoria existed both for distance and near, but was greater for distance, the esophoria for distance decreased, on the average, 1.37 degrees, or 23 per cent. of the original amount, and the esophoria for near was converted into exophoria of 0.75 degree, a change of 133 per cent.! Certainly this is a remarkable change, and the influence exerted by the glasses a most decided one. And when we take into consideration that Dr. Zentmayer recorded no higher degree of esophoria than 15 degrees (when it was higher than 15 degrees, he simply added a plus sign to it) this improvement in these cases as measured by other standards would be greater still. While it must be admitted that in some of the subgroups, especially in the myopic cases, the improvement in the direction of orthophoria is small, or even in the opposite direction, yet, on the whole, and particularly in H Ah, and in anisometropia, the class of cases in which asthenopia is most often present, the influence of glasses on the associated heterophoria is decided and in the right direction, for the most part, that is, towards orthophoria. Landolt has justly emphasized, in all his writings, the necessity of a greater quantity of latent reserve force in the muscles of orientation of the eyes than even for the muscle of accommodation, if we may expect the eyes to be used for a long time without fatigue or without asthenopic symptoms appearing. Hence, any factor that tends to increase this reserve force in the muscles of orientation, as the adjustment of correcting glasses, plays a most important rôle in the relief of asthenopia. Dr. Roosa held to the view that, when the refractive errors were corrected by the adjustment of the right glasses, muscle insufficiencies, in the vast majority of instances, corrected themselves, especially in cases of H and H astigmatism and anisometropia. He placed little or no reliance on prism exercises in these cases, and I must say that my experience coincides with this view. I would mention one other important factor in the treatment of heterophoria, that is, the giving of tonics and looking after the general welfare of the patient. With these two features of the treatment carried out faithfully, rarely indeed is it necessary to prescribe prisms or to operate on the ocular muscles in any degree of latent insufficiency short of manifest deviation.

Dr. Hiram Woods, Baltimore: There is a form of esophoria which, in my experience, is usually lessened or modified by refraction correction. Esophoria may be due either to defective action of the externi or overaction of the interni. The average abduction or prism power of the external rectus was given a good many years ago by Noyes as from 5 to 8. He thought when it fell below 5 it indicated a definite weakness of the externus itself; when it was above 5 and less than 8, it indicated a normal external rectus prism power, and over 8, an excessive prism power. I have studied out a good many cases that have been affected by hypermetropic correction. After H refraction is corrected, esophoria has lessened or disappeared entirely, provided the abduction is from 5 to 8 degrees, but it scarcely ever disappears when it is less than that. The explanation of esophoria is that the patient has a defective relative convergence. He cannot separate his convergence from his accommodation; consequently in obtaining vision before his refraction error has been corrected the extra innervation of the ciliary muscle goes also to the internal rectus. Then we have got by the phorometer esophoria, which does not mean external weakness at all, but overaction of the internal recti.

Dr. Edward Jackson, Denver: The main fact that stands out from Dr. Zentmayer's study is that for each individual there comes to be established, with approximate permanence, a certain ocular balance; as in each eye finally, in the process of development, a certain relation is established between the length of the anterioposterior axis and the curves of the surfaces. Orthophoria is rare, just as emmetropia is rare, but it is an approximation in that direction. The point is that a relation is established that becomes the fairly permanent condition for that individual. Any person with heterophoria overcomes it by his innervation, and so departs from that permanently established condition of rest. In certain cases there is a more continued departure in the interest of single vision; there may be apparent change in the balance from temporary strain. A patient with presbyopia goes too long without having his glasses changed, and comes to one of us when the near point has gone off to 16 or 20 inches, and he has been straining his accommodation. Frequently in these cases I have found a distinct departure toward esophoria, from the balance I had recorded years before. If the patient, however, gets the correction for the presbyopia and uses it for a few weeks he will come back to the previous state of muscle balance, which may be regarded as the permanent state of balance for that individual. A permanent state of muscle balance is not necessarily congenital, but it is established, perhaps, in rather early childhood, or not entirely until the approach of adult life. I would like to see this subject studied from the point of view of age. My impression is, though I cannot give statistics to support it, that heterophoria is decidedly more influenced in young persons, particularly in young children, by the wearing of corrections for ametropia than it is in adults. I think any such study as Dr. Zentmayer's ought, in future, to consider that, and the cases should be classified according to age. Perhaps that would give us more distinct results.

Dr. Francis Valk, New York: Some twenty-five or thirty years ago, at a medical congress in Washington, this subject of esophoria for distance and exophoria for near was discussed, and since that time it has been spoken of in various text-books, but I do not know that any one has explained why we should have homonymous diplopia at 20 feet and crossed diplopia at a shorter distance. I was surprised to hear Dr. Stevenson's report of a patient securing more comfort by holding the book to the right or left. In such cases there must be some tendency for the eyes to turn in a certain direction. I have also noticed that the text-books, in treating of the rotation of the eye, have decided on a fixed condition of 55 degrees inward and 50 degrees outward. In several cases I have found, in the right eye, a rotation inward of about 45 degrees, and an outward rotation of 55 degrees; in the left eye, 60 degrees inward and only 40 outward. Now if the standard is correct we have here, unquestionably, an exophoria in the right eye taken alone, and esophoria in the left eye taken alone. Now it seems to me reasonable that, when a person looks in the distance, the left eye is esophoric, from the weak outward rotation. In the near the right eye becomes slightly divergent owing to the weak internus and there is exophoria. There is a decided tendency here for both eyes to turn to the right. I think this explains these cases very clearly. All cases of esophoria in the distance and exophoria in the near invariably show this condition. What to do from this point is interesting. We should not put on prisms for distance or for esophoria, nor prisms for exophoria. When esophoria predominates I put a prism over the left eye only base outward and none over the right and it works very successfully. On the other hand, if the exophoria predominates, I put a prism over the right eye with the base in. In some cases I have put the base out over the left eye and base in over the right. These are patients we cannot very well operate on. They do not show a real reason for operating but do show a reason for prisms. Many of you know the term dextrophoria which I have advanced in these cases. My suggestion was not a very good one because it is a combination of Latin and Greek, instead of Greek alone as it ought to be. But the name simply shows the actual tendency of the eyes to rotate in an abnormal condition similar to that of anaphoria.

Dr. Samuel Theobald, Baltimore: One of Dr. Zentmayer's conclusions caused me some surprise; that exophoria for distance and near will be practically unchanged by the correction of compound myopic astigmatism. If the statement had been as to simple myopia I should have unhesitatingly challenged it; but the fact that astigmatism is associated with the myopia is a saving clause. In such circumstances, the effect on the exophoria I should say would depend on whether the myopia was considerable and the astigmatism slight, or the reverse. If the myopia is at all considerable, its correction will surely lessen the exophoria at reading distance. On the other hand, if there is pronounced astigmatism, the relief of the accommodative effect required to overcome this might more than offset the correction of the myopia. With regard to the influence of the correction of anisometropia on the muscle-balance, I have seen some extraordinary results. One case I published in which a marked divergent squint quickly disappeared, under the influence of glasses which equalized the focus of two very dissimilar eyes. Another striking example of the influence of glasses on muscle balance, is shown in cases that Dr. Zentmayer and all of us have seen, cases of convergent squint in which the squint is absent with convex glasses of 3 or 4 diopters but returns at once when the glasses are removed.

Dr. George H. Price, Nashville: I am sorry Dr. Zentmayer did not include the testing of the accommodation in the individual prior to the correction of the vision, because on this point, in my opinion, hinges largely the effect which will be produced by the correction of any defect of vision when it is associated with imbalance. Cases in which we have esophoria for distance and exophoria for near and the exophoria increased with lenses, show that if the accommodation is suspended to determine the entire refractive error and a full correcting lens put on without reference to the amount of accommodation the individual had originally, you are apt to meet with the condition that supervenes in the cases reported by Dr. Zentmayer, because you have an overcorrection of the hypertropic condition. This will be a great inconvenience to the patient when he begins to wear the glasses, and if you make a test within a few weeks before the eyes have become adjusted to the new condition, the patient will show a different disturbance in the muscle balance from the original. Put on a correcting lens of a diopter or more and you have relieved the patient of the necessity of making that much effort at accommodation and the patient feels the lack and the muscle balance sympathizes with it and is disturbed temporarily. Esophoria for distance and near both were reduced; at times exophoria for distance manifested itself after the correction was on. If both are reduced then in the majority of cases you have the proper correction, but if you have carried your correction too far and you take away from the eye the original impulse to which it was accustomed for a long period of time, to bring about the necessary convergence it lags, because it does not get the proper stimulation, then you have a little bit of exophoria.

DR. WILLIAM H. BATES, New York: I take issue with every conclusion that has been made. I believe most of us recognize that myopia is acquired. We have seen cases of astigmatism acquired. Some of them get better and some get worse. Dr. Zentmayer reported that heterophoria changed. I have also observed changes occur in errors of refraction. I believe that the cause of many cases of heterophoria, myopia and astigmatism is psychic. To illustrate: A boy came to me with 4 or 5 diopters of mixed astigmatism under atropin. He never had been able to read more than a few minutes at a time and then only with much headache and pain. His mother (by a method of eye-training which I published) cured his defective sight for distance. Later, after some months without glasses, he became able to read Jaeger No. 1 without any asthenopia, without any apparent exophoria or esophoria and I believe that the cause of the heterophoria and the astigmatism in that boy was psychic.

DR. OTIS ORENDORFF, Canon City, Colo.: From a practical point of view we should consider diseases of the nasal cavity and associated sinuses. But little reference has been made to them. If you will make careful investigation of some of the most perplexing cases with associated phorias you will find numerous cases of nasal disease, and when they are cleared up the phorias will be also cleared up, and you will never be able to do it while the disease exists in the nasal cavities.

DR. MARK D. STEVENSON, Akron, Ohio: A point of interest found by the essayist is that right is more frequent than left hyperphoria. There are many possibilities entering into the explanation of this. It occurs to me that the most likely cause comes in line with what Dr. Jackson has just suggested. Just as good habits in children may assist in correcting deformities, so evil habits of looking may bring about undesirable changes. In a child at a desk sitting in a half-turned position, reading may produce hyperphoria. The difference in the distance between each eye and the reading matter is probably not very important; but the difference in the use and, therefore, in the development of the muscles is likely of great importance and has a real physical basis. For example, in looking much of the time down and to the left, the chief depressor of the right eye is the right superior oblique, and of the left, the left inferior rectus. Therefore, physically, the left inferior rectus will be more developed than the right and in looking at the distance where the muscle balance is usually tested, if desire for fusion is abolished, the more developed muscle will probably exert the greatest influence; and in this case turn the left eye lower which would explain the greater frequency of right hyperphoria. In testing such a patient's hyperphoria when looking to the left, left hyperphoria according to this theory would likely occur on account of the overaction of the hypertrophied right superior oblique. Left hyperphoria could also be explained on the same theory as the causation in those who habitually look downward and to the right. These habits will often vary with the individual and school. As fusion is abolished in the tests, this physical theory seems more plausible than differences in innervation.

DR. WILLIAM ZENTMAYER, Philadelphia: I feel the weakness of the paper. If I had it to do over again, I would ask advice from many confrères, as I did of some in Philadelphia, as to what I should look for and how to go about the analysis. I think one of the points Dr. Jackson made is very strong, that it would have been well to have studied the cases also from the point of age. In a discussion of this kind much that comes out is based on what I wanted to overcome by my paper. We all have ideas as to the ratio and relations of things, but when we come to analyze our cases we find our preconceived notions were wrong many times. I think some of the discussion proceeds along the line of the notions we have had. Replying to Dr. Valk I would say that last year we had a paper by a member of this Section in which it was declared that, in cases showing esophoria for distance and exophoria for near, the esophoria was a pseudoesophoria due to spasm from excessive effort at convergence to overcome the weak convergence. My cases do not bear out that view. With regard to presbyopia, as Dr. Jackson said, these cases, in time, right themselves, but I think it is better to follow Dr. Stevenson's suggestion and stimulate the convergence by putting on the weakest glass with which the patient can get along. The normal balance is also restored more quickly by prism exercises when the correction of the presbyopia has disturbed the relation between the convergence and the accommodation. As to Dr. Davis's exception to my conclusion that, on the whole, the heterophoria is not greatly influenced by the correction of the ametropia, I would say that perhaps we differ only as to our interpretation of the word "greatly."

Dr. Theobald has spoken of compound myopic astigmatism and the exophoria disappearing under its correction. Had I grouped the cases as to time—months and years—the results might have been different. I think that, probably, is the reason for the total average result being somewhat different from what might be expected from the correction of compound myopic astigmatism.

FUNCTIONAL HEART-BLOCK IN PNEUMONIA

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CASE 1.—N. R., man, aged 70, entered the German Hospital in a semicomatose condition. The only previous history with any bearing on his present complaint was that he had been ill for several months prior to admission; but neither the nature nor the symptoms of this illness could be determined. On examination he had marked paralysis agitans. The pulse-rate was 36 per minute and regular. The pupils reacted normally to light; the knee-reflexes were absent. There were signs of diffuse bronchitis with suspected areas of consolidation in both lungs; tubercle bacilli were not found in the sputum. The cardiac area appeared normal to percussion; the heart-sounds were indistinct; no murmurs were heard. Abdominal examination revealed nothing abnormal. The radial arteries felt somewhat thickened. There was no edema of the legs. Cheyne-Stokes breathing was absent. The patient was slightly dyspneic and cyanotic and gradually lapsed into complete coma. The pulse remained slow and regular throughout the illness, its rate varied between 34 and 36 per minute. The temperature ranged between 100 and 103 F.; on the day of death, one week after admission, it rose to 105.

Polygraphic tracings were obtained on different days; on one occasion, the radial pulse was 35 and the auricular rate 102 per minute (Fig. 2). There was no numerical ratio between auricular and ventricular contractions, the auricular waves (*a* waves) fell before, immediately after or with the carotid beats (*c* waves); in other words, complete auriculo-ventricular dissociation (complete heart-block) existed. The subcutaneous injection of 1/50 grain of atropin sulphate had no effect on the block (Fig. 3). For purposes of comparison, a normal tracing is shown (Fig. 1) with a normal pulse-rate and the rhythmic progression of *a-c-v* waves in the jugular pulse.

The following notes were abstracted from the post-mortem findings: The brain was slightly congested; its membranes were normal. On gross section, the spinal cord appeared normal. There were several areas of pneumonic consolidation and evidences of general bronchitis. The gastro-intestinal canal, liver and pancreas were normal. The spleen was somewhat enlarged and congested. The renal capsules were slightly adherent; the organs themselves were congested and showed slight evidences of chronic interstitial changes. There was no lesion of the auriculoventricular bundle,* though it contained a little more connective tissue than is usually found. There was a slight amount of fatty infiltration of the auriculonodal junction, but its dimensions were sufficiently large to carry impulses. There were some moderately large areas of sclerosis in the interventricular septum, but these did not interfere with the continuity of the bundle.

Case 2.—J. C., man, aged 49, entered the Lebanon Hospital with the typical history of acute pneumonic invasion: One week before admission he had had a severe chill; a day later fever, cough and rusty expectoration developed. On admission, the rectal temperature was 104; there was consolidation of the upper lobe of the left lung; the cardiac area could not be mapped out by percussion; the heart-sounds were distant and scarcely audible; the radial pulse was 120, regular and felt small; the blood-pressure (auscultatory method) was 100 mm. systolic and 60, diastolic. The patient was extremely collapsed and slightly stuporous. On one occasion the urine contained a heavy trace of albumin but no casts. For one week the temperature ranged between 101 and 104; the pulse remained regular. Its rate varied between 108 and 140 per minute, the systolic blood-pressure between 100 and 78 mm., the diastolic between 60 and 0 mm. The temperature then dropped by crisis to 97.5 by rectum. The pulse-rate fell to 88 and was regular. On the ninth day after admission, the ventricular rate suddenly fell to 44 per minute and for four days varied between that and 30. The patient remained in extreme collapse and semistupor with a rectal temperature below 98. The pneumonic area gradually underwent resolution, the radial pulse was very small, there were no visible jugular or carotid pulsations, and the heart-sounds were scarcely audible. There were no general convulsions, but there were frequent attacks of convulsive tremors of the musculature of the upper and lower extremities, which became very cold and cyanosed; the pulse then became very slow and scarcely perceptible and the semistupor changed to deep coma. Each attack lasted about one minute. Two days later the average pulse-rate was 48; the general condition remained the same.

Suddenly on the sixteenth day after admission and one week after the inception of the slow rhythm, there was a marked change in the patient's condition; he sat up in bed, was fully oriented, his color was good, the ventricular rate was 76 per minute and regular, and the heart-sounds though still faint, could be readily heard. There was a soft systolic murmur at the apex. Except on three different occasions, when the pulse-rate fell for a short time to 48, 44 and 40, the rate varied between 60 and 80 and remained regular. Polygraphic tracings were attempted during the period of slow rhythm but were unsatisfactory apparently because of the collapsed arterial and venous circulation. Two weeks later, electrocardiograms which I took showed sequential contractions uninfluenced by pressure on either vagus. The heart-sounds were then normal, the systolic blood-pressure 120 mm., the diastolic 70 mm. Prior to the inception of the slow pulse, 1 ounce each of digalen and the tincture of digitalis had been administered. There was no vomiting throughout the illness.

COMMENT

In Case 1 the history was too meager to approximate the duration of the heart-block prior to the patient's admission to the hospital. From the absence of any organic cause for heart-block in the pathologic examination it is reasonable to assume that pneumonia was the exciting cause of the block. In Case 2, the sudden drop of pulse-rate and its continued retardation for one week, the frequent slight muscular tremors, the general and circulatory collapse and the sudden resumption of normal pulse-rate leave no doubt as to the presence of heart-block. In the absence of graphic tracings, its nature — complete or incomplete — could not be determined. Since digitalis preparations in large amounts had been given previous to the onset of the block, its action as a possible cause for the latter requires consideration. It has been part of our routine in the treatment of pneumonia to give digitalis preparations by mouth or hypodermically in amounts similar to those administered in this case, but they never reduced the pulse-rate. It is well known that digitalis may produce heart-block. I have seen several cases of endocarditis with broken compensation in which digitalis produced block, but it was not accompanied by collapsed circulation; in fact, decompensation often improved; vomiting usually accompanied the digitalis poisoning. Mackenzie[1] reports a case of cardiac decompensation in which digitalis produced partial heart-block, extrasystoles and alternation; the drug was pushed until the patient vomited; he was very much improved despite these arhythmias. In my case there was no vomiting; the block came with the crisis; the patient was collapsed and there were slight convulsive tremors. These symptoms continued for one week after digitalis was stopped, and the sudden resumption of normal pulse-rapidity was accompanied by marked beneficial changes in the patient's sensorium and appearance. None of these symptoms resembles digitalis heart-block. It thus appears most probable that though the digitalis may have been a factor in the production of the block, its main cause was the pneumonia.

A sudden drop of pulse-rate to 60 or even 50 per minute with regular ventricular action is not infrequent in pneumonic crises, but such slow rhythms have not been sufficiently studied by graphic methods to determine whether they are true bradycardias (slow sequential auricular and ventricular beats) or are possibly due to heart-block. Hecht[2] reports a case of influenza in a child in which the electrocardiograms showed heart-block, which still persisted several months after convalescence. Magnus-Alsleben[3] reports a case of pneumonia in which digitalis had been given; the temperature fell by lysis; polygraphic tracings apparently show that every third or fourth ventricular beat is blocked. Bachmann[4] has tabulated all the cases of heart-block reported up to 1912; pneumonia is not mentioned as a causative factor. Mackenzie[5] states that the invading organism may assail the heart as well as the respiratory tract. Organic changes such as lymphocytic or leukocytic infiltration in or near the junctional tissues, marked myocarditis or cardiac infarct can be excluded, in Case 1 by the pathologic examination, in Case 2 by the sudden inception and relief from block and the other data given.

I have not been able to find any reports in the literature in which pneumonia was accompanied by heart-block with slow ventricular action and with no organic discoverable cause. There is ample evidence that heart-block may exist without any recognizable pathologic change in the cardiac structures; thus Lewis and

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* I am indebted for the report of the examination of serial sections of the heart to Dr. A. E. Cohn of the Hospital of the Rockefeller Institute for Medical Research.

1. Mackenzie: Heart, 1910, ii, 359.
2. Hecht: Ergebn. d. inn. Med. u. Kinderheilk., 1913, xi, 393.
3. Magnus-Alsleben: Ztschr. f. klin. Med., 1909-1910, lxix, 85.
4. Bachmann: Jour. Exper. Med., 1912, xvi, 25.
5. Mackenzie: Diseases of the Heart, Ed. 2, p. 285.

Mathison[6] produced it by asphyxia, and Buchanan[7] showed that it is a physiologic phenomenon in hibernating animals. One may conceive several methods by which a chemical poison like the toxin of pneumonia circulating in the body may produce heart-block: thus, first, by a central effect on the cardio-inhibitory centers in the medulla; second, by profound disturbance of the nutrition or circulation of the general cardiac musculature or its auriculoventricular connections, or third, by an effect on the peripheral intracardiac ganglia and nerves. Our present knowledge of the last is so vague that its discussion would be fruitless. Regarding the first hypothesis, Einthoven[8] produced varying grades of complete and incomplete block in dogs by morphin injection and conceived it as due to the effect of the drug on the vagus centers in the medulla. In pneumonia the primary danger of circulatory failure is also probably due to central depression of the vasomotor system.[9] Cardiac failure in the ordinary sense was absent in my cases, there was very slight or no dyspnea, and edema was absent. Though it is impossible to exclude the effect of the toxins on the general and specific cardiac musculature (the second hypothesis) as a causative factor of the block, the symptoms and the dissociation were probably due to toxic depression of the cerebral centers and not to any direct action on the heart.

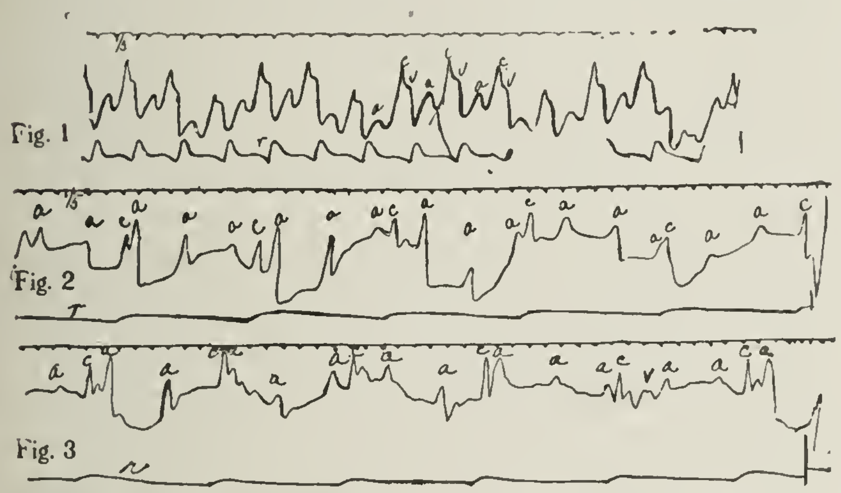

Fig. 1.—Normal polygraphic tracing. Rhythmic progression of *a-c-v* waves is seen in the venous tracing.
Fig. 2.—Complete heart-block. The auricular beats (*a* waves) have no sequential relationship to the carotid beats (*c* waves); they fall before, after or with the carotid beats.
Fig. 3.—Tracing taken after the injection of atropin sulphate, 1/50 grain. Complete heart-block is still present.
In the tracings *r* = radial beats, *a* = auricular waves, *c* = carotid waves. The time-marker indicates 1/5 seconds.

The injection of atropin sulphate in Case 1 did not raise the block. It is usually assumed that the disappearance of arhythmias after atropin injection is an evidence of their functional nature. The contrary, however, is not true, for other factors, such as drug idiosyncrasies and the continued presence of counteracting poisons (toxins) may prevent or retard the disappearance of functional arhythmias following atropin injections.

SUMMARY AND CONCLUSIONS

Two cases of heart-block occurring in pneumonia have been described. In the patient who died, the pathologic examination showed no cause for block. Both cases were probably produced by pneumonic toxins which acted on the medullary centers. The injection of atropin sulphate in Case 1 had no effect on the block.

I am indebted to Dr. J. Kaufmann, attending physician, German Hospital, and to Dr. R. Stein, attending physician, Lebanon Hospital, for the privilege of reporting Cases 1 and 2, respectively; also to Dr. F. B. Humphreys, pathologist, German Hospital, for the post-mortem notes of Case 1.

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[6] Lewis and Mathison: Heart, 1910, ii, 47.
[7] Buchanan: Proc. Phys. Soc., 1911, xlii, 19.
[8] Einthoven: Verhandl. Gesellsch. deutsch. Naturforsch. u. Aerzte, 1911.
[9] Janeway, T. C.: The Comparative Value of Cardiac Remedies, Arch. Int. Med., March, 1914, p. 378.

THE TOXICITY OF CAMPHOR (CAMPHORATED OIL)

D. J. Milton Miller, M.D., Atlantic City, N. J.

In his "Therapeutics" (edition of 1906), H. C. Wood makes the following statement: "Although camphor has, in many cases, produced very alarming symptoms, over 200 grains of it have been taken without permanent result and the recorded fatal poisonings are very few. The only ones known to us are,—adult, quantity unknown; sickly infant, 10 grains; child, 2 years old, quantity unknown; fatal abortion produced by 3 drachms."

On the evening of June 3, M. C., a particularly robust infant of 18 months, weighing 31 pounds, was given, immediately after a full supper of milk and cereal, a brimming teaspoonful of camphorated oil (linimentum camphorae) by mistake. Two hours later I saw the child. It was sleeping quietly and naturally, with cheeks somewhat flushed and the scalp quite wet with perspiration, not an unusual phenomenon with it; the pulse was 110, the respiration 24. When awakened, the infant was found to be quite natural, playing and smiling in its usual manner, and, as nothing abnormal was discovered, nothing was done beyond the administration of 2 drams of castor oil. The child was then replaced in its crib, but was very restless, not falling into a sound sleep until near midnight, a condition which could be attributed as well to its having been disturbed as to the overdose of camphor. The infant awoke the next morning perfectly well, apparently quite unharmed by its unwonted medication.

As camphorated oil is a 20 per cent. solution of camphor in oil, the dose of camphor, given this infant of 18 months, must have been from 14 to 15 grains, the mother having given a brimming teaspoonful (from 1.25 to 1.33 drams); yet there were practically no symptoms.

127 South Illinois Avenue.

Rapid, Painless, Bloodless Method for Removing the Inferior Turbinate.—Nothing especially novel or original is claimed for this operation. It is reported only because of the ease and rapidity with which it is performed and the freedom from adhesions afterward. The primary requisite is an extra long Curtiss nasal trephine (1½ by ¼ inch), a pair of cutting forceps and an elevator for the mucous membrane. The nose is thoroughly anesthetized with crystals of cocain and a 1 : 1,000 solution of epinephrin. The mucous membrane having been lifted up with elevator over the lower turbinate and all adhesions having been removed, the bone is drilled through lengthwise with the trephine and all projecting edges are removed with cutting forceps. A Bernays compressed sponge which has been first wrapped with paraffin-paper and the ends left exposed is inserted into the nose. The paraffin-paper prevents the sponge from adhering to the wall of the nose, sufficient moisture having been absorbed through the uncovered ends to permit of swelling and at the same time prevents too much pressure on the inflamed surfaces. After three days this tampon is removed. It will be found to be free from blood and at no time either before or after the introduction of the tampon will there be enough blood to discolor a paper napkin. A simple oil spray is ordered and as primary union takes places and as the nasal fossae are widely patulous, no adhesions form.—W. Peyre Porcher, M.D., Charleston, S. C.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, AUGUST 15, 1914

THE ACTUAL ACIDITY OF HUMAN GASTRIC JUICE

To anyone whose physiologic ideas are rooted in dogmatic or inherited statements it will seem bold to question one of the most wide-spread, sanctioned beliefs of clinical medicine. There is an assertion current in every treatise bearing on the stomach and its disorders that the human gastric juice normally contains about 0.2 per cent. of hydrochloric acid. That the gastric secretion of laboratory animals, the dog for instance, may show a decidedly greater acidity, commonly exceeding 0.5 per cent. of hydrochloric acid, is well appreciated. This discrepancy between the species has frequently received comment and been explained on teleologic grounds. Few persons have stopped to consider that in recent years the gastric juice procured for analysis from dogs has usually been obtained pure, directly through a fistula made for the purpose; whereas the figure accepted by both physiologists and clinicians for the secretion percentage in man was arrived at by examining the contents of the stomach, and not the uncontaminated juice. The bearing of this will appear presently.

There have been suspicions, from time to time, that the accepted figures for the "normal" gastric juice were involved in some uncertainty. The doubts have arisen as a rule among the gastro-enterologists who have occasion daily to decide as to the existence or absence in patients of hyperacidity or hyperchlorhydria. Most of the influential writers have stated that any amount of hydrochloric acid above 0.2 per cent. is to be considered a hyperacidity. On the other hand, cases are repeatedly encountered in which a greater acidity than this figure gives rise to no symptoms of hyperacidity. The situation is complicated by the fact that subjective elements enter into the judgment of the normality or abnormality of the features presented by the human patient. According to competent clinicians, symptoms of hyperacidity may exist even in cases of hypo-acidity. Consequently, those physicians who are willing to disregard the dictates of inflexible rules in diagnosis conclude that the same amount of acid may indicate a hyperacidity in one person and not in another, showing that individual variations may exist in the so-called normal percentage, and that a sharp line of demarcation cannot always be drawn between the normal and the hyperacid state. This has compelled critical clinicians to refer the symptoms of what is called hyperacidity to a hypersensitiveness of the gastric mucosa toward certain strengths of hydrochloric acid. Ulceration, erosion, atony and sensory neurosis may be factors which serve to correlate certain chemical findings with the sensory disturbances.

Pawlow of St. Petersburg, whose classic researches on the digestive glands won for him one of the early Nobel prizes in medicine, long ago came to the conclusion, on the basis of numerous researches on the pure gastric juice of dogs, that its acidity is essentially constant. The volumes produced may vary widely; not, however, the concentration of hydrochloric acid. There are fluctuations in the course of successive hours and in connection with different types of stimuli, which Pawlow explained as follows: The fluid secreted by the glands proper, which he terms "native" juice, always has a definite acidity. In pouring over the mucous membrane of the stomach this highly acid native juice undergoes a partial neutralization by the alkaline mucus. For this reason juice collected from a fistula may show a somewhat lower acidity during the early period of collection than later. The acidity of the juice actually removed for examination will accordingly depend on the relation of the secretion to the production of gastric mucus and also on the rate of flow. If gastric juice remains for any extended period within the stomach it likewise experiences considerable neutralization. Pawlow argued that in man the native acidity of the secretion of the gastric glands could not differ very much from the high figures (from 0.5 to 0.6 per cent. hydrochloric acid) noted for dogs and cats; and that it must always be constant, because man's food and the construction of his digestive organs are very similar to those of the animals mentioned. Clinicians, however, were not of this opinion.

In recent years, through conditions of accident or disease, a large number of gastric fistulas in human beings have made it easier to obtain pure gastric juice from man. The percentage of hydrochloric acid noted by various observers is sufficiently interesting and significant to be recorded here: Umber (1905), 0.35; Pfaundler (1900), 0.35; Hornberg (1904), 0.48; Goorevitch (1903), 0.37; Moritz (1901), 0.38; Seiler (1901), from 0.32 to 0.44; Verhaegen (1898), 0.48; Sommerfeld (1905), from 0.38 to 0.47; Carlson (1912), from 0.43 to 0.48.

Shall we explain these concordantly high figures obtained in widely separated parts of the world under unlike conditions as consistently due to hyperacidity?

Boldyreff of Kasan, Russia, an investigator favorably known for his contributions to the physiology of digestion, has offered an explanation to reconcile the seemingly contradictory facts in this field.[1] It has been difficult to explain why juice obtained from the entire normal stomach as distinguished from that obtained from experimentally isolated portions of that organ should almost always contain a lower concentration of acid, namely, from 0.1 to 0.2 per cent. of hydrochloric acid, the figures previously quoted. The key, in Boldyreff's judgment, is the observation made by many scientific workers, that the acidity of various acid fluids is reduced during their stay in the stomach. If the stomach always has, for some reason, a tendency to reduce to a definite average the acidity of foreign acid fluids brought into it, it is natural to suppose that either when empty or in those cases in which food material entering it is not capable of such reduction, the stomach similarly reduces the acid juice secreted by its own glands.

Opinion has been divided concerning the mechanism by which the acidity in the stomach is reduced; some attribute it all to the alkaline mucus secreted by the mucous cells of the interior surface of the stomach, others to the pyloric juice, and others to a special secretion supposed to serve the sole purpose of dilution. The saliva and mucus are doubtless minor agents in the partial neutralization of gastric acidity. Boldyreff considers the principal factor concerned to be the pancreatic juice, the strongest alkaline fluid in the body. It has long been known to neutralize the acidity of that portion of the intestinal contents which is next to the stomach; and we are now told that it fulfils the same function within the stomach.

The theses set up by Boldyreff may be summarized as follows:

The acidity of freshly secreted gastric juice is constant (0.5 per cent. hydrochloric acid). This is rapidly lowered to a level which oscillates between 0.15 and 0.2 per cent. The same thing happens after the introduction of any acids foreign to the stomach. This partial neutralization is due to the reflux into the stomach of alkaline juices from the duodenum, the pancreatic juice being here the most important factor. Neutral, alkaline, or feebly acid fluids provoke a secretion of the acid juice in order that the acidity may be brought to the normal level. The mechanism described for maintaining the optimum level of acidity — from 0.15 to 0.2 per cent. — is designated by Boldyreff as the "self-regulation of the acidity of the contents of the stomach." In cases of chronic absence of the pancreatic juice or an insufficient influx thereof into the stomach there is an accommodation whereby the scarcity is made up by an abundant influx of bile and intestinal secretion into the stomach.[2]

Though it is thus easy to reconcile the divergent results obtained, on the one hand, by clinicians working with gastric contents, and, on the other, by physiologists examining the pure secretion, it is nevertheless not necessary to deny the existence of such a pathologic condition as hyperacidity. All the factors involved should be considered, however, before making a diagnosis. The gastric juice may be perfectly normal and yet show a high acidity, because sufficient time has not elapsed to allow the regulatory partial neutralization to occur; there may be delay in the entrance of intestinal secretions into the stomach, or these may not possess the usual requisite alkalinity. We must seriously consider, therefore, whether the condition described by clinical observers as hyperacidity is not sometimes the expression of a lack of the most important neutralizing fluid, the pancreatic secretion, rather than a pathologic state of the gastric juice. The abnormality can actually be produced in animals by ligating the pancreatic ducts.

A high initial acidity of the gastric juice is advantageous for the destruction of bacteria which find their way into the upper digestive tract. The reduction to a lower degree of acidity has subsequent advantages, among which, obviously, is the prevention of injury to the small intestine. It is another story of wonderful regulatory mechanisms.

THE NUTRIENT VALUE OF INORGANIC SALTS OF LIME AND PHOSPHORIC ACID

The reluctance to admit the nutrient value of some of the inorganic compounds of elements like iron, calcium and phosphorus as compared with "organic" preparations is gradually being overcome. This preference for organic compounds is, we presume, a surviving expression of the old belief that there is an exceptional virtue in products which resemble in some degree the components of the living body. In its earliest phases this view was emphasized by the assumption that a diet of meat was particularly well adapted to the building of muscle; and similarly "organic" iron preparations were somehow looked on as preferable for "blood-building." To-day new experimental research is no longer required to justify the contention that "organic" and inorganic iron are alike available. This conclusion, so firmly fortified by elaborate investigation a decade or more ago, is quite in harmony with the modern studies on the chemical changes taking place in the alimentary tract. There is little doubt that whatever the combination in which they are ingested, iron and calcium and phosphoric acid are in good degree "ionized" by the digestive processes; so that even the "organic" preparations in truth result in inorganic derivatives before they are ready for absorption.

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[1] Boldyreff, W.: The Self-Regulation of the Acidity of the Gastric Contents and the Real Acidity of the Gastric Juice, Quart. Jour. Exper. Physiol., 1914, viii, 1.

[2] Boldyreff, W.: Einige neuen Seiten der Tätigkeit der Pancreas, Ergebn. d. Physiol., 1911, xi, 121.

Although the problem here set forth is in a sense settled for iron, the utilization of inorganic compounds of lime and phosphoric acid has not been so readily admitted in practice. Experiments on animals demonstrating the conversion of ingested inorganic phosphates into characteristic phosphorized tissue products, like the eggs of birds or the milk of mammals, for example, have not been lacking. But as usual it has been the demonstration of the fact on man that was needed to bring final conviction.

Accordingly, we may welcome the evidence now submitted from the Grossen Friedrichs-Waisenhaus of Berlin by Drs. Schloss and Frank[1] respecting the availability of tricalcic phosphate for the development of bone in growing infants. Elaborate balance experiments on children have shown convincingly the improved retention, not only of the elements represented in this inorganic compound, but also of other metabolic factors such as nitrogen and alkalies in addition, after this inorganic phosphate has been administered in the diet. The improved utilization following the use of tricalcic phosphate was not merely transitory; the advantage accruing therefrom was maintained. We may conclude, therefore, that even in the organism of the growing child so simple a compound as an inorganic salt of calcium can easily be absorbed and advantageously assimilated.

THE AIR OF RAILWAY TUNNELS

The discomfort of travel through smoke-filled railway tunnels is well known, but the question as to the possible effect of the gaseous impurities on the public health has not received the attention which it deserves. The result of such a study has just been published by the Hygienic Laboratory of the United States Public Health Service.[2] The relative amounts of sulphur dioxid and of carbon monoxid found under ordinary conditions in a typical non-electrified and a typical electrified tunnel (those of the Pennsylvania and the Baltimore and Ohio Railroads at Baltimore) were accurately determined. The results show that on an average there was about five times as much of the two gases in the tunnel through which coal-burning locomotives pass as in the one through which the trains are drawn by electric tractors. It was shown that the amounts of the gases in the non-electrified tunnel are subject to great variations, depending on traffic conditions. The probabilities are that a person will encounter noticeable amounts of sulphur dioxid in four cases out of five and disagreeable or very irritating amounts in two out of every five trips.

The amounts of sulphur dioxid found in the non-electrified tunnel varied from 0.6 to 15.1 parts per million, and the corresponding figures for the electrified tunnel were from 0.3 to 2.9 parts per million. In the case of carbon monoxid the amounts in the non-electrified tunnel varied from 4 to 267 parts per million, and for the electrified tunnel, from 3 to 25 parts per million. In order to ascertain what effects these quantities might have on passengers passing through the tunnels, Seidell and Meserve[2] reviewed the literature of studies which have so far been made of the action of these gases on animal organisms. It was found that results on minute amounts of the gases are quite meager and the statements concerning their action are in very general terms, so that no really satisfactory idea of the maximum amounts which can be tolerated without injury can be obtained. The question is naturally one which does not lend itself readily to solution. Individual variations and idiosyncrasies will play an important part in any studies which can be made, and interpretation of the results will vary with the point of view of the interested person.

The principal value of the data contained in the bulletin of Seidell and Meserve is to show the actual amounts of the gases present and the reduction in the amounts which can be accomplished through electrification. The question as to whether or not the quantities present are dangerous to health, can be answered only on the basis of extensive physiologic experiments made with similar quantities of the gases. In regard to the discomforts of travel through smoke-filled tunnels there is no question. It does not appear possible at present, however, to affirm that the gaseous impurities in non-electrified railway tunnels are a menace to the public health and therefore justify a demand that the conditions be ameliorated. It seems likely that persons suffering from respiratory or circulatory disturbances may have the condition aggravated by passage through tunnels containing coal-gases, especially sulphur dioxid.

CONGESTIVE AND OTHER CONDITIONS OF MENSTRUATION

The menstrual period has long been regarded as inevitably bringing pain or discomfort and more or less disability to a large number of women at frequent intervals. Experimental investigation relative to menstruation has been largely impossible, so that at best the conclusions on this subject have been based on statistics of various sorts gathered from diverse sources. Comparable functions in the lower animals afford few facts bearing directly on menstrual phenomena noted in the human species. To the minds of those who give attention to the physical degeneration and suffering of an increasing number of women, the question invariably suggests itself, however, whether modern conditions of living or dress—factors of personal hygiene—are not responsible for a considerable share of the real or imagined difficulties that have been encountered. Like many other physiologic problems, that of menstruation and its attendant symptoms is so bound up with traditions, inherited prejudices and uncritical personal judgments that the open-minded reviewer is often checked in his attempts to untangle fact from fancy.

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[1] Schloss, E., and Frank, L.: Tricalciumphosphat als Knochenbildner beim menschlichen Säugling, Biochem. Ztschr., 1914, lx, 372.

[2] Seidell, Atherton, and Meserve, Philip W.: Gaseous Impurities in the Air of Railway Tunnels, Hyg. Lab. Bull. 92, U. S. P. H. S.

Quite recently two contributions[1] have been recorded which should help to eradicate the belief in the inevitable "illness" as the dominating characteristic of menstruation. Dr. Mosher believes that many of the untoward features of functional dysmenorrhea are due to remediable conditions. The periodic physiologic congestion which occurs about the time of menstruation is frequently so excessive that it produces congestive dysmenorrhea. The upright position, lax abdominal muscles, costal instead of diaphragmatic breathing and constriction of the body by clothing which interferes with the use of the diaphragm and abdominal muscles—all combine to develop and promote the excessive pelvic congestion. As a result of such conditions, rather than of any inherent natural organic changes, there may be pain at the menstrual period, prolonged hemorrhage and undue loss of blood. These consequences, Dr. Mosher believes, may be averted by suitable physical therapy.

Despite the widely accepted belief that menstrual disability among women is inevitable, Dr. Mosher insists that under normal conditions there should be no more suffering with disorders of the generative organs than with disturbances of the digestion. She concludes that at present all the evidence points to the menstrual hemorrhage as a secondary matter more or less fixed by the upright position. It is unnecessary and undesirable that it should be of more than brief duration or of more than slight amount. Pain and discomfort, where no organic lesion exists, are readily controllable by the physiologic regulation of the circulation from the abdomen and pelvis back to the heart, by the restoration of the tone and action of the diaphragmatic and abdominal muscles. This is accomplished by suitable bodily exercises. Other coincident functional disturbances, such as congestive headaches, are simultaneously relieved by the "equalizing" of the circulation.

Dr. King has searched with little success for the evidences of rhythm in the organic activities which has so long been emphasized by writers on the subject. Granted that a lowering in pulse-rate, temperature and blood-pressure occur during the menstrual and post-menstrual periods, she asks if much significance should, after all, be attached to a diminution in pulse-rate of from two to three beats, to temperature variations rarely greater than 1 degree, and to blood-pressure changes averaging from 2 to 5 mm. Certainly, Dr. King adds, one would suppose that in a healthy individual a normal periodic function should not be accompanied by marked depression of all the life-processes and the generally lowered efficiency so emphasized by numerous writers. If there is a compensation for the loss of blood, it would seem that there should be a compensation in the cardiovascular system. Perhaps this is indicated in the tendency of the blood-pressure to show such slight variations. It has been remarked with regard to menstruation that we have too long confused cause and effect: the menstrual hemorrhage is not the cause of the alleged blood-pressure rhythm, but an exaggerated result of interference with normal circulation. It is generally believed that primitive and savage women have a very scanty menstrual flow. If we may trust the recent contributions on the subject, it would appear that there has been a tendency to overemphasize the inefficiency of women during the menstrual period.

PHYSIOLOGIC SALINE SOLUTIONS

There are numerous occasions in the routine of clinical practice which may call for the use of saline solutions that shall conserve as perfectly as possible the functional or physiologic integrity of the organs and tissue with which they come into contact. The intravenous or subcutaneous infusion of saline may be cited as an instance of this character. Science has learned long since not only that pure water is actually damaging, not to say indifferent, toward living cells, but also that the older so-called physiologic saline, that is, 0.9 per cent. sodium chlorid solution, is not an ideal fluid for contact with tissues. The salts of various elements or ions, such as sodium, potassium, calcium and magnesium, though used in solutions of suitable osmotic pressure, may still individually be decidedly harmful, the toxicity or detrimental character varying with the individual elements involved. On the other hand, the presence of a little of some ion, like calcium, may overcome the harmfulness of another, like sodium.

To Jacques Loeb, who has devoted much energy and so many years of study to the problems here concerned, we owe the conception of a "physiologically balanced" solution. By this is meant one containing salts of such character and in such proportions that any toxicity which the individual components might exhibit by themselves, if they alone were present in solution, is completely compensated and made to disappear. Loeb has emphasized the antagonism of sodium toward potassium and calcium. The underlying facts here involved were incorporated years ago by Ringer in the experiments which gave rise to the perfusion fluid bearing his name. Ringer's solution, as is well known, contains a mixture of the chlorids of sodium, potassium and calcium in the proportions of about 0.9, 0.042 and 0.024 per cent., respectively. The details of its composition have been varied by subsequent experimenters in minor respects, by alterations in the relative content of these original components or by further additions, such as alkali carbonate or phosphate. One of the most recent representatives, Tyrode's solution, in which active tissues retain their vitality very well, has the following combination of inorganic ingredients: sodium chlorid, 0.8 per cent.; potassium chlorid, 0.02; calcium chlorid, 0.02; magnesium chlorid, 0.01; sodium phosphate, 0.005; sodium bicarbonate, 0.1.

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[1] Mosher, Clelia D.: A Physiologic Treatment of Congestive Dysmenorrhea and Kindred Disorders Associated with the Menstrual Function, The Journal A. M. A., April 25, 1914, p. 1297. King, Jessie L.: Concerning the Periodic Cardiovascular and Temperature Variations in Women, Am. Jour. Physiol., 1914, xxxiv, 203.

The test objects which have been employed to ascertain the suitability of the large number of types of "physiologic solutions" have been almost as numerous as the investigators who have dealt with them. Isolated tissue-cells, egg-cells, individual organs like the heart, etc., have served in this capacity. Probably no more sensitive mechanism is to be found than the central nervous system, which speedily loses its irritability and characteristic ability to respond when the fluid medium in which it is bathed fails to suit its needs. For this reason special interest attaches to all investigations conducted with perfusion fluids on the nervous tissues. An unexpected outcome of a very recent study in this field has been the apparent demonstration that the salts of sodium and calcium by themselves provide adequate conditions for the survival of the central nervous system of mammals.[1] According to Gerlach, who developed these facts in Winterstein's physiologic laboratory at Rostock, even minute additions of potassium are objectionable. Calcium and sodium cannot be replaced by other ions. Lithium, for example, was tested in place of the alkali sodium; and the calcium could not be substituted by the related alkali earths barium, strontium or magnesium. Incidentally, the use of calcium-containing solutions in perfusion trials has been observed to prevent or diminish entirely the objectionable formation of tissue edemas, in accord with the contentions of certain physiologists.[2]

The solution which Gerlach has found most satisfactory for the perfusion of the isolated central nervous system contains 0.9 per cent. sodium chlorid and about 0.05 per cent. dry calcium chlorid. Whether it will prove as suitable for use in human practice as are the "physiologic salines" made up according to current directions, remains to be determined in future experiments. In point of simplicity the new solution commends itself as worthy of investigation. It may well be that the individual organs—brain, heart, muscles, etc.—differ somewhat in the answer they give to the question of a suitable perfusion fluid. What the clinician primarily seeks is an ideal fluid for infusion into the circulation of the entire body.

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[1] Gerlach, P.: Der Einfluss verschiedener Ionen auf das Ueberleben des Zentralnervensystems von Säugetieren, Biochem. Ztschr., 1914, lxi, 125.

[2] Chiari and Januschke: Hemmung von Transsudat- und Exsudatbildung durch Calciumsalze, Wien. klin. Wchnschr., 1910, p. 427.

MAGNESIUM SALTS, ETHER AND CHLOROFORM

Although the narcotic phenomena produced by the injection of magnesium salts—a procedure introduced by Meltzer and Auer—are now quite familiar, the theories with respect to their behavior have not been in entire accord. It has been noted in animals without exception that a certain dose of magnesium sulphate or magnesium chlorid will produce a deep, often long-lasting anesthesia with complete relaxation of all the voluntary muscles and abolition of some of the more important reflexes. Recovery from such anesthesia is perfect. A larger dose of magnesium salt will produce profound anesthesia and a general paralysis, which, without any preceding or accompanying symptoms of excitation, lead sooner or later to death. The salt invariably effects reduction of excitation or its complete temporary or permanent abolition.

The question has been raised whether or not the symptoms observed represent a true narcosis of central origin or merely a profound paralysis involving the peripheral nervous system. It seems obvious from the fundamental experiments of Meltzer and Auer that complete anesthesia and inhibition of the higher motor centers can be induced by suitable dosage before untoward effects on respiration are evinced. As an indication that the predominant influence is exerted on the central nervous system, Meltzer and Auer showed that, when combined, each in a dose insufficient by itself to produce anesthesia, magnesium salts and ether could initiate that condition without any evidence of peripheral paralysis.[1] The magnesium salt thus appears to supplement the action of a substance which is believed to act on the higher nervous centers. The method involved has been employed successfully in human surgery.[2]

The problem has been attacked in other ways, one of which is by the use of antagonistic drugs the mode of action of which is precisely known. Camphor, for example, can overcome the effects of agents like paraldehyd or chloral hydrate, which depress the central nervous system; physostigmin antagonizes comparable effects on the peripheral mechanisms. The study of the specific influence of a variety of types of antagonists to narcotic and inhibitory substances might be expected to reveal, by the relative success of each group in removing the symptoms, the real seat of the action of magnesium salts. This mode of investigation has again been taken up by Starkenstein in the pharmacologic institute of the German University in Prague.[3] His conclusion is that it is not possible to designate the so-called magnesium narcosis as either a purely central or purely peripheral paralysis, but that the irritability of all parts of the nervous system is depressed by magnesium ions. Substances which have been supposed to act only peripherally may exhibit a central effect and vice versa. This is quite in harmony with the latest observations of Auer and Meltzer on the effects of ether on the skeletal motor mechanism.[4] Contrary to the usual statement that ether and chloroform, when inhaled, do not affect the muscles and nerves, these authors find that inhalation of ether exerts an unmistakable influence on the irritability of these tissues. In many experiments involving the direct stimulation of individual groups of muscles and nerves, the depressive effect of the anesthetic was manifest to such a degree that no tetanus at all was obtainable; even the single contraction of the muscles was often nothing more than a short twitch. This depressive manifestation is readily reversible and prompt if the etherization is not too prolonged or dangerously deep. There are distinct differences in the nature of depressive effects between stimulation of nerve or of muscle.

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[1] The Narcotic Action of Magnesium Salts, editorial, The Journal A. M. A., Oct. 25, 1913, p. 1544.

[2] Meltzer, S. J.: Magnesium und Aether bei Operationen am Menschen, Zentralbl. f. Physiol., 1913, xxvii, 634.

Auer and Meltzer point out that the decreased capacity to produce a tetanus means an increase of fatigability. The greater loss of tetanus with nerve stimulation than with direct stimulation of the muscle under the influence of ether anesthesia means, therefore, that the inhalation of ether causes a greater fatigability in nerve than in muscle. Increased fatigability of the nerve to stimulation means increased resistance to the passage of impulses or increased fatigability of the nerve-endings, since nerve-fibers are not fatigable as a rule. A greater resistance to the passage of impulses in the nerve-ending than in the muscle-tissue is a curare-like action. Magnesium salts have been said to act essentially like curare. Evidently ether, besides its undoubted central effects, has a similar activity.

Some further bearings of these facts have been brought out by these observations that the peripheral motor mechanism may be profoundly affected by ether inhalation. Githens and Meltzer[5] have obtained evidence that the phrenic nerve and the diaphragm lose a good deal of their irritability in the course of ether anesthesia and that the toxic action on the peripheral respiratory mechanism begins at an early stage of the etherization. Surprising as it may seem, chloroform, on the other hand, practically does not affect the irritability of motor nerves.[6] In experiments lasting sometimes six or seven hours the response to a faradic stimulation of the nerve at the end of the period was a tetanus equal to that obtained at the beginning with a similar stimulus. Only when by the prolonged use of a full dose of chloroform the heart became profoundly affected did the irritability of the nerves also become depressed; but this depression is apparently only secondary, due to anemia and asphyxia, and is not a primary effect of chloroform.

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[3] Starkenstein, E.: Untersuchungen über die Magnesiumnarkose, Zentralbl. f. Physiol., 1914, xxviii, 63.

[4] Auer, J., and Meltzer, S. J.: The Effect of Ether Inhalation upon the Skeletal Motor Mechanism, Proc. Am. Soc. Pharmacol. and Exper. Therap., Jour. Exper. Pharmacol., 1914, v, 521.

[5] Githens, T. S., and Meltzer, S. J.: The Nature of the Cessation of Respiration in Deep Ether Anesthesia, Proc. Am. Soc. Pharmacol. and Exper. Therap., Jour. Exper. Pharmacol., 1914, v, 523.

[6] Githens, T. S., and Meltzer, S. J.: The Irritability of Motor Nerves in Chloroform Anesthesia, Proc. Am. Soc. Pharmacol. and Exper. Therap., Jour. Exper. Pharmacol., 1914, v, 523.

Current Comment

THE URINE IN CARCINOMA

The enormous activity which has been aroused in recent years in the study of cancer, stimulated by the contribution of almost unlimited funds, the erection of special institutes and hospitals, and the promise of personal distinction for those who win success, has unfortunately developed some undesirable aspects. No one can deny that there is a formidable and promising array of talent engaged in the solution of the cancer problems. On the other hand it cannot be concealed that there has been an unduly large output of undigested hypotheses. In many fields of science a theory does little harm and often much good, however short-lived it may be, for it either stimulates the investigators to a rigid examination of its contentions or enables them to use it in the critique of their work. But where hypotheses are likely, as in medicine, to find a speedy translation into the terms of practice, a certain degree of intelligent conservatism is usually preferable to the awakening of false hopes based on unjustified premises. To-day we can record another controverted claim emanating from the clinical study of cancer. The urine of man contains a group of chemical substances of unknown origin and indefinite composition, commonly spoken of as the oxyproteic acids. They represent a small fraction of the nitrogenous content of the urine precipitable by special methods of chemical treatment. A few years ago it was announced in contributions from the First Medical Clinic of the University of Vienna that the oxyproteic acid fraction of the urinary nitrogen is decidedly increased in carcinoma, the augmentation being emphasized as a characteristic of the disease. A revision of the subject in von Fürth's laboratory in Vienna has failed to substantiate this.[1] There are cases in which the usual, or normal, content of 4 per cent. is raised to as high as 9 per cent. This occurs only in the cachectic stages of carcinoma and is found in the severe stages of other diseases such as tuberculosis.

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[1] Sassa, R.: Ueber die quantitative Bestimmung der Oxyprotsäurefraktion im normalen und pathologischen Harne, Biochem. Ztschr., 1914, lxiv, 195.

It is not a constant phenomenon, but merely an occasional accompaniment of severe cachexia, whatever its antecedent cause may be.

THE WAR AND THE DRUG-SUPPLY

While American life has not been at once affected in any wide-spread dramatic way by the European catastrophe, all sorts and conditions of men are likely to find it touching them at unexpected points. Physicians, for instance, may find that they are hampered in the writing of prescriptions by scarcity of some drug. This country doubtless would suffer little inconvenience beyond the increase in price if compelled to rely on the resources of this continent so far as most inorganic chemicals and biologic preparations are concerned. As for vegetable drugs, however, aside from cascara, hydrastis and podophyllum, few of therapeutic importance are produced in the United States. This country depends largely on European manufacturers for finished preparations and on European middlemen for crude drugs. Crude drugs from the far East, such as buchu, cinchona, senna, asafetida, rhubarb, opium and aloes, come to us largely through the London and Amsterdam markets. A comparatively small amount of cinchona comes from South America, and, if access to the London and Amsterdam markets is shut off, the South American drug might be obtained direct. While the prices for these substances have advanced, the supply should not be altogether cut off by this war unless it should spread to the East and thus limit production. This year's opium crop in southeastern Europe is said to have been greatly damaged by the recent war in the Balkan States and Turkey. Of imported synthetic drugs and alkaloids, by far the largest proportion come from Germany. Ophthalmologists are likely to feel the result of the interruption of trade with Germany in the withdrawal of supplies of physostigmin, pilocarpin, atropin and homatropin. Other important drugs of German manufacture are strychnin, quinin, caffein, cocain, theobromin, formaldehyd and salvarsan. The involvement of France, the chief source of supply of tartaric acid, and of Austria-Hungary, which with France and the Balkan States supplies us with the essential oils, will affect the drug-supply much less than the isolation of Germany.

PRODUCTION OF MEDICINAL SUBSTANCES IN THE UNITED STATES

We have commented above on the effect of the European war on the drug-supply. We may reckon some gain along with the loss if the war leads to a scrutiny with a view to revision of the United States patent laws, which at present favor the importer at the expense of the American public. The patent laws of Great Britain and some other countries provide that the holder of a patent must, under penalty of forfeiture, begin manufacture of the patented product within the country in a reasonable period of time from the issuance of the patent. An American branch of at least one German house had begun the manufacture of a synthetic product before the war. Others may find it worth while to manufacture on American soil if the war continues; but if our patent laws had contained a provision similar to that of the British law, we would not now be threatened with temporary shortage or stoppage of therapeutic supplies. Our laws, in addition, permit the patenting, not merely of the process, but also of the product. Therefore the American market is altogether dependent for any given patented product on a single foreign manufacturer. Revision of our patent laws may become a necessity if the European war is not over soon. Another result may be an investigation of the possibility of producing in this country a larger proportion of the drugs used here. The Department of Agriculture has long maintained that, so far as soil and climate are concerned, the conditions are favorable for the growing in this country of many of the drug-plants now imported from abroad. In view of the uncertainty whether or not, under practical conditions, the yield could be marketed profitably, cultivators have naturally been somewhat reluctant to experiment with untried crops; but the stimulus of war prices doubtless will induce some growers to make a trial that will demonstrate which drug-plants are commercially profitable.

THE FATE OF CHOLESTEROL IN THE BODY

Now that cholesterol is no longer viewed with indifference with respect to its physiologic rôle, and its possible functions in a variety of phenomena involving the "lipoids" are conceded,[1] the fate of this interesting compound found so widely distributed in animal tissues is brought up for consideration more prominently than ever before. The exceptional resistance of cholesterol to ordinary reagents, its stability, coupled with the lack of knowledge respecting its precise chemical structure, has served to retard the understanding of what happens when cholesterol disappears in the organism. A "balance" of the cholesterol intake, output and storage has never yet been correctly struck in suitable experiments. It appears quite probable that little, if any, cholesterol is ordinarily synthesized anew.[2] In the light of this situation even tentative hypotheses are acceptable. From this point of view we refer to the recently developed views of Lifschütz[3] in Hamburg. He believes that among the diverse physiologic uses of cholesterol is the function of its disintegration products in the migration of fats in the body. According to him the compound takes up an atom of oxygen—presumably in the blood-stream—and is converted into oxycholesterol, a substance far more reactive than its natural precursor. But beyond this there are other decomposition products which Lifschütz regards as the mother substance for the non-nitrogenous components of the bile acids. Such a sequence of interrelationships has been postulated before, and the burden of proof still remains with those who propose it.

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[1] Reflections Regarding Cholesterol, editorial, The Journal A. M. A., Feb. 21, 1914, p. 620.

[2] The Conservation of Cholesterol in the Organism, editorial, The Journal A. M. A., March 30, 1912, p. 941.

[3] Lifschütz, J.: Der Abbau des Cholesterins in den tierischen Organen (Studie). VI. Mitteilung. (Cholesterin-Gallensäuren), Ztschr. f. physiol. Chem., 1914, xci, 309.

Medical News

ILLINOIS

Medical Staff Organized.—The medical staff of the Galesburg Hospital at its meeting for organization, August 3, elected Dr. Clarence B. Ripley as chief and Dr. Arthur D. Pollock as secretary of the staff.

Work on Epileptic Colony.—The State Board of Administration has ordered a topographic survey of part of the ground selected for the buildings for the new State Epileptic Colony. This work will take probably two or three weeks.

State Hospital Changes.—Dr. Romney M. Ritchey of the Anna State Hospital has been transferred to the Elgin State Hospital.——Dr. George W. Morrow, acting assistant superintendent at the Anna State Hospital, has been succeeded by Dr. Whedon W. Mercer of the Peoria State Hospital, and has resumed his position as ward physician.

Personal.—Dr. Charles B. Horrell, Galesburg, is reported to be detained in Europe by reason of the war conditions. ——Dr. Elmer E. Hagler, Springfield, who was recently operated on for appendicitis, has recovered and resumed his practice.——Dr. Albert Weil, Peoria, is reported to be seriously ill with septicemia at Proctor Hospital, Peoria.——Dr. Catherine B. Slater, Aurora, has gone abroad.——Dr. E. W. Fell of the staff of the Elgin State Hospital has resigned to become a member of the staff of the Ransom Sanitarium, Rockford.——Dr. Frederick W. Werner, Joliet, who has been seriously ill with septicemia at Silver Cross Hospital, suffered amputation of his right foot August 11.

Chicago

Personal.—Drs. E. Wyllys Andrews, John B. Murphy, Howard O. Shafer, Harry M. Richter, J. Rawson Pennington and Paul Oliver returned from Europe last week.——Dr. James W. Jobling, formerly pathologist of the Michael Reese Hospital, has been appointed professor of pathology in the Vanderbilt University, Nashville, Tenn.——Dr. George W. Dunlap has sailed for Europe.

Physicians Held in Europe.—Among the Chicago practitioners who are held in Europe by reason of the difficulty in obtaining transportation on account of the war are the following: Donald P. Abbott, Russell M. Wilder, Maurice Pincoffs, Vernon C. David, Charles Davison, Nelson M. Percy, William Fuller, Otto H. Rohrlack, Adolph Hartung, George W. Post, Jr., Winfield Scott Hall, Adolphus E. Bertling, Maximilian Herzog, Kasimir A. Zurawski, George Paull Marquis, Thomas J. Watkins, Norval H. Pierce, Cassius D. Wescott, Junius C. Hoag, Casey A. Wood, Isaac A. Abt, Ira Frank, Samuel Salinger, Adolf Decker, Walter H. Allport, John A. Stahl, Calvin W. Harrison, Frank A. Stahl, Charles H. Solomon, Robert S. Denney, Harry R. Wormley, Emilius C. Dudley, Franklin H. Martin, David Monash, Ernest Saurenhaus, F. Curt Harnisch, Leo M. Czaja, Truman W. Brophy, R. D. MacArthur, Charles M. Robertson, Allan B. Kanavel, Willis O. Nance, Henry R. Smith and Carl Langer.

IOWA

Sanatorium Opened.—The Scott County Tuberculosis Hospital was opened recently with simple ceremonies. The institution represents an investment of $75,000.

Personal.—Dr. Campbell P. Howard, Iowa City, has been elected vice-president of the American Society for Clinical Research.——Dr. John E. Brinkman, Waterloo, has gone abroad.

Health Officers Given More Power.—The State Board of Health on July 9 adopted a rule regarding quarantine for contagious diseases which gives health officers absolute power in the conducting and handling of these cases.

Work of State Bacteriologist.—During the biennium ending July 1, 1914, the State Board of Health Bacteriologic Laboratory has made 35,433 examinations. About 17,000 of these were for diphtheria, 7,000 for tuberculosis and 4,000 for typhoid fever.

New Officers.—Iowa University Medical Society at Cedar Rapids, July 14: president, Dr. Henry J. Prentiss, Iowa City. ——Harrison County Medical Association at Logan: president, Dr. John Tamisiea, Missouri Valley; secretary, Dr. Hans Hansen, Logan.

Workingmen's Compensation Act.—Dr. Wilbur S. Conkling, Des Moines, representing the Polk County Medical Society, recently conferred with Warren Garst of the Industrial Commission with regard to the cooperation of the state in making the Workingmen's Compensation Act a success.

Hospital Notes.—The Isolation Hospital at Clinton was opened for patients last week. Four beds are provided for patients suffering from quarantinable diseases, and more accommodations will be provided when the upper floor of the building is completed.——Johnson County Medical Society has appointed a committee to secure signatures for the petition for a new hospital for Johnson County. It is proposed to erect a building to cost between $40,000 and $50,000.

MARYLAND

Hospital in Hands of Receiver.—Arlington Rest, a sanatorium and private hospital at Arlington, Md., which has been conducted by Dr. Chauncey T. Scudder, has been placed in the hands of a receiver. Dr. Scudder is said to have left the city four weeks ago, thus leaving the institution without an executive head or the advice of a medical expert.

Personal.—Dr. Randolph Winslow and Dr. Walter F. Sowers, Baltimore, have sailed for Europe.——Dr. William C. Stone, Ellicott City, health officer of Howard County, has resigned on his appointment as deputy health warden.——Dr. W. L. Moss, assistant resident physician at Johns Hopkins Hospital, and in charge of the tuberculosis laboratory, has been appointed internist of the Buffalo State Institute for the Investigation of Malignant Diseases, Buffalo, N. Y. ——Dr. Thomas F. Keating, Baltimore, has been appointed assistant surgeon in the United States Public Health Service. ——Dr. Felix Landois, Johns Hopkins Hospital, captain in the German army medical corps, has been recalled to Germany.

Baltimore

The Fresh-Air Fund.—The Baltimore *News* Fresh-Air Fund had passed $7,000 on July 31 and should reach the $10,000 desired before the end of the season. This fund is for the benevolent activities of the fresh-air farm at Fallston.

State to Help Support Laboratory.—The state of Maryland has agreed to help support the bacteriologic laboratory of the Baltimore Health Department and also to pay the city $500 rental for accommodation in the new quarters of the Health Department.

President Remsen on Round-the-World Trip.—Dr. Ira Remsen left Baltimore July 16 on a tour around the world by way of the west. He will attend the meeting of the British Association for the Advancement of Science in August and various scientific meetings to be held in New Zealand early in September.

MISSOURI

New Members of Health Board.—The Governor has appointed Dr. Marc Ray Hughes, St. Louis, a member of the State Board of Health to succeed Dr. Ira W. Upshaw, St. Louis, term expired. Dr. T. A. Son, Bonne Terre, to succeed Dr. G. D. Schulz, Cape Girardeau, term expired, and Dr. T. H. Wilcoxen, Bowling Green, to succeed himself.

Home for the Aged.—An anonymous benefactor has donated a home for the aged in Kansas City, and the old Fowler home at Independence and Mt. Gault Avenues has been selected as a site. The house has been remodeled and will contain seventeen rooms in addition to the servants quarters. Four buildings are also to be erected, each of which will contain four modern apartments for aged couples. The institution is to be known as the Kansas City Home for the Aged, and Dr. E. L. Mathias is secretary.

Personal.—Dr. E. S. Carnell, Kansas City, has arrived in London from Vienna, and is awaiting transportation to this country.——Dr. J. C. Humphries, Laredo, is reported to be seriously ill with kidney disease at the hospital in Trenton. ——Dr. David Gordon, Chillicothe, was dangerously injured by the overturning of his buggy July 31, in a washout when returning from a personal call.——Janet Reid has been appointed medical director of the Deming Tent Cottage, Deming, N. Mex.——Dr. J. M. Singleton, Kansas City, is reported to be critically ill with heart disease at his farm near Leeds.

NEW JERSEY

Personal.—Dr. Richard H. Dieffenbach has resigned as a member of the Board of Health of Newark.——Dr. George B. Verbeck has resigned as resident physician at the Mountainside Hospital, Montclair.——Dr. Margaret N. Sullivan, Jersey City, has been placed in charge of the women's ward at the Jersey City Hospital.

State Society Meeting.—At the one hundred and forty-eighth annual meeting of the Medical Society of New Jersey held at Spring Lake, the following officers were elected: president, Frank D. Gray, Jersey City; vice-presidents, Dr. William J. Chandler, South Orange; Dr. Philip Marvel, Atlantic City, and Dr. William G. Schauffler, Lakewood; recording secretary, Dr. Thomas N. Gray, East Orange (reelected); corresponding secretary, Dr. Harry A. Stout, Winona (reelected), and treasurer, Dr. Archibald Mercer, Newark (reelected). The 1915 meeting will be held in Spring Lake.

Hospital Notes.—The contract for the new medical building for the Mountainside Hospital, Montclair, was awarded July 23. The building will cost about $100,000.——The former home of Theophilus Zerbrugg, Riverside, who left a half million dollars to found a memorial hospital, has been purchased and remodeled and is to be used as a foundation of the new institution.——Dr. Edward Guion, health officer of Atlantic City, has proposed to Atlantic City the establishment of a tented village for tuberculosis patients on the county farm at Smith's Landing.——The freeholders of Camden County and the county tuberculosis commission inspected the new county tubercular hospital at Ancora. The property includes 81 acres of land on which a sanatorium formerly stood. The building has been remodeled at a cost of $50,000, and now has accommodations for 100 patients.

NEW YORK

New Officers.—New York Medical Alumni Association of the University of Maryland, fifth annual reunion at Syracuse, July 30: president, Dr. Emory W. Carr, Lyons; secretary-treasurer, Dr. DeLancey F. Bartlett, Fayetteville.

Hospital Surgeons Meet.—The newly organized Hospital Surgeons' Association of Kings County met in Brooklyn, July 21, adopted a constitution and by-laws, and appointed an executive committee consisting of a representative from each hospital to serve for the ensuing year.

Physicians and Casualty Companies Agree.—After a series of conferences between representatives of casualty companies and of the Medical Society of the State of New York, a fixed schedule of charges for service to injured employees under the new compensation law has been agreed on.

Petition for Hospital.—A petition, containing the names of eighty physicians of Steuben County, has been filed with the clerk of the county board of supervisors, asking an appropriation for the purchase of a site for a county tuberculosis sanatorium and for the erection of buildings for the institution.

Austria to Get Serum Here.—Dr. Sigismund S. Goldwater, health commissioner, has received a cablegram from the Serum Institute of Vienna requesting the immediate delivery of 50 liters of tetanus serum for the use of wounded Austrian and Hungarian soldiers. The laboratories of Otisville will furnish the serum.

Aid in Cancer Diagnosis.—The State Institute for the Study of Malignant Disease at Buffalo, N. Y., is prepared to cooperate with physicians throughout the state to undertake to make the diagnosis of all cancer cases throughout the state and states that it will be glad to diagnose all cases from the city of New York sent to the institute. They are desirous that the physicians of the state and of New York City should be made aware of this opportunity.

New Nursing Periodical.—The *Nurse*, announced as "a magazine of scientific nursing instruction and nursing literature," is to be issued monthly by the Nurse Publishing Company, Jamestown, N. Y. The terms are $2 a year in the United States and dependencies, Mexico and Canada, and $3 in other countries in the postal union. The first issue (July) consists of 82 pages containing, among other articles, papers on "The Tuberculosis Nurse and the Tuberculosis Problem," by S. A. Knopf; "The Nursing Missionary," by Bishop W. A. Sellew; "Charity Nursing in a Tenement," "Nursing Method" and "Diet in Sickness and in Health."

Medical Control of Day Nurseries.—At the request of the Department of Health, the committee on public health, hospitals and budget of the New York Academy of Medicine discussed the problem of vaginitis in children as related to public schools, hospitals, day nurseries and other institutions last spring. Following this a committee was appointed to submit recommendations among which were the following: That those in charge of day nurseries should be informed of the great danger of infection and taught what precautions are necessary; that systematic examination of babies in day nurseries be undertaken by the Health Department to determine the frequency of infection and the measures necessary to diminish it. This matter has been carefully considered by the Health Department and a set of rules for day nurseries in the city of New York have been prepared which provide that each day nursery shall have attached thereto a regular physician of its selection, duly licensed under the laws of the state, and in good professional standing. The set of rules for the guidance of the medical officer calls for the examination of every child before admission to a nursery and for the regular examination of every inmate of a nursery every alternate week. A set of rules governing the matrons of day nurseries has also been provided.

New York City

Hospital Incorporated.—Twenty-two physicians of South Brooklyn have incorporated the Harbor Hospital for the treatment of indigent patients, or those who are able to pay only small fees for hospital care. The institution is housed in a four-story building on Fourth Avenue, and three of the four wards are now ready for occupancy.

Personal.—Dr. William M. Polk has returned from Europe. ——Dr. Lewis A. Sexton, resident physician at the Reception Hospital, has resigned to become assistant superintendent of the Johns Hopkins Hospital, Baltimore.——Dr. William S. Irwin, for many years surgeon on the United Fruit Company steamers, has resigned from the service.——The order of St. Sava has been conferred on Dr. Benjamin Jablons by King Peter of Servia.

Extends Campaign for Better Babies.—The New York milk committee is sending a post-card to health officers all over the country telling how the city is working for better babies. The card states that during the past seven years New York City has cut her infant death-rate more than 30 per cent. and that it is actually a safer city for babies to be born in than any other of the ten largest cities of the country. The card states further that no city with an infant death-rate around the 100 mark can afford to be satisfied. The work of the "Better Baby Week" is described, telling how business men were enlisted and financial support secured. The slogan adopted was "Better Babies, Better Mothers, Better City." The card closes with the question, "What is Your City Doing to Advertise 'Better Babies'?"

OHIO

Campaign against Loafers and Spitters.—Chief Wyman of the police department, and Safety Director Vodrey have started a campaign in East Liverpool against loitering and spitting on the sidewalks.

Hospital for Sick Babies.—The Youngstown Visiting Nurse Association has opened a hospital for sick babies, near the Fresh Air Camp in Mill Creek Park with Miss Wallace and Miss Headlings in charge.

Public Health Nurses in Kenton and Findlay.—The joint tuberculosis hospital board of Champaign, Clark, Madison and Greene counties have voted $1,200 a year for the employment of a public health nurse.

Campaign against Privies.—Dr. Arthur L. Jones, health officer of Lima, has started an active campaign against the thousand odd outhouses in that city. Either such outhouses must be improved to conform to the law or they will be condemned by the board of health.

Many Seals Sold in Ohio.—According to the report of the National Association for the Study and Prevention of Tuberculosis more than 44,000,000 Red Cross Christmas Seals were sold during the recent campaign in the United States. Of these 2,838,892 were sold in Ohio, placing this state second in rank to New York.

State Supervising Nurse.—Miss Margaret Kamerer, R. N., state supervising nurse in the Division of Public Health Education and Tuberculosis of the State Board of Health, resigned July 1, after having been identified with the state work for the past two years. When the Ohio Society for the Prevention of Tuberculosis started its first Red Cross Seal Contest in 1911, offering the services of a nurse for one month to each of the twelve cities selling the largest number of seals per capita, Miss Kamerer was the nurse chosen to institute the work. Miss Kamerer plans to rest through the summer and then intends to take a special course at the Teachers' College, Columbia University.

OKLAHOMA

Still in Europe.—Dr. A. M. Young and Dr. and Mrs. R. M. Howard, Oklahoma City; Dr. and Mrs. W. E. Wright, Tulsa, are marooned abroad.

School for Blind Opened.—Oklahoma State School for the Blind, Muskogee, erected at cost of $100,000 is now open and 150 students have been enrolled.

Personal.—Dr. W. S. Cary, Rankin, was seriously injured in an automobile accident recently.——Dr. A. L. Walters, Checotah, who was operated on a short time ago for appendicitis is convalescent.——Dr. John H. Barr, Reed, suffered amputation of a limb as the result of an accidental gun-shot wound.

PENNSYLVANIA

Personal.—Dr. Nathaniel S. Yawger has been appointed assistant to Dr. William G. Spiller, chief neurologist to the Philadelphia General Hospital.

New Officers.—Fifth District Medical Society at Brookside Park, York, July 29: president, Dr. William E. Wolff, Arendtsville; secretary-treasurer, Dr. Charles W. Eisenhower, York.

Media's Pure Milk Campaign.—The Woman's Club of Media has started a vigorous campaign to insure pure milk to that town and surroundings. This organization has already provided a visiting nurse for the community.

New Building for State Hospital.—During the next year there will be constructed at Rittersville State Hospital a building for male patients, one for male nurses and an isolation hospital for patients suffering from tuberculosis.

Pennsylvania Relief Fund.—At the semi-annual meeting of the Pennsylvania Railroad Voluntary Relief Association it was reported that during the last fiscal year the fund disbursed $2,520,847.22. The receipts during the same period were a total of $2,628,542.66. The fund had total assets of $2,911,494.93.

Marooned in Europe.—Among the physicians and teachers marooned in Europe are: Provost Edgar F. Smith of the University of Pennsylvania, Edward Robbins, secretary of the Board of Trustees of the University; Drs. E. E. Montgomery, Howard Hansel, William M. Sweet, James M. Anders and William Rodman.

Personal.—Dr. Stacy H. Rinehardt, a member of the staff of the State Tuberculosis Sanitarium, Cresson, has resigned and will practice in Pittsburgh.——Dr. A. H. Bernstein, East Scranton, is detained in Germany by reason of war conditions.——Dr. Benjamin F. Bartho, Mt. Carmel, was operated on for appendicitis at Fountain Springs Hospital, July 31, and is reported to be doing well.——Dr. Harry B. Stryker, Reading, is under treatment in his private hospital for septicemia, and is reported to be improving.——Dr. William J. O'Malley, West Scranton, has started for Columbia, S. A., where he is to be superintendent of the hospital operated by a large copper mining company.——Dr. Joseph C. Doane, superintendent of the Miners' Hospital at Shamokin, has been appointed chief resident physician at Philadelphia General Hospital.

Philadelphia

Baugh Institute of Anatomy to Be Extended.—Mr. Daniel Baugh, the founder and patron of the Baugh Institute, has purchased and added to his original gift, the premises 236 and 238 Pine Street, as an addition to the school, and has given $5,000 for the improvement and equipment.

More Baby Farms Discovered.—Following the death of three children in an unlicensed baby farm several weeks ago, three other such places have been discovered, where the houses are filthy and the milk was found to contain large quantities of laudanum. The three proprietors, all colored women, were given a hearing before Magistrate Boyle, August 6.

Carnival of Safety.—Safety day will be celebrated by the churches, September 20-27, by the public schools September 23. Carnival Day exercises will be held in Convention Hall, September 26, and the Convention of Safety will meet at Convention Hall, September 26 to 29. The city has taken space for its exhibit; the Pennsylvania Railroad and the Baltimore and Ohio Railroad and the Corporations Utilities Companies are all cooperating.

WISCONSIN

Contracts Awarded for Sanatorium.—Contracts amounting to $122,720 were let by the Milwaukee County Board, July 31, for work on the Wauwatosa Tuberculosis Sanitarium.

Prosecution for Use of Red Cross.—On the charge of violating the law referring to the use of the Red Cross emblem, fourteen Milwaukee physicians, representatives of railroads, undertakers and liverymen were arraigned in the federal court, July 30. The case has been set for trial on the first Monday in September.

Child-Welfare Staff Appointed.—Health Commissioner George C. Ruhland of Milwaukee has appointed the following staff for the child-welfare health stations: Waluka Park Pavilion, Drs. George Taylor, Frederick Gray, Albert W. Myers, Charles H. Stoddard and Thomas R. Bours; Lapham Park, Drs. George H. Fellman and Clarence F. Hardy; Kosciusko Park, Drs. John N. Rock and Henry J. Gramling.

Health Commissioner Upheld by County Society.—At a meeting of the Milwaukee County Medical Society, July 11, resolutions were adopted urging that the "city government should uphold the commissioner of health in his demand that the ordinance with regard to the test for tuberculosis in cows forming herds that are any part of the milk-supply of the city of Milwaukee, be drawn."

Personal.—Dr. Mazyck P. Ravenel, formerly professor of bacteriology at the Wisconsin State University, director of the state hygienic laboratories, has been appointed a member of the advisory board of the hygienic laboratory of the United States Public Health Service, Washington. Dr. Ravenel ended his duties at Madison, July 1, and has accepted the position of professor of preventive medicine and bacteriology at the public health laboratory of the University of Missouri.——Dr. Thomas F. Thompson has been appointed chief of the sanitary inspection force of the Health Department of Milwaukee.

GENERAL

Railway Surgeons to Meet.—The annual convention of the surgeons of the Rock Island System will be held in Des Moines, Ia., the first week in September.

Coming Meeting of Ohio Valley Physicians.—The annual meeting of the Ohio Valley Medical Association is announced to be held in Evansville, Ind., November 4 and 5.

Polish Physicians to Meet.—The fourth annual meeting of Polish physicians will be held at Buffalo, N. Y., September 7, under the presidency of Dr. Francis E. Fronczak.

Health Examiners to Meet in Florida.—The annual meeting of the American Public Health Association will be held in Jacksonville, Fla., December 1 to 5, inclusive. The two principal symposiums will be on negro health, and rural health organization and sanitation.

Interstate Society Meeting.—At the annual meeting of the Austin Flint-Cedar Valley Medical Society, held in Cedar Rapids, July 15, the following officers were elected: president, Dr. George Kessel, Cresco, Iowa; vice-president, Dr. Thomas U. McManus, Waterloo, Iowa; secretary, Dr. Charles F. Starr, Mason City, Iowa (reelected), and treasurer, Dr. Will L. Hearst, Cedar Falls, Iowa (reelected). Waverly, Iowa, was selected as the place of meeting for 1915.

The American Red Cross in European War.—At a joint meeting of the International and War Relief boards of the American Red Cross held in Washington, August 5, it was decided formally to tender the services of the society to the warring nations, and plans were initiated for the immediate issuance of appeals for relief funds and for placing medical officers and nurses trained for the work at the disposal of the forces. Announcement has been made that a fully equipped hospital ship carrying physicians, nurses and medical supplies will be sent to Europe, sailing under the Red Cross flag and under protection of the Geneva Convention and Hague Treaties.

Subscription Swindler at Work.—Attention is called to the operation of a swindler who recently has been operating among doctors and dentists, soliciting subscriptions for which he is not authorized. His offers concern generally a combined subscription to *The Literary Digest* and such medical publications as a dictionary, medical clinics and other medical works. Numerous aliases are used in signing receipts. He is described as about 21 years old, 6 feet tall, weighing about 180 pounds. Has black hair, very dark and large black eyes, a deep falsetto voice, and somewhat pale skin. A reward of $25 has been offered for his arrest. Communications should be sent to the Periodical Publishers' Association, 156 Fifth Avenue, New York City.

The Plague Situation.—Since the report made in The Journal of August 1, one more case of human plague has been reported in New Orleans. This fourteenth case was a car cleaner 22 years of age, male, employed at the Louisville and Nashville shops at Girod and Front streets, who was taken ill July 29, with femoral bubo. There have also been discovered eleven additional cases of plague-infected rats, making thirty-two in all. On July 25 the Board of Health of New Orleans, on recommendation of the United States Public Health Service, adopted four ordinances having for their object the prevention of plague in the city and its eradication from infected foci. The first of these ordinances relates to the keeping of fowls and small animals, and provides that such animals can be kept only in rat-proof buildings. The effect of this ordinance is to keep rats away from food given to or left by these animals, thus removing one of the usual sources of food-supply of rats and mice. It also protects pet animals from infected fleas. The second ordinance relates to the position of vessels and water craft of all description at docks and wharves, and the method of loading and unloading; provides that no water craft shall be nearer than 8 feet from any dock or wharf; that all hawsers, chains or lines of any kind be equipped with rat shields or guards approved by the health officer of the city; that gang-plank, staging or other structures intended for loading or unloading, and by which rats might pass between wharves and vessels must not be left down except during actual loading or unloading, and that at these times there must be a guard at each gang-plank or staging to watch for rats and prevent them going to or from the vessels. When it is necessary to load or unload at night in addition to the guard at each gang-plank or staging, proper and sufficient lights must be furnished and the gang-planks must be whitened for a space of 10 feet. Crated cargo or empty barrels or boxes are not to be loaded or unloaded until inspection has shown that they are free from rats. The third ordinance provides that every building, outhouse and other superstructure now erected or hereafter to be erected at New Orleans shall be rat proofed in the manner given in detail in the ordinance. The fourth ordinance provides that the owner, agent and occupant of all premises improved or unimproved in New Orleans shall provide metal, water-tight containers with tight-fitting covers in numbers sufficient to receive the garbage accumulation of forty-eight hours from such premises. The object of the ordinance is to keep the garbage from serving as food for rats. All garbage must be kept in the prescribed garbage containers.——The Iowa State Board of Health through its secretary, Dr. W. L. Bierring, Des Moines, has started a campaign against rats and other rodents, in order to reduce to the minimum the risk of bubonic plague.——P. A. Surg. J. M. Gillespie, U. S. P. H. S., has been ordered to New Orleans and has been assigned to the charge of the fifth sanitary district which embraces the territory bounded by Elysian Fields Avenue to Jordan Avenue, and North Claiborne Avenue to the river.

CANAL ZONE

Personal.—Surgeon James C. Perry, U. S. P. H. S., has resigned as chief quarantine officer, and has been granted a leave of absence of a year, which he will spend in traveling. ——Major Thomas L. Rhodes, M. C., U. S. A., has been transferred to the Panama Canal service, and has been appointed superintendent of the Colon Hospital.

Better Accommodations at Detention Stations.—The two-story building at the east end of the Colon Hospital, formerly occupied by officers, has been turned over to quarantine service as a detention station for the first-class passengers. The building contains forty rooms in addition to a large dining-room. The old detention station will be continued to be used for steerage passengers.

Private Hospitals.—The chief health officer of the Canal Zone issued on July 9 a circular setting forth that as a maintenance of private hospitals in the cities of Panama and Colon interferes seriously with the supervision and control of the department of health over sanitary matters, it is ordered that no private hospitals shall be established or maintained in the cities of Panama and Colon; any such hospitals being conducted in these cities shall be discontinued. Any one, who as a physician, owner, or person in charge of any private hospital in the cities of Panama or Colon, shall establish or maintain any such hospital after the prorogation of this order should be fined a sum of not exceeding $500 for each day after the continuance of such hospital.

Morbidity and Mortality for June.—The chief officer of the Canal Zone reports that during June the admission to hospitals and quarters was 1,511 or a rate of 381.09 per 1,000 per annum, as compared with 407.92 for the preceding month, and 472.50 for the corresponding month of 1913. The total number of deaths was 20 and of these 13 were due to disease. Two deaths were due to lobular pneumonia, organic diseases of the heart and tuberculosis. The disease causing the most admission and non-effective rates in hospitals was malaria with 62 per 1,000 per annum. The next highest admission rates in order were for venereal, digestive and respiratory diseases. These four classes of diseases caused 51 per cent. of all admissions. The admission rate to hospital and death-rate for black employees were 139.79 and 3.67 for 1,000 per annum as compared with 350.66 and 1.43 for white employees. The non-effective rate disease and injuries for black employees was 10-20 per 1,000 as compared with 18-67 for white employees, and the admission rate for hospitals for malaria was 53.23 per 1,000 per annum for blacks as compared with 143.37 for whites.

FOREIGN

War Interferes with International Congresses.—Among the international congresses that were to have been held in Europe this summer and fall are the congress on medical electrology and radiology, Lyons, July 27; on ophthalmology, St. Petersburg, July 28; conference on tuberculosis, Berne, September 2; the International League against Epilepsy, Berne, September 5; on neurology, psychology and psychiatry, Berne, September 7; the congress on criminal anthropology, Budapest, September 14; on occupational diseases, Vienna, September 21, and the congress of International Association for Sexual Research, Berlin, October 31.

Clashing International Congresses.—The propaganda committee in charge of the International Medical Congress, planned to be held at Munich in 1917, has issued an appeal to other scientific organizations begging them to arrange their meetings so as to leave that date open for the above international gathering. As at present planned, the International Surgical Association is to hold its fifth meeting at Paris in 1917, and numerous national annual meetings are arranged for that year in Germany and elsewhere. In order to prevent this dissipation of forces the committee urges other organizations to postpone their annual meetings that year and gather at the International Medical Congress, particularly as "radiotherapy of tumors," "biologic reactions," "diagnosis and treatment of tetanus," and "thrombosis," which are the subjects appointed for discussion at the Surgical Congress are all of special interest to internists as well. The committee says that it would be still better for the above organizations to hold their meetings as sections of the great medical gathering. This is what the anatomists have already decided on; the International Congress on Anatomy has been affiliated with the International Medical Congress as a section of the same. As the International Surgical Association meets every three years and the Medical every four years, once in twelve years they will clash. The appeal is signed by J. F. Lehmann, the well-known publisher of medical works, chairman of the propaganda committee.

CANADA

Association Meetings.—The Alberta Medical Association at its recent annual meeting elected Dr. Robert G. Brett, Banff, president, and Dr. J. G. Clark, Calgary, secretary-treasurer. Next year's convention will be held in Banff.——The Canadian Public Health Association promises to have a very successful convention at Port Arthur and Fort William, September 10 to 12.

Personals.—Among Canadian doctors caught in Europe when war was declared are: Mr Irving H. Cameron, William P. Caven, Duncan N. Maclennan, Richard A. Reeve of Toronto. Dr. A. Orr Hastings, Toronto, was successful in returning on the *Olympic*. There are still a large number of Canadians of the medical profession still on continental Europe as well as in England unable to return to their native land. Several have offered to serve in the British army.——Dr. Harvey Clare, assistant superintendent of the Toronto Hospital for the Insane, has been appointed medical director of the new Detention Hospital just opened in Toronto.——Dr. Keith Simon has been appointed pathologist to Grace Hospital, Toronto.——Dr. Walter S. Bloor, Kingston, has been appointed professor of biologic chemistry at Harvard University.——Dr. George S. Ryerson, Toronto, has been made an Honorary Chief of the Six Nations Indians with the name of Ra-de-ri-yoho—"Man-Who-Fights-His-

Way."——Dr. O. C. Gruner, assistant professor of pathology at McGill University, Montreal, has resigned and returned to England.

Manitoba Sanatorium for Consumptives.—The third annual report of the above institution includes the annual report for the year 1913 as well as the financial report for the year ending March 31, 1914. In February an infirmary building was opened with capacity for 27 patients. The full capacity of the institution is now 118, nearly twice of that when it was opened in 1910. In 1911 the patients admitted were 168; in 1912, 189; and in 1913, 232. This sanatorium aims to provide for the care of incipient cases for the whole province, leaving the advanced cases to the King Edward Municipal Hospital in Winnipeg. The patients in the sanatorium on Jan. 1, 1913, were 67; the patients admitted during 1913, 232; the patients discharged, 203; remaining, 96; and the total number admitted since sanatorium was established, 686. Of the 203 discharged, 1.5 per cent. were untreated; 8.3 apparently arrested; quiescent, 28.6; improved, 34.5; unimproved, 15.3; died, 11.8. In addition to the usual hygienic-dietetic means of treatment tuberculin was given to more than half the patients discharged, to 12 for less than one month; to 47 for from one to three months; to 68 for more than three months. Of 127 treated with tuberculin, there were 31 incipient, 44 moderately advanced and 52 far-advanced. In 1912 there were 492 deaths from tuberculosis in Manitoba, representing 8.5 per cent. of the total number of deaths, or 103.8 per 100,000 of the population. In Winnipeg during the years 1909 to 1912, the deaths have fallen from 150 to 96.

LONDON LETTER

THE CLINICAL CONGRESS OF THE SURGEONS OF NORTH AMERICA

London, July 29, 1914.

Clinical Work of the Congress

The thousand American surgeons who have congregated here for the fifth clinical congress are unanimous in calling it a success. Though the twelve general hospitals and medical schools and the thirty special hospitals visited are scattered over the wide area of this city every visitor seemed without difficulty to reach his destination and see the work and man in which he was specially interested. At the hospitals lists of the operations were displayed on the doors, and as all the seats had been allotted there was no overcrowding. At first there was a run on the clinics of certain surgeons and the tickets for seats were exhausted in a few minutes; but on the second day the men seemed to seek the particular work in which they were interested rather than particular men, and the seats of no clinic were exhausted for half an hour. This was evidently due to the discovery that the London surgeons maintained a good general level of work and that ability was not in the hands of a few. It was generally agreed that in some respects the technic was not up to the American level. Thus in the theater of one surgeon of world-wide reputation it was observed that he did some work which should have been done by his nurses. However, a considerable improvement in methods was noted, and the tendency for American surgeons coming to Europe to visit German clinics in preference to English was declared to be passing away. Our visitors were full of praise for the ample preparations made at the hospital for their reception. Some idea of the vast amount of material for demonstrations will be gathered from the fact that at one hospital alone no fewer than 170 operations have been arranged.

A clinic which attracted great attention was Mr. Arbuthnot Lane's at Guy's Hospital. Before a crowded audience he removed the colon for intestinal stasis and removed wedges of bone and inserted a plate in a case of malunion of fracture of both bones of the forearm. While operating he kept up a running commentary which often traveled far from the case and was enlivened by witticisms which convulsed the audience. "Nature never does anything right; never give her a chance." "My views on intestinal stasis are so simple that they are not understood." "As long as a disease is medical and remains in the hands of the physician it is never understood; it is only when it comes into the hands of the surgeon that it is understood." The various membranes which are now described in peritoneal cavity and attached to the names of various persons he declared that he had described years ago. The thing to do was not to bother about giving them names but to understand that they were all adaptations due to Nature's attempt to counteract the effects of gravity in the upright posture. Every one of us was the result of adaptation to our surroundings. Anatomists did not realize this sufficiently and the subject was taught in an absurd fashion. If persons would only study the anatomy of the coal heaver and the shoe-maker they would begin to understand.

Another clinic which attracted great attention was Mr. Berry's at the Royal Free Hospital. Mr. Berry removed an exophthalmic goiter under local anesthesia with novocain. He also removed a parenchymatous goiter. He laid emphasis on the importance of exact hemostasis. Another operation followed with great interest was removal of a large malignant tumor from the pharynx with ligature of the external carotid artery. He operated for cleft palate by median suture with mattress sutures and no lateral incision. Mr. Berry did not like the flap operation and never performed it. He never saw a patient who spoke well some years afterward, although he had for long asked those who did it to show him one.

The Opening Session

Instead of the usual social functions, the evenings are devoted to papers and discussions. After a presidential dinner given by Dr. Franklin Martin, the formal opening of the congress took place at the Hotel Cecil. Sir Rickman J. Godlee, ex-president of the Royal College of Surgeons, in an address of welcome invited the delegates to a reception at the college where there was the most important museum in the world. They would show the delegates some of the treasures which they would select as far as possible to illustrate clinical facts. Dr. J. B. Murphy, president of the congress, said the work to be conducted this week was a colossal undertaking. Such a task had never before been undertaken by the congress away from home. American surgeons would return with a high impression of London surgery. High as they had esteemed it before, they would esteem it higher still. They would return with an admiration and affection for the profession and people of this great land, and with a feeling that science was a brotherhood that extended round the globe.

GREETING BY AMERICAN AMBASSADOR

The American Ambassador, Mr. Page, extended a warm greeting to the many distinguished citizens of the United States present. He said he need not tell them that they were heartily welcome to London. Their English friends had shown them that. One of the most distinguished teachers of surgery in this country remarked to him that he frequently told his students that no man had a right to consider himself well started in the profession of surgery unless he had been to the United States to see the skill that American surgeons possessed. Now that 1,000 American surgeons found it well worth while to come to England to see how the distinguished surgeons of this kingdom did their work, he could say, "honors easy." He assumed that Englishmen and Americans were anatomically alike, and in the process of time, with a better acquaintance, they would become more and more politically akin. It was a great joy for them to know that at no time in the history of these two great nations was there ever such a cordial and complete understanding of each other as there was at the present time.

DR. RODMAN'S ADDRESS

Dr. W. L. Rodman, President-Elect of the American Medical Association, said that while the congress was not an integral part of the Association, its members were also members of the latter. Hence what concerned them could not fail to receive the sympathetic attention of that great body, the largest medical organization in the world, to whom they all owe their first and best allegiance. Great and varied as have been the activities of the American Medical Association, it had not hitherto specially concerned itself with postgraduate instruction. Its work had been in other spheres, and who would say it had not been well performed? That splendid organization through its various standing committees or councils had accomplished a mighty work in the decennium. The Council on Medical Education had in that short time done more than had been accomplished in the previous century, so that now American schools were fully abreast of those anywhere. The Council on Health and Public Instruction had carried its beneficent work into every state of the Union, compelling all to recognize that, as the public health was the greatest asset of the people, artificial barriers in the nature of state lines must vanish, and where all of the people were so vitally concerned, federal control was essential. A member of the American Clinical Association had told him that the visits of this body to the various clinics of our own and other countries had so impressed some of the members that the conception of an American Congress of Surgeons resulted. It was natural and generous that the few who had profited by the clinical work of others should, in turn, wish to see a higher standard of clinical efficiency throughout the country. Hence this congress with its first meeting in Chicago in 1910; in Philadelphia the following year; then in New York; to meet again in Chicago in 1913 with an enrolment of more than 4,000. He traced the development of the American College of Surgeons and said that this body, supplementing the Clinical Congress of Surgeons and the American Medical Association, would fill an honorable rôle in the standardization of surgery throughout the world.

Injuries to the Knee in Sports

In the division of general surgery, Mr. Robert Jones of Liverpool read a paper on "The Internal Derangements of the Knee" with special reference to the derangement of the cartilage to which football players and cricketers are liable. He had chosen this subject because little had been written about it in America. It was a surprise to him, because their games, like our own, were rough and we in England knew to our cost that American youths were skilled and strenuous. He was credibly informed that the anatomy of the knee joints of American youths differed but little from our own, and he was forced to conclude either that their cartilages were more securely placed than ours or, which was most unlikely, that the condition was not so generally recognized as it should be. By far the most common derangement of the knee was injury to the internal semilunar cartilage. In nearly all cases the cartilage was displaced inward, and on those rare occasions in which a protrusion had been felt from the outside it was due to hemorrhage following a tear, localized bruising of tissue, or buckling of cartilage, accompanied by effusion, which gave rise to an irregular outline of the articular margin. The most constant symptom of a displaced or fractured semilunar was a sudden inability to extend the knee. The most frequent cause of the displacement or fracture was strain thrown on the internal lateral ligament while the knee was flexed and the tibia rotated outward. The force necessary to cause the derangement in a first injury was usually severe, and the pain acute. The injury might often be encountered on the football field. All movements of the cartilage must be prevented until union of the torn structures was complete, and no lateral strain must be allowed until the lateral ligament, so often injured, had had time to effect a recovery. The injured joint should be treated by complete rest in full extension for four or five weeks. Instead of this, the patient was usually allowed to get up and walk in a week or a fortnight. This was a grave mistake. He refused to operate in any case immediately after the first displacement, as so large a proportion of these patients recovered under appropriate treatment; nor did he encourage operation in cases in which the recurrent trouble was painless and was never followed by effusion in the joint. But he strongly advocated operation when the recurrence was sometimes followed by acute symptoms, and he encouraged it in all recurrent cases in which a strenuous athletic life was a means of livelihood or a physical necessity. Operation was a positive necessity in the case of men who worked among moving machinery, or stood in positions where a yielding knee might mean disaster.

Laryngofissure

In the division of surgical specialties, E. Schmiegelow of Copenhagen, Denmark, read a paper on the "Results of Operations (Laryngofissure) for Cancer of the Larynx." He showed the excellent results which could be obtained in cases in which cancer attacks the vocal cords. He warmly recommended the operation of splitting the larynx, commonly called laryngofissure. This operation was founded in England through the efforts of the late Sir Henry Butlin and Sir Felix Semon, to both of whom Schmiegelow paid a warm tribute. His results showed a lasting cure of more cases than can be proved with cancer in any other part of the body.

Sir St. Clair Thomson gave statistics by which it appeared that he had not lost a case from this operation, and that some patients were alive and well ten years afterward. He pointed out that Schmiegelow was able to record more cases than any other surgeon had ever done in any city of the British Empire. It looked as if British inventions had to go abroad and be born again before they were accepted in the land of their birth. The public did not seem to realize the importance of hoarseness or the profession to know what excellent results could be secured by laryngofissure. He made an appeal for an expert examination of the vocal cords in any case of hoarseness which did not clear up within three weeks. His own statistics showed 80 per cent. of lasting cures for intrinsic cancer of the larynx. Many of these cases were shown in King's College Hospital.

(*To be continued*)

PARIS LETTER

Paris, July 24, 1914.

Personal

Dr. Couvelaire, agrégé, has been appointed professor of clinical obstetrics at the Faculté de médecine de Paris, vice Dr. Pinard, retired.

The Académie des sciences has just awarded a prize of 3,000 francs ($600) to Dr. H. Vincent, professor at the Ecole d'application de médecine et de pharmacie militaires de Val-de-Grâce, for his work on the typhoid bacillus and typhoid fever. The La Caze prize (10,000 francs, $2,000) was awarded to Dr. Gley, professor at the Collège de France, for his works on physiology.

At its session on July 21, the Académie de médecine elected Dr. Mairet national associate. Dr. Mairet is professor of the clinic of mental and nervous diseases at the Faculté de médecine de Montpellier, and has been national correspondent in the section of pathologic medicine since 1894.

Lectures on Eugenics

I have already spoken of the formation of the Société française d'eugénique, which publishes a special magazine (The Journal, Jan. 18, 1913, p. 221). This society will organize, at the beginning of the school year, a series of lecture courses in eugenics at the Ecole des hautes études sociales. M. Edmond Perier, director of the Muséum d'histoire naturelle, will show the relations which exist between eugenics and biology; Dr. Apert, physician at the Andral hospital, will discuss the questions of heredity related to those of eugenics; Dr. Papillault, professor of sociology at the Ecole d'anthropologie, will show how, thanks to eugenics, a well-defined selection may be made; Dr. Pinard, former professor of clinical obstetrics at the Faculté de médecine de Paris, will study eugenics and child-culture; Dr. Weiss, professor at the Faculté de médecine de Paris, will discuss eugenics in its relation to physical culture; Dr. Schreiber, head of the clinic affiliated with the Faculté de médecine de Paris, will show how one may, how one ought to understand eugenics from the point of view of marriage; Dr. Roussy, director of scientific research at the Ecole des hautes études, will study eugenics and the perfecting of the human race.

The Publication of Case Histories, and Professional Secrecy

The conference of lawyers of the Paris supreme court recently discussed the question as to whether or not the physician who publishes observations made at a hospital in a scientific magazine without having asked permission of the patient has violated the obligation of professional secrecy. The conference decided in the negative.

The Esperantist Congress and Physicians

The tenth international congress of Esperanto will be held at Paris, August 2-10, 1914. On this occasion the Association médicale espérantiste universelle, which counts among its honorary members Professors Bouchard, Richet, Gariel and Broca, will send numerous delegates from different nations to Paris. The meetings will be held in one of the amphitheaters of the Faculté de médecine. Technical questions of professional interest will be publicly discussed in Esperanto.

Death of Paul Reclus

Dr. Paul Reclus, professor of clinical surgery at the Faculté de médecine de Paris, whose death was noted in this department last week, was 67 years old, was a member of the Académie de médecine, and last year a commander of the Legion of Honor.

Paul Reclus produced considerable scientific work. He wrote a manual of external pathology in collaboration with Kirmisson, Bouilly and Peyrot, a treatise on surgery in collaboration with S. Duplay, a treatise on surgical therapeutics in collaboration with Emil Forgue and a book on medicochirurgical practice—all classics to-day. The name of Reclus is associated with local anesthesia by cocain and novocain and more recently with that of the disinfection of wounds by tincture of iodin and with the conception of cystic disease of the nipple. He was a prudent and conscientious surgeon and a remarkable teacher.

Election of Dr. Magnan to the Vice-Presidency of the Academy of Medicine

On July 28, the Académie de médecine elected Dr. Valentin Magnan vice-president (who will automatically become president in 1915) in place of the late Dr. Duguet. Dr. Magnan is physician at the Asile Sainte-Anne, president of the Société médico-psychologique and author of a thesis on the relation between general paralysis and insanity which was crowned by the Académie de médecine in 1867.

The Congress for the Advancement of Science

Circumstances have made the Congress for the Advancement of Science held this year at Havre, a Franco-English scientific affair. A large number of members of the British association accepted the invitation of the French association. At the opening session an interesting address was delivered by Sir William Ramsay, president of the delegation from the British association. One of the bonds which unite England and France, he said, was science: "The immortal name of your Pasteur is associated with that of our Lister. I do not exaggerate when I say that to these two men the world owes a debt greater than that to any others. They have saved millions from death. They have saved more lives than the most bloody wars have destroyed."

EMIGRATION AND HYGIENE

In the section of hygiene, Dr. Clerc, maritime sanitary physician, read an interesting paper on emigration. He suggested that an international conference be held to fix uniform conditions for emigration and to secure the return to the country of their origin of all emigrants not allowed to enter the country to which they went. This resolution was unanimously adopted.

Serious Poisoning by Boric Acid Dressing

While wet boric acid solution dressings are harmless, this is not true of dry dressings of powdered or crystallized boric acid. On July 22, Dr. Savariaud reported to the Académie de médecine, a case of a child of 8, deeply burned in the abdominal wall and thighs, whose wounds were powdered with boric acid. The same evening signs of serious intoxication (headache, vomiting, pulse 120, etc.) manifested themselves. The next day after another dressing with boric acid, the symptoms of poisoning were accentuated and diarrhea, prostration and hypothermia appeared. For some days the child's life was in danger; it would certainly have been lost if the boric acid dressings had not been entirely discontinued. During thirty years, Savariaud has found record of nine deaths from boric acid poisoning.

Offensive Familiarity Toward Hospital Patients

Complaints have been addressed by patients to M. Mesureur, director of the general administration of the Assistance Publique that the employees of the hospitals and the medical students *tutoied* the patients. [The *tutoiement* is the use of the singular (tu, toi) in place of the plural pronoun of the second person (vous). It is used to express familiarity, somewhat as we would use the Christian name, that is, to intimates and inferiors.] M. Mesureur has ordered directors of hospitals to put an end to such misplaced and humiliating familiarities, especially because hospital patients are temporarily in a position where they are unable to protest.

BERLIN LETTER

Berlin, July 25, 1914.

Personal

Our well-known professor of anatomy, W. Waldeyer, celebrated the fiftieth anniversary of his doctorate July 20.

Dr. Abel, a member of the Prussian medical state department, has received a call to succeed Professor Gärtner at the Hygienic Institute at Jena. Abel was formerly privat-docent of bacteriology in Greifswald.

Professor Albrecht of Berlin has been called to the ear clinic at Tübingen as successor of Wagenhäuser.

The Frankfort University

The plans have been made to have the new university of Frankfort-on-the-Main opened October 18 in the presence of the Kaiser. The announcement of lectures just published shows that almost all of the teaching places (Dozentenstellen) are already filled. Only one regular professor is assigned for each department. In the majority of cases, the medical men already at work at Frankfort in the municipal and other hospitals have been appointed as professors, such as Schwenkenbecher for internal medicine, Rehn for surgery, Walthard for gynecology, Herxheimer for dermatology, Edinger for neurology, Ehrlich for experimental therapy, etc. To date only the chair for legal medicine has not been filled.

Specialist and General Practitioner

The Mecklenburg Physicians' Association (Aerzte-Vereins-Bund) at its last session adopted the provision in its medical code of ethics that the simultaneous designation physician and specialist physician is not allowable. A similar provision exists in the codes of other medical associations.

Conviction of Dr. Billfinger

The president of the Association of Antivaccinationists of Germany, Sanitary Councilor Billfinger, was sentenced by the Medical Court of Honor for the kingdom of Saxony to a fine of $250 (1,000 marks) and deprivation of the active and passive franchise in the medical chamber (*Aerztekammer*) for three years because he accepted the position of medical director of the drugless therapy institute—*Naturheilanstalt*—of the notorious quack, Bilz, in spite of the fact that he must have known that absolutely intolerable conditions prevailed there in the treatment and care of the patients. As I informed you some time ago, the Bilz Sanatorium was closed by the police on account of these conditions, which were combined with moral danger to the patients.

Prize Offered by the Prussian Academy of Sciences

A prize of $1,250 is offered for the best study of "Experience as a Factor in Perception." The exact subject is stated as follows: "The share of experience in observations of the human senses is to be systematically investigated and presented. It is not necessary to collect all the individual facts in physiologic and psychologic literature, but the various forms of sense perception are to be defined as carefully as possible according to the manner and limit of their activity, and the common factors and conformity to law in the various fields of the senses are to be set forth. Exact repetition of the observations which are utilized is essential. Extensive independent experimental investigations of decided value are desired." The prize amounts to $1,250 (5,000 marks). The competing articles may be in German, Latin, French, English or Italian. They must reach the bureau of the academy in the usual form, before Dec. 31, 1916.

International Public Health Work in Jerusalem

More than a year ago, under German initiative, an international health office was established in Jerusalem under the direction of Mühlens, the scientific assistant in the Hamburg Institute for Marine and Tropical Diseases. According to a recently published article of Nocht, director of the Institute for Marine and Tropical Diseases, the support of the institute at Jerusalem at present is shared in common by the German Committee for the Campaign against Malaria in Jerusalem; by Nathan Strauss of New York and by the Society of Jewish Physicians and Scientists for Sanitary Interests in Palestine. The German committee supports the general department for combating malaria, and its chairman is at the same time the director of the institute. Nathan Strauss supports the hygienic and bacteriologic department of which the heads are Drs. Brünn and Goldberg. The Society of Jewish Physicians and Scientists has taken over the department for protection against rabies, originated by the German committee, the director of which is Dr. Behan. An accessory department for the prevention of eye diseases (director, Dr. Feigenbaum) has been added.

The most important task of the office is the malaria campaign which must be prosecuted in three directions. It is necessary, first, to eradicate the parasites in man by the thorough treatment of patients and also of the apparently healthy germ-carriers. As a general rule, the children in Jerusalem are infected, as is usual in old malarial foci. The treatment of schoolchildren with quinin, begun by Mühlens with great success, should be thoroughly carried out. The tactful method of Mühlens easily overcame the superstition and fear of the Mohammedans, their wives and children. Only in the beginning did the taking of blood meet any opposition. The success of the antimalaria treatment in the schools was soon apparent. The general attendance at school which was formerly much disturbed by sickness, became much more regular. The children were more active and their work was better done. The number of new attacks of malaria grew remarkably less. Quinin, generally in a sugar-coated or tasteless preparation, was readily and regularly taken by the children. The success with schoolchildren facilitated the introduction into families and homes. Dr. Brünn secured the same results in the special Jewish quarters.

Even in the dry season, Jerusalem is a city much infested with mosquitoes, especially with anopheles, the malaria carrier. Their destruction is the second task in the campaign against malaria. In Jerusalem mosquitoes, in addition to the dark dwellings of the inhabitants, infest the numerous cisterns which are of large extent, very old, defectively built and easily accessible to the mosquito. Jerusalem is still exclusively supplied with rain-water for drinking purposes. The cisterns are also the breeding-places of the anopheles mosquito, and many swarm with mosquito larvae. If the cisterns were screened against mosquitoes, the mosquito plague, under present conditions, would cease in Jerusalem. By closing the cisterns to mosquitoes and doing away with the present unhygienic method of drawing water by pails which are let down through larger or smaller openings, generally left uncovered, and by replacing the pails by pumps in well-covered cisterns, it has been possible already to diminish the mosquito plague to a remarkable extent in many parts of Jerusalem.

Here the third form of the malaria campaign must begin by the education of the population, awakening their interest and winning their active cooperation in the removal of nuisances, and by permanent inspection of the cisterns by a health commission (mosquito commission). The authorities of the city have, moreover, made a permanent annual contribution to the work of the health office.

The campaign against tuberculosis has proved to be much more difficult and less promising; it will also require much larger means. Particularly the improvement of the incredibly wretched dwellings of the native population, Jews as well as Mohammedans, will require the efforts of many years and the expenditure of considerable funds. Moreover, carrying out a long period of curative treatment such as is necessary in tuberculosis will be found to be very difficult.

The campaign against other infectious diseases in Jerusalem will depend chiefly on the introduction and progress of a general communal health movement, of which hitherto there have been only very small beginnings. According to the latest newspaper reports, the supply of the city with good spring water by a system of water-pipes has now been undertaken by a French company. The accomplishment of this plan would render the suppression of typhoid, dysentery and other infectious diseases much easier, especially among the poorer population, who depend on the old cisterns often contaminated with water from the streets. It remains to be seen whether the large institutes supported by European funds will give up their beautiful, roomy and entirely unobjectionable cisterns after the establishment of the water system, and especially whether the removal of the anopheles nuisance will be particularly assisted by the introduction of a public water-supply.

Marriages

Louis Floyd Murray, M.D., Santa Fe, N. Mex., to Miss Adelaide Dickinson of Washington, D. C., at Albuquerque, N. Mex., July 27.

Donald Lonson Stilwell, M.D., Detroit, Mich., to Miss Maude Marie Kellerman of Pittsburgh, Pa., June 27.

Oscar William Lindorff, M.D., to Miss Hedwig Charlotte Wahlburg, at Chikungehang, China, June 29.

Achilles Edward Davis, M.D., to Miss Josephine K. Robinson, both of New York City, July 30.

Frank Hughes Lally, M.D., Varina, Ia., to Miss Mary Catharine Barry of Jackson, Neb., July 15.

William Edwin Joiner, M.D., to Miss Alice Belinda Johnson, both of Seattle, Wash., July 30.

Charles Ross Bennett, M.D., Graham, Ky., to Miss Anna J. Patton of Hartford, Ky., June 23.

Seth Fenelon Arnold, M.D., Boston, to Miss Irl Gann of Benton, Ark., at Boston, June 27.

William J. Buck, M.D., to Miss Catherine Mary Hampton, both of Gainesville, Fla., July 8.

Deaths

Philip Matthew Wagner, M.D. Ohio Medical University, Columbus, 1896; a Fellow of the American Medical Association; of Canal Dover, Ohio; president of the Tuscarawas County Hospital; a specialist on diseases of the eye, ear, nose and throat; a member of the board of education for ten years; local surgeon of the Baltimore and Ohio System; once a member of the city council; a member of the Seventy-Sixth General Assembly; while studying in Germany, was taken ill with cholelithiasis in Berlin, and died while undergoing operation for this condition, July 24, aged 46.

Grace Greenwood Prior Yankauer, M.D. Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1898; a Fellow of the American Medical Association; assistant surgeon to Mt. Sinai Hospital, New York City, and a member of the staff of the New York Eye and Ear Infirmary; was instantly killed in an accidental fall from the window of her apartment in New York City, July 28, aged 40.

Frank Ely Osborne, M.D. University of Nebraska, Lincoln and Omaha, 1903; postmaster of McAllen, Tex.; a member of the State Medical Association of Texas; formerly physician to the Nebraska Institution for Feeble-Minded Youth, Beatrice; while attempting to cross the tracks of the St. Louis, Brownsville and Mexico Railroad, near Donna, Texas, in his automobile, July 30, was struck by a train and killed, aged 36.

Adelaide M. Griffin Tucker, M.D. Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1895; member of the staff of the Bradford City Hospital; a member of the Medical Society of the State of Pennsylvania; for several years a specialist in diseases of the eye, ear and throat of Bradford, Pa.; died in the Bradford Hospital, July 24, after a surgical operation, aged 43.

Francis M. Bennitt, M.D. New York Homeopathic Medical College, New York City, 1883; for many years a member of the school board of Springfield, Mass.; a member of the American Public Health Association; and a member of the staff of the Wesson Memorial and Wesson Maternity Hospitals; died at his home in Springfield, about July 29, aged 57.

Thomas E. Heenan, M.D. University of Pennsylvania, Philadelphia, 1868; for many years in the diplomatic service of the United States; for twenty-three years consul at Odessa, Russia; and later consul at Newchwang, China; Warsaw, Russia, and Fiume, Austria-Hungary; died in the latter city, June 26, from heart disease, aged 62.

George Irvin Barwick, M.D. University of Maryland, Baltimore, 1894; a member of the Medical and Chirurgical Faculty of Maryland; for many years a practitioner of Kennedyville, Md.; but for the last four years a resident of Baltimore; died at his home in that city, July 25, from angina pectoris, aged 45.

Thomas Carman Hodge, M.D. Atlanta College of Physicians and Surgeons, 1908; of Atlanta, Ga.; a member of Southern Medical Association and the Medical Association of Georgia; assistant to the chair of anatomy in his Alma Mater; died in a sanitarium in Atlanta, July 28, aged 29.

Arthur Parker Sargeant, M.D. University of Minnesota, Minneapolis, 1913; of Minneapolis; formerly intern in the Minneapolis City Hospital; while endeavoring to save a woman from drowning in Lake Carlos, near Alexandria, Minn., July 30, was drowned, aged 28.

William Henry Carpenter, M.D. Philadelphia University of Medicine and Surgery, 1869; Dartmouth Medical College, Hanover, N. H., 1876; of Boston; a specialist on diseases of the eye, ear, nose and throat; died at his home in Brookline, Mass., July 23, aged 77.

John Irving Russell, M.D. Willamette University, Salem, Ore., 1909; a Fellow of the American Medical Association and proprietor of the Lakeview, Ore., Sanitarium; died in the Good Samaritan Hospital, Portland, Ore., July 25, from nephritis, aged 28.

Robert P. Page, M.D. University of Pennsylvania, Philadelphia, 1861; a member of the medical society of Virginia; surgeon in the army throughout the Civil War; died at his home in Berryville, Va., July 26, aged 76.

Charles Allen Holbrook, M.D. Bennett Medical College, Chicago, 1878; of Dorchester, Neb.; died in the Nebraska State Hospital, Lincoln, July 14, from senile debility, following a cerebral hemorrhage, aged 73.

Sherman M. Beeman, M.D. Washington University, St. Louis, 1881; for many years a practitioner of Chillicothe, Mo.; died at the home of his son in Denver, Colo., July 27, from senile debility, aged 77.

John Henry Griffith, M.D. Jefferson Medical College, 1870; a Fellow of the American Medical Association; twice mayor of Philipsburg, N. J.; died suddenly at his home in that city, July 28, aged 72.

William T. Benson, M.D. College of Physicians and Surgeons, Kansas City, Kan., 1902; of Kansas City; died at the home of his father in that city, July 29, from appendicitis, aged 34.

James Ball Rogers (license, Louisiana) for many years a practitioner of Allen Parish, La.; died at his home near Kinder, La., July 16, from disease of the heart and kidneys, aged 76.

Charles E. Booth, M.D. Rush Medical College, 1872; for twenty-five years a practitioner of Minneapolis; died in the Asbury Hospital in that city, July 25, aged 74.

George W. Williams, M.D. University of Louisville, Ky., 1878; for thirty-one years a practitioner of Pittsburg, Kan.; died at his home in that city, July 29, aged 64.

Charles Thomas Buffum, M.D. College of Physicians and Surgeons in the City of New York, 1877; of New York City; died at Wainscott, L. I., July 29, aged 61.

Lee Osborne Scott, M.D. Rush Medical College, 1905; a member of the Illinois State Medical Society; died at his home in Rockford, Ill., June 26, aged 36.

Herman Berberich, M.D. Jefferson Medical College, 1901; of Philadelphia; died from heart disease while surf-bathing at Wildwood, N. J., July 26, aged 36.

Gustave A. Heidel, M.D. St. Louis College of Physicians and Surgeons, 1897; died at his home in Muscatine, Iowa, July 16, from heart disease, aged 42.

Herbert Forrest Williams, M.D. Hahnemann Medical College, Philadelphia, 1896; died at his home in Philadelphia, July 26, from tuberculosis, aged 42.

Carl G. Lindeblad, M.D. Rush Medical College, 1908; formerly of La Grange, Ill.; died in his apartments in Albuquerque, N. Mex., July 30, aged 33.

James Turner Persons, M.D. University of Alabama, Mobile, 1890; died at his home in Bayou Labatre, Ala., about July 18, from heart disease.

Hilary F. Oliver, M.D. University of Pennsylvania, Philadelphia, 1858; of Birmingham, Ala.; died in Woodlawn, Ala., May 18, aged 76.

Sanford B. McClure, M.D. Cincinnati College of Medicine and Surgery, 1874; died at his home in Allegany, N. Y., June 30, aged 79.

Albert Roberts Pyne, M.D. University of Toronto, 1887; died at his home in Toronto, July 6, from cerebral hemorrhage, aged 65.

Ezra John Guyott, M.D. Hahnemann Medical College, Chicago, 1882; died at his home in Utica, N. Y., June 22, aged 60.

Almas P. Bogue, M.D. Georgetown University, Washington, D. C., 1872; died at his home in Washington, May 10, aged 66.

Alger William Rice, M.D. New York University, New York City, 1880; died at his home in Marion, Mass., May 12, aged 59.

James Raizon, M.D. Rush Medical College, 1891; died at his home in Trinidad, Colo., July 15, from heart disease, aged 59.

Christopher Johnston, M.D. University of Maryland, Baltimore, 1880; died at his home in Baltimore, June 26, aged 58.

Alfred Royce Brundage, M.D. Albany (N. Y.) Medical College, 1890; died at his home in Chicago, July 20, aged 54.

John L. Van Alstyne, M.D. Albany (N. Y.) Medical College, 1862; died at his home in Binghamton, N. Y., May 18.

Joseph William Russell, M.D. Jefferson Medical College, 1907; died at his home in Cleveland, Ohio, July 15, aged 30.

William Watson McCulloh, M.D. University of Pennsylvania, 1898; died at his home in Baltimore, July 19.

John Joseph Mitchell, M.D. Harvard Medical School, 1902; died recently at his home in Charlestown, Boston.

Joseph Remi Tanguay, M.D. Detroit Medical College, 1871; died at his home in Detroit, July 20, aged 69.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

PODOLAX

"Podophyllin With the Gripe Taken Out" Proved a Phenolphthalein Nostrum

L. E. Warren, Ph.C., B.S.

CHICAGO

"PoDoLax" is being extensively advertised as a laxative by the E. E. Sutherland Medicine Co. of Paducah, Ky. The claim is made that:

> "PoDoLax is not an accidental discovery nor an Indian Remedy."

It is claimed that on the other hand:

> "It is the result of hard study by the brightest minds in the medical profession. The pleasant taste is the effect of the work of a first-class chemist, so combining the drugs of the prescription as to eliminate the objectionable taste and at the same time retain their strength."

The name "PoDoLax" is apparently intended to suggest that podophyllum is the chief constituent of the remedy, and this implication is quite unmistakably conveyed in the following expression found in one of the advertisements for the preparation:

> "PODOLAX
> Podophyllin with the Gripe taken out."

Also in a circular devoted to the exploitation of PoDoLax and other nostrums the following statements are found:

> "Now a new name is before the world, which is made up from the words 'Podophyllin' and 'Laxative.'
> " 'PoDoLax' is the word.
> " 'PoDo' from Podophyllin—
> " 'Lax' from Laxative or gentle rather than purgative.
> "PoDoLax is Podophyllin with the gripe taken out. The only objection ever made to Podophyllin was the griping, and that is entirely overcome in PoDoLax.
> "PoDoLax is humanity's oldest and best proven remedy, made pleasant.
> "Mandrake is the Biblical term and is first mentioned in Genesis also in the songs of Solomon.
> "Some of the doctors . . . still give Podophyllin because ever since the days of Jacob, Mandrake, as it was called in the Bible, has been the best of all to start the Bile.
> "A harmless, never-failing, natural remedy, as pleasant to take as maple syrup. . . ."

Aside from these statements and the declaration on the label that PoDoLax contains 6 per cent. of alcohol, no information concerning the composition of the preparation is given. Since from its physical appearance it seemed improbable that the preparation could contain much resin of podophyllum it appeared worth while to examine a specimen of PoDoLax with the view of determining its laxative constituents.

The product is sold in 5-ounce panel containers which retail at fifty cents. The preparation examined was a dark brown, syrupy liquid having an aromatic, sweet taste and an odor like a mixture of anise, sassafras and wintergreen. It contained a considerable quantity of finely divided crystalline material in suspension. Some of this was separated by filtration, washed with water and identified as phenolphthalein by the usual tests. Another laxative substance was also present, which appeared to be an extract of senna. Large quantities of sugar (sucrose) were present. Small quantities each of alcohol, ammonium compounds, oil of wintergreen and possibly other volatile oils were also found. A determination of alcohol gave 4.47 per cent. by volume. The residue on drying amounted to about 71.5 gm. per hundred c.c. Podophyllin was absent or not present in more than traces. Phenolphthalein was determined and about 1.6 gm. per hundred c.c. found. This is equivalent to about 1.8 grain in each directed dose of PoDoLax. Whether or not other laxatives are present in small quantities matters little since phenolphthalein and senna are the essential medicinal ingredients, of which the former probably predominates. From the results of the examination it appears that PoDoLax is an aromatized syrup containing phenolphthalein in suspension and fortified by the addition of an extract of senna. Phenolphthalein is a synthetic compound made from coal-tar. Therefore, PoDoLax cannot be a "natural remedy" and to advertise such a preparation as

"Podophyllin with the gripe taken out"

is to offer it under claims that are misleading, false and fraudulent. That the manufacturer knows this is perfectly evident from the fact that these lying claims do not occur on the label of the trade package or in the circulars which accompany it—where they would come within the purview of the law—but are found in advertisements and in circulars which reach the consumer in other ways. Since the Biblical mandrake, *Mandragora autumnalis*,[1] has no botanical or therapeutic relation to the American mandrake, *Podophyllum peltatum*, the attempt to give Biblical sanction to the exploitation of PoDoLax by connecting it with the mandrake of the Bible is to be expected from the usual ignorance, stupidity and dishonesty of the "patent medicine" exploiter.

To sum up:

1. PoDoLax is sold under the claim that it contains podophyllin, whereas it contains none, or at least not more than traces. Its chief medicinal ingredient is phenolphthalein.
2. The false claims concerning the composition of PoDoLax do not occur on the labels of the trade package or in the circulars which go with it, but are made in other ways. This shows the exploiter to be aware of the fraud and deceit practiced in making and selling the nostrum.

Correspondence

"Abuse of Normal Salt Solution"

To the Editor:—In The Journal, July 25, 1914, p. 307, appeared an article on the "Abuse of Normal Salt Solution" which prompts me to make a few remarks on scientific fairness.

This article, like not a few others of recent years, is apparently an effort to discredit the work of Prof. M. H. Fischer, and incidentally to introduce a subject that has nothing to do with the title, namely, the use of glucose solutions as substitutes for normal saline. This article is, in one particular respect, quite unlike most of the others of similar trend; that is to say it makes use of hearsay evidence, faulty case reports, and undigested references to the literature.

I shall make no attempt to discuss all the references cited by the author. Many of them deserve citation in connection with edema and nephritis, but also many of them do not. One of the most noteworthy instances is the paper of Newburgh (*Boston Med. and Surg. Jour.*, 1913, clxix, 40). Newburgh's work was a perfectly satisfactory bit of observation which almost, if not completely, supported Fischer's contentions, though Newburgh did not interpret it that way, owing perhaps to his (at that time) ignorance of the physiochemical action of salts on colloids. Otherwise he would have known that to discontinue digitalis and magnesium sulphate and place his patients on alkaline sodium chlorid solution would not tend to improve their condition.

The really laughable citations are two—one from Bain (*Brit. Med. Jour.*, Oct. 5, 1912) and one from Stevenson (same journal, Dec. 28, 1912, p. 1749). Bain's case was one of a child who was edematous. Bain was told that the child may have eaten salt. The physician ordered that the child should have no salt with its food and that all salt should be placed beyond its reach. He prescribed a *simple mixture* of magnesia and compound tincture of cardamom, and castor oil at bedtime. Four days later the edema had disappeared. Stevenson's patient was a young married woman who suffered from general edema "for which no cause could be found except the excessive use of salt." Stevenson was told that the whole family [of the patient] was very much addicted to salt eating. He ordered the salt discontinued and the edema disappeared. In the same volume of the *British Medical Journal* (p. 1057) is the report of another case which Dr. Litchfield missed. It is by Midelton, who says that he had a patient with exophthalmic goiter who suffered from excessive edema. He was told that she ate large quantities of salt. This habit he ordered discontinued. After that the edema "lessened greatly." Midelton concludes his report as follows: "Patients who are fond of highly salted food sometimes refuse to give it up. I know of several such who have puffy eyelids and slight edema of the feet, especially at night." And cases such as these are used to help nullify the serious work of scientific men!

The work of Lepine (*Rev. de méd.*, 1911, xxxi, 744) quoted in the article I am discussing is not a report that has any value in this connection, except in a very roundabout way, for Lepine's conclusion is that while the state of chlorid retention has something to do with hysteric cases, yet the pathogenic action of the chlorid retention is complex and certainly indirect.

Blum, also quoted (*Sem méd.*, Sept. 13, 1913; abstr., The Journal, Oct. 21, 1911, p. 1408), says that many symptoms and disturbances following injections are due to sodium chlorid, and refers to the salt fever of infants. He says it is better to add a little alkali to the salt solutions.

Geyster (*Am. Med.*, 1914, lvii, [N. S. 9]), after urging that normal saline has a wide field of usefulness, says: "It would be strange if a remedy as potent and yet as simple as the normal salt solution should escape indiscriminate and thoughtless use by the inexperienced." He then goes on to tell what he means by that and makes very much the same points in one direction as does Professor Fischer.

Burnett's experiments (*Jour. Biol. Chem.*, 1908, iv, 57) have nothing to do with the case, except to lengthen the bibliography, because he used seawater, and because he used it in enormous doses given in short periods of time. For instance, he gave a 2,200-gm. rabbit 400 c.c. of a one-sixth molecular sea-water in three-fourths of an hour. Beside, he concludes that the magnesium in the sea-water is responsible for the glycosuria which follows its injection.

I shall not continue with these references of Litchfield. I am glad to admit once more that some of the others have a bearing on the problem. *But that is not the point.* The point is that a large proportion of the references quoted by Litchfield have no bearing on the problem, but have for one or another reason been perversely used, and that is not scientifically fair.

Moreover, when the criticisms of a man's work are cited as references against his work, his responses to criticism surely should be used, as, for instance, Fischer's response to the almost ridiculous papers of Moore (The Journal, Oct. 19, 1912, p. 1429), and his response to the unsigned attack by a writer in the *Archives of Internal Medicine.*

As for the "Controverted Theory of Nephritis" (The Journal, June 20, 1914, p. 1971), the title of that editorial was stupid, since the article it quoted had to do with the method of production of the albumin in the urine, that is, with a symptom and not with the basic condition.

Professor Fischer's book did not "calmly disregard all of the work just mentioned," but considered it in the light of his experimental work, discarded most of it so far as applications were concerned, and then proceeded to show to the holders of the older theories that when their patients were about to die from lack of salt and alkali, he could save them by using a newer method. In other words, his theory *works* in properly selected cases. And all he has done has been to pass the so-called authorities, when he found that what they said was not true.

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[1] *Mandragora autumnalis* is a poisonous, alkaloid-bearing member of the nightshade family (*Solanaceae*) and is a close relative of belladonna. It was prized by the ancients in the belief that it would cure barrenness, but has never been employed as a cathartic. *Podophyllum peltatum* is a native of America, belongs to the barberry family (*Berberidaceae*) and contains no alkaloids. Although its cathartic properties have been known by the American Indians from prehistoric times the plant was not described by botanists until 1731 (Catesby: Natural History of Carolina, Florida and the Bahama Islands, 1731, i, 24), consequently it could not have been known to the writers of the Bible.

Professor Fischer, and all really scientific research workers, will welcome criticism if it be fair. He was the first to suggest that not all that he believed might be true (The Journal, Sept. 5, 1908, p. 830). But he should not be burdened by the prejudice which accompanies and follows authority.

The burden of proof is on those of the opposition, and it will take much time and experimentation to successfully balance the work that has been done while they were talking. Many of them will have to learn the new language, which is slowly but surely replacing the antique dialects of medicine, before they can hope to even understand what is being talked about.

In conclusion, it is pleasant to add that Professor Fischer was one of the workers who have been instrumental in showing why glucose is valuable and on what its action in certain types of acidosis depends (*Science*, 1913, xxxviii, 486). It is to be hoped that no one will discontinue its use on this account. Paul G. Woolley, M.D., Cincinnati.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SEALING OF MUSEUM JARS—PREVENTION OF MOLDS IN KAISERLING SOLUTION

To the Editor:—1. Please give me a satisfactory formula for sealing museum jars.

2. Also, some manner, or change in method, which will guard against the growth of molds in Kaiserling solution.

Herbert V. L. Sapper, Norman, Okla.

Answer.—1. It is the opinion of several authorities, to whom this question has been referred, that those jars with metallic lid clamps and jars having ground stoppers are adequate for the purpose. Sealing is unnecessary as it often becomes essential to change the fluid on the specimens, a difficult process when the jars are sealed. In some places the use of museum jars, except in cases of very large specimens, has been abandoned. Reference may be made to an improved method of mounting specimens on watch glasses (Day, L. E.: Improved Method of Mounting Museum Specimens, *American Veterinary Review*, October, 1913, p. 66).

2. It has been found that the addition of a few crystals of thymol to the Kaiserling solution, at the time of making, is a good preventive against the growth of molds. About 1 gm. of thymol to a gallon of fluid is sufficient. Another precautionary measure is boiling of the solution just previous to its use.

ROSS JONES AND NOGUCHI BUTYRIC ACID TESTS

To the Editor:—1. Are the Ross Jones test and the Noguchi butyric acid test reliable in determining the diagnosis of syphilis?

2. How do these tests compare with the Wassermann test?

F. S. White, M.D., San Antonio, Tex.

Answer.—1. The Ross Jones test and the Noguchi butyric acid test are not specific tests for syphilis, but indicate simply an increase in the amount of protein in the cerebrospinal fluid.

2. These tests, when positive, are not of as great significance as the Wassermann test, that is, they do not certainly indicate syphilis.

The Summer Question.—Summer brings baby problems. Babies live in a different world than adults and sudden changes in food, excessive heat and other shocks to their vibrating vitality may easily swing the pendulum to the danger side. A baby is a living "factory" of possibilities and we should see that it is a business necessity to keep his "works" at the utmost efficiency.—*Bull. Chicago School Sanit. Instr.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alberta: Edmonton, September 15. Registrar, Dr. Cecil E. Race, University of Alberta, Edmonton.

Iowa: Des Moines, September 10-12. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

New York: September 22-25. Chief of Examination Division, Mr. Harlan H. Horner, Department of Education, Albany.

Arkansas Homeopathic May Report

Dr. Scott C. Runnels, secretary of the Homeopathic State Medical Board of Arkansas, reports the oral, practical and written examination held at Little Rock, May 27-29, 1914. The number of subjects examined in was 12; total number of questions asked 120; percentage required to pass was 75. The total number of candidates examined was 8, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Kansas City Hahnemann Medical College	(1912)	80
	(1914)	77, 82.2, 83.1, 85.4, 87.5, 91.7, 95.4.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Georgetown University School of Medicine	(1891)	New York
Cleveland Homeopathic Medical College	(1904)	Ohio

The following questions were asked:

ANATOMY

1. Define anatomy. 2. How many bones in the upper extremities? Name them. 3. Name the branches given off the arch of the aorta. Where is the innominate artery and what are its divisions? Name the branches of the external carotid. 4. Name the divisions of the digestive tract, and describe the duodenum. 5. Where is Scarpa's triangle? Give its boundaries and name the important structures contained therein. 6. Give the origin and insertion of five muscles. 7. Name the cranial nerves and give their distribution. 8. Give the blood-supply of five organs of the body. 9. Locate and describe a femoral hernia and give its coverings, beginning at the surface. 10. Give the fetal circulation.

PHYSIOLOGY

1. Give the composition, reaction and uses of blood. 2. Name the secretions of the alimentary canal, their reaction and functions. 3. What is the physiologic function of the liver? 4. Describe urea, its occurrences, variations in the quantity excreted and recognition in the voided urine. 5. What is the function of the first cranial nerve?

CHEMISTRY

1. Give the chemical name and formula of (*a*) common table-salt, (*b*) marble, (*c*) plaster of Paris, (*d*) borax, (*e*) blue vitriol, (*f*) soot, (*g*) vinegar, (*h*) verdigris, (*i*) tartar emetic, (*j*) sugar of lead. 2. Define (*a*) base, (*b*) acid, (*c*) salt; give examples. 3. Name ten elements used in their pure state in medicine. 4. Write the equation of the reaction when pure wood alcohol is burned; (*b*) when corrosive sublimate and potassium iodid meet in solution. 5. What is meant by (*a*) hard water, (*b*) soft water? (*c*) how may hard water be made soft? (*d*) What does the presence of an abnormal amount of chlorin in water indicate? (*e*) How would you determine its presence? 6. Name five substances used as antiseptics or disinfectants and give their chemical formula. 7. What is grain alcohol? Give formula. Name some substances from which it is derived; describe the process of preparation; name some contaminations and give mode of determination. 8. Give three tests for sugar in urine. 9. Give five tests for albumin in urine. 10. Give composition of human milk.

PATHOLOGY

1. What diseases of the mother may be transmitted to the fetus? 2. Define anemia, hyperemia and leukemia and give examples of the cause of each. 3. Difference between congestion and inflammation. 4. How does sarcoma differ from carcinoma? 5. What determines the benign or malignant character of a new growth? 6. Describe the etiology of malaria. 7. Give pathology of different forms of pleurisy. 8. What diseases are attended with ulceration of the intestines? 9. Describe changes in cirrhosis of the liver. 10. Distinguish between hematuria and hemoglobinuria; causes of each.

BACTERIOLOGY

1. Define following terms: coccus, bacillus, spirillum, obligative anaerobe, facultative anaerobe and give examples of each. 2. Name the organisms commonly found in (*a*) furunculosis, (*b*) tonsillitis. 3. Define germicide, antisepsis, asepsis, sterile and disinfectant. 4. Define parasite, saprophyte, spore, flagellum, mycelium. 5. Name five culture-mediums. 6. Name pathogenic organisms having exogenous toxins. 7. Give dif-

ferential characteristics of organism causing (*a*) diphtheria; (*b*) tuberculosis. 8. Name ten diseases caused by specific organisms. 9. Name ten diseases caused by organisms but not specific. 10. Give brief outline of (*a*) Widal test; (*b*) Wassermann.

HYGIENE

1. Mention five preventable diseases. 2. (*a*) Mention five satisfactory disinfectants and give indications for their uses. (*b*) What gases are most efficient as disinfectants? 3. (*a*) How can malarial districts be made healthy? (*b*) How can *Anchylostoma duodenale* districts be made healthy? 4. Describe in detail the sanitary precautions necessary in typhoid fever. 5. Describe the agency of the ptomains in inducing disease, and the disorders produced by them.

DIAGNOSIS AND PRACTICE

1. Give differential diagnosis of pneumonia, bronchitis, pleuritis. 2. Give treatment of pneumonia, including indications for three remedies. 3. Give etiology, symptoms and treatment of pericarditis. 4. Define gastritis. Give diagnostic indications. Outline treatment. 5. Describe typical typhoid fever to a fatal termination. 6. What is cerebral anemia? What is cerebral hyperemia? Differentiate. 7. Give cause, symptoms and terminations of poliomyelitis anterior. 8. Measles: Describe a case and give differential diagnosis from scarlatina. 9. Give differential diagnosis of variola and varicella. 10. What is malaria? Describe, briefly, different types of malaria, and give clinical diagnosis between continuous type and typhoid fever.

MATERIA MEDICA

1. Apis mellifica: Give method of preparation of this remedy, and give two characteristic symptoms. 2. Belladonna: Give the common name of this drug. Give the brain symptoms indicating its administration. Name the alkaloids of belladonna. 3. Conium maculatum: Give characteristic symptoms calling for its use in disease of the urinary organs. 4. Ipecacuanha: Give symptoms calling for this remedy in disease of the digestive tract. 5. Give characteristic symptoms of lachesis. 6. Opium: Name two alkaloids and give their physiologic action. 7. Podophyllum peltatum: Give the aggravations and ameliorations indicating administration of this remedy. 8. Rhus toxicodendron: Give the characteristic symptoms of this drug. 9. Sulphur: What are the general indications for this remedy? 10. Veratrum viride: Give the abdominal symptoms calling for the administration of this remedy.

THERAPEUTICS

1. Give indications for chamomilla, mercurius vivus and arum triph. in stomatitis. 2. Differentiate acute catarrhal laryngitis, croupus laryngitis and diphtheria, and outline treatment for diphtheria. 3. Differentiate indications for aconite, bryonia and kali carb. in pericarditis. 4. Give etiology and symptoms of chronic nephritis; mention three leading remedies and give definite indications for each. 5. Differentiate enterocolitis and dysentery. Briefly outline general treatment and name at least two remedies in each case. Give distinct indications. 6. Outline general management of a case of pneumonia, in an adult. Name several remedies, giving indications briefly. 7. Give indications for Aethusa cynapium, bismuth and ipecac in vomiting. 8. In treatment of la grippe give indications for Rhus. tox., Eupatorium perf. and pyrogen. 9. Differentiate indications for Kali bich., Nux muschata and pulsatilla in stomach disorder. 10. What is erysipelas? Outline treatment.

SURGERY

1. Patient in state of coma, what might it be? Give differential diagnosis. 2. Give ten methods of controlling hemorrhage. 3. Give five methods of anesthesia and their contra-indications. 4. Reset a dislocated inferior maxilla. 5. Name the dislocations of the shoulder-joint. 6. Mention ten varieties of fracture of a long bone. 7. State most common seat of fractures of the clavicle; give treatment. 8. Differential diagnosis of appendicitis and renal colic. 9. Describe four varieties of club-foot. 10. What is Colles' fracture; Pott's fracture?

OBSTETRICS

1. Give brief description of female pelvic anatomy. Name diameters. 2. Give diagnostic points and methods of determining early pregnancy. 3. Give general outline of attention necessary during the puerperal period. 4. Name several of the disorders incident to the period of pregnancy. Give treatment indicated. 5. Give varieties of placenta praevia and treatment. 6. Give etiology of antepartum hemorrhage and treatment. 7. What is third stage of labor? Give management. 8. Give management of breech presentation. 9. Name several complications incident before labor. 10. From beginning of labor until flow of milk is established, what conditions might be met that would definitely indicate pulsatilla, aconite, secole cor., ipecac and phytolacca. Briefly outline indications.

GYNECOLOGY

1. Differentiate simple from gonorrheal vaginitis and give treatment for each. 2. Give causes and treatment of ovaritis, acute and chronic. 3. Define metrorrhagia. (*b*) Name two of its most common causes prior to the menopause. (*c*) What would you suspect should it occur subsequent to the same? (*d*) How would you verify your suspicions? 4. Give symptoms, diagnosis and treatment for chronic endometritis. 5. What are the nervous manifestations of amenorrhea? 6. Give etiology and treatment of salpingitis. 7. Give symptoms and treatment of retroversion of the uterus. 8. Name the uses of the uterine sound. Enumerate contra-indications and dangers attending its use. 9. Give etiology, symptoms and treatment of pelvis cellulitis. 10. Describe the pathologic effects caused by lacerations of cervix and give all reflex disturbances therefrom.

Book Notices

DIGEST OF COMMENTS ON THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA (EIGHTH DECENNIAL REVISION) AND ON THE NATIONAL FORMULARY (THIRD EDITION) for the Calendar Year Ending Dec. 31, 1912. By Murray Galt Motter and Martin I. Wilbert. Paper. Pp. 495. Hygienic Laboratory Bulletin No. 93. Washington: Government Printing Office, 1914.

The preface announces that this, the eighth bulletin of the present series, rounds out three decades of the systematic compilation of comments and criticisms on the Pharmacopeia of the United States. The original publications were based on the sixth edition of the Pharmacopeia, which was published at the close of the year 1882, and the digests have been continued more or less regularly since that time. The material included in the present bulletin has been arranged with a view of conserving space, and despite the fact that it appears to include more references than any of the former publications, the number of pages has been materially reduced. The bulletin is aptly defined by the compilers as an elaborated index of current literature relating to pharmacopeial articles, and from this point of view should be of value to all physicians who are in any way interested in the progress or development of drug therapy. The number and the nature of the comments on the German Pharmacopeia that are quoted indicate a real live interest on the part of the physicians as well as pharmacists of that country in the composition and possible uses of the Pharmacopeia, and should be an incentive to the professional men in this country to emulate. Among the more interesting compilations found in this volume is a table showing the highest and lowest maximum, single and daily doses of widely used potent drugs and preparations included in the maximum dose tables of the several pharmacopeias. The figures given in this table indicate that even with articles that are more or less uniform, so far as the purity and strength of the preparations are concerned, there is nevertheless a marked variation in the amount of drug that is considered harmful in different countries. Current discussions on international uniformity in the standards, requirements and tests for widely used or potent medicaments and the desirability of restricting the scope of the Pharmacopeia to really useful drugs and preparations reflect rather a live interest in these vitally important features of pharmaeopeial development. These discussions also appear to indicate an earnest desire to provide for future medical students a safe and sane foundation of knowledge regarding materia medica subjects. The quotations from published reports of officials entrusted with the enforcement of laws relating to the production and sale of drugs indicate that much of the material that is now being sold as medicine is either directly harmful or absolutely useless and that greater care and activity is needed on the part of all concerned to secure reasonable uniformity and purity in the medicines dispensed to patients.

ORGANIC CHEMISTRY FOR STUDENTS OF MEDICINE. By James Walker, LL.D., F.R.S., Professor of Chemistry, University of Edinburgh. Cloth. Price, 6 shillings. Pp. 328. London: Gurney & Jackson, 1913.

The name of James Walker occupies an enviable position in the realm of physical chemistry. Perhaps no other elementary text-book on this subject has been so well received by teachers as that of Walker's, and this speaks all the more for the author, because all recognize the difficult task of presenting the physical side of chemistry in a suitable manner, and yet in a suitably sized text-book. It was a matter of some surprise to note that Walker has recently written a book covering an entirely different field; in fact, he so restricted the name of his text that probably he could have selected no other subject which so thoroughly excludes physical chemistry. Nevertheless, in view of the ability shown in his previous works an equally good and serviceable book might have been expected, but anticipations have not been realized. The book, as the name suggests, is written primarily for the benefit of the medical student who is taking his first course in organic chemistry; but it cannot be recommended as a text especially adapted for medical students, or any other kind; in fact, it is believed that there are many other organic chemistry texts that more nearly approach the demand of an American school. The subject-matter is presented in a rather uninteresting and monotonous manner, while in a few places the English is such as to be quite confusing. Although the book is recent, it cannot be termed "modern." For example, bivalent carbon, a plausible explanation for the poisonous effects of cyanids and carbon monoxid, is not brought forth; no attempt is made to explain molecular rearrangements, a subject with which every student must later come into contact in physiologic chemistry, and very little insight is given concerning the mechanism of reactions, which rather detracts from the book. References are not given, and in certain instances, names which usually are correlated with certain reactions are omitted. Typographic errors occur in a few places, as the formula for metaphosphoric acid (p. 29) and picric acid (p. 183). A few physical data are incorrect, as in the case of the melting-point of pure formic acid.

A matter of great concern to the American teacher in a medical school is the consideration of proprietary medicines. In this book, the proprietary names of medicines are emphasized instead of the clinical names which reveal their actual constitution, and thus the medical student who uses the book is liable to prescribe names rather than drugs. Urotropin, for instance, is clearly brought forth, while hexamethylenamin, the official name is relegated to the background.

Text-Book of Local Anesthesia for Students and Practitioners. By Prof. Georg Hirschel, I Assistant in the Surgical Clinic, Heidelberg. With an Introductory Preface by Prof. Dr. Wilms. Translated by Ronald E. S. Krohn, M.D. Cloth. Price, $2.75 net. Pp. 181, with 103 illustrations. New York: William Wood & Co., 1914.

The practice of local anesthesia which has received such extended application in recent years resolves itself into a knowledge of a few anesthetic substances and a minute and exact knowledge of the distribution of the nerves and the technic by which nerve-trunks can be made accessible. For the obtunding agent Hirschel chooses only novocain combined with an epinephrin preparation. Morphin is recommended as a preliminary injection, occasionally to be accompanied by scopolamin. The discussion of remedies, instruments and injection technic is brief, occupying less than ten pages, while the remainder of the book is taken up with the description of the methods of applying anesthesia to the various regions of the body. The descriptions are elucidated by a number of excellent plates showing anatomic relations. The poorly developed state of local anesthesia of the female genital tract is indicated by the little attention given to this phase of the subject. The work may be characterized as quite conservative, presenting no method that has not been well worked out. The application seems to be made wholly to operative work, for although the use of local anesthesia for the relief of pain in laryngeal tuberculosis and obstinate neuralgia is applied on the same anatomic principles, these important developments receive no notice. As a guide to the practice of local anesthesia previous to operation, the work will easily take first rank. The translation is excellent and the value of the work has been enhanced by the addition of an index.

Practical Therapeutics. Including Materia Medica and Prescription Writing, with a Description of the Most Important New and Nonofficial Remedies passed on by the Council of Pharmacy and Chemistry of the American Medical Association. By Daniel M. Hoyt, M.D., Assistant Physician to the Philadelphia General Hospital. Second Edition. Cloth. Price, $5. Pp. 426, with illustrations. St. Louis: C. V. Mosby Company, 1914.

While this is not an exhaustive work on pharmacology, it is constructed on such a practical basis as to give it good reason to claim to be a useful one. It aims to found the indications for drugs on their physiologic action, which is explained clearly and briefly. The classification is made according to the principal purpose for which the drug is employed, and the chief space is given to those agents which are likely to be most used by the physician. This discussion of medicinal agents, together with a chapter on proprietary medicines and dispensing, constitutes the book proper. This book may perhaps be accorded the honor of being one of the first, if not the first, to deal with the patent medicine evil in a separate chapter as of importance to the physician who is to prescribe drugs. The page given to the subject of dispensing is quite inadequate. A fuller discussion of this subject, which is also of great importance to a large class of physicians, would have been very desirable. The rest of the book consists of an appendix which is nearly as large as the body of the work and may even overshadow it in importance. It contains an authorized reprint of the greater part of New and Nonofficial Remedies for 1913, and a biblography which is singularly brief and certainly much fuller on some subjects than on others. Thus "Benzol in Leukemia" has twenty references while "Emetin in Amebic Dysentery" has only one. Such a bibliography can be of little value to student or teacher. An index of drugs follows which gives briefly the properties of the official drugs with reference to the page of the book where each is discussed. The book throughout follows the unusual custom of printing both terms of the ingredients of prescriptions with initial capitals; thus, Acid. Boric. Carelessness in the use of Latin endings and in the printing of prescriptions is one of the minor blemishes of the work. Despite these criticisms, we repeat that the author has produced a useful work which ought to have its share in the coming regeneration of therapeutics.

Twelfth Annual Report of the Bureau of Science, Philippine Islands. Paper. 1913.

This handsomely printed report of 130 pages, exclusive of the abundant plates and other illustrations, gives only a brief sketch of the tremendous activities of the bureau and its energetic personnel. It is a splendid record of the practical application of scientific study to the health and material welfare of a tropical country in which the problems and the opportunities are both on a tremendous scale of bigness. It is hardly possible to take the space even to enumerate the varied lines of work in which the bureau has been engaged for the past year, but they range from intensive studies of plague, cholera and dysentery and their bacteriology, description and classification of the flora and fauna of the islands, etc., to the fisheries, the making of cement, lime and sugar, and research work in the discovery of new products useful in science and the arts, etc. The report is accompanied by a booklet, made up largely from the information contained in the report, indicating the possibilities of legitimate industry and commercial exploitation in the islands.

Surgery: Its Principles and Practice for Students and Practitioners. By Astley Paston Cooper Ashhurst, A.B., M.D., F.A.C.S., Instructor in Surgery in the University of Pennsylvania. Cloth. Price, $6. Pp. 1141, with 1039 illustrations. Philadelphia: Lea & Febiger, 1914.

The impression gained on a reading of this book is one of conservatism and practicability. Both bespeak the good judgment of the author, which is a comforting quality to the student or practitioner who depends on a text-book in any branch as a guide to study or for reference in his daily work. The principles of surgery are well and clearly laid down, and the diseases, accidents, operations and procedures which come largely within the skill and experience of the practitioner who does surgery are given a gratifying amount of attention, with concise but ample description. The more formidable surgical problems requiring the highest technic and knowledge are not neglected, but more details would perhaps be desired by many before attempting such work. Military surgery, the treatment of accidents and the suture of vessels and nerves are subjects detailed in a most satisfactory manner. In regard to fractures the author displays the conservatism taught by experience, no doubt, and early motion, massage and the open treatment are to be employed only with the greatest caution and in exceptional instances. The section on the arthritides is informing and practical. The special branches, orthopedics, gynecology, genito-urinary surgery and the eye, ear, nose and throat have been treated only so far as they come within the province of the general surgeon. The illustrations, mostly from photographs, are abundant and appropriate to illustrate the text, and the book mechanically is well made.

The Hypodermic Syringe. By George L. Servoss, M.D. Cloth. Price, $2. Pp. 317. Newark, N. J.: Physicians Drug News Company, 1914.

The author has succeeded in producing a good-sized book on a small but important subject. In the short space of twenty pages, he has treated of the syringe and its uses. In enumerating the remedies employed by this method, the general class of bacterins obtains an entrance and the fable of the camel's nose is repeated. The bacterins drag in the subject of the etiology, pathology and treatment of infectious diseases, which occupy the remaining 300 pages, so that we have not merely a book on hypodermic medication but a compilation on the practice of medicine. A study of the structure of the book reveals some interesting facts. While the book is published by an independent firm, it is quite evident that the influence of a prominent manufacturer of serums and bacterins has determined its contents. The author has quoted freely, but a large part of his quotations are from "Working Bulletins" Nos. 1, 8, etc. There appears to be no editorial summarization of these varying statements, and the date of the material is different for the different preparations; for instance, on antidysenteric serum there is scarcely a reference to anything since 1902, while the section on antimeningitic serum refers to the recent epidemic in Texas in 1912, this bringing the article fairly well up to date. Naturally a book discussing the use of these remedies in the broad field of infectious diseases would require more thorough study than can be afforded by the mere clipping of quotations and statistics from various authorities. Such a book to be valuable must be the work of one fully equipped with theoretic knowledge and practical experience.

Die Nasen-, Rachen- und Ohrerkrankungen des Kindes in der taeglichen Praxis. Von Professor Dr. F. Göppert, Direktor der Universitäts-Kinderklinik zu Göttingen. Spezieller Teil, Enzyklopaedie der klinischen Medizin. Herausgegeben von L. Langstein, C. von Noorden and others. Paper. Price, 9 marks. Pp. 169, with 21 illustrations. Berlin: Julius Springer, 1914.

This small volume on the diseases of the nose, throat and ear in children is a special part of the "Enzyklopädie der klinischen Medizin." The subject-matter is divided into three parts, the first of which embraces the inflammatory diseases of the nose and nasopharynx, especially in their relation to the general system. The second part considers the independent local diseases of the nose and throat, while the third is devoted to the diseases of the middle ear and their results. It is a valuable contribution, especially in regard to the diagnosis and treatment of these conditions in infants, as too little attention in general is paid to these young patients. Of chief interest is the emphasis laid on the interrelationship of the local conditions with diseases that are constitutional in their nature.

Essentials in Bacteriology. Being a Concise and Systematic Introduction to the Study of Bacteria and Allied Microorganisms. By M. V. Ball, M.D., Assisted by Paul G. Weston, M.D., Pathologist State Hospital for Insane at Warren, Pa. Saunders' Question Compend. Seventh Edition. Cloth. Price, $1 net. Pp. 321, with 118 illustrations. Philadelphia: W. B. Saunders Company, 1913.

The author and editor of this little book propose an attempt "to reflect as faithfully as possible the present status of bacteriology without overstepping the limits set by the scope of a book intended primarily as an aid to students." The scope of the work and want of space have not permitted the consideration of theories and obsolete methods. Part 1 consists of chapters on general biologic considerations and technic of staining, culture, animal experiments, etc.; Part 2 of chapters on the special bacteriology of non-pathogenic and pathogenic bacteria. The appendix takes up yeasts, oidiums, molds, etc. A table at the end, arranged alphabetically by names of species, gives the chief characteristics of the principal bacteria, pathogenic and non-pathogenic.

Miscellany

Suicides and Newspaper Publicity

The probable influence of newspaper publicity of details regarding the nature and kind of substances used in connection with accidental or intentional poisoning is well shown by a compilation from the reports of the coroner of St. Louis for the years 1910 to 1914, inclusive.

The annual period covered by the latest report, April 1, 1913, to March 31, 1914, includes the time during which much unwarranted and in many respects misleading publicity was given to cases of bichlorid poisoning in the newspapers, and the comparative number of cases of poisoning by this agent in St. Louis is suggestive at least of the results that might have been expected. While in a general way the total number of cases of suicide by poisoning in 1913-1914 is comparable with the number occurring in previous years, there is a very marked increase in the number of cases due to the ingestion of mercuric chlorid.

The evident reduction in the number of cases of accidental poisoning from all causes leads one to suspect that newspaper publicity has had in this respect a beneficial influence in that it probably served to call attention to the desirability of safeguarding poisons in such a way that they could not readily be mistaken for other more or less harmless substances. The total absence from the reports for 1913-1914 of accidental cases of poisoning by mercuric chlorid also serves to discount the recent almost hysteric demand for special legislation to protect innocent persons from this deadly poison.

If any further argument were needed to induce newspapers to heed the frequently made request that they omit all mention of the details by which self-destruction was accomplished, it is shown by the accompanying compilation.

SUICIDE BY POISONING

	1910	1911	1912	1913	1914	Total
Arsenic	1	2	3	3	4	13
Mercuric chlorid	1	1	4	3	12	21
Phenol (carbolic acid)	81	85	120	119	85	490
Potassium cyanid	3	5	1	3	7	19
Chloroform	2	..	3	1	2	8
Carbon monoxid	13	22	10	27	23	95
Cocain	1	..	..	..	..	1
Formaldehyd	..	..	..	..	1	1
Hydrocyanic acid	2	2	1	1	3	9
Laudanum	1	..	1	1	..	3
Morphin	2	1	..	1	4	8
Muriatic acid	..	..	2	..	3	5
Opium	..	..	..	1	..	1
Oxalic Acid	1	..	3	..	..	4
Phosphorus	2	1	..	..	..	3
Strychnin	1	1	1	1	2	6
Sulphuric acid	..	..	..	1	..	1
Wood alcohol	1	1	1	1	..	4
	112	121	150	163	146	692

ACCIDENTAL POISONING

	1910	1911	1912	1913	1914	Total
Arsenic	1	..	..	..	1	2
Mercuric chlorid	..	1	1	1	..	3
Bromidia	..	..	..	..	1	1
Phenol	7	5	2	1	1	16
Potassium cyanid	..	..	..	1	..	1
Chloroform	2	1	1	..	..	4
Carbon monoxid	12	10	14	14	3	53
Chloral hydrate	..	..	..	..	1	1
Cocain	..	..	1	..	2	3
Hydrocyanic acid	..	..	..	1	..	1
Laudanum	1	..	..	..	..	1
Morphin	1	1	1	2	..	5
Opium	..	..	1	..	1	2
Oil of Cedar	..	..	..	1	..	1
Ptomain	..	..	..	4	..	4
Picrotoxin	..	..	..	..	1	1
Strychnin	..	..	1	1	1	3
Sodium nitrate	1	..	..	1	..	2
	25	18	22	27	12	104

The figures given also suggest the desirability of telling the truth in regard to the action of corrosive poisons and the need for refraining from even an intimation that the use of any one poison or substance may lead to a sure and painless death.

In this connection it has been frequently pointed out that mentally unbalanced persons who in a fit of despondency might inflict on themselves serious damage would be likely to be restrained by the dread of the unknown agony they may suffer from an attempt to do so, and because of this fact it cannot be too frequently emphasized that there are few modes of suicide more painful than death by means of any one of the many corrosive poisons that have been used in the past.

It might also be stated that only a limited number of the attempts at suicide by means of poisons are actually fatal and that in the majority of cases the ingestion of a poison leads to a painful, long drawn out convalescence and may, as in the case of bichlorid poisoning, involve permanent damage to vital organs, such as the kidneys, and thus materially influence the health and well-being of the individual for years to come.

Making Application of Available Knowledge

In an inaugural lecture on "The Necessity for the Practical Application of Available Knowledge," delivered before the class of the Veterinary Institute of the University of Melbourne in March, Dr. James W. Barrett cites two interesting points to illustrate his thesis. They concern infant mortality and the low standard of health of Australian women. Barrett says it is well ascertained in all countries that when the mean temperature of the air rises to 60 F., artificially-fed babies begin to die and that the death-rate, particularly in the first year, is high because of our failure to apply principles well known in prevention.

That the deaths are preventable in large part he asserts is proved by the experience of New Zealand, where the death-rate among infants in 1912 was about 51 per thousand as compared with 68 in Australia, 232 in Russia, 170 in the German Empire (1909) and 107 in the United Kingdom (1909). For the cities the comparison is still more striking, the rate in 1910 in St. Petersburg and Moscow being 280, Berlin 155 and London 103, while the rate in various Australian cities runs from 81 to 77, reaching the lowest point at Dunedin, New Zealand, where the rate was 38. The reduction in the death-rate in infants in New Zealand has been chiefly in gastro-enteritis, as is shown by the percentages of deaths from this cause, which in 1908 was 23.74, with a rapid reduction to 12.63 in 1912. While part of this reduction may be due to improvement in the milk-supply of New Zealand cities which, however, Barrett says is no better than that of Australian cities, or to the operation of the midwives act and the establishment of maternity homes, he believes it is due chiefly to "special and practical education."

In 1907 the Society for the Health of Women and Children was founded in New Zealand by Dr. Truby King, with the object of caring for the infant before birth and during the period of infancy by practical eugenics; to rear a strong and healthy race by constructive and not by restrictive means, and not to eliminate the unfit, but to prevent their production by aiding in the full development of the healthy. With the encouragement and assistance of Governor and Lady Plunkett, who appealed for assistance to the people, nurses were trained in the best methods of feeding and care of infants and sent throughout New Zealand to educate the women in the principles of child care and especially to urge breast-feeding. There are now twenty-seven of these "Plunkett nurses" and the cost is about $20,000 a year, more than half of which is met by the government. The result, as Barrett says, has been achieved by applying scientific principles in the home.

On the second point, Barrett calls attention to the fact that while the general death-rate in Victoria (11.52 per thousand) and Queensland (10.65 per thousand) is low, it is notorious that the appearance of the women is not satisfactory. The men appear to enjoy excellent health, but in many instances the women appear anemic, neurasthenic and worn. This is commonly ascribed to the tropical climate, but this does not account for the health enjoyed by the men and the general low death-rate. The explanation Barrett finds in physiologic conditions and the wet-bulb temperature. Haldane has shown that work is rendered impossible in a wet-bulb temperature of from 90 to 91 F., and that in a wet-bulb temperature over 78 F. a great deal of work could not be done with comfort. This applies whether the wet-bulb temperature is produced by a high dry-bulb and a low percentage of moisture, or by complete saturation with low dry-bulb. A plotting of the wet-bulb isotherms for Australia shows that it has a temperature below 70 F. wet-bulb in winter, and the greater part of it is below 75 F. wet-bulb in summer. Barrett says that this fact accounts for the good health enjoyed by the inhabitants in general and the low death-rate. It does not, however, account for the defective health of the women, which Barrett attributes in part at least to the high wet-bulb temperature of the kitchens and houses, as ascertained by actual tests in a number of cities and towns, a condition which should be easily remedied by the application of scientific knowledge at hand.

The whole fabric of modern curative medicine, Barrett believes, approaches the ridiculous because well-known scientific principles of prevention are not applied. He takes the view that it is more important to apply knowledge already existing than to seek for further knowledge, and that it is futile to enlarge the boundaries of knowledge by recondite research if no attempt is made to put the knowledge we have to practical use.

The Short Road to Success

We have, at various times, commented on the foreign opinion of American physicians and the brazen effrontery with which it is attempted to foist proprietary preparations on American physicians. More recently space has been given to a discussion of the so-called "painless childbirth" method of Freiburg, now being exploited by an American magazine. In view of this situation, the following comment by an American medical journal (the *Cleveland Medical Journal*) seems exceedingly appropriate:

"With the recent acknowledgment from *McClure's Magazine* (The Journal A. M. A., June 13, 1914, p. 1912) that their article, "Painless Childbirth," was technically correct and read by Professor Krönig and Doctor Gauss, we feel tempted, along with others, to lament the changes coming over many of the German medical men of to-day. The old German ideals of deep study, of verity and of thoroughness —what, may we ask, is becoming of them? Much of the German medical literature of to-day is flooded with superficial studies and absurd deductions on this; that and the other subject intended to attract the public eye. At Berlin and Vienna are arranged elaborate postgraduate courses of from one to four weeks or longer, principally shorter. They are ground out to your order, in English or German, at so many "simoleons" per minute and at the end, a much embossed, much begilded diploma will be duly handed out to the participant. We are glad to say that this does not apply to the work of many of the worthy professors in these great founts of medical knowledge, but sad to relate it is only too true of many of the courses offered. And what is even worse, Americans are the particular game and laughing stock of all too many of those privat-dozents, ausserordentlich professors, geheimrats, et cetera. American medicine has not yet recovered from the shock of Friedmann's Golden Fraud and we are pained to learn that Professor Krönig would also add his name to those men desiring dollars rather than wisdom and the honor of their fellow workers. We say this in spite of the recent denial from him as given in the *Lancet Clinic*. The German medical man has but to put a few titles before his name, appear in America and he feels himself called upon to burst out in public print to his heart's desire and his pockets overflowing—witness the example of a noted orthopedist a few years ago and just lately of an aurist. It is said that our remarkable antisyphilitic remedy, salvarsan, costs nine marks (about two dollars) a kilogram to manufacture and is sold to the public at the *moderate* price of nine thousand marks (about two thousand dollars) per kilogram. True, it is also said, that all the profits are turned over to the institute at Frankfort; but what, might we ask, would happen if the Rockefeller or Pasteur Institute should adopt such tactics with so valuable a remedy? Think of the hundreds and hundreds of dispensary patients denied this drug because of its prohibitive cost. Is it possible that the German medical man of to-day is, in his desire for material gain, forgetting the higher ideals of research, of teaching others and of healing the sick? There is much food for thought for his American colleagues and we deeply hope that medical Germany will take no chance to besmirch that high reputation of which she can be so justly proud."

Cleansing and Disinfection of Railroad Coaches

The usual carelessness of the traveling public and the close contact necessitated in railroad travel make the sanitation of railroad coaches an important problem in disease prevention. The railroads entering Asheville, N. C., a resort containing many sanatoriums for the care of tuberculous persons, have a method of disinfecting and cleaning their sleeping-cars and day coaches and their contents which is well devised and seems to be good enough to serve as a model. The procedure is described by A. D. Foster in *Public Health Reports,* March 27, 1914. Asheville is a division terminus and cars entering that place lie over for twelve hours, during which they are cleaned and disinfected. Sleeping-cars, day coaches and baggage-cars are switched to a special track, where the ventilators, windows and doors are tightly closed and the cars are fumigated with formaldehyd gas. The gas is generated in three galvanized iron pails for each car, each pail containing 500 c.c. commercial formaldehyd and 250 gm. potassium permanganate. In sleeping-cars all berths are taken down, and blankets, pillows and mattresses are opened and spread out so that the gas may have access to them. The car remains closed for about twelve hours. All carpets, upholstered seats and backs, blankets and pillows are then removed from the car and placed in the air and sun outside. Dust is removed from the removable seats, backs and carpets by means of compressed air, and similar cleansing of the interior of the car is performed. The floor of the car is then scrubbed with soap and hot water and the remainder of the woodwork is wiped with damp cloths. Drinking-water tanks and spittoons are removed, cleaned and scrubbed inside and out with brush and scouring-soap, rinsed with clean water and then sterilized with live steam. A small quantity of formaldehyd is placed in each spittoon. Once a month the tanks used for storing water for wash-rooms and water-closets are flushed and cleansed, and hoppers are cleansed with an acid solution. Woolen blankets are periodically shipped to special laundries where they are washed and combed. Day coaches and baggage-cars are cleaned and disinfected in practically the same way, and special attention is given to the space behind the steam-pipes which run alongside the coaches, a favorite place for expectoration by passengers. This is scrubbed with hot water and soap and then scalded with live steam. The procedures described seem to be fairly effective methods of cleaning, and much in advance of those usually employed. For the proper protection of the public similar methods might properly be demanded everywhere.

Dual Responsibility of Physicians Connected with State Institutions

The supreme court in Vienna has recently decided that medical men connected with the municipal hospitals are liable for damages from malpractice the same as other practitioners elsewhere, as they are personally responsible for their actions in respect to patients. In their capacity of teachers, however, as professors in municipal and state institutions, they are responsible to the state, and they must be regarded as public officials to this extent. The case in which this decision was handed down was the appeal of a former official who had sued Prof. J. Hochenegg and three of his assistants for damages on account of the consequences of an operation on a furuncle. He asked 2,000 (about $400) kronen and the difference between the salary he formerly received and the pension he was now getting. He lost his case at the first trial as Professor Haberda testified that the operation had been done strictly according to approved rules, and the lawyers pleaded that, in any event, the defendants, being physicians in the public hospital, were thus public officials and the case should be non-suited. The supreme court rejects this legal contention and remands the case for a new trial.

Medicolegal

No Damages for Mental Anguish from Physician's Failure to Attend Wife

(Adams vs. Brosius (Ore.), 139, Pac. R. 729)

The Supreme Court of Oregon affirms a judgment for the defendant, who was sued for $50,000 damages for mental anguish asserted to have been suffered by the plaintiff on account of an alleged breach of contract by the defendant to attend the plaintiff's wife after she had met with an accident which produced a miscarriage. The court says that the doctrine that mental suffering accompanying personal injury or physical pain is always the subject of compensation is so firmly implanted in the jurisprudence of the several states of the Union as to become a legal maxim. In most cases, however, the mental anguish should be connected with the bodily injury and be fairly and reasonably the natural consequence that flows from it, and damages for prospective mental anguish are not recoverable as being too speculative. The sympathetic mental sufferings of the plaintiff on account of the suffering and pain of his wife, caused by the defendant's failure to observe his professional contract, were too remote and inconsequential to be actionable. It is the person who suffers the injuries proximately resulting from the wrong done, and such person alone, who is entitled to compensation, except in cases in which death results and the cause of action is made to survive to relatives, or personal representatives by virtue of the statute. Had death not claimed her for its victim, the plaintiff's wife possibly could have maintained an action against the defendant for the mental anguish and physical pain, if any, which she sustained as a result of the broken contract, but for the plaintiff no action was maintainable for purely mental distress.

Eugenics Law Constitutional

(Peterson vs. Widule (Wis.), 147 N. W. R. 966)

The Supreme Court of Wisconsin holds constitutional the eugenics law passed in that state in 1913. The court says, among other things, that the power of the state to control and regulate by reasonable laws the marriage relation, and to prevent the contracting of marriage by persons afflicted with loathsome or hereditary diseases which are liable either to be transmitted to the spouse or inherited by the offspring, or both, must, on principle, be regarded as undeniable. To state this proposition is to establish it. Society has a right to protect itself from extinction and its members from a fate worse than death.

Neither the legislative idea nor the legislative purpose in the passage of the present law can be a matter of serious doubt. The idea plainly was that transmission of the so-called venereal diseases by newly married men to their innocent wives was a tremendous evil, and the purpose just as plainly was to remedy that evil so far as possible by preventing the marriage of men who on examination were found to possess such diseases.

An argument was made that the law is void because the classification is unreasonable, arbitrary and discriminatory, in that it singles out men about to marry and makes a class of them; there being, as it was argued, no substantial differences which suggest the propriety of different legislative treatment between men who are about to marry and women who are about to marry. Theoretically the argument is strong. Women who marry and transmit a loathsome disease to their husbands do just as much harm as men who transmit such a disease to their wives; if women were in fact doing this thing as frequently or anywhere nearly as frequently as men, the argument could hardly be met. The medical evidence in the case, however, corroborates what the court supposes to be common knowledge, namely, that the great majority of women who marry are pure, while a considerable percentage of men have had illicit sexual relations before marriage, and consequently that the number of cases in which newly married men transmit a venereal disease to their wives is vastly greater than the number of cases in which women transmit the disease to their newly married husbands. It follows that legislation directed against males alone for the purpose of preventing the transmission of venereal diseases is clearly within the police power and just as clearly is not discriminatory.

The court deems it clear that the act as passed was intended to cover only acquired venereal diseases as understood in medical science, and that the form of physician's certificate in the act is to be construed as covering only such diseases.

The act requires physical examination and "the application of the recognized clinical and laboratory tests of scientific search." It seems quite impossible to believe that it was seriously expected that the Wassermann test was to be considered a sine qua non. The court prefers to construe the words "recognized tests" as intended to refer to the tests recognized and used by the people who were to make them. This construction sustains the law, makes it reasonable, accomplishes its evident purpose, provides for a guard to marriage fully as effective in the vast majority of cases as the application of the Wassermann test. The court is inclined to the opinion that the fee of $3 provided by the law is a very meager one; it should not, however, feel justified in holding the law unconstitutional on this ground.

Nor has the court been able to appreciate the contention that the law interferes in any respect with religious liberty.

Treatment Must be Tested by Principles and Practice of Particular School

(*State vs. Smith* (*Idaho*), *138 Pac. R. 1107*)

The Supreme Court of Idaho says that it seems to be a sound and reasonable rule and well established by the authorities that the treatment of a physician of one particular school is to be tested by the general principles and practices of his school and not by those of other schools, and that a physician or surgeon is bound to exercise such reasonable care and skill as is possessed and exercised by physicians and surgeons generally in good standing of the same system or school of practice or treatment in the locality and community of his practice, having due regard to the advanced state of the school or science of treatment at the time of such treatment. When a patient selects any one of the many schools of treatment and healing to serve him, he thereby accepts and adopts the kind of treatment common to that school or class, and the care, skill, and diligence with which he is treated, when questioned in a court of justice, should be tested by the evidence of those who are trained or skilled in that school or class.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Electro-Therapeutic Association, Battle Creek, Sept. 15-17.
American Roentgen Ray Society, Cleveland, Sept. 9-12.
Colorado State Medical Society, Boulder, Sept. 8-10.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Michigan State Medical Society, Lansing, Sept. 11-12.
Oregon State Medical Association, Portland, Sept. 10-11.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Washington State Medical Association, North Yakima, Sept. 21-23.

The Sound Man.—Health is civic. Sound men will eliminate poverty and that of itself should make us all sanitarians. Sound men will learn to do without jails, recognizing that so-called criminals are properly speaking candidates either for educational reformatory or for a custodial hospital, and therefore again I turn gladly toward the dawn of the new health.—Edward T. Devine in the *Survey*.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

July, XVI, No. 3, pp. 259-369

1 Development of Mammalian Jugular Lymphsac, of Tributary Primitive Ulnar Lymphatic and of Thoracic Ducts and Hemal Vascular. G. S. Huntington, New York.
2 Skull of Human Fetus of Forty MM. C. C. Macklin, Toronto.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

July, II, No. 1, pp. 1-98

3 Late Outbreak of Plague in Havana. A. Agramonte, Havana, Cuba.
4 Opportunities and Needs of American Student and Investigator in Tropical Medicine. R. P. Strong, Boston.
5 Influence of Tropical Residence on Blood. W. P. Chamberlain, U. S. Army.
6 Trachoma. M. V. Safford, Boston.
7 Treatment of Trachoma by Grattage. L. Schwartz, Cebu, P. I.

Archives of Internal Medicine, Chicago

July, XIV, No. 1, pp. 1-142

8 *An Acid-Fast Streptothrix (Nocardia). D. J. Davis, Chicago.
9 *Blood in Inanition. J. E. Ash, Boston.
10 *Pathologic Physiology of Circulation During Hemorrhage. C. J. Wiggers, New York.
11 *Blood-Pressure in Pneumonia. L. H. Newburgh and G. R. Minot, Boston.
12 *Pneumococcus Infection and Lobar Pneumonia. R. Cole, New York.
13 *Color-Index of Red Blood-Corpuscles. E. Meyer, Strassburg and E. E. Butterfield, New York.
14 *Human Streptotrichosis and Its Differentiation from Tuberculosis. E. J. Claypole, Berkeley, Cal.
15 *Preliminary Report on Production, Action and Therapeutic Effects of Leukocytic Extracts. R. A. Archibald and G. Moore, Oakland, Cal.
16 *Comparison of Bang's Micromethod for Determining Blood Sugar with Bertrand's Method. R. Fitz, Boston.

8. **Acid-Fast Streptothrix.**—There is a fairly well-defined group of infections, the great majority of which are pulmonary, caused by weakly acid-fast branching mycelial growths (nocardia) which do not form ray-like granules. These cases clinically are not ordinarily distinguished from pulmonary tuberculosis. A case is cited by Davis in which the pulmonary lesions were very probably caused by such an organism. For the treatment of such cases, he says, potassium iodid should be given in large doses.

9. **Blood in Inanition.**—Ash found that the effects of starvation on the blood are: 1. There is a slight actual loss in hemoglobin, more marked during second ten days. 2. There are moderate fluctuations in water content, particularly during first half of period. 3. There is a decided rise in polymorphoneutrophils in the early days. 4. There is an increase in coagulability, especially after the first two weeks. 5. The blood as a whole is distinctly resistant to the effects of uncomplicated inanition, permitting of entire abstinence from food for long periods of time (at least thirty-one days) without deleterious consequences, as far as the blood is concerned.

10. **Pathologic Physiology of Circulation During Hemorrhage.**—Wiggers states that every hemorrhage, except one coming from a very large vessel, has a natural tendency to be checked long before the loss of blood becomes dangerous. The duration of bleeding depends not so much on the size of the vessels wounded as on the facility with which an efficient clot forms over the opening. When blood is shed, it begins to coagulate on the tissues at a distance from the opening. Having formed a point of adhesion to the tissues, it is added to by accretion until it reaches and covers the wound. The factors which determine the distance of the first clot formation and its development are, therefore, directly concerned with the duration of hemorrhage. Other factors being equal, the pressure at the arterial opening determines the distance that blood will be ejected before the force is sufficiently spent to permit the coagulum to form.

Wiggers has found that the maximal pressure in the systemic as well as in the pulmonary circuit is often entirely determined by the depth of respiration. It is quite possible that a drug which, in a normally breathing animal, increases the cardiac output and causes a rise in the average mean pressure may, nevertheless, by reducing the dyspnea during hemorrhage actually lessen the maximal pressure in the artery. The surface on which blood is shed determines the extent of its spread. Thus, the smooth surface on which the intestinal and uterine vessels rupture compares unfavorably with the reticular lung parenchyma and subcutaneous connective tissue. So, also, the spread may be limited by an ulceration or excavation.

The coagulation time directly influences the course of clot formation. The formation of clots may be retarded or prevented by muscular contractions of organs. The regular cardiac contraction, as a rule, absolutely prevents any clot formation over wounds of the heart and forms the only serious element in such wounds. The rhythmic peristalsis in the stomach and intestines are very unfavorable for clot formation and the induction of these movements in the intact abdomen by injections of epinephrin may possibly be sufficient to counterbalance any such favorable vascular influence. On the other hand, the only hemostatic value of atropin resides in its power to inhibit muscular movements and its use in conjunction with vascular agents such as epinephrin in hemorrhage from muscular organs is physiologically indicated especially, as the increasing percentage of carbon dioxid in the blood itself tends to increase the rhythmic contraction of organs. When hemorrhage terminates favorably by coagulation, the volume of blood returned to the right auricle increases with surprising rapidity. In consequence of the better venous supply and greater output of both ventricles, the pulse-pressure increases, for there is little alteration in the peripheral resistance and the increase in the volume elasticity coefficient remains an almost negligible factor. Both systolic and diastolic pressures thus gradually rise, owing to the augmented cardiac output.

All experimental observations made by the method described by Cope have indicated to Wiggers that vasoconstriction is a gradual process, starting while hemorrhage is still in progress and continuing after its cessation. If coagulation fails to occur, the time soon comes when the reduction in blood-volume exceeds the possibilities of lymph absorption, to such an extent that the mechanical function of the circulation cannot be efficiently carried out. The amplitude of cardiac contraction then decreases, largely because fluid is lacking to feed the pump. The reasons for saline infusion or blood-transfusion is obvious. Epinephrin also favors the rapidity of cardiac contraction in such cases and so improves the arterial pressure. The lack of oxygen in the blood soon changes the previous stimulation of the respiratory center to a depression. Slow and shallow breathing, occasionally marked by a deeper gasp, leads to complete cessation. The "pressor influence" of augmented breathing is removed and the blood-pressure falls rapidly. Asphyxial changes in the circulation terminate the case. The heart-beats are slow but of great amplitude and vigor, thus making a last attempt to elevate the pressure, which is partly successful but soon fails for want of oxygen.

11. **Blood-Pressure in Pneumonia.** — The blood-pressure curve does not suggest to Newburgh and Minot that there is a failure of the vasomotor center in pneumonia, nor are low systolic pressures "invariably of evil omen." The systolic pressure in the fatal cases tends to be higher than it is in the recoveries. Blood-pressure measurements in pneumonia cannot be used as a basis for treatment. Prognostic inferences based on the relation of the level of the systolic pressure curve to the pulse curve (Gibson's rule) are wrong more often than they are right. The rate of the pulse and not the level of the pressure is the chief factor in deciding whether the pressure will fall above or below the pulse. The pulse-pressure data secured by the authors are insufficient in number to justify conclusions.

12. **Pneumococcus Infection and Lobar Pneumonia.**—That the symptoms in pneumonia are probably due to toxic substances derived from the bacterial cells is the belief held by Cole. The outcome is dependent on the virulence of the organisms concerned and on the ability of the body, first to limit the local infection, and second, to prevent the invasion of the blood by the organisms, as on the latter the outcome of the disease mainly depends. Cole also believes that leukocytes probably play a part in the resistance, certainly as regards the local spread and probably also to some extent as regards the general infection. The most important part in prevention of the general infection is probably played by immune substances contained in the serum. Such substances are present in the serum of immunized animals. Pneumococci differ in regard to their immunologic reactions and on these they may be divided into several groups. In order to use immune serum effectively in treatment, as in prevention, Cole states, it is necessary to employ the serum effective against the group of organisms to which the special organism causing the infection belongs. Immune serums effective against two of the most important groups have been produced. This treatment has been carried out in a limited number of patients with promising results. It is probable that the methods of application of such serums will be improved, and it is possible that the method may be combined with other measures directed toward other factors which are important for the outcome. In any case, facts regarding the nature of the disease are being disclosed, and the outlook, at least for lessening the ravages of this dreadful disease, is encouraging.

13. **Color-Index of Red Blood-Corpuscles.**—The high color-index in pernicious anemia Meyer and Butterfield state is due to an increase in the oxyhemoglobin content of the erythrocytes. A quantitative study of the light absorption shows that oxyhemoglobin alone and no other derivative of hemoglobin is present in the blood of cases of pernicious anemia with a high color-index. The color-index of normal human blood varies within the narrow limits of 0.9 to 1.1. The average total hemoglobin concentration of normal defibrinated human blood is in the neighborhood of 16 gm. in 100 c.c. The color of the red blood-corpuscles is best explained by the principle of dichromatism as applied to the absorption spectrum of oxyhemoglobin.

14. **Streptotrichosis and Its Differentiation from Tuberculosis.**—Claypole holds that streptotrichosis is more common than generally supposed and frequently not differentiated from other infections; especially is it confused with tuberculosis. Clinical signs are not characteristic enough to determine the diagnosis accurately, therefore discharges—sputum, pus, etc.—should be carefully examined fresh in as large quantities as possible, and smears stained with carbolfuchsin and Gram stains. The amount of decolorization in the carbolfuchsin preparations should be varied so as to differentiate the less acid-fast types. Streptotrichins (glycerinated bouillon cultures, concentrated), made from the non-acid-fast mycelial and partly acid-fast bacillary organisms, give definite skin reactions on persons with frank infections, but do not show on controls (persons presumably noninfected) including cases of recognized tuberculosis. This either shows the infection to be less general than that due to the tubercle bacillus or else the reaction to be a less long-lasting one. Streptotrichosis and tuberculosis may exist in the same person at the same time, as evidenced by the appearance of both organisms in the sputum and both skin reactions. Gland and bone infections with streptotriches may be demonstrated by skin reactions as well as lung infections. This still further broadens the field for confusion between the tuberculoses and streptotrichoses.

15. **Action and Therapeutic Effects of Leukocytic Extracts.** Leukocytic substances possessing positive therapeutic value were procured by Archibald and Moore from leukocytes obtained directly from the blood of normal animals. These substances may be obtained in quantities which render them not only therapeutically practical but commercially possible,

conditions that can hardly be claimed for leukocytic extracts prepared from inflammatory leukocytes. The parenteral injection of leukocytic substances causes profound changes in the blood, producing a marked leukocytosis and marked changes in the individual leukocytes. As to the significance of these phenomena no opinion can be offered at this time. The authors hold that leukocytic extracts have not sufficient direct bactericidal powers to account for the profound changes produced following their parenteral introduction into an animal suffering from an infectious disease, and the beneficial results obtained are probably due to the fact that the extracts furnish elements which stimulate the fatigued or exhausted leukocytes, enabling them to carry on their function of phagocytosis and produce the changes incidental thereto.

16. **Bang's Micromethod for Determining Blood-Sugar with Bertrand's Method.**—Comparative experiments by Fitz show that the results obtained by the micromethod were not absolutely accurate if the results obtained by the Bertrand method are considered correct. In a series of forty-two determinations by both methods, however, in only two cases was there a difference of more than 0.03 gm. per 100 c.c. of blood. This means that, while the absolute error was large, the relative error was slight. The curve of blood-sugar determinations made from all the examinations was closely parallel. Hence for comparative and repeated studies in blood-sugar estimations the micromethod is admirable. Furthermore, since the amount of blood required to make the test is so small, and the technic so simple, the method affords an excellent clinical means for the estimation of blood-sugar.

Arizona Medical Journal, Phoenix

July, II, No. 6, pp. 5-14

17 Postoperative Treatment of Our Abdominal Cases. A. W. Morton, San Francisco.

Arkansas State Medical Society Journal, Little Rock

July, XI, No. 2, pp. 35-59

18 Evolution of Knowledge Pertaining to Syphilis. A. H. Cook, Hot Springs.
19 Malignant Degeneration of Skin Blemishes. W. R. Bathurst, Little Rock.
20 Syphilis of Kidneys. Report of Cases. E. H. Martin and E. A. Purdum, Hot Springs.
21 Tests of Renal Function. W. H. Deaderick, Hot Springs.

Boston Medical and Surgical Journal

July 30, CLXXI, No. 5, pp. 177-216

22 Cesarean Section. Analysis of Sixty Cases. T. F. Greene, Boston.
23 Fasting Metabolism of Infants. H. Murschhauser, Dusseldorf, Germany.
24 Myatonia Congenita. Report of Case. C. H. Dunn, Boston.
25 Pneumothorax for Hemoptysis. E. von Adelung, Oakland, Cal.

Florida Medical Association Journal, Jacksonville

July, I, No. 1, pp. 1-32

26 Organized Medicine and Legislation. J. H. Pierpont, Pensacola.
27 Karell-Kur. T. Truelsen, Tampa.
28 Diagnosis and Treatment of Venereal Ulcer. W. P. Dey, Jacksonville.
29 Sand-Spur in Larynx—Its Removal, Report of Two Cases. C. D. Christ, Orlando.

Journal of Biological Chemistry, Baltimore

July, XVIII, No. 2, pp. 133-327

30 *Rate of Disappearance of Ammonia from Blood in Normal and in Thyroidectomized Animals. C. Jacobson, Chicago.
31 Basal, Gaseous Metabolism of Normal Men and Women. F. G. Benedict, L. E. Emmes, P. Roth and H. M. Smith, Boston.
32 Purin Enzymes of Orang-Utan (Simia Satyrus) and Chimpanzee (Anthyropo-Pithecus Troglodytes.) H. G. Wells and G. T. Caldwell, Chicago.
33 Soluble Polysaccharides of Lower Fungi. 1. Mycodextran, New Polysaccharide in Penicillium Expansum. A. W. Dox and R. E. Neidig, Iowa.
34 Contribution of Bacteria to Feces after Feeding Diets Free from Indigestible Components. T. B. Osborne and L. B. Mendel, New Haven, Conn.
35 *Preparation of Creatin and Creatinin from Urine. S. R. Benedict, New York.
36 *Estimation of Creatin. S. R. Benedict, New York.
37 Origin of Urinary Creatin. S. R. Benedict and E. Osterberg, New York.
38 Estimation of Phosphorus in Biologic Material. A. E. Taylor and C. W. Miller, Philadelphia.
39 *Synthesis and Rate of Elimination of Hippuric Acid after Benzoate Ingestion in Man. H. B. Lewis, Philadelphia.
40 *Formation of Glucose from Dioxyacetone in Diabetic Organism. A. I. Ringer and E. M. Frankel, Philadelphia.
41 Conjugated Sulphuric Acid from Tendomucoid. P. A. Levene and F. B. La Forge, New York.
42 *Metabolic Relationships of Acetone Substances. W. M. Marriott, St. Louis.
43 Turbidity Methods for Determination of Acetone, Acetoacetic Acid and B-Oxybutyric Acid in Urine. O. Folin and W. Denis, Boston.
44* Quantitative Determination of Albumin in Urine. O. Folin and W. Denis, Boston.
45 Metabolism in Bence-Jones Proteinuria. O. Folin and W. Denis, Boston.
46 Importance of Liver in Urea Formation from Amino-Acids. C. H. Fiske and J. B. Sumner, Boston.
47 *Volumetric Method for Estimation of Total Sulphur in Urine. G. W. Raiziss and H. Dubin, Philadelphia.
48 Vicine. P. A. Levene, New York.
49 *Iodin Content of Tuberculous Tissues. P. A. Lewis and R. B. Krauss, Philadelphia.
50 Case of Pentosuria. P. A. Levene and F. B. La Forge, New York.

30. **Disappearance of Ammonia from Blood.**—Even with the kidneys excluded from the circulation Jacobson found that ammonia injected into the blood is so rapidly removed from it that only a very slight excess is present five minutes after the injection. There is only a very slight difference between the normal and parathyroidectomized animal in the rate of disappearance of the ammonia from the blood.

35. **Preparation of Creatin and Creatinin from Urine.**—An interesting point in connection with the process described by Benedict is that it was originally tried as an expeditious method for the preparation of pure creatin. Instead of yielding creatin, perfectly pure creatinin was obtained. Following is the procedure: The recrystallized creatinin zinc chlorid (which should be finely powdered) is placed in a dry flask and treated with seven times its weight (by volume) of concentrated aqueous ammonia. The mixture is slightly warmed and gently agitated by shaking until a clear solution is obtained, care being taken to drive off no more ammonia during the warming than is necessary to obtain a clear solution. The flask is stoppered, allowed to cool, and then placed in an ice-box for an hour or more. Pure creatinin crystallizes out, and the first product obtained by this process should read 100 per cent. colorimetrically. The yield is from 60 to 80 per cent. of the theoretical. If the product is colored slightly yellow it may be recrystallized either from boiling alcohol, or by dissolving in five times its weight (by volume) of concentrated ammonia (warming enough to effect solution) and letting the solution stand in a cold place for some hours. Recrystallization is usually unnecessary. The product is perfectly pure, and may be used as a standard. Benedict adds that creatin is not converted at all to creatinin by warming with concentrated ammonia. So it would appear that this latter solution is perhaps the only aqueous solution in which either creatin or creatinin may be dissolved without any change from one into the other.

36. **Estimation of Creatin.**—The procedure for the determination of creatin in urine devised by Benedict is as follows: Such a volume of urine as will contain between 7 and 12 mg. of total creatinin is introduced into a small flask or beaker and from 10 to 20 c.c. of normal hydrochloric acid are added, together with a pinch or two of powdered or granulated lead. The mixture is boiled over a free flame as slowly or as rapidly as may be desired until very nearly down to dryness, when the heating should be continued to dryness either on a water bath, or very easily by simply holding the vessel in the hand and heating carefully for a moment or two. The residue should best stand on a water bath for a few minutes until most of the excess of hydrochloric acid gas has been expelled, after which it is dissolved in about 10 c.c. of hot water and the solution rinsed quantitatively through a plug of cotton or glass wool (to remove all metallic lead) into a 500 c.c. volumetric flask. Twenty to 25 c.c. of saturated picric acid are added, and about 7 to 8 c.c. of 10 per cent. sodium hydroxid solution

which contains 5 per cent. of Rochelle salt. The flask is filled to the mark at the end of five minutes and read as usual.

39. **Synthesis of Hippuric Acid.**—Lewis states that in man after the administration of from 6 to 10 gr. of sodium benzoate elimination as hippuric acid takes place very rapidly, 85 to 90 per cent. of the ingested benzoate being excreted in from five to six hours. The rate of elimination of hippuric acid after the administration of sodium benzoate is only slightly less rapid than after the administration of hippuric acid. After benzoate ingestion, the urine collected during the first six months, the period during which the greater part of the hippuric acid is being excreted, has a lower urea plus ammonia content than in a normal control period, indicating that hippuric acid nitrogen is derived at the expense of the nitrogen normally eliminated as urea.

40. **Formation of Glucose from Dioxyacetone.** — Four experiments were performed by Ringer and Frankel in which dioxyacetone was administered subcutaneously to phlorizinized dogs. In every case a rise in the glucose elimination followed. The "extra" glucose in one experiment corresponded to an amount of glucose which would arise if all of the carbon of dioxyacetone were converted into glucose. The effect of dioxyacetone on acidosis is decidedly antiketogenetic in three of the four experiments. Dioxyacetone was found in the urine in unchanged form in only one of the four experiments. In that case the urine reduced Fehling's solution in the cold and reacted positively with the Miller-Taylor reagent. In none of the other experiments did dioxyacetone appear in the urine.

42. **Metabolic Relationships of Acetone Substances.**—The behavior of acetoacetic acid, *l*- and *dl*-oxybutyric acids and butyric acid, in the metabolism was studied by Marriott by means of incubation experiments on hashed organs, and by parenteral introduction into normal and phlorizinized dogs and young pigs. The analytic results obtained from individual organs, the circulating blood, and the urines have led to the following conclusions: 1. Acetoacetic acid can be readily converted into *dl*-oxybutyric acid in the organism, but the reverse change is difficult, and probably not accomplished under normal conditions. 2. The dextro component of *dl*-oxybutyric acid can be utilized even by the diabetic organism, and this is the explanation of the appearance only of *l*-oxybutyric acid in diabetic urines. 3. The normal path of fatty acid catabolism is as follows: Fatty acid—(butyric acid?)—acetoacetic acid—d-oxybutyric acid (readily burned) *l*-oxybutyric acid (difficultly burned).

44. **Estimation of Albumin in Urine.**—The principle of the turbidity method described by Kober for the determination of proteins in milk and in digestion mixtures as used by Folin and Denis for the determination of albumin in the urine is as follows: To about 75 c.c. of water in each of two 100 c.c. volumetric flasks is added 5 c.c. of a 25 per cent. solution of sulphosalicylic acid. A second method, the gravimetric determination of albumin in urine is described as follows: Ten cubic centimeters of urine are pipetted into an ordinary conical centrifuge tube which has been previously weighed. To this urine is then added 1 c.c. of 5 per cent. acetic acid and the tube allowed to stand for fifteen minutes in a beaker of boiling water. At the end of this time the tube is removed from the water bath and centrifuged for a few minutes. The supernatant liquid is then poured off, the precipitate in the tube is stirred up with about 10 c.c. of boiling 0.5 per cent. acetic acid and again centrifuged. The supernatant liquid is then again poured off and the precipitate in the tube again washed, this time with 50 per cent. alcohol. After centrifuging and pouring off the supernatant liquid for a third time the tube is placed for two hours in an air bath at 100 to 110 F., then cooled in a desiccator and weighed.

47. **Volumetric Estimation of Sulphur in Urine.**—This method has for its basis, the estimation of benzidin in the precipitate of benzidin sulphate, rather than the sulphuric acid.

49. **Iodin Content of Tuberculous Tissues.**—Tuberculous tissue derived from animals to which no iodin preparation has been knowingly administered Lewis and Krauss state may contain amounts of iodin very appreciably higher than normal control tissue of the same animal. While it is quite probable that tuberculous tissue in animals treated with iodin products may store up iodin, this has been by no means clearly shown in any experiments so far reported. The highest figures for the tuberculous tissue of untreated animals in their experience may equal the highest figures of those reported by others as evidence for the localization in the tissue of iodin intentionally administered.

Journal of Cutaneous Diseases, New York

July, XXXII, No. 7, pp. 481-544

51 Lichen Planus of Tongue Alone. D. W. Montgomery, San Francisco.
52 Industrial Skin Diseases. H. H. Hazen, Washington, D. C.
53 Cheilitis Exfoliativa. H. K. Gaskill, Philadelphia.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

July, XLI, No. 7, pp. 417-488

54 Paramyoclonus Multiplex, Including Case with Necropsy Showing Lymphocytic Infiltration of Pia. E. M. Williams, Sioux City, Ia.
55 Case of Pure Psychic Epilepsy. E. S. Abbot, Waverly, Mass.
56 Relative Weight of Liver and Brain in Psychoses. A. Myerson, Boston.

Lancet-Clinic, Cincinnati

July 18, CXII, No. 3, pp. 61-88

57 Remarkable Cases of Morphin Habit. E. M. Strasser, Cincinnati.
58 Doctor. H. R. Alburger, Indianapolis.
59 Treatment of Syphilis of Nervous System by Means of Salvarsanized Serum *in Vivo;* Ninety-One Injections in Twenty Cases. R. B. H. Gradwohl, St. Louis.

July 25, No. 4, pp. 89-116

60 Results from Cultivation of Neglected Field. J. H. Radley, New York.
61 Interpretation of Roentgenograms. R. H. Boggs, Pittsburgh.
62 Adenoids. C. C. Jones, Cincinnati.

Medical Record, New York

August, 1, LXXXVI, No. 5, pp. 187-232

63 Serum Treatment of Pneumonia. J. C. Roper, New York.
64 Case of Sigmoid Diverticulitis Simulating Malignancy. R. Abbe, New York.
65 Ulcer of Lesser Curvature. J. R. Verbrycke, Jr., Washington, D. C.
66 Primary Carcinoma of Vagina Treated by Radium and Roentgen Rays. I. Levin, New York.
67 Case of Volvulus of Jejuno-ileum with Anterior Gastro-enterostomy. W. E. Tobie, Portland, Me.
68 Apparatus for Neurovascular Training. Simon Baruch, New York.
69 Conservatism in Treatment of Disease. B. Robinson, New York.
70 Socialization of Medical Training and Practice. I. C. Philbrick, Lincoln, Nebr.
71 Spinal Subluxations; Their Nature and Cause. J. H. Radley, New York.
72 *Organism of Small-Pox, Chicken-Pox, and Vaccinia. H. Greeley, Brooklyn.

72. **Organism of Small-pox, Chicken-pox and Vaccinia.**—Greeley noted that in fluid vaccine virus, by hanging-drop observation, one might frequently see large numbers of motile bodies and that the same, no matter what vaccine virus was used, could be obtained from the vesicles of the inoculated. They stained with Giemsa, Neisser and Unna stains. The organism is evidently a sporothrix. In the form of multiplying spores (thus in vaccine virus and in all papules, vesicles and pustules) it is spherical, its diameter varying in the neighborhood of from 0.3 to 0.6 microns. When actively multiplying all present a nucleus which takes the usual anilin dyes with varying facility. A frequent form is a pneumococcus-like couplet which, when stained by Neisser's method, shows a colorless refractile capsule with slightly pink lining, of figure 8 shape, and, within, a blue-stained nucleus in each section—the two nuclei often connected by a bridge of pink whose intensity varies inversely with the distance between nuclei. When these nuclei are nearest together (cell just dividing) the pink is very intense. In all skin lesions the spores multiply, as stated, developing into branching masses whose units are the same as in the figure 8 shape described. These conglomerations often show,

projecting from the extremity of a branch, highly refractile, non-stain-taking spores, borne on the end of a little stem. Several are sometimes seen at the end of the same branch, and often two connected in dumb-bell form. These spores when detached are actively motile, the stem becoming the single flagellum possessed. Muir's or Van Ermengem's flagellum staining method will demonstrate. Greeley states that these spore bodies are evidently the "*Cytoryctes variolae*" described by Councilman and others. They divide and give rise in skin lesion and in culture to the formations aforementioned.

Under certain cultural conditions (which are being studied and will be reported later) a full mycelial growth develops with hyphae and terminal spores. Greeley suggests that this is probably what occurs on the mucous membranes (nasal for instance) in the beginning of these diseases, and the spores, penetrating into the blood-vessels, are wafted to all parts of the system, landing in the skin capillaries in which conditions of lower temperature and more light, perhaps, favor further proliferation. In this connection we should remember how the eruption favors the face and hands.

The organism is gram positive—nucleus purple, capsule sometimes light pink—and when stained with carbol-fuchsin is slightly resistant to decolorization with dilute acid, nucleus resists 10 per cent. acetic well. Organisms will not produce a macroscopic growth on any known solid media, aerobically or under hydrogen. It readily passes Berkefeld laboratory filter No. 5. Cultivation has been successful enough to permit the second generation derived from a specimen of the market's vaccine virus to give one take out of two human inoculations. An apparently identical organism has been obtained from the vesicles of twenty-five cases of successful vaccination, from a like number of cases of undoubted chicken-pox, and from five cases of recognized and unquestionable small-pox.

New Jersey State Medical Society Journal, Orange

July, XI, No. 7, pp. 325-378

73 Medical Problems. E. Hollingshead, Pemberton.
74 Pathology Underlying Abdominal Symptoms. J. B. Deaver and D. B. Pfeiffer, Philadelphia.
75 Roentgenologic Study of Alimentary Canal. W. H. Axford, Bayonne.
76 Fractures. H. B. Costill, Trenton.

New Mexico Medical Journal, Las Cruces

July, XII, No. 4, pp. 101-127

77 Oil-Ether Colonic Anesthesia. W. W. Spargo, Albuquerque.
78 Treatment of Abortion. W. Howe, E. Las Vegas.
79 Operative Technic. S. D. Swope, Deming.

New York Medical Journal

August 1, C, No. 5, pp. 205-252

80 Typhoid in Early Life. J. P. C. Griffith, Philadelphia.
81 *Cardiac Headache. L. Kolipinski, Washington, D. C.
82 Constitutional States in Relation to Gynecologic Conditions. R. S. Morton, New York.
83 *Four Unusual Obstetric Complications. J. C. Applegate, Philadelphia.
84 Treatment of Scarlet Fever. H. C. Becker, New York.
85 *Eosinophilia in Chorea. S. S. Leopold, Philadelphia.
86 Necessity for Cooperation of Medical Profession in Successful Treatment of Pyorrhea Alveolaris. D. B. Freundlich, New York.
87 New Electric Ophthalmoscope. C. H. May, New York.

81. **Cardiac Headache.**—The prime indication in the treatment of a headache or its analogue, a facial neuralgia from a weak or weakened heart, Kolipinski says, is to strengthen, support, or, if possible, to restore it to normal. This can alone be done where the many acts in life which overtax this heart and weaken it still more, are persistently and intelligently avoided. Where eyestrain is found glasses must be used. If obesity is present the weight must be brought to normal. If tobacco is used it must be given up. This applies in every case of cigarette smoking and to this petty and enfeebling vice when practiced by females. The weakened heart of chronic nicotin poisoning is a counterpart or double of organic myocardial weakness, and it is impossible to separate or distinguish one morbid state from the other until the tobacco poisoning is eliminated.

Rest of the body must be practised as a daily system. One who works must retire at 9 or 10 o'clock and arise at 7. For one incapable of work or who lives retired, the afternoon rest must never be omitted. Afternoon sleep indicates accurately and absolutely a marked degree of exhaustion. Sleep or drowsiness in the afternoon does not occur when the subject possesses more muscle tone and strength, i. e., a stronger heart. Where the afternoon rest is not taken, where the patient is engaged in business or work, the daily hours of lying down should still be as long as possible. Twelve continuous hours of rest are not as helpful as the same number of hours of the afternoon and night. The afternoon rest, which is an adaptation of the tropical siesta, a physiologic habit, is of great benefit in the treatment of all heart diseases not in an acute or grave condition.

Medicinal treatment is essential to cure a chronic headache. There are two remedies of similar action which will accomplish this. Digitalis is the first. It should be given in a single dose, repeated in one or two days, and continued for months and years. The powder of the leaf, its tincture, fluid extract or infusion may be prescribed. Rest and digitalis cure cardiac headache. Even improvement or occasional cure results, but the obstinacy of this afflicting malady is so inveterate that the patient does not receive fair and full attention where they are not combined. Now and again digitalis fails or must be given with sodium iodid to regulate the pulmonic circulation. Where digitalis does not help, the substitute for the time is strophanthus; with arterial sclerosis, aortic valve defects, pulmonary engorgements, strophanthus and sodium iodid. Strophanthus in a few instances replaces digitalis. Sometimes digitalis must be suspended and strophanthus given instead until the heart again becomes susceptible to digitalis. Strophanthus acts best with laxative or purgative drugs. In fact, the strophanthus action, with free movements of the bowels and vomiting, is no disadvantage when it is given for cardiac asthma, lung edema or similar states of other viscera. An efficient remedy for a severe paroxysm of cardiac headache will be found in 2 grains of caffein citrate in a teaspoonful of aromatic elixir every fifteen or thirty minutes till relief is felt.

83. **Obstetric Complications.**—The first report Applegate makes is one cesarean section including hysterectomy, under spinal anesthesia, eighteen hours after complete rupture of the uterus at term. The second report is of a patient with fibromyxomatous degeneration of the chorion associated with an anomalous fetus, partially macerated, with hare lip, cleft palate, ankylosed shoulder and elbow joints, and ascites. The diagnosis of placenta praevia had been made by the family physician, and it proved to be the marginal type. The third case was one of multiple subserous fibroids of the uterus, complicating pregnancy; hysterectomy was performed at the third month of gestation. Under ether inhalation anesthesia, the patient left the hospital in three weeks in good condition. The fourth case was one of placenta praevia centralis at the beginning of the eighth month. Cesarean section was performed under spinal anesthesia.

85. **Eosinophilia in Chorea.**—Leopold studied the blood in twenty cases of chorea. Of the twenty cases a distinct eosinophilia varying from 4 to 16 per cent. was present in ten (50 per cent.). There were nine patients showing recurring attacks of chorea. The number of attacks varied from two to five. Eosinophilia was found in six of the nine patients (66⅔ per cent.). Four of the nine patients showing recurring attacks of chorea had only a sigle recurrence. Of these four cases, eosinophilia (4 per cent.) was present in one. The three remaining cases did not show eosinophilia. In one the diagnosis was very doubtful. The five remaining cases showed from three to five distinct recurrences; eosinophilia ranging from 6 to 16 per cent. was present in every case.

There were eleven cases in which the blood was studied during or after the first attack. Three of these were not considered, because in one the diagnosis was extremely doubtful, and in the other two there was no chorea perceptible at the time the blood examination was made, although the patients had apparently recovered from true chorea. None of the three showed eosinophilia. Of the eight remaining cases studied in the first attack, eosinophilia, ranging from 4 to 6 per cent., was present in four (50 per cent.). In none were the eosinophils higher than 6 per cent., whereas in the recurring cases 13, 15 and 16 per cent. were observed.

New York State Journal of Medicine

July, XIV, No. 7, pp. 339-388

88 Surgical Treatment of Empyema. C. N. Dowd, New York.
89 Antityphoid Vaccination in Childhood. F. F. Russell, U. S. Army.
90 Surgery of Acute Suppurative Spreading Infections of Fingers and Hands. W. B. Brinsmade, Brooklyn.
91 *Causes and Treatment of Eczema in Infancy and Childhood. R. G. Freeman, New York.
92 Puerperal Thrombophlebitis. W. M. Brown, Rochester.
93 Use of Modified Champetier De Ribes Bag in Obstetrics. G. L. Brodhead, New York.
94 *Vaginal Discharge. F. McMorrow, Syracuse.
95 Ectopic Pregnancy. H. P. Jack, Hornell.
96 Syphilis as Complication of Pregnancy. W. T. Getman, Buffalo.
97 Economic Importance of Diseases of Ear in School Children. J. E. Sheppard, Brooklyn.
98 Unification of Child Welfare Forces. S. Block, Brooklyn.
99 Gonorrheal Vaccines. S. M. Strong, Brooklyn.
100 Injury to Shoulder. I. M. Slingerland, Fayetteville.

91. **Eczema in Infancy.**—The eczema of infancy and early childhood which, Freeman states, is occasionally due to external irritation is usually caused by gastro-enteric derangement and must be attacked primarily by correcting that derangement. The food should be cut down to the caloric requirements, the ration should be balanced and digestion aided. Stewed fruits and cream should be prohibited. The parts affected should be kept well covered with non-irritating applications.

94. **Vaginal Discharge.**—In ordinary cases of cervicitis (not of gonorrheal origin), the application of strong solutions of 20 per cent. and 30 per cent. solution of nitrate of silver, tincture of iodin or pyroligneous acid, after first clearing out the mucus from the cervical canal by an alkaline solution, McMorrow says, will sometimes effect a cure, but healing by medicament is rare—only in cases in which the necks of the glands are wide open and an application can get in. In the majority of cases local applications provoke new formations of stratified epithelium, which may cover or bridge over the mouths of the glands, causing a false or pseudo healing. The glands are still active and secreting mucus; generally two weeks later, rupture of the glands takes place and cervical discharge commences.

When an operation is inadvisable, an effective method of treating these bad cervical infections, is by the use of actual cautery, heated to a bright red heat introduced well into the cervical canal, making five or six deep radial strokes at each treatment, not attempting to burn out all the diseased tissue at one sitting; this treatment should be repeated in three weeks and a sterile strip of gauze is left in the vagina to take care of possible hemorrhage. McMorrow employed this plan of cauterization with good results, noticing a marked improvement and lessening of the discharge after each application. These cauterizations do not even call for a local anesthetic except in weak and nervous women, then it is well to inject a few drops of a 4 per cent. solution of cocain into the cervix; the patient is able to leave the office afterward with very little discomfort.

The best method of treating most of these infections in McMorrow's experience consists in dilating the cervix and with a sharp curet, strongly applied to the diseased cervical glands, eradicate them from the dense matrix by which they are surrounded; this method at least lays the mouths of the glands wide open and drains them. This treatment is generally curative and satisfactory. A trachelorrhaphy will often give relief if done thoroughly and enough of cervical tissue cut away, so that these glands are mostly removed at the same time. In extremely obstinate cases a circular amputation of the cervix will effect a permanent cure.

Ophthalmic Record, Chicago

July, XXIII, No. 7, pp. 325-378

101 Conservation of Vision. F. Allport, Chicago.
102 Related Figurative Chiasmal and Mean Cyclopean Images. C. F. Prentice, New York.
103 Lagrange Sclerectomy and Elliot Trephine Operation. J. Meller, Vienna.
104 Treatment of Sympathetic Ophthalmia with Atophan or Novatophan. H. Gifford, Omaha.
105 Conjunctival Hemorrhage in Typhoid. Z. C. Layson, Hinton, W. Va.
106 Practical Value of Routine Bacteriologic Examinations of Conjunctiva. W. H. Snyder, Toledo, O.

South Carolina Medical Association Journal, Seneca

July, X, No. 7, pp. 575-604

107 Injury of Vena Cava During Nephrectomy. L. Guerry, Columbia.
108 Causes and Prevention of Deafness. J. W. Jervey, Greenville.

Texas State Journal of Medicine, Fort Worth

July, X, No. 3, pp. 109-146

109 Medical Life Insurance. J. H. Florence, Houston.
110 *Treatment of Pellagra. I. Dyer, New Orleans.
111 Report of Cases of Pellagra. W. L. Allison, Fort Worth.
112 Intestinal Parasites in Texas, Microscopic Findings in Fifteen Thousand Cases. O. H. Judkins, Austin.
113 Medical and Surgical Fees. W. B. Thorning, Houston.

110. **Treatment of Pellagra.**—The general care of the pellagrin is summarized by Dyer as follows: Insist on cheerful surroundings; have the patient adopt the motto "Look up" and adhere to it. Establish a morale from the beginning by an optimistic view of the prognosis. Warn the patient of a long time treatment, of relapses and of the need of proper care and treatment between the attacks. Keep out of the sunlight. Spend the day between sun up and sun down on the shady side of the house, with the light obscured. Also keep out of the kitchen and away from over-heating occupations. Keep the patients out of bed, so long as this is possible. Do not let them go to bed except to rest, or when the symptoms of the disease compel.

When the acute symptoms are controlled, reduce the quinin hydrobromate to 2 grains three times a day and give general tonics, as the glycerophosphates, lactophosphates, iron and manganese compounds. Arsenic is permissible and serviceable. Dyer usually gives the sodium arsenite with other tonics, as:

	gm. or c.c.		
℞ Liquor sodii arsenitis	.20		gtt. iii
Tinct. nucis vomicae	1		gtt. xv
Tinct. gentianae comp.	1	or	gtt. xv
Tinct. cinchona comp.	1		gtt. xv
Syr. pruni virginianis .... q. s. ad	4		3 i

M. et Sig.: In water after meals.

Blaud's compound pills are also useful. The improvement in appetite, strength and desire to take gentle exercise are signs of improvement. No better criterion, however, can be found than the gradual gain in weight. As the loss in weight is a constant factor in the syndromes of pellagra, so the obverse is more than casual in its importance with relation to a return to normal.

The most important period of treatment in most cases of pellagra is during the usual seasons of attack or in the months of cold weather. Every effort should be made to bring the patient up to normal of resistance. The physician should see the patient often enough to maintain a psychologic relation which will permit control. The dietetic care, the medicinal treatment (tonics, regulations of functions, etc.) should be systematic. The weight should be recorded regularly so as to see what normal may be maintained. As the warm season approaches any loss of balance can be noted and met. Often a change of climate for these patients treated already during the first attack will obviate a recurrence.

Washington Medical Annals

July, XIII, No. 4, pp. 233-277

114 Kangri-Burn Cancer. A. F. A. King, Washington.
115 Three Abdominal Cesarean Sections. W. S. Bowen, Washington.
116 Cysts of Liver. D. S. Lamb, Washington.
117 Foot-Strain: Anatomic Explanation with Suggestions for Treatment. J. Dunlop, Washington.
118 Value of Birth Certificate. L. Eliot, Washington.
119 Dr. J. B. Murfree's Case of Lithopedion. D. S. Lamb, Washington.
120 Malignant Intra-Ocular Tumors. C. R. Dufour, Washington.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

July, VIII, No. 3, pp. 135-194

1 Tuberculosis Movement in Wales. M. Paterson.
2 Roentgenography in a Tuberculosis Dispensary. J. A. P. Cullen.
3 Disinfection of Tubercle-Infected Houses. A. M. Hewat.
4 Tuberculosis in Children. E. Carling.
5 Nursing Organization and Administration for Tuberculous Patients in Country Districts. A. W. F. Sayres.
6 Aims and Methods of Tuberculosis Nurse. M. Rundle.
7 Genius and Tuberculosis. A. C. Jacobson.

British Medical Journal, London

July 18, II, No. 2794, pp. 105-160

8 *Problems in Cardiac Physiology. A. F. S. Kent.
9 *Causation, Prevention, and Cure of Goiter, Endemic and Exophthalmic. R. Farrant.
10 Anoci-Association in Prevention of Shock and Postoperative Discomforts. H. B. Butler and E. W. Sheaf.
11 *Radical Cure of Inguinal Hernia. J. O'Conor.
12 Case of Uremia with an Unusual Degree of Urea Retention. H. B. Day and W. H. Wilson.
13 Latent Dysentery, or Dysentery Carriers in Sarawak, Borneo. W. L. Christie.
14 Three Cases of Infective Arthritis Treated by Specific Methods. D. W. C. Jones.
15 Pneumococcic Arthritis Following Acute Pneumonia. W. S. Richardson.

8. **Problems in Cardiac Physiology.**—It is shown by Kent that there exist in the heart, in the neighborhood of the auriculoventricular groove on the left side of the organ, neuromuscular structures whose constituents are partly nervous and partly muscular, and these have connections with the nervous structures of the groove and with the muscular tissue of auricle and of ventricle. There exists also in the right lateral wall of the heart a mass of hitherto undescribed nodal tissue. In association with this mass there exists at least one muscular path between auricle and ventricle along which impulses can pass, and which is able to keep the chambers in physiologic association even when the auriculoventricular bundle has been cut. Experimental results have been obtained by Kent which completely bear out the anatomic fact of the existence of an additional muscular path between auricle and ventricle.

In the exposed heart of the mammal the bundle has been cut and electrocardiograms have been taken subsequently. These showed that the rhythm between auricle and ventricle persisted. In the beating heart of the mammal a thin knife was passed through the right ventricle, near the groove, and brought out in such a way as to sever completely the auricles from the ventricles with the exception of a strip of tissue at the right side of the heart. Under these conditions it was found that beats arising spontaneously in the right auricle pass through to the ventricle, and evoke ventricular beats, and, after the heart has ceased to beat spontaneously, beats excited artificially in the auricle still pass through to the ventricle and give rise to ventricular beats.

Since under these conditions the only tissue connecting the auricle to the ventricle is the strip at the right side of the heart, and the histologic part of the inquiry has already shown that an anatomic connection exists in this situation, it is impossible to avoid the conclusion that in this right lateral auriculoventricular junction there exists a muscular path capable of transmitting impulses and of coordinating the action of the chambers of the heart. Further, since, as has been shown, the muscular path is completed by the interposition of a mass of nodal tissue, through which the impulses must pass, it is clear that the conditions here are similar to those found in the case of the auriculoventricular bundle, and that the auriculoventricular pause may be explained on similar lines—that is, as being due to the passage of the impulse over tissue modified histologically and physiologically, with a resulting delay in conduction.

9. **Endemic and Exophthalmic Goiter.**—The object of Farrant's paper is to record observations made on eighty-five cases of goiter (exclusive of simple hyperthyroidism) between 1909 and 1914 as to the relationship between toxemias and diseases of the thyroid; to prove that in cases in which the thyroid is diseased the causatory micro-organism or toxemia can be determined; to show that in this way not only can diseases of the thyroid be cured, but also prevented. Endemic goiter, according to Farrant, is caused by the toxins from the atypical forms of *B. coli*. The mutants are usually conveyed by water. They become indigenous in the intestine, and different mutants of *B. coli* are to be found in the feces of cases of endemic goiter. The mutants are but rarely present in the feces of normal individuals or in the feces of individuals goiterous from other causes. It is possible to conceive circumstances which place the *B. coli* under abnormal conditions in the intestine itself, and lead to mutation and the temporary appearance of mutants in the feces of normal individuals. The mutants set up an apyrexial toxemia, which stimulates the thyroid, so leading to a colloid hyperplasia and eventually to enlargement of the gland. The whole process can be imitated in the laboratory, and endemic goiter induced in guinea-pigs by feeding with small doses of the mutants.

The supervention of a fresh toxemia while the gland is in a hyperactive state causes a complete hyperplasia, with absorption of colloid and signs of hyperthyroidism up to a condition of exophthalmic goiter. This is dependent on the intensity and duration of the fresh toxemia. Endemic goiter is preventable by the avoidance of water contamination and by the sterilization of contaminated water. It can be cured by the administration of intestinal antiseptics, the gland returns to normal, providing no degeneration has taken place. The gland as a whole involutes to normal, but the adenomata or cysts are left. A condition similar to endemic goiter can be caused by other toxemias capable of inducing a colloid hyperplasia.

Exophthalmic goiter, Farrant claims, is due to a combination of toxemias of an intensity sufficient to cause a hyperplasia with absorption of the colloid material. One acts during a period sufficient to give rise to a complete hyperplasia associated perhaps with slightly marked signs of hyperthyroidism without necessarily any glandular enlargement. The supervention of another infection stimulates the gland, which usually enlarges, and the signs of hyperthyroidism become very evident; the case develops into one of typical exophthalmic goiter. A nervous shock may lead to the diagnosis by suddenly bringing into evidence the symptoms of hyperthyroidism, especially those connected with the nervous system.

The severity and duration of exophthalmic goiter is dependent on the intensity and duration of the toxemias. If they be of short duration the disease will disappear in a few months. Exophthalmic goiter can be prevented by the detection of the early cases of hyperthyroidism and the consequent removal of the basal toxemia. Exophthalmic goiter can be cured if the causatory agents be removed before degeneration has occurred either in the gland or in those organs that are affected by the hypersecretion.

When degeneration has taken place in the thyroid removal of the toxemias causes involution to take place only in the hypertrophied portion; the adenomata and cysts are left. These require appropriate surgical treatment, as they to a certain extent keep up the symptoms of thyroid excess. Surgical treatment without removal of the cause is followed by recurrence unless so much of the gland substance has been removed that hypersecretion is impossible. Degeneration in the other organs partially recovers after involution of the thyroid; appropriate treatment is necessary for those that remain. Acute cases of exophthalmic goiter may present themselves in which surgical treatment is the only means of saving them, though the risk of death under the anesthetic perhaps precludes operation.

11. **Radical Cure of Inguinal Hernia.**—O'Conor employs a long incision, extending from the level of the pubic spine to a point about one inch below and internal to the anterior superior iliac spine. The superficial epigastric and superior external pubic vessels are seized with forceps, divided between

and ligated, and the aponeurosis of the external oblique thoroughly exposed. The intercolumnar fibers of the external ring are then snipped with scissors and with the handle of the scalpel the aponeurosis is split, parallel to its fibers, to the upper limit of the incision. The divided aponeurotic "leaves" are next seized on each side by pressure forceps, which act as tractors, and considerably facilitate the thorough separation of the former, by blunt dissector, from the underlying structures. Free and isolate the cord, and separate, incise and remove the hernial sac, and suture the opening flush with the peritoneal cavity. This completed, the cord is raised up and placed well out of range of injury behind the two tractor forceps attached to the edge of the internal leaf of the divided aponeurosis. The external leaf is drawn firmly downward and outward until the inner shelf of Poupart's ligament comes well into view.

Taking this exposed shelf as level, a curved hernia needle is passed from without inward right through the reflected aponeurosis—the lower one embracing in transit some fibers of Gimbernat's ligament—passed across the floor of Hesselbach's triangle, and made to emerge through the substance of the conjoint tendon. The needle is now threaded with strong catgut and withdrawn. The unthreaded needle is again similarly introduced about half an inch above the former and a mattress suture completed. Three more similar ones are inserted through the above level and sufficient room is left at the upper angle for the passage of the cord. When these four sutures are tied the inner shelf of Poupart's ligament is firmly approximated to the conjoint tendon. Hesselbach's triangle is completely obliterated. Finally, the two aponeurotic leaves are united by a continuous catgut suture, and in doing this insert the point of the needle deep enough to catch hold of underlying muscle in order that no intermuscular dead space may be left. The cord is left, as in Halsted's operation, superficial to the external oblique.

Journal of Obstetrics and Gynecology of British Empire, London

May, XXV, No. 5, pp. 231-302

16 Investigation of Study of Early Human Ovum. R. W. Johnstone.
17 Treatment of Retrodisplacement of Uterus. R. Worrall.

June, No. 6, pp. 303-366

18 Working of Midwives Act (England, 1902). F. H. Champneys.
19 *Sustentacular Apparatus of Female Genital Canal. V. Bonney.

19. **Displacements of Genital Canal.**—Bonney urges that the terms "prolapse of the uterus" and "falling of the womb" are misnomers and should be replaced by others expressive of the nature of the displacement. The uterus not only takes no part in the production of "prolapse," but actually resists the attempt of the vaginal culdesac to turn inside out. Inversion of the uterus and ectropion of the cervix are the uterine homologues of vaginal inversion and eversion. In the treatment of the displacements of the genital canal the nature of the displacement in each individual case should be determined accurately. The indiscriminate application of a particular method of treatment should be abandoned in favor of measures founded on the nature of the displacement in each case.

The absence in the past of a scientific basis to operative treatment has led to much bad surgery. Thus ventrofixation is still performed by some for vaginal eversion—a perfectly useless proceeding—while cases of pure vaginal inversion are still more often thus treated, although the resistance of the intact broad ligaments often makes it impossible to fix the uterus high enough to exercise efficient traction on the vaginal vault. Combined laxity of the middle and lower supporting groups is frequently dealt with by repairing the pelvic floor alone, with the natural result that the patient presently returns complaining that "womb falls again." Mistakes such as these will not occur when it is generally recognized that in the treatment of the results of sustentacular relaxation accurate knowledge of the fault that lies behind the deformity is the first essential for success.

Lancet, London

July 18, II, No. 4742, pp. 141-206

20 Prognosis. W. H. White.
21 *Incomplete Rotation of Intestinal Loop as Cause of Retrocolic Hernia. A. G. T. Fisher.
22 *Hemorrhagic Typhoid: Report of Three Cases. A. Caddy and B. Molony.
23 Oral Sepsis in Diagnosis and Treatment of Pulmonary Tuberculosis. R. C. Wingfield.
24 Auricular Flutter Followed by Paroxysmal Auricular Fibrillation. E. B. Gunson.
25 Bacillus of Bovine Tuberculosis as Factor in Phlyctenular Affections of Eye. S. Stephenson.
26 *Case of Femoral Hernia Treated by Bone Transplantation. W. H. C. Greene.
27 Intrapharyngeal Administration of Warmed Ether Vapor by Nasal Route. H. M. Page.
28 *Case of Primary Carcinoma of Liver in Child Three Years Old. W. T. Freeman.
29 English Medicine and Surgery in Fourteenth Century. D. Power.

21. **Case of Retrocolic Hernia.**—Fisher's case came to notice in the dissecting-room. The subject was a man, aged 57, whose death was due to senile degeneration of the heart. On opening the abdomen a broad apron-like fold was seen stretching across the greater part of the right side of the abdomen. Further examination showed that the fold of peritoneum was the anterior wall of a hernial sac. On the left side it was attached to the "hepatic" flexure of the colon, asecending colon and cecum. Superiorly it was attached to the lower border of the first part of the duodenum and became adherent to the right edge of the great omentum. On the right side it bulged somewhat and became continuous with the peritoneum over the right kidney and iliac fossa. Anteriorly it presented a free edge which was by no means tense, and it was devoid of any vessel. The lower free edge ran in the interspinous plane and was attached laterally to the peritoneum over the right psoas muscle, and internally to the posterior surface of the appendix and meso-appendix. The anterior wall of the sac occupied the lower half of epigastric region in its right two-thirds, right two-thirds of umbilical region, and the right lumbar and hypochondriac regions, and the upper third of the right iliac and hypogastric regions.

The cecum was rotated and kinked, so that the posterior surface looked directly forward and the anterior surface was in contact with and partly hid from view the ascending colon. The appendix occupied the upper left quadrant of the hypogastric region. The transverse colon consisted of two limbs, a descending and an ascending. The descending ran from the hepatic flexure following the left lateral plane as far as the brim of the pelvis; the ascending limb passing upward and outward in the left iliac and lumbar region to splenic flexures. The kink in the transverse colon lay over the brim of the pelvis and was connected to the anterior surface of the cecum. The great omentum had the usual attachments but was pushed over into the left side of the abdomen and ended in a long pointed process. The liver and stomach were normal in their position.

On opening the sac it was seen to extend upward beneath the right lobe of the liver, and it was seen that the condition was due to a developmental abnormality. On the floor of the sac was the root of the mesentery, attached along an oblique line stretching from the junction of the first and second parts of the duodenum downward and to the left to the termination of the ileum. Its length was about 6 inches. Some five feet of small intestine, presenting a perfectly normal appearance, were also found in the sac. The second part of the duodenum, which was also in the floor of the sac, had a continuation of the mesentery attached to its left side, but was adherent behind to the posterior abdominal wall in a fairly normal way. The third part of the duodenum was freely movable, having a common mesentery with small intestine from which it was indistinguishable. It was not crossed by the superior mesenteric artery, neither was there any trace of a duodenojejunal flexure. The whole length of the small intestine was only 9½ feet.

22. **Hemorrhagic Typhoid.**—In the first of these cases, during the course of the fever, there developed an extensive

purpuric eruption, which was followed by a generalized bleeding from the mucous membranes, viz., the tongue, gums, bladder and intestines. In the second case hematemesis occurred while the fever was at its height. This happened on three occasions, together with bleeding from the bowel. The third case was one of intestinal hemorrhage complicating typhoid and ending in recovery.

26. **Femoral Hernia Treated by Bone Transplantation.**—Greene's patient, a male, aged 57 years, had a double femoral hernia of about fourteen years' duration. That on the right side was very large and caused great inconvenience; that on the left was smaller, but had recurred a year after an operation previously undertaken. The right-sided swelling was reducible, and the whole hand could be introduced into the ring. The sac was exposed by means of a transverse incision, the contents reduced, and the neck ligatured in the ordinary manner. About 2 inches of the eleventh rib were then excised subperiosteally and the bone was split into two pieces through the cancellous tissue. The femoral wound was then widely retracted and the bone grafts were introduced into pockets made in the periosteum at the back of the pubic bone. There was no trouble in fixing them, and Poupart's ligament was then drawn down to the pectineus fascia, leaving a firm bone plate on its abdominal aspect. The left hernia was dealt with by the ordinary method. The wounds healed soundly and the bone transplant can be felt firmly in position. The shadow of the transplanted bone can be seen in the roentgenogram.

28. **Carcinoma of Liver in Child.**—The points of interest in Freeman's case were the primary malignant growth of a carcinomatous nature in a child of only 3 years of age, the absence of all secondary deposits, and until the end was quite near the comparative absence of pain, tenderness, or of decided dyspepsia or anorexia.

Archives Générales de Chirurgie, Paris

June, VIII, No. 6, pp. 641-768

30 *Cancer of the Testicle. J. Sakaguchi. Commenced in No. 5.
31 *Cancer of Large Intestine in the Young. J. Baur and P. Bertein.
32 Intestinal Pneumatosis. (Kystes gazeux de l'intestin.) P. Mauclaire.

30. **Cancer of the Testicle.**—This article is based on study of museum specimens and a few clinical cases—a total of thirty-two cases of cancer of the testicle. In one case the testicle was the seat of both a cancer and a tuberculous process with no direct connection between the lesions. In four cases there was a history of local trauma. As a rule the cancer does not cause pain or enlargement of the testicle and the chance for operating is often lost before the malignant disease is recognized. The ages of the patients ranged from 2 to 60 or more, one man of 26 succumbing to metastases which are common with cancer of the testicle. Most of the patients were between 30 and 50.

31. **Cancer of the Large Intestine in the Young.**—Baur and Bertein have encountered 2 cases in young soldiers and have compiled 19 other cases in persons under 20. Nine were in the cecum or colon but 12 were at the sigmoid flexure. In 2 cases the patients were under 10; in 11, under 20, and in 7, under 25; all were males except 7 and one monster with a congenital cancer in the colon. In all but 2 cases only seven or eight months elapsed between the first signs of trouble and death; in the others, two and four years. Pain is usually the first symptom to attract attention. It may be localized far from the site of the lesion and it may occur in paroxysms. In one case melena was the first sign of trouble, in 3 cases sudden complete ileus and in another ascites. Three of the patients were cured for the time being in the 5 cases in which the growth was resected.

Archives Générales de Médecine, Paris

May, XCIII, No. 5, pp. 389-480

33 Operative Treatment of Deviation of Nasal Septum. (Redressement de la déviation de la cloison des fosses nasales par la résection sous-muqueuse.) M. Ballerin.

Bulletin de l'Académie de Médecine, Paris

June 23, LXXVIII, No. 25, pp. 839-878

34 *Relief from Toxic Action by Prostatectomy. (De l'action trophique ou désintoxicante de la prostatectomie.) Bazy.
35 Deep, Painful Angiomas in the Members. E. Kirmisson.
36 Technic for Radiography of the Cranium. (Nouveau dispositif pour immobiliser la tête. Diagnostic des lésions de la selle turcique, des tumeurs cérébrales et des altérations des os du crâne.) C. Infroit.
37 Cirrhosis of the Liver and Tuberculosis. Legry.

June 30, No. 26, pp. 879-912

38 Mechanism of Tanning under Exposure to the Sun. (Recherche des éléments constitutifs de la pigmentation humaine dans le cours de l'héliothérapie.) Vidal.
39 *Pellagra. L. Sambon.
40 Spontaneous Healing of Bilateral Renal Processes. J. Castaigne.

34. **Toxic Action of Enlarged Prostate.**—Bazy protests against calling the removal of the enlarged prostate a "prostatectomy" as the prostate itself is not removed but only the proliferating glandular tissue, the adenoma, obstructing the passage. The operation should be called rather "prostatic adenectomy." The prostatic tumors seem to have a directly toxic action in addition to the mechanical obstruction. He reports two typical cases in which the general health showed remarkable and permanent improvement after the operation although there had been no retention of urine previously, as the bladder had been constantly drained and sterilized. He has been very successful with his operations on the prostate, and ascribes this to his practice of tamponing the cavity after removal of the exuberant gland tissue, packing the tampon around a large retention catheter. A large tube in the bladder wound permits continuous irrigation with saline, a drop at a time, the fluid escaping through the catheter. The tube is removed the fourth day and the bladder sutured.

39. **Pellagra.**—Sambon traces the history of pellagra from a description of the disease by Pliny down to the present and shows that it prevailed in those early days in Spain, Italy, France, etc., the foci known then being still in the pellagra zones. He quotes Osler's statement in 1906 that pellagra does not exist in the United States and Babcock's discovery of it in 1906; in 1912 it had been encountered in thirty-two states and 30,000 cases had been recorded. The disease was not known in Great Britain until Sambon in 1912 started out to look for it, and in a few weeks found over 20 cases and now knows of 100, showing that it is endemic in England, Scotland, Ireland, Wales and the Shetland Islands. The disease there is typical pellagra, exactly like the pellagra he has studied so closely in Italy and elsewhere. Pellagra, like malaria, has certain defined zones, and they do not include cities. All the evidence is against direct contagion; not an instance is known of transmission of the disease to others. He adds that he took a pellagrin girl from Italy to England five years ago and she has served as cook in his family since, and has been cured for about two years. Persons who go to reside in a pellagra focus inevitably contract the disease and usually in the first year, while others who work in the pellagra zone in the winter but leave it in the spring escape the disease. Another analogy with malaria is that in the pellagra zones the children are affected; infants escape it until they are old enough to be taken into the fields. He has encountered it in a 3-months babe; one family of five all developed pellagra fifteen days after moving into a pellagra focus. He has encountered cases recently in various parts of France. Sambon incriminates two species of gnats as the transmitters of pellagra, the *Simulium* and the *Ceratopogonines.*

Lyon Chirurgical

July, XII, No. 1, pp. 1-100

41 *Colectomy for Cancer: Twelve Cases. C. Viannay.
42 *Exclusion of the Pylorus by Suture for Gastroduodenal Ulcer. P. Frangopoulos.
43 Hernia of the Bladder: Three Cases. (Hernie de la vessie.) A. Gluckstahl.

41. **Colectomy for Cancer.**—Viannay believes that colectomy completed in one stage is the operation of choice for cancer

if the patient's condition permits it. Of course there are cases in which the two-stage operation is to be preferred—if the patient's general condition is very poor or the colon is firmly fixed by adhesions. In all other cases he opens the abdomen, removes the tumor with free excision of surrounding tissues, sutures the bowel at once and closes the abdomen without drainage. He reports in detail twelve cases on which he has operated for cancer of the intestine. In five of them he performed the one-stage operation without a death; in the other seven the two-stage operation was executed, with three deaths.

42. **Exclusion of the Pylorus by Suture.**—Frangopoulos discusses the numerous methods of excluding the pylorus and suggests one of his own by simple suture which he has used successfully in two cases. After the usual aseptic technic he irrigates the stomach with a solution of naphthol in water, makes an opening in the lesser and greater omenta, passes an angiotribe through the opening and crushes the pylorus. He then passes a gauze compress through to the opening, passes his index finger over that back of the pylorus and inserts the sutures with a fine curved needle. The insertion of the sutures takes only two or three minutes. The omentum is then sutured over the pylorus. There was no rise of temperature or other sign of infection in either of his cases. The method has the advantage of extreme simplicity and rapidity of execution.

Lyon Médical

July 12, XLVI, No. 28, pp. 57-96

44 *Bean in Bronchus. (Corps étrangers des bronches.) J. Sallès.

44. **Foreign Bodies in the Bronchi.**—Sallès has found records of 55 cases in which an organic foreign body slipped into the air passages and in 19 cases the foreign body was a bean; in 8 cases a fruit stone; in 10 a pea or coffee bean. The mortality averaged about 50 per cent. and it is probable that an unsuspected foreign body has been the cause of many more fatalities recorded under other headings. In nearly every instance the organic foreign body was "swallowed the wrong way" while the child was laughing hard or coughing, and he insists that parents should be impressively warned of the danger of allowing children to play with dry beans or peas, or laugh when eating them. It is safer to mash beans when served to small children. When the organic foreign body is hard, it should be got out without a moment's delay, but temporizing may be justified with a bean or pea cooked soft as long as there are no signs of bronchitis. Metal foreign bodies are tolerated better than the organic, as a rule, and roentgenoscopy locates them, which is not possible with a bean or similar organic foreign body. Turning the child upside down has little hope of success and he protests vigorously against this dangerous measure unless the foreign body is small, hard and smooth, like a glass bead. With the aid of prompt bronchoscopy the mortality has declined from 50 to 13 per cent. (1909) and Killian reported in 1913 a mortality of only 8.7 per cent.

Presse Médicale, Paris

XXII, Nos. 55-56, pp. 525-544

45 Phenomena of Anaphylaxis as Factor in Asthma. (Asthme: La crise hémoclasique initiale.) F. Widal, Lermoyez, P. Abrami, Brissaud and E. Joltrain.
46 Diagnosis and Treatment of Simple Anemia in Young Children. M. Maillet.
47 Technic for Exteriorization in Colectomy for Cancer. P. Cruet.

Archiv für Kinderheilkunde, Stuttgart

LXIII, Nos. 3-4, pp. 161-320. Last indexed August 1, p. 434

48 *Lactation in Wet-Nurses. C. Brodsky.
49 *Multiple Sclerosis in Boy of 12. C. Stamm.
50 *Acute Nephritis in Infants. F. Frank.

48. **Lactation in Wet-Nurses.**—Brodsky gives in forty-five tables the various details in regard to milk production in seventeen women nursing several babes at once and having the residuum carefully drawn afterward. One of the women, a primipara of 25, did not seem to have enough milk for her own child the first three weeks, but she was given four to nurse and later six, and by the fortieth day she yielded 1,465 c.c. milk and by the seventieth over 4,000 and kept this up for 200 days, once reaching 5,400. By the end of the year she was still giving 2,050 c.c. He thinks her daily average, 3,520 c.c. for 339 days, has established a new record, at least for Switzerland. The yield of milk increases when several babies take the breast and it increases still more when the gland is pumped practically dry afterward.

49. **Multiple Sclerosis in Boy of 12.**—Stamm says that the negative Wassermann, the changes in the fundus, and the improvement under bed rest and eight intragluteal injections of a preparation of thiosinamin all testify that the presumptive diagnosis of multiple sclerosis was correct. None of the symptoms has returned during the eight months to date; speech and gait are normal and the child seems healthy except for a certain sluggishness in the pupil reaction and slightly exaggerated knee and Achilles reflexes.

50. **Acute Nephritis in Infants.**—Frank gives the details of 22 fatal cases and comments on the frequency of the hemorrhagic tendency, which was marked in 9. In 12 cases the trouble seemed to be of blood-borne origin; in 7 it was an ascending pyelonephritis. Some focus of infection elsewhere was evident in every case; several foci in some. In 30 cases of otitis media in infants there was also nephritis in 5; regressive changes in the kidney in 10, and in 4 there were hemorrhages plus inflammation in the bladder. Frank emphasizes the significance of the frequent participation of the urinary passages in gastro-intestinal disease in infants, something of the kind being evident in the great majority of his cases.

Beiträge zur Klinik der Tuberkulose, Würzburg

XXXI, No. 3, pp. 457-648. Last indexed July 25, p. 358

51 Brehmer's Views and Methods of Treating Chronic Pulmonary Tuberculosis in Light of Modern Progress. F. Wehmer and Wolff.
52 Spinach as Both Food and Medicine. (Die Spinate als Arzneinahrungsmittel.) E. R. Kobert.
53 Disappointing Results with Calmette's Tuberculin. F. Köhler.
54 Lizard Tubercle Bacilli in Treatment of Tuberculosis. (Die Blindschleichentuberkulose—Kaltblütertuberkulose—als Heil- und Immunisierungsmittel bei Lungentuberkulose.) Moeller.
55 Ways and Means Now Known to Prevent and Cure Tuberculosis if the World Will Only Apply Them. Blümel.
56 *Technic for Induced Pneumothorax. C. Saugman.
57 Favorable Results with "Old" Tuberculin. (150 Tuberkulinfälle.) Busch.

56. **Induced Pneumothorax.**—Saugman devotes nearly a hundred pages to this practical study of artificial pneumothorax as he has applied it in the course of seven years to more than 200 patients. He gives an illustrated description of the technic and insists on the necessity for keeping the patient in bed until the pneumothorax has been effectually induced, or at least until there is no longer any temperature. Until the lung is adequately compressed by the induced pneumothorax the patient should stay in the sanatorium or hospital; only under exceptional circumstances should the pneumothorax be undertaken in a private residence. The main reason for this is on account of danger from the extra work thrown on the other lung. Saugman says that during the six months' period of "active" pneumothorax treatment the patient should be in a sanatorium equipped for this treatment, and in case of complications a one or two years' stay is advisable. This is his practice at the Vejlifjord Sanatorium in his charge in Denmark. He does not consent to the patient's leaving before this unless he feels quite well, when all the manifestations of the active lung disease have long disappeared and their place been taken by the signs of an extensive pneumothorax—the "clinical cure" of the Italians—and the patient can live under favorable conditions at home, and the injections do not have to be made oftener than three or four weeks.

When all these conditions are realized he consents to the patient leaving and gradually taking up some light occupation. Many of his patients were able to return to their business in six or twelve months and soon felt fully capable.

Of course they lived strictly hygienic lives and under constant medical supervision. The "active" treatment stage once past, all that is necessary afterward is to maintain the pneumothorax. This is the special aim of the International Pneumothorax Association, so that wherever the patient may happen to be at the time he can get his injection by a uniform technic when the gas needs replenishing. Saugman urges practitioners in general to take a course in this technic so that they will be able to make the injection properly when a patient applies to them for the purpose if there is no trained specialist available. Among the points to be borne in mind is that a change from one altitude to another modifies the pressure so that the gas may have to be replenished at once. When it is not replenished at the proper time it may prove impossible to induce an effectual pneumothorax again.

Berliner klinische Wochenschrift

July 13, LI, No. 28, pp. 1301-1348

58 *Atypical Gout. (Atypische Gicht und verwandte Stoffwechselstörungen.) Goldscheider. Concluded in No. 29. (Blutuntersuchungen bei atypischer Gicht.) E. Steinitz.
59 The Thymus and Rachitis. C. Hart.
60 The Wassermann Loses in Specificity as It Becomes More Distinct. (Verschärfung der Wassermann'schen Reaktion.) F. Blumenthal.
61 Improved Technic for Serodiagnosis. (Einige technische Neuerungen in der Dialysiermethode und die Anwendung derselben in der Psychiatrie.) Schroeder.
62 *Direct Roentgenography of Sphenoidal Sinus. (Röntgenbild der Keilbeinhöhle vom Epipharynx aus.) Freystadtl.
63 Primary Syphilitic Lesion from Practice of Holding Pencil between the Lips. O. Heinemann.

58. **Atypical Gout.**—Goldscheider calls gout atypical when there are no attacks of pain but the blood and urate deposits, etc., are fully typical of true gout. In the last two years he has encountered 271 cases of tophi without the gouty attacks. The tophi were in front of the knee in 159, in the shoulder in 122, and in the sacrum or ear in 22 cases each. He mentions only 11 cases of tophi in the fingers. A gritting noise in one or more joints was evident in 112 cases, with or without tophi, and in some of the cases tophi developed later in the joints involved. In his experience with true paroxysmal gout this gritting in the joint was evident in 21.9 per cent. of the men and 58.3 per cent. of the women. In the cases free from tophi, it occurred in 5.4 per cent. of the men and 33.3 per cent. of the women. It was most prevalent among those who took least exercise.

62. **Roentgenography of Sphenoidal Sinus from Within.**—Freystadtl introduces directly into the epipharynx the film on a flat flame.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 11, XLIV, No. 28, pp. 865-896

64 *Combination Treatment of Varices of the Legs. H. Matti.
65 Pharmaceutical Advertising Matter on Card-Catalogue System. (Vereinheitlichung der Arzneimittel-Reklame.) M. Roch.

64. **Combination Treatment of Varices.**—Matti resects the varicose veins a little at a time, and induces thrombosis in the stretches between by injecting phenol. By proceeding slowly and gradually in this way, he avoids extensive resection of the saphenous vein. The patches of extremely dilated veins are resected but the rest are spared and they merely shrivel and become plugged by the reaction to the injected phenol. Seven cases are reported in which this comparatively mild but extremely effectual combination treatment was applied.

Deutsche medizinische Wochenschrift, Berlin

July 16, XL, No. 29, pp. 1457-1504

66 *Treatment of Threatening Conditions in Pleurisy. J. Grober.
67 *Symptoms from Impairment of Functioning in Central Nervous System. (Ausfallserscheinungen nach Affektionen des Zentralnervensystems and ihre Rückbildung.) M. Rothmann.
68 Phenomena from Adsorption in the Abderhalden Reaction. A. Peiper.
69 Chemotherapy of Experimental Cancer. F. Pentimalli.
70 Criticism of Phenolphthalin Test for Occult Blood. H. Schirokauer and I. Boas.
71 Relations between Flat-Foot and Tuberculosis of the Foot. Syring.
72 Preparation of Blood Platelets Arrests Hemorrhage. (Fermentative Blutstillung durch Coagulen.) G. Hotz.
73 Emphysema Following Stenosis of the Trachea with Goiter. (Erneute Atemnot nach gelungenen Kropfoperationen.) Dobbertin.
74 Copper and Mercury Lamp in Treatment of Ulcus Rodens; Two Cases. H. Weiss and A. Strauss.
75 Does Semen Containing Spirochetes Infect Mother or Ovum First? (Gibt es eine paterne Vererbung der Syphilis.) F. Lesser.
76 Trademarks and Protected Names for Proprietaries. (Wortzeichenschutz für Arzneimittel.) E. Köbner.

66. **Treatment of Threatening Conditions in Pleurisy.**—Grober says that when conditions demand relief from the effusion at once, we can generally assume that the lung is not adherent to the pleura and can thus venture to use a simple puncture needle instead of a trocar. To regulate the pressure and thus avoid doing harm by abrupt changes of pressure, he runs the needle into a fish bladder, when a suitable apparatus is not at hand. The fish bladder gives to the pressure and does not permit air to be sucked into the needle. The same purpose is accomplished by a tube on the end of the needle, the other end submerged in a vessel with salt solution. By raising and lowering the vessel the pressure in the needle can be regulated and the tube clamped with a clothes-pin.

He advises withdrawal of the effusion even when it is of moderate amount if there is fever, indicating a septic course, or if the effusion is bilateral. When there is fever it seems wise to rinse out the pleural cavity thoroughly with some mild disinfectant even if the effusion is apparently limpid. He declares that every practitioner should familiarize himself with the correct technic for thus flushing the pleural cavity through two minute openings or more extensive openings to clean up an empyema. If the effusion is tinged with blood, too much of the fluid should not be evacuated at a time or the hemorrhage may recur. With cancer, the effusion always rapidly collected again in his cases. Mishaps do not occur so often after puncture now as formerly, as we do not wait until it is the last resource. After each puncture the patient must recline for a time and a camphor injection may be useful. Even with all precautions we are still unable to ward off positively danger of embolism of the pulmonary artery.

Pain is best combated by cupping; the blood thus drawn relieves the congestion and pressure below, but he has never witnessed any benefit from strapping the chest with plaster. An important indirect means of influencing the effusion is to apply all possible measures to aid in the throwing off of fluids; calomel aids usefully in this, both by way of the bowels and the kidneys (0.3 gm. three times a day at most). He has always found that this had a very powerful diuretic action; by the second or third day, up to 8 or 10 liters of urine may be voided. Of course the calomel can not be used in this way unless the kidneys are sound; any tendency to nephritis would be much aggravated by it. Another effectual means of throwing off fluids, he adds, is to chew chewing gum vigorously, spitting out all the saliva, keeping this up all day long. He says of sodium salicylate as a diuretic, that its injurious action on the sound kidneys is only transient and should not deter from its use in appropriate cases.

67. **Retrogression of Symptoms after Removal of Growths Causing Compression in the Central Nervous System.**—Rothmann's extensive report of experiments on animals concludes with a most encouraging view as to the remarkable effects that may be realized by systematic, persevering exercise to restore function. Restitution of functioning is materially promoted and hastened by appropriate exercises. Even dogs paralyzed from removal of the brain, soon learned to follow the moving chair with their hind legs when their front legs were placed on the chair. The phylogenetic older functions were lost last under the affection in the central nervous system, and these were regained first. This point should be borne in mind in starting and carrying on the course of exercises. His research fails to sustain von Monakow's conception of diaschisis.

Medizinische Klinik, Berlin

July 19, X, No. 29, pp. 1213-1254 and Supplement

77 Chronic Catarrhal Gastritis. (Magenkatarrh.) W. Wolff.
78 Unusual Types of Tetany; Two Cases. K. Grahe.
79 Combination Orthopedic Treatment of Curvature of the Spine. (Abbott oder Calot?) E. Mayer.
80 Influencing of the Functioning of the Heart by Various Forms of Baths. Grosch.
81 Honey and Its Adulterants. (Wissenswertes über Honig.) J. Fiehe.
82 Hysteria and Trauma. Placzek. Commenced in No. 28.
83 Present Status of Treatment of Blood-Diseases. II. (Blutkrankheiten.) F. Port.

Mitteilungen a. d. Grenzgeb. der Med. und Chir., Jena

XVIII, No. 1, pp. 1-212. Last indexed June 13, p. 1934

84 "Pulsions Diverticulum" in the Esophagus. S. Maruyama.
85 *Gastric Crises and Vagotomy. A. Exner and E. Schwarzmann.
86 *Tuberculous Stenosis of the Pylorus. W. Pfanner.
87 *Operative Treatment of Exophthalmic Goiter. D. Glaserfeld.
88 *Operative Treatment of Bronchiectasia. A. Wydler.
89 *Gastric Ulcers Remote from the Pylorus. Faulhaber and E. von Redwitz.

85. **Gastric Crises and Vagotomy.**—Exner and Schwarzmann report experiences which show that the vagus forms part of the reflex arcs which are involved in the production of the gastric crises in tabes, and that by severing the vagus nerve the reflex arcs are broken up and hence there can be no more of the gastric crises. They have operated in 14 cases on this assumption and 7 of the patients were freed completely from the gastric crises, 2 others materially improved, and no benefit was apparent in 2. None seemed to be injured by the operation; the crises were not aggravated in any instance. In the others the operation is of quite recent date. Four other surgeons have done vagotomy for gastric crises in a total of 6 cases, curing 3 of the patients; no benefit in 1, and aggravation of the crises in 1. This is a total of 50 per cent. cured; 10 per cent. improved, and 15 per cent. quite recent operations. Resection of the posterior dorsal roots, as applied by Foerster and three others, now has a record of 45 or 48 per cent. cured of 145 patients, with from 11 to 23 per cent. mortality. The vagotomy is comparatively simple; 1 cm. is resected from the vagus on each side. The difference in the outcome may depend on the anatomic conditions encountered; in 9 of their 14 patients the vagus was still a trunk nerve under the diaphragm; in 3 others it branched before piercing the diaphragm, and in one case only some of the branches were accessible. The details and outcome are tabulated for each case.

86. **Tuberculous Stenosis of the Pylorus.**—Pfanner reports a case of this kind in a young man successfully operated on. He had a chronic apical affection and severe stenosis at the pylorus developed suddenly, without premonitory symptoms, suggesting a gastric ulcer. The tuberculous process was in the upper duodenum and involved the pylorus and this entire stretch was resected. The apical process subsided also and the young man seems now, six months later, to be on the road to perfect health.

87. **Operative Treatment of Exophthalmic Goiter.**—Glaserfeld has compiled from the literature 2,032 operations on the thyroid, with a mortality of 5.4 per cent., but the percentage is growing constantly less with better technic and better appreciation of the contra-indications. In 534 cases in which the operation was done for exophthalmic goiter, 349 of the patients regard themselves as cured (65.36 per cent.) and 88 (16.48 per cent.) very much, and 41 considerably improved. The operation was a failure in only 31 and there has been recurrence in 25. In later series the cured and improved reach 73 to 90 per cent. The tachycardia and tremor subsided after the operation in 80 per cent.; the psychoses in nearly all cases; the diarrhea and amenorrhea in all, while the protruding eyeballs subsided into normal place in 53.? per cent. of all the cases. The only means to estimate the actual value of operative treatment, he reiterates, is to have internists and neurologists make systematic after-examinations from a uniform standpoint, such as is outlined in a question-blank which is given in full. He sent it to fifty leading internists and neurologists in Germany and Austria, and fourteen were returned filled out, but evidently there has been no systematic study of the ultimate condition in these operative cases. Glaserfeld was unable to find any evidence that these patients operated on for exophthalmic goiter were rendered any more susceptible to other diseases thereafter.

All agree that operative treatment should not be considered until medical treatment has been given a thorough trial and shown that it is inadequate to cope with the disease. The slightest sign that any one of the symptoms is growing worse during medical treatment may be accepted as a call for an operation even in the mild cases. This requires that Basedow patients must be under constant medical supervision; when this is the case there is little chance that the best time for the operation will pass unobserved.

88. **Operative Treatment of Bronchiectasia.** — Wydler's experience in the case reported shows that it is better to proceed at once to resect the lobe of the lung involved without wasting time on resection of ribs and ligation of the pulmonary branches. Little if any benefit was realized from four operations on the ribs but after resection of the lobe of the lung almost a complete cure followed. The patient was a young man with bilateral congenital bronchiectasia; the sputum was so offensive that he was unable to hold any job. As the bronchiectasia affects the opposite lobe to some extent, the cure was not absolutely complete.

89. **Gastric Ulcer at a Distance from the Pylorus.**—This study of 52 cases treated by gastro-enterostomy or resection shows that the ultimate outcome is far better with radical, circular resection. When there is extreme hyperacidity it might be wiser to remove even more than this of the stomach mucosa; the Billroth II might be better in this case. Mere gastro-enterostomy is liable to be followed by various complications. Danger of malignant degeneration is not so imminent as generally supposed; there have been no signs of cancer in the seventeen cases of "callous" ulcer operated on from two to five and a half years ago. The long duration and the periodicity of the gastric disturbances are special features of these cases of "pylorus-remote" tumors, and roentgenoscopy clinches the diagnosis.

Münchener medizinische Wochenschrift, Berlin

July 14, LXI, No. 28, pp. 1545-1600

90 Connection between Lymphogranulomatosis and Tuberculosis. P. Baumgarten.
91 Filtrable Virus Responsible for Coughs and Colds. W. Kruse.
92 *Parasitic Twin Monster. (Epigastrius parasiticus.) F. Marchand.
93 Pasteur Treatment and Epilepsy. (Einfluss der Schutzimpfungen gegen Lyssa auf den Verlauf der Anfälle bei Epilepsie.) M. Nikitin.
94 Serodiagnosis by Eliminating the Unspecific and Leaving the Specific Protective Ferments. A. v. Domarus and W. Barsieck.
95 Magnesium Treatment of Tetanus. K. Stromeyer.
96 *Excrescences in Gonorrhea. (Gonorrhoische Granulationen.) G. Stümpke.
97 *Diagnosis of Brain Tumors. (Hirntumordiagnosen.) v. Malaisé.
98 *Deforming Arthritis. (Die deformierende Gelenkentzündung im Lichte neuerer Forschungen.) L. v. Stubenrauch. Commenced in 27.

92. **Parasitic Epigastric Monster.**—Marchand gives an illustrated description of a young man who has a twin monstrosity growing from his stomach region. Born in 1884 of Italian parents at Buenos Aires, J. J. Libbera is now a young man of average weight and size, apparently normal except for the headless male twin growing from his stomach region, about the size of a child of 3. The mother bore another pair of united twins among her thirteen children and one uncle was badly deformed.

96. **Excrescences of Gonorrheal Origin.** — Klingmüller describes six cases in which there was proliferation of tissue on the perineum or anus in women with a gonorrheal process in the urethra, cervix or rectum. In one case there were also condylomas. The excrescences were something like a cock's comb and some were painful but none bled. They were excised in most of the cases.

97. **Diagnosis of Brain Tumor.**—A bright, active and ambitious boy of 11 in a few weeks became lazy and slovenly, and began to steal money and bury it. Nine months after this change in character had been noticed, other symptoms of a brain tumor developed and a sarcoma was found in the left

cerebellum. The accompanying hydrocephalus had modified the corpus callosum to such an extent that pronounced left apraxia resulted, diverting attention away from the true seat of the lesion, particularly as the tumor was of such soft tissue that for a long time it caused no symptoms of pressure. In a second case the symptoms pointed unmistakably to a cerebellar tumor. Except for the changes in the gait, they all came on with a stormy onset, with fever, two weeks before the attempt at operative treatment. The sarcoma was not reached and the girl of 15 died the next day.

98. **Deforming Arthritis.**—Stubenrauch emphasizes that the light cast on deforming arthritis by recent research calls for treatment based on static, mechanical and functional principles, as he describes in detail. A history of joint trouble should be borne in mind in selecting a trade or business; in continuing at work, unless the joint can be spared, the process is liable to keep on a progressive course. Early recognition of the joint process is thus indispensable to ward off serious mischief and deformity, and modern methods of diagnosis render this possible, especially when the pain and other subjective and objective findings are correlated with the weight-bearing task and the roentgenograms. Gentle exercise of the joint wards off ankylosis and should be supplemented by every possible measure to stimulate return of normal conditions in the various tissues of the joint. The process with deforming arthritis starts in the joint cartilage, not in the bones, and it is these changes in the cartilage which impair its elasticity and throw the joint out of gear, entailing the deformity. Recent microscopic study by G. Pommer of Innsbruck has confirmed the combination of functional and anatomic factors in the production of deforming arthritis.

Wiener klinische Wochenschrift, Vienna

July 16, XXVII, No. 29, pp. 1053-1092

99 Spirochete Findings in Rabbits. L. Arzt and W. Kerl.
100 Alimentary Galactosuria in Exophthalmic Goiter. P. Szel.
101 Abortive Treatment of Syphilis. J. Saphier.
102 Diagnosis of Postoperative Intestinal Ulcer. (Zur Diagnostik des postoperativen jejunalen und Anastomosenulkus.) T. Barsony.
103 Comparison of Results with Human and Animal Organs in Serodiagnosis. (Vergleiche zwischen den Resultaten des Abderhaldenschen Dialysierverfahrens mit Tier- und Menschenlunge.) O. Melikjanz.

Zentralblatt für Chirurgie, Leipzig

July 18, XLI, No. 29, pp. 1209-1248

104 *Thread and Wire Extension from Skin. (Besondere Formen der Extension.) R. Klapp.
105 Forcible Correction of Club-Foot in Children over Padded Segment of Broom-Stick. (Billiges Hilfsmittel zur Redression kindlicher Klumpfüsse.) A. Nussbaum.

104. **Thread and Wire Extension from Skin.**—Klapp applies extension in severe cases of ischemic paralysis of the arm after fracture by a set of double silk threads each passed through the pulp of a finger and all drawn and tied together a foot beyond the tips of the fingers. A 5-pound weight is then suspended for twelve or fourteen days from the knot thus formed. The skin never tears out, the fracture heals and contracture is warded off in both arm and hand. He often has found this technic extremely useful after operations on the hand and arm. A thread can be passed in the same way through the skin of the heel; he found this of great advantage in a recent case after operating on a babe for congenital deformity of the leg. For adults he prefers a wire passed slanting through the heel on each side, the ends drawn out at the bottom of the heel. He applied this technic in eleven cases during the Balkan campaign and found it as effectual as nail extension. The wire or thread must be drawn through the soft parts exactly in the direction in which traction is to be exerted. Otherwise the pressure from the wire cutting into the tissue will cause necrosis.

Zentralblatt für Gynäkologie, Leipzig

July 18, XXXVIII, No. 29, pp. 1017-1048

106 *Early Sign of Pregnancy. (Ein häufiges Frühzeichen der Schwangerschaft.) A. Labhardt.
107 Abdominal Intraperitoneal Correction of Retroflexion of the Uterus. W. Rindfleisch.

106. **Early Sign of Pregnancy.**—Labhardt says that the dregs-of-wine discoloration of the mucosa of the vagina characteristic of pregnancy can be detected very early in a transverse strip extending to right and left between the mouth of the urethra and the base of the hymen, closer to the latter than to the urethra. This broad strip of livid tint can be detected usually long before the discoloration is evident elsewhere in the vagina. It is a sign of the venous hyperemia set up by the fact of the pregnancy, and is liable to be encountered with a tumor in the vicinity. But as a rule it is a simple and useful early sign of pregnancy. The discoloration occurs usually most pronounced in women who have already borne children.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 83-85, pp. 865-896

108 The Russo and Fuchs-Lontz Methylene Blue Reactions in the Urine Not Specific for Any Disease. (Reazioni urologiche al bleu di metilene: Reazione di Russo; Reazione di Fuchs e Lontz.) U. da Pozzo.
109 *Arrest of Inflammation by Shutting off Sensory Impulses. (Nuovo contributo clinico alla teoria dell'inibizione infiammatoria per parte de sostanze ad azione anestetica narcotica.) T. Silvestri.
110 Nascent Iodin Local Treatment of Uterus. (Airolo ed acqua ossigenata nella medicazione della cavita uterina.) A. Cerioli.

109. **Arrest of Inflammation by Analgesics.**—Silvestri systematically kept four patients with acute cerebrospinal meningitis under the influence of a general anesthetic, hoping thus to allay the local inflammation. The ordinary measures, ice to the head, etc., were applied as usual, but these were supplemented by calcium bromid by the mouth and in enemas, and chloral alternating with morphin. The secret of success is to begin with the analgesics at the very outset of the inflammation and keep it thus under control. He applied the method also in a case of severe polyneuritis with herpes zoster and in several cases of convulsions in young and old. The dosage varied with the case, but he gave the meningitis patients up to 8 or 12 gm. of calcium bromid a day. He found the results very encouraging, confirming the inhibiting action on inflammation of shutting off sensory impulses.

Policlinico, Rome

July 12, XXI, No. 28, pp. 1001-1036

111 *Hemoglobinuria in Hookworm Disease. (Patogenesi dell' anemia da parassiti animali.) L. Manzi.

July, Medical Section, No. 7, pp. 293-340

112 Indol and Its Derivatives. O. Cantelli.
113 Technic for the Wassermann Test. (L'uso del siero attivo nella sierodiagnosi della sifilide col metodo di Wassermann.) M. Mantovani.

111. **Hemoglobinuria with Hookworm Disease.** — Manzi reports the case of a girl of 14 with a puzzling syndrome of pains and other disturbances in the bladder, dark-colored vomit and urine and extreme pallor but no tube casts. She tired easily and became irritable and melancholy. The discovery that a neighbor had recently returned from a long stay in a hookworm country finally gave the clue to the trouble, and under a course of thymol treatment ova were found in the stools and recovery followed. There did not seem to be intestinal hemorrhage from the mechanical action of the helminths; the blood-corpuscles were evidently being destroyed by the toxin. The eosinophilia and leukocytosis were probably part of the defensive reaction. The temperature kept persistently above normal during the hemoglobinuria stage.

Riforma Medica, Naples

July 11, XXX, No. 28, pp. 757-784

114 Nature's Method: Setting Up Compensation (Cardiopatie.) G. Rummo.
115 The Evolution of Psychiatry. E. Rossi.
116 *Changes in the Blood-Serum after Venesection. (Modificazioni della reazione de siero di sangue dopo il salasso.) C. Rolla. Commenced in No. 27.

116. **The Blood-Serum after Venesection.**—Rolla has found that in normal persons and those with diseases which do not alter the composition of the blood, the blood-serum either does not change after venesection or it grows more alkaline. On the other hand, in diabetes, chronic nephritis and liver disease and in nephrectomized animals and those under the

influence of uranium nitrate, the blood-serum veers toward acidity after venesection. He theorizes to explain this and says that his findings suggest the importance of following up the venesection with subcutaneous injection of an alkaline fluid to render neutral the pathologically acid serum.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

LXIII, No. 12, pp. 865-936

117 *Lupus. A. S. Jacobson.
118 Improved Technic for the Differential Leukocyte Count. P. Nieuwenhuijse.
119 Parthogenesis of Human Beings. A. M. Benders.
120 Procreation under Influence of Alcohol. (Eugenese en alkohol.) W. D. van Renesse.
121 Repose Sometimes Aids and Sometimes Hinders Rapid Recovery after an Industrial Accident. D. de Snoo.

No. 13, pp. 937-1024

122 Fibrin as a Factor in the Coagulation of the Blood. E. Hekma.

No. 14, pp. 1025-1116

123 Radiotherapy of Cancer. G. F. Gaarenstroom.
124 Plague in Java. J. G. Sleeswijk, M. J. Planten and J. J. Van Loghem. Commenced in No. 13.
125 Isolation in Contagious Diseases. P. de Vries.

117. **Lupus.**—Jacobson found involvement of the mucous membrane in nose, throat or larynx in 80.8 per cent. of 104 cases of lupus of the face. Treatment of lupus therefore should include the mucosa to be permanently effectual.

St. Petersburger medizinische Zeitschrift

XXXIX, Nos. 12-13, pp. 147-168

126 *Suture of Heart; Two Cases. (Herzchirurgie.) H. Fowelin.
127 Recurring Typhoid. J. Kusick.
128 Tests of Kidney Functioning in Nephritis. M. E. Mirowsky.
129 Pathogenesis and Treatment of Cardiovascular Disease. (Herz- und Gefässkrankheiten.) D. Galli.

126. **Suture of the Heart.**—Fowelin reports operative treatment of a revolver injury of the heart with recovery and of a stab-wound in which he was not able to save the patient. The Obuchow Hospital, he adds, has now a record of 28 cases of suture of the heart, with recovery of 8 of the patients; the hospital in Fowelin's charge has done 4 operations of the kind and saved 2; Hochenegg 5, with 3 saved, and von Eiselsberg 7, with 2 saved. Fowelin did not attempt drainage in one of his cases and he attributes the patient's death nine weeks later to complications which might have been avoided by drainage.

Russky Vrach

XIII, Nos. 13-14, pp. 465-524

130 *Value of Ambard's Formula in Determination of the Renal Function. B. N. Kholzoff.
131 *Postoperative Serous Meningitis. V. M. Minz.
132 *Surgical Treatment of Epilepsy. N. I. Korotneff and V. N. Minz.
133 *Hydrophobia: Two Instructive Cases. V. G. Oushakoff.
134 Prolonged Retention of Placenta after Full Term Extra-Uterine Pregnancy. P. P. Parenago.
135 Experimental Cancer. A. V. Chichkin.

130. **Ambard's Formula in Determination of the Renal Function.**—Kholzoff has been giving a thorough trial to Ambard's formula for estimating the work of the kidneys by the proportion between the urea in the blood and in the urine. This "uremic constant" was described in detail in The Journal, March 7, 1914, page 813. Kholzoff thinks that the total amount of urea and chlorids eliminated by the kidneys during the twenty-four hours is of greater import than the percentage in urine or blood. At the same time he lauds the Ambard index as accurate and reliable, giving a better idea of the renal function than any other method. He says the method is not reliable for determining the function of each kidney separately, because the technic of collecting urine from each kidney is not perfect. Yet it is highly important to collect the whole amount of urine without any losses. Therefore, this method can have only a limited use, as, for instance, for the purpose of determining the function of both kidneys, or when there is but one kidney from congenital deformity or from disease.

131. **Serous Meningitis with Brain Tumors.**—This according to Minz is a frequent occurrence with brain tumors, not only before trephining and removal of the tumor but even after a successful operation. There is liable to be enormous accumulation of the cerebrospinal fluid, especially with tumors of the posterior cranial fossa or corpora quadrigemina. This causes symptoms of meningism or the symptoms of actual meningitis may occasionally become exacerbated (severe headache, vertigo, vomiting, etc.). Minz recommends puncture of the subarachnoid space, which he has successfully performed in a case of a glioma of the corpora quadrigemina, of a tumor of the middle skull cavity, two cases of successfully removed cerebellar cysts, and in one case of psammoma of the occipital lobe of the brain.

132. **Operative Treatment of Epilepsy.**—According to Korotneff and Minz, surgical treatment of so-called genuine epilepsy is not justified or only when the patient demands same. Temporary improvement may be obtained in some cases. True cortical epilepsy, including the traumatic due to some lesion of a perfectly healthy brain, may occasionally yield to an operation, but a success can not be guaranteed in every case. Trephining is alone justified.

133. **Rabies.**—Oushakoff declares on the basis of two cases of hydrophobia that even insignificant skin lesions caused by a rabid animal may cause hydrophobia, and that a dog bite can be held harmless only when the animal has been kept under observation by a veterinary physician during one week, at least, and found healthy. Otherwise the suspected person must be treated in a Pasteur institute. In the presence of symptoms of hydrophobia, accelerated pulse and general excitement, the surrounding persons must be warned in regard to the possibility of infection, and, if necessary all should be given prophylactic Pasteur treatment which proves as a rule very efficient. The young women were not actually bitten in his two cases. Both died of the rabies; it was not recognized at first. He says that pain at the point of infection may be a clue to an early diagnosis.

Hygiea, Stockholm

LXXVI, No. 12, pp. 589-752

136 The Biologic Effect of Exercise in Heart Disease. (Gymnastikens verkningssätt vid hjärtsjukdomar.) E. Zander.
137 *Embolic Aneurysm as Complication of Acute Endocarditis. O. Lindbom.

137. **Aneurysm with Acute Endocarditis.**—Lindbom reports a case each of aneurysm in splenic or in iliac artery as a complication of acute endocarditis. His review of the literature on the latter shows that embolic aneurysms are comparatively common with acute endocarditis. They develop mostly in the arteries of the abdomen or limbs and may rupture. The symptoms of internal hemorrhage then dominate the clinical picture or there may be merely sudden violent pain with a pulsating enlargement of the artery. This was the most frequent type in the 18 cases he has found in the literature. Operative removal of the stretch of the vessel involved has given good results in several cases and should be recommended on account of the dangers from rupture. The tendency to embolism persists however and new aneurysms may be formed. Three clinicians have reported cases in which the aneurysm developed in the coronary arteries.

Ugeskrift for Læger, Copenhagen

July 9, LXXVI, No. 28, pp. 1231-1274

138 *Roentgenotherapy of Uterine Hemorrhages and Fibromas. H. J. Panner and S. Kjaergaard. Concluded in No. 29.

138. **The Roentgen Ray for Uterine Hemorrhage and Fibromas.**—Panner and Kjaergaard review some of the recent literature on this subject and tabulate their own experiences. They indicate that one can rely on curing uterine hemorrhage with the Roentgen rays when the ovaries are responsible for the hemorrhage. The functioning of the ovaries can be checked by the Roentgen exposures and the myomas themselves generally shrink under them too. The treatment in these cases need not be intensive. Of his ten patients with uterine hemorrhage without a tumor, all but one were cured by the exposures and in the eight fibroma cases the tumor subsided materially in all but one. The great drawback of roentgenotherapy is that under it a cancer might be allowed to slip past the operable-curable stage.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 8 Chicago, Illinois August 22, 1914

THE PATHOLOGIC PHYSIOLOGY OF UTERINE BLEEDING *

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The study of uterine bleeding is given a peculiar interest by the fact that the uterus is the only organ in the body from which a periodic hemorrhage occurs as a physiologic phenomenon. The logical point of departure in the investigation of pathologic uterine hemorrhage, therefore, would seem to be a study of the normal type of uterine bleeding, that is, menstruation. Even a superficial familiarity with the enormous literature of the subject, however, will convince one that the problem is rarely approached in this fundamental way. In the study of all the menstrual disorders the tendency has been to lose sight of the fact that there are many links in the menstrual chain, and to emphasize some one factor at the expense of others, which may be equally important. As regards the explanation of uterine bleeding, it is the anatomic point of view which has in recent years received most attention. This is perhaps not surprising when we consider that up to very recent times our knowledge of the menstrual process has been much more highly developed along anatomic than along physiologic lines, and that structural alterations in an organ are far easier to demonstrate than aberrations of function. More and more, however, we are beginning to realize that the uterus is only a keyboard on which many variations are played by a complicated menstrual mechanism whose ramifications extend far beyond the confines of the pelvic cavity. Not only the uterus, but all the other constituent parts of the menstrual apparatus as well are subject to disturbances of one form or another, and hence none of them should be overlooked in the investigation of uterine hemorrhage of obscure causation.

At the outset it may be conceded that in the majority of instances the cause of uterine bleeding is anatomic, in some cases very frankly so. For example, uterine cancer is a perfectly obvious cause of bleeding from the uterus, just as rectal cancer may cause bleeding from the bowel. The same clear relationship is seen in the case of a few other lesions, more especially those of neoplastic type. We may thus distinguish, first of all, a type of uterine hemorrhage clearly due to well-defined and easily demonstrable causes in one part or another of the uterus. There would be hemorrhage from lesions of this type even though there were no such thing as menstruation to cause a periodic flare-up in the pelvis.

A second group of cases may be distinguished in which a lesion of some sort exists either in the uterus or in the adnexa, but in which hemorrhage would probably not occur were it not for the extra congestion which each menstruation brings with it. A tubal inflammatory mass or an ovarian neoplasm might not in itself be capable of producing hemorrhage, but it frequently exaggerates the menstrual hyperemia, and hemorrhage is the result. When metrorrhagia or intermenstrual bleeding occurs, it would seem at first sight to indicate a direct effect of the lesion itself on the pelvic circulation. This, however, does not necessarily follow, for it is possible, as some have contended, that in many of these cases the disturbance of the menstrual mechanism is much more fundamental, involving the function of the ovary itself.

Finally, there is a third group of cases in which uterine hemorrhage occurs in the entire absence of any clearly demonstrable disease in any of the pelvic organs. I use the expression "clearly demonstrable" advisedly, for numerous efforts have been made to explain the bleeding in these cases along anatomic lines. For many years it was the endometrium which constituted the target for the diagnostic acumen of gynecologic pathologists. The work of Hitschmann and Adler,[1] confirmed by many others,[2] has done much to clarify our knowledge of the part played by the endometrium in the menstrual process. Except in certain rather exaggerated conditions, such as polypoid endometritis, it is difficult to fix on the endometrium any great measure of responsibility as a cause of uterine bleeding. Many of the supposed abnormalities of the endometrium are perhaps the results rather than the causes of the menstrual disturbances, for we are apt to forget that the hypertrophic changes of the premenstrual period represent the reaction to periodic hyperemia of a very labile tissue — and a tissue made more labile by constant repetition of the process over many years, or, from an evolutionary point of view, over many ages. Abnormalities of the menstrual phenomenon, either in rhythm or in intensity, may thus be reflected in the endometrium, which plays a purely passive part in the process. Furthermore, since the endometrium is always "on edge," it may undergo hypertrophic changes as a reaction to hyperemia other than that associated with menstruation.

In view of our inability to fix the responsibility for uterine bleeding entirely on the endometrium, it is not surprising that the search for a local cause has gone

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Hitschmann and Adler: Monatsch. f. Geburtsh. u. Gynak., 1908, xxvii, 1.

[2] Gardner, W. S., and Novak, Emil: The Endometrium and Some of Its Variations, The Journal A. M. A., Oct. 9, 1909, p. 1155.

deeper into the uterus. It was Scanzoni, in 1861, who first directed attention to the importance of the mesometrium in this connection. Although receiving little attention for many years, the subject has in recent years been again brought to the forefront by the work of Theilhaber[3] and others. It is not within my province to discuss the various theories which have been put forth—the "insufficientia uteri" of Theilhaber, the "metrorrhagia myopathica" of Anspach, etc. There can be little doubt that the myometrium, like the endometrium, is responsible for a certain number of cases of uterine hemorrhage, but the proportion is probably not so large as to throw any great light on the mechanism of uterine hemorrhage in general.

Even less important, to my mind, is the rôle played by disease of the blood-vessels in the production of bleeding from the uterus. Much importance is attributed to this factor by Pankow,[4] Slocum[5] and others. There are many objections to such a view, especially to the explanation which many offer that the bleeding is the result of an actual rupture of the blood-vessels — an "apoplexia uteri." This is not the place to discuss these objections — some will suggest themselves. No satisfactory proof has been advanced that arteriosclerosis or atheroma of the pelvic blood-vessels exerts more than an occasional influence in producing uterine hemorrhage.

It will thus be seen that the occurrence of uterine bleeding is not necessarily associated with anatomic findings in the uterus, which is the immediate source of the menstrual flow, or in the other pelvic organs which participate to a greater or less extent in the menstrual phenomenon. Shall we, in spite of our failure to find an anatomic explanation in many cases of uterine bleeding, still tell ourselves that it *must* be there? Or shall we make our study more comprehensive, remembering that other factors than the organs themselves are concerned in menstruation, and that abnormal uterine bleeding may perhaps be due to aberrations of these other cogs in the menstrual mechanism?

What are these other links in the menstrual chain? What, first of all, is the fundamental cause of menstruation? We have for many years looked on the ovary as primarily responsible for the occurrence of menstruation. Certainly the complete removal of all ovarian tissue as a rule — some say always — causes cessation of menstruation. There is abundant proof that this function of the ovary is dependent on an internal secretion which it contributes to the bloodstream. On the other hand, many facts are known which indicate how intimately the ovarian hormone is bound up with that of many other glands in the body which produce internal secretions. There are some indeed, who maintain that, important as the ovary is to menstruation, the ovarian hormone is not the ultimate cause of the latter. According to this theory, which is suggested by so good an observer as Halban, the ovary is merely the activator of the real underlying cause, which resides in some other part of the body, most likely in some of the ductless glands. It is no longer a mere theory that the ductless glands form a functional chain throughout the body, and that disturbances of any one of them are apt to exert a far-reaching effect on other members of the group. However indispensable the function of the ovary in menstruation, an important contributory rôle must be assigned to these other organs of internal secretion. There is much evidence of a functional relationship between the ovary and the thyroid, the ovary and the hypophysis, and the ovary and the suprarenals. As regards the other ductless glands, the evidence is not quite so imposing, though many scattered facts point to more or less correlation of function in the case of almost all of them. I shall not here discuss the still disputed question as to which element or elements of the ovary produce the hormone which exerts such a profound influence on menstruation.

How does the ovarian hormone bring about the hyperemia of menstruation? Either it acts directly on the blood-vessel walls or else it produces its effect through the vasomotor nerves. There is some reason for supporting the first of these views, although the second manner of action is more commonly found in the body. Physiologists, I believe, are prone to speak of any relay station in the spinal cord or elswhere as a "center," and from this point of view some have spoken of a so-called menstrual center, usually described as being located in the lumbar portion of the spinal cord. While there seems to be no definite knowledge concerning such a center, there is no question that the vasomotor nerves of the pelvis play an important rôle — whether essential or only supplementary we cannot say — in the production of the hyperemia which is perhaps the most conspicuous feature of menstruation. The vasomotor nerves are offshoots of the sympathetic nervous system, and through the rami communicantes are linked up with the cerebrospinal system and even with the psychic centers in the brain. The significance of these facts I shall elaborate later in my paper.

From this brief summary it may be seen that the factors concerned in menstruation are (1) an underlying cause; (2) a nervous mechanism, essentially vasomotor in nature, and (3) the uterus, and especially the endometrium. The cardinal theme of my paper is that uterine bleeding may be due to disturbance or perversion of any of these factors, and that an intelligent study of a given case must embrace a search, not for anatomic alterations alone, but for deviations from the normal physiology as well. In accordance with the foregoing views of normal menstruation, I suggest that the causes of uterine bleeding may be divided into three groups: (1) the fundamental causes, embracing disturbances of the internal secretions, either of the ovary or of some of the other *Blutdrüsen;* (2) the nervous causes, which exert their effect mainly through the agency of the vasomotor nerves, and (3) the anatomic causes, which have to do with structural alterations in the pelvic organs, pelvic blood-vessels or, for that matter, in the blood itself.

A discussion of the last group is scarcely within the province of my paper. I can only repeat that the cause of uterine bleeding is most frequently to be found in this group, which embraces such common conditions as uterine and ovarian neoplasms, adnexal inflammations, incomplete miscarriage, etc. My discussion will therefore be limited to the fundamental and nervous causes of uterine hemorrhage, both of which are admittedly less frequently observed than the anatomic group.

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[3] Theilhaber: Arch f. Gynäk., 1902, lxvi, 1.

[4] Pankow: Arch. f. Gynäk., 1906, lxxx, No. 2.

[5] Slocum: Surg., Gynec. and Obst., April, 1908.

In the consideration of the fundamental causes of uterine bleeding, we at once find ourselves on very uncertain ground. In the enormous literature concerning the internal secretions, there is much less of fact than of fancy. When the ductless gland faddist, if you choose to call him so, blows his warm breath on the molecule of fact, it is quite apt to be vaporized into the mountain of hypothesis and speculation. And yet from this great nebula of hypothesis new facts are constantly being crystallized.

As already stated, it is with the ovary that we are primarily concerned in the consideration of menstruation and its various disturbances. The study of the ovarian hormone, like that of the other internal secretions, is much easier along negative than along positive lines. To illustrate, by mere extirpation of the ovaries we may show that cessation of menstruation is due to loss of the ovarian hormone. But it is far more difficult to bring about a condition of hyperfunction of the ovaries, nor is it even certain that such a condition of "hyperoophorism," analogous to hyperthyroidism, may be produced. In the case of the thyroid, mere feeding of the gland extract to a normal person suffices to bring about hyperthyroidism. On the other hand, the possibility of producing hyperoophorism by feeding ovarian extract has been questioned. This is perhaps not surprising when we consider how little we know concerning the nature and characteristics of the ovarian hormone or hormones, and how gradual and inconspicuous would probably be the effect of an excess of ovarian secretion, even though we were sure that this could be produced by mere feeding of the extract. A number of cases have been recorded in which hyperoophorism has apparently been brought about by the latter method. A rather striking case in the recent literature is that of Adler.[6] It was that of a girl of 21, who had menstruated normally since the age of 15, but who after a short course of an ovarian extract for the first time in her life menstruated four days before the expected time, the flow being much more profuse and lasting longer. After the cessation of the treatment menstruation resumed its old periodicity, duration and intensity.

Much more interesting, however, is the effort of Adler to determine the existence of hyperoophorism in an indirect manner. His method requires a word of explanation. As with the other viscera, the principal nerve-supply of the uterus is derived from the sympathetic. A very revolutionary change is now in progress as regards our ideas of the physiology of the sympathetic nervous system, or, as it is frequently called, the vegetative system. According to the classical description of Langley, the entire vegetative system may be divided into two portions. First, there is the gangliated cord which stretches along each side of the midline of the body, and which may be called the sympathetic system proper. Secondly, many of the autonomic functions of the body are in part regulated by certain cerebrospinal nerves derived principally from the brain and from the sacral portion of the spinal cord. These nerves constitute what is therefore called the craniosacral autonomic system. From the fact that the vagus nerve is the most prominent constituent, this system is also spoken of as the vagal. Kraus, again, speaks of it as the parasympathetic. The distinction between the two systems can perhaps be best illustrated by the case of the heart. This organ receives its accelerator supply from the sympathetic, its inhibitory supply from the vagus. The former is the whip of the heart, the latter the brake. This antagonism in function is characteristic, being noted in all the other organs, including the uterus. To proceed to the practical application of these facts, it has been found that certain drugs show an elective affinity for one or the other of the two systems. Epinephrin, in accordance with the well-known law of Langley,[7] affects especially the sympathetic, its injection causing precisely the same effect on an organ as does stimulation of its sympathetic nerve-supply. It is therefore spoken of as a sympathicotropic drug. On the other hand, pilocarpin is perhaps the best-known of a group of drugs which exert a special action on the vagal system, and which are therefore spoken of as vagotropic drugs. To carry the point still farther, it has been found that certain endogenous chemical substances of the body, more particularly the various hormones, exhibit a special influence on one or the other of these two systems. There is reason to believe that before very long all the various hormones of the body will be divisible into two groups, one sympathicotropic, the other vagotropic. Much has already been done along this line.

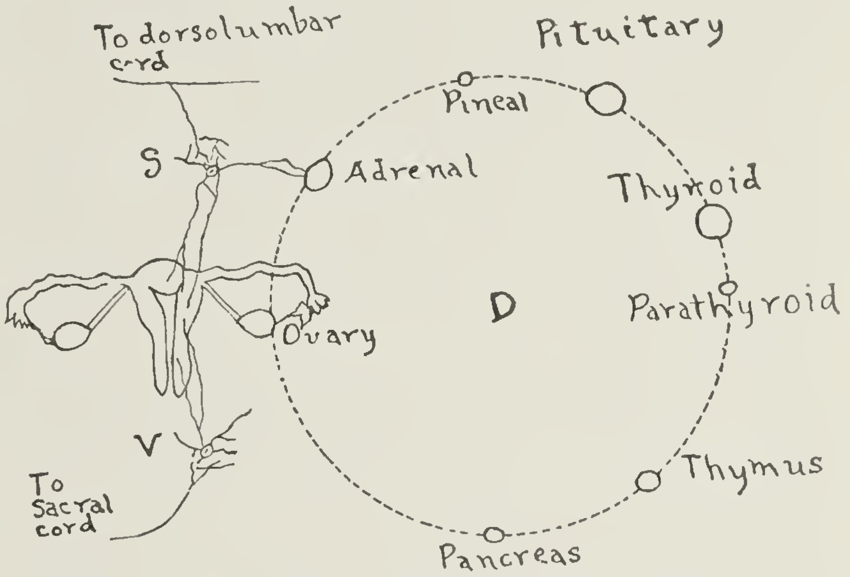

Diagram showing principal physiologic factors concerned in menstruation. *D*, the ductless gland chain, the ovary being the organ most intimately related to menstruation. *S* and *V*, the two physiologic divisions of the vegetative nerve system—the sympathetic proper and the craniosacral autonomic, respectively. Both are traceable to the cerebrospinal system, and the sympathetic is seen to be directly connected with the ductless gland chain, notably at *x*, with the adrenal.

Studies on the ovarian hormone from this point of view are still very meager. The observations of Adler,[6] however, are worthy of mention. After removal of the ovaries, and to a less extent in cases of ovarian insufficiency manifesting themselves by amenorrhea and genital hypoplasia, he finds that there is an increased susceptibility to small doses of the sympathicotropic epinephrin. On the contrary, in the study of a series of cases of uterine bleeding, he observed no reaction whatsoever to epinephrin, while on the other hand there was a marked susceptibility to even very small doses of the vagotropic pilocarpin. This result he regards as justifying the view that these cases of uterine bleeding were due to overfunction of the ovary.

This conclusion, however, is open to serious question, when we consider that many structures other than the ovary contribute to the characteristic reactions. Even so, however, such work as this is of exceeding value. For perhaps the first time, we are now able to attack the hitherto rather intangible problem of the internal secretions by simple clinical methods instead of by complicated laboratory investigation. Just what practical results will accrue from this new line of endeavor remains to be seen. In the light — or shall I say the darkness? — of our present knowledge of the influence of various hormones on menstruation, the present methods of organotherapy in gynecologic disorders are largely empiric. Until we can put our figurative finger on the specific hormone or hormones at fault, there is little hope of a rational therapy of the various menstrual disorders which are now so indiscriminately treated by various organic extracts. Even before the realization of such an ideal, however, we may hope for advance through studies based on the demonstrated relation between the vegetative nerves and the internal secretions of the body, including that of the ovary. If we cannot definitely determine that uterine bleeding in a given case is due to disturbance of some specific hormone, would it not be a real advance, for example, to be able to say that it is characteristically associated with a condition of vagotony? Even therapeutic possibilities suggest themselves from work along this line.

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[6] Adler: Arch. f. Gynäk., 1912, xcv, 349.

[7] Langley: Schaefer's Text-Book of Physiology, ii.

Though as yet on a small scale, I have entered on the study of this fascinating subject, and as far as uterine bleeding is concerned, have had results in part at least similar to those of Adler. The most marked vagotonic reactions which I have noted have been in four cases of hemorrhage in girls at puberty. In all these cases, the injection of from 1/15 to 1/10 grain of the vagotonic pilocarpin gave a most pronounced reaction, characterized especially by profuse perspiration, a feeling of warmth, salivation, contraction of the pupils, etc. On the other hand, the strongest epinephrin reactions have been noted in women at the menopause. The injection of 1 mg. of epinephrin (about 15 minims of the 1 : 1,000 solution) caused pronounced tremor, nervousness, a feeling of cold or chilliness, dilatation of the pupils, rapid heart-beat, and rise of blood-pressure. It must not be supposed, however, that such methods will enable us to work out the problem of uterine bleeding by rule of thumb. Many apparent contradictions have occurred in my own work, some of them difficult or impossible of explanation. For details as to the theory and general method of such study, I would refer those interested to the articles of Adler,[6] Eppinger and Hess,[8] and Barker and Sladen.[9] My own results I hope to record in detail in a later paper.

Another physiologic factor in the causation of uterine hemorrhage which is closely associated with the activity of the glands of internal secretion has reference to the presence of some local factor in the endometrium which is capable of diminishing the coagulability of the blood and thus predisposing to bleeding. Sturmdorf[10] has suggested that the endometrium, under the influence of the ovarian hormone, manufactures a substance which inhibits the normal coagulability of the blood. The experimental work of Schickele[11] and others has led to somewhat similar conclusions. Schickele's results are based on the study of the inhibiting influence of extracts and expressed juices of the uterus and ovaries on the coagulability of the blood. When there was abnormal bleeding from the uterus, he found that the inhibitory powers of the ovarian extracts are greater than those of the uterus; but when profuse menstrual bleeding was present, it was found that the extracts from the uterus exerted a much greater inhibiting effect on coagulation. This would seem to indicate that bleeding is associated with the accumulation of coagulation-inhibiting substances in the endometrium. Without going into greater detail, I need only say that the work of Schickele indicates that the inhibiting substances are formed in the ovaries and given off in the uterus. When uterine bleeding is present, there is an excessive amount of these inhibiting substances in the uterus. Schickele suggests that this is probably due to overactivity of the ovary, so that ultimately this local physiologic factor in the causation of the bleeding is apparently traceable to a fundamental disturbance in the mechanism of the menstrual process. The occasional success of the operation of curettage in the relief of uterine hemorrhage, even when the endometrium is anatomically normal, may perhaps be explained on the basis of this work, the good result being due to the removal of the inhibiting substance rather than of the endometrium.

As to the dependence of uterine bleeding on disturbance of other internal secretions than that of the ovary, I can only mention the possibilities, accurate observations still being very meager. That a functional relationship exists between the generative organs and the thyroid gland is now a well-established fact. The swelling of the thyroid at menstruation and during pregnancy, and the occasional occurrence of even acute hyperthyroidism after removal of the ovaries, are manifestations of this physiologic correlation. While observations are not unanimous on this point, it seems to be true that hyperthyroidism frequently includes among its other symptoms menorrhagia or metrorrhagia, while hypothyroidism, on the other hand, is more commonly associated with the occurrence of amenorrhea or scanty menstruation. These conclusions are based on the study of outspoken cases of deficient or excessive thyroid secretion, as the case may be. When one considers the frequency of minor grades of thyroid disturbance, and how often they are overlooked, it is easy to appreciate that a certain proportion of cases of uterine bleeding may be thyroid in origin.

Concerning the possible influence of other ductless glands, we can say even less of a definite nature. That the pituitary exerts an influence on menstruation is illustrated in the well-recognized adiposogenital dystrophy of Frölich, due to pituitary deficiency and characterized clinically, among other symptoms, by amenorrhea or scanty menstruation. This being true, one is tempted to believe that the opposite condition, menorrhagia, is perhaps sometimes due to hyperpituitarism. Of this, however, there is no direct proof, and as a matter of fact, many cases of hyperpituitarism appear to be associated with amenorrhea. Here again we encounter the possibility that there is more than one hormone concerned, or that the bleeding is due to a perversion of the secretion — a dyspituitarism — rather than to a simple excess or deficiency. In the case of the adrenals, the work of Bulloch and Sequeira, and many others leaves no reason to doubt that these bodies are closely correlated with the generative organs, although there is no evidence as yet that they may be causative factors in uterine bleeding.

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[8] Eppinger and Hess: Die Vagotonie, Samml. klin. Abhandl. über Path. u. Therap. des Stoffwechsels, Berlin, 1910.

[9] Barker and Sladen: Tr. Assn. Am. Phys., 1912, xxvii, 471.

[10] Sturmdorf: New York State Jour. Med., 1911, xi, 460.

[11] Schickele: Arch. f. Gynäk., 1912, xcvii, 409.

We come, finally, to a consideration of the nervous causes of hemorrhage from the uterus. A few years ago it would have been considered only a fanciful hypothesis to attribute to the nervous system a part in the causation of uterine bleeding. When we consider, however, that such a condition as exophthalmic goiter appears often to follow severe nervous shock, and that Crile has demonstrated that the emotion of fright produces definite structural alterations in the brain-cells, we must certainly have greater respect for the nervous system as a disturber, not only of function, but also of structure. There are many functions of the body which are essentially autonomic, but in which a vestige of voluntary control is still evident. In defecation and micturition the control of the will is still an important factor. In the case of such a function as digestion, the voluntary factor is far less important, while in the case of menstruation, to go still farther, the influence of the volitional factor is unrecognizable under normal conditions. And yet even with menstruation the higher centers still retain at least a vestigial degree of control, and under pathologic conditions, this may be greatly exaggerated.

The nervous factor in uterine bleeding has already in a measure been touched on in the discussion of the vegetative nerves as they influence the internal secretion of the ovary. It is scarcely necessary to add that what is true of their influence on the ovarian secretion is equally true as regards their influence on the other internal secretory tissues. No one can as yet say to what extent the influence of these various internal secretions on menstruation is directly chemical, and to what extent it is exerted through the medium of the vasomotor nerves. Like the vasomotor nerves in all other parts of the body, those supplying the generative organs arise ultimately from the cerebrospinal axis, the primary vasomotor center being definitely located in the floor of the fourth ventricle. The center is linked up with the psychic center, thus explaining the occasional occurrence of uterine bleeding as a result of severe emotional disturbance of one form or another. A number of such cases have come under my own observation, of which the following two are typical:

A woman of 42, a multipara, had always menstruated regularly, the flow lasting usually about four days. A menstrual period commenced, Dec. 23, 1913. December 26, as the flow was abating, a Christmas tree in her home took fire, setting the room ablaze. The woman received a severe fright, and within a short while, a profuse hemorrhage set in, lasting for six or eight hours, and then gradually abating.

A girl of 15, who had commenced to menstruate at 13, was brought to the dispensary with profuse uterine bleeding. Her menstruation had never been regular, amenorrhea being frequently noted. There had never previously been any excessive flow. The history given was that an assault on the child had been attempted on the preceding day. On account of the bleeding, it was thought that there might have been some local injury. Examination disproved this, the assault having evidently been unsuccessful. Regular menstruation, lasting three days, had occurred five weeks previously. The hemorrhage in this case was apparently due to the nervous shock associated with the attempted assault.

A number of other cases of this type might be cited. Similar cases are reported by Ehrenfest[12] and others. That hemorrhage may be of neurotic origin has been abundantly shown by Brown-Séquard, von Recklinghausen and others. There is nothing very revolutionary in such an explanation, for many other phenomena might be mentioned which illustrate the influence of the psyche on processes which in themselves are essentially autonomic — the "watering" of the mouth at the sight or smell of food, the acceleration of the heart from fright or joy, the sweating so characteristic of intense anxiety, etc. Even more apropos, since they illustrate the influence of psychic disturbances on the vasomotor apparatus, are such phenomena as the blush of shame or embarrassment, or the bleeding from the stomach or even from the skin which has been observed in highly nervous or hysteric women. From a theoretic point of view as well as from clinical experience, we may therefore conclude that certain cases of uterine bleeding are undoubtedly neurotic in origin, or, more properly, perhaps, "angioneurotic."

The close interlocking of the nervous system and the ductless glands makes it possible that severe psychic disturbances produce menstrual aberrations by a direct effect on the functions of the internal secretory glands. Such a phenomenon would be analogous to the glycosuria which has been shown to occur at times in conditions of severe fright and other emotional disturbance, and which is explained as being due to a nervous excitation of the adrenal bodies. This has been corroborated by the failure of the glycosuria to appear if the nerves supplying the adrenals have previously been cut, thus severing the connection of the latter with the psychic centers. I mention this to emphasize the fact that a direct connection between the psychic centers and the ductless gland chain has been demonstrated experimentally. The nervous factor in uterine hemorrhage, like that of the internal secretions, is most apt to make itself manifest at those periods when the woman's menstrual equilibrium is already unstable, that is, puberty and menopause.

SUMMARY

1. The proper basis for the study of uterine bleeding is the study of normal menstruation, along physiologic as well as anatomic lines.

2. The factors concerned in normal menstruation are (*a*) an ultimate cause, residing in the ductless gland chain; (*b*) a nervous mechanism, essentially vasomotor in character; (*c*) the pelvic organs, and especially the uterus.

3. The causes of uterine bleeding may therefore be grouped as (*a*) fundamental, involving disturbances of the internal secretions; (*b*) nervous, exerting their effect mainly through the vasomotor nerves; (*c*) anatomic, in which structural changes are present in the uterus or other pelvic organs.

4. Most frequently the exciting cause of uterine hemorrhage is anatomic, the lesion being in the uterus, tubes, ovaries, blood-vessels or even the blood itself.

5. In a not inconsiderable number of instances, bleeding is due to fundamental or nervous causes, especially at the two extremes of menstrual life, puberty and the menopause.

6. There is good reason to believe that much light will be thrown on the rôle of the fundamental causes, and perhaps even of the nervous causes, by clinical methods of study which are based on the relation known to exist between the ductless gland apparatus and the vegetative nerve system.

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[12] Ehrenfest: Amer. Jour. Obst., February, 1908.

RADIUM IN THE TREATMENT OF UTERINE HEMORRHAGE AND FIBROID TUMORS *

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The association of several diverse pathologic conditions may occasion surprise. Our excuse for presenting them together in this instance is that they have certain characteristics in common, namely, they are all benign, all chiefly troublesome on account of hemorrhage, and all remarkably united in their ready response to ray-therapy.

Until recently the control of uterine hemorrhage and the relief of symptoms of pressure occasioned by fibroid tumors have been possible with certainty only by radical surgical procedures.

The benign conditions which we wish to consider in this paper fall readily into four groups, excluding uterine hemorrhages due to cancer and other malignant disease, as well as those due to inflammatory disease of the adnexa, and those due to pregnancy and miscarriage.

The first group includes cases in adult women in which there is marked menorrhagia or metrorrhagia with no disease of the pelvic organs, except perhaps a slight enlargement of the body of the uterus. The endometrium taken from such uteri is microscopically normal. These cases belong to the so-called myopathia hemorrhagica class.

The second group takes in most of the hemorrhages which occur in young girls. In many of these the local findings are exactly as in Group 1. In some instances the condition is similar to that found in Group 3 (polypoid endometrium). Although pathologically this group cannot be separated from the others, it presents marked and distinctive features clinically, and in especial it differs radically in the indications for treatment. It is most important with these patients to avoid both sterility and mutilation.

The third group includes patients suffering with uterine hemorrhages who show no pathologic condition except an extensive polypoid overgrowth of the endometrium, which is generally termed polypoid endometritis.

The fourth group includes true uterine myomas, whether they are causing hemorrhage or merely giving discomfort through pressure on adjacent organs. Here the true aim of treatment is not only to regulate or stop the bleeding, but also to bring about the complete disappearance of the tumor.

MODE OF ACTION OF ROENTGEN AND RADIUM RAYS ON UTERINE HEMORRHAGIC CONDITIONS, ESPECIALLY FIBROID TUMORS

It has been firmly established both from animal experimentation and clinical observations on human beings that the Roentgen ray and the penetrating rays from radium are capable of destroying the primordial follicles of the ovary and the spermatogenic cells of the testicle. We have but to mention the names of Albers-Schoenberg, Brown, Osgood, Halberstaetter, Fraenkel, Faber, and many others who have contributed to our accurate knowledge in this direction. As it is the primordial follicles which give rise to the corpora lutea and determine menstruation, these results suggested at once that the penetrating rays might offer a means of causing amenorrhea and sterility. From the older literature it was known that many fibroids ceased to bleed and grew smaller after a double oophorectomy. A case of complete disappearance of a large fibroid tumor after this operation occurred in the service of one of us (H. A. Kelly) at the Johns Hopkins Hospital and is reported.[10] Reasoning on the basis of similar experiences, it was felt that the ray therapy had its primary effect on the ovaries and secondarily controlled the pathologic conditions in the uterus. Most of the technics devised for radiation based on this idea have particularly endeavored to concentrate a maximum amount of rays on the ovaries, leaving the tumor more or less out of consideration.

It has been well established both from Roentgen-ray and radium radiation that an obliterative endo-arteritis occurs almost invariably in the field radiated. We have noticed this condition in a marked degree in a number of cases in which we have operated after extensive radiation with radium. The natural conclusion therefore is that the effect on a fibroid tumor is due to the anemia following the occlusion of its nutrient vessels.

Against the conception that the influence on fibroids is mainly indirectly through the ovaries are the facts that many fibroids grow after the menopause, that some grow after the removal of the ovaries, and that marked regressions occur in tumors treated by the ray method in patients past the menopause. For these reasons we believe that there is a *specific and direct action of the rays on the tumor itself,* and we further believe that this happy result can be secured *quite independently of any action on the ovaries.* In the series of fibroids to be recorded in two cases the tumor disappeared without cessation of menstruation! In another already past the menopause there has been marked regression from a single treatment!

TECHNIC

In the tables we give with each case the amount of radium and the duration of the application. The reader will observe at once a wide variation in the individual cases. While we feel that the results given can all be duplicated by the same technics, we do not consider the matter of dosages in any sense settled. Our plan has been steadily to increase the milligrammage while decreasing the time. This is not only for economy and comfort to the patient but because of the better results and fewer complications occurring. The ideal method, where it is not desired to secure amenorrhea, is to limit the radiation so far as possible to the tumor itself, avoiding touching the ovaries. This is best secured by intra-uterine applications. It is sometimes well to reinforce such treatments by abdominal radiation either with radium or the Roentgen ray.

The technic advised is filtration through glass 0.5 mm. of platinum, 0.5 mm. of zinc foil, and 0.3 mm. of rubber. Such an apparatus, suitable shaped, is carefully introduced directly into the uterine cavity. Cervical applications alone we find to be less reliable, demanding much more radiation to secure results. As a preliminary to the introduction of the radium, the patient is given nitrous oxide and then thoroughly curetted, and examined carefully under complete anes-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* On account of lack of space this paper has been abbreviated for The Journal. It will appear in full in the Transactions of the Section and in the author's reprints.

[10] Kelly and Cullen: Myomata of the Uterus, 1909, p. 505.

TABLE 1.—FIRST GROUP BLEEDING UTERI "MYOPATHICA HEMORRHAGICA"

No.	Name	Age	Date	Duration	Severity	Previous Treatment	Pelvic Examination	Treatment	Immediate Results	Complications	Final Results
289	Case 1 Miss L. H.	44	9/ 3/13	6 months	Marked bleeding; anemic	Medicinal. No benefit.	Normal organs	100 mg. 24 hrs.	Nauseated 3 days; no fever; abdom. tenderness 2 weeks.	None	Slight menstrual period October 3. None since. General health splendid. Slight menopausal symptoms.
291	Case 2 Mrs. R. S.	38	9/11/13	2 years	Rather severe; markedly anemic.	Medicinal only. No benefit.	Normal organs	80 mg. 24 hrs.	24 hrs. nausea; abdom. discomfort 3 weeks. some discharge; leukorrheal.	None	Slight period October, 1913. None since. Splendid health. No menopausal symptoms.
335	Case 3 Miss S. McL.	27	10/22/13	2 years	Very severe; anemic.	Local applications iodin, repeated curettages without result.	Normal organs	100 mg. 9 hrs., 10/23; 60 mg. Ra. 18 hrs., 12/1/13.	Menstruation November and December; slight nausea for 24 hrs.	None since	Complete amenorrhea. No menopausal symptoms; general health splendid.
383	Case 4 Mrs. F. M.	42	11/14/13	1 year	Very severe; anemic.	Medicinal. No benefit.	Slight enlargement of uterus.	60 mg. 10½ hrs.	None	None	Slight bleeding in December. None since. Slight menopausal symptoms.
385	Case 5 Mrs. J. D.	41	11/18/13	4 years	Very severe; marked anemia.	Local applications; general medication; curettement.	Uterus size of 6 weeks' pregnancy.	70 mg. 12 hrs.	Nauseated 1 day; headaches; some abdominal pain 2 weeks.	None	Menstrual period in December. None since. General condition excellent. Uterus reduced to normal size. Marked menopausal symptoms.
348	Case 6 Mrs. J. H. H.	45	12/18/13	1 year	Excessive; anemic.	Medicinal. No benefit.	Normal organs	100 mg. 6 hrs.	No discomforts	None	In January normal period. Since then no bleeding. No menopausal symptoms. Splendid health.
272	Case 7 Mrs. A. B.	28	7/21/13	Several years	Marked upset; marked anemia; general weakness.	Curettements, local applications, general medications; no benefit.	Normal organs	60 mg. 24 hrs.	Nauseated 2 or 3 days; uterine discharge 2 weeks; slight abdominal discomforts 2 weeks.	None	No further menstrual periods. Slight menopausal symptoms. Splendid general health.
786	Case 8 Mrs. C. R. C.	39	4/18/14	4 months	Severe; anemic.	Curettement; medicinal; no benefit.	Normal organs	268 mg. 2 hrs.	None	None	No further menstrual periods to date. Apparently cured. No menopausal symptoms.

TABLE 2.—SECOND GROUP: BLEEDING UTERI IN YOUNG GIRLS

No.	Name	Age	Date	Duration	Severity	Previous Treatment	Pelvic Examination	Treatment	Immediate Results	Complications	Final Results
176	Case 1 Miss F. P.	13	7/ 5/13	1 year with onset of periods.	Irregular, prolonged, severe.	Medicinal	Normal organs; normal endometrium.	20 mg. 5 hrs.	None	None	Normal periods since treatment.
377	Case 2 Miss E. W.	23	11/13/13	Difficulty since onset of periods; very bad 2 yrs.	Moderate; anemic.	Repeated curettages; medicinal; resection of ovaries.	Normal organs; normal endometrium.	12 mg. 7¼ hrs.	None	None	Normal regular periods since treatment.
361	Case 3 Miss E. N.	16	11/ 4/13	2 yrs. since onset.	Quite severe.	Curettages; general medicinal.	Normal organs; normal endometrium.	60 mg. 12 hrs.	None	None	Normal regular periods up to present time.
186	Case 4 Miss A. R.	19	6/ 4/13	1 year	Continuous; not particularly severe; anemic.	Curettement; medicinal.	Normal organs; excessive endometrium; polypoid.	55 mg. 24 hrs.	No menstrual periods for 2 months; some abdominal tenderness.	None	Normal menstruation has returned; patient in splendid condition.
30	Case 5 Miss H. B.	20	2/ 7/13	Several years' irregular bleeding.	Very severe; complicated by organic heart disease.	Curettement; medicinal.	Normal organs; normal endometrium.	400 mg. 7 hrs.; abdominal application.	Nausea; slight rise in temperature.	None	Complete cessation of menstruation; artificial menopause. Some menopausal symptoms.

thesia; this is indispensable to good work. The amounts used intra-uterine in the fibroid cases have varied from 30 mg. to 560 mg. and the time of application from one and one-half hours to forty-eight. In the young girl class the amount of radium introduced has been as small as 12 mg. In speaking of milligrams radium element is meant; whatever the salt and whatever its purity, in all reports the amount in equivalent of radium element pure should be given. In the case of mesothorium, which varies with age, the strength equivalent to radium element at the time of radiation should also always be stated.

In conjunction with Dr. Robert M. Lewis and other workers of the Howard A. Kelly Hospital we have been using radium in the treatment of these bleeding cases for a year and a half and have had in all 39 cases: 8 hemorrhagic metropathies, 5 polypoid endometria, 5 irregular bleedings in young girls, and 21 cases of uterine fibroid tumors. All of these latter have belonged to the class of large or medium tumors, none to the group of small tumors to which the treatment is limited by Chéron.

In the first group, that of bleeding uteri of adult women without any demonstrable pathologic lesion, the eight cases are summarized in Table 1. The average age is 38 years, the youngest 27, the oldest 44. All were suffering from anemia and had not yielded to the palliative measures previously applied. The amounts of radium used varied from 60 to 268 mg., the time of exposure from two to twenty-four hours. In two cases (7 and 8) the bleeding never recurred after the first treatment. In one case (3) a second treatment was necessary. In the remaining 5 cases a normal menstrual period followed at the regular time to be followed by complete amenorrhea. The average time from treatment to complete amenorrhea was 3½ weeks. Mild menopausal symptoms occurred in 3 cases, marked menopausal symptoms in one case, and none in 4 cases. The patients all left the hospital within forty-eight hours and except for a slight abdominal burning which lasted two or three weeks and which was accompanied by some leukorrhea, have had no bad results. All now report themselves in good health.

In the third group, of adult women with uterine hemorrhage and no disease except a polypoid endometrium, there are 5 cases the details of which are given in Table 3. The average age was 43 years; the oldest 49 years, the youngest 35 years. Except in Case 1, in which a combined uterine abdominal and vaginal application was used, only the intra-uterine method was used. The amount of radium employed varied from 100 to 30 mg. The duration of the treatment was from twenty-two to seven hours. With the exception of Case 1, in which bleeding led to hysterectomy five days after application, all were relieved at once by the single application. All these patients were anemic, all had resisted other forms of treatment, all have regained their normal condition since treatment. In 2 cases menopausal symptoms were slight. In 2 cases they were not present. Case 1 is not included as here oophorectomy and hysterectomy was carried out.

In the second group, which includes young girls who were bleeding, there are 5 cases, the tabulation of which is given in Table 2. The ages varied from 13 to 23, the average being 18 years. In addition to the usual medicinal treatments, all but one had had curettages and one had had a resection of the ovaries, with

TABLE 3.—THIRD GROUP: BLEEDING UTERI FROM POLYPOID ENDOMETRIUM

No.	Name	Age	Date	Duration	Severity	Previous Treatment	Pelvic Examination	Treatment	Immediate Results	Complications	Final Results
129	Case 1 Mrs. R. L.	49	2/16/13	3 years	Intermittent; very severe; marked anemia.	Medicinal; local applications; curettage.	Normal organs; excessive endometrium; polypoid.	50 mg. in uterine cavity; 100 mg. in vagina; 100 mg. on abdomen 22 hrs.	Marked nausea and vomiting for 24 hrs.	Continued hemorrhage; hysterectomy on 5th day; abdominal tenderness 3 weeks.	Well-marked menopausal symptoms.
88	Case 2 Miss N. H.	35	5/24/13	1 year	Quite severe; marked anemia.	None	Normal organs; excessive endometrium; polypoid.	30 mg. 18 hrs.	Nausea a day or two; uterine discharge 1 month.	None Abdominal tenderness 2 weeks	No menstruation since treatment; no menopausal symptoms.
245	Case 3 Miss J. W.	47	6/24/13	9 months	Rather severe; marked anemia.	Medicinal only	Normal organs; polypoid endometrium.	70 mg. 16 hrs.	Slight nausea	None Abdominal tenderness several weeks.	No further bleeding; menopausal symptoms mild in 2 months from treatment.
271	Case 4 Mrs. A. H.	40	7/14/13	2 months	Continuous; severe; marked anemia.	None	Normal organs; polypoid endometrium.	50 mg. 24 hrs.	Nausea and vomiting 1 day.	No further menstrual periods; slight menopausal symptoms; abdominal tenderness 1 month	No further menstruation; slight menopausal symptoms.
758	Case 5 Mrs. A. B.	43	3/ 4/14	4 or 5 years	Very severe Marked anemia.	Medicinal; frequent curettages; reduction of uterus by operation.	Small normal uterus; other organs normal; polypoid endometrium.	100 mg. 7 hrs.	Nausea; slight headache	None	Entirely well; no menopausal symptoms.

the idea of diminishing the period. All were in general good condition except for the anemia, with the exception of Case 5, in which there was extreme organic heart disease. The amount of radium used varied from 12 to 60 mg. The time of application ran from five to twenty-four hours. In the first three cases the menstrual periods have returned to the normal type and the patients recovered a normal hemoglobin content.

In Case 4 there was amenorrhea lasting two months, then a return of menstruation, which has been a little irregular at intervals of from three to five weeks but never excessive. In the fifth case, where the application was through the abdominal wall, complete amenorrhea with distinct menopausal symptoms was produced. Where we desire to diminish hemorrhage the treatments are short and the milligrammage small, although it is harder to produce a complete amenorrhea in this group than in women over 40.

In the fourth group, which includes the fibroids, there are 21 cases; the average age is 44; the oldest 59 years; the youngest 32 years; menorrhagia, metrorrhagia or both, were present in 19 cases; in one there was normal menstruation, in one no menstruation, as patient was six years past menopause.

The tumors with one exception (Case 10, Table 4) were either large or middle sized. By large we mean those reaching half way to the umbilicus or larger, while middle-sized tumors include those from the size of a two and a half months' pregnancy half way up to the umbilicus.

In 3 cases the tumor was definitely submucous. With the exceptions of Case 5, in which there was an ovarian cyst, and Case 16, a cystic ovary, and Case 20, chronic pelvic inflammatory disease, and Case 8, marked exophthalmic goiter, and Case 10, infection of the tumor and uterine cavity, the fibroid condition was uncomplicated. The amounts of radium and the duration of the application are shown in Table 4.

In Case 8 the application was atypical, in that radiation had been given with the Roentgen ray both prior to and after the radium radiation. Owing to the extreme illness of this patient the ordinary technic was not followed and the application was made through the abdomen. In Case 21, the only failure in the group, the application was also atypical, from the abdomen and from the cervix. At the time this patient was treated it was not realized that the intracervical treatments require much longer times of exposure. Here, owing to the tortuosity of the cervical canal, the introduction of the tubes into the uterus was difficult. After the failure, however, it was thought better not to radiate further, but to treat surgically.

These patients almost invariably suffer from nausea for twenty-four hours, and from abdominal tenderness for from ten days to three weeks, and some of them have leukorrheal discharge for a few weeks. The symptoms above enumerated have been much less marked when large amounts of radium are used for relatively short times. In only one case, No. 20, has any serious complication followed the treatment. Here an inflammatory process was lighted up and a pelvic abscess formed. It healed, however, without operation, and the patient is perfectly well to-day.

EFFECTS ON HEMORRHAGE

In 16 of the 21 cases, complete amenorrhea has been obtained; immediately after the treatment in 6 cases, at the end of one month in 4 cases, at the end of two months in 4 cases, at the end of several months in one case (3) in which the milligrammage and hours were small. In one case the patient is six years beyond the menopause and there was no bleeding. In one case, No. 21, the treatment failed. In one case, the time since treatment is too short to state the effect. In two cases, and these in our opinion are most important, *the menstrual periods have persisted regularly and the tumors have disappeared.* The details of these two are shown in Table 4, Nos. 4 and 11.

This happy result must be due to the fact that the fibroid has received much more intense radiation than the ovaries, and serves to point the way in which to extend our efforts in this field, that is, *to secure a maximum effect on the tumor with a minimum treatment of the ovaries.* This observation, which reverses the European technic, is possibly applicable to Roentgen ray as well as radium treatments.

The effects on the tumor are as follows:

Case 1, from the size of three months' pregnancy to six weeks' pregnancy.

Case 2, tumor 4 inches in diameter has completely disappeared.

Case 3, tumor 6 inches in diameter has completely disappeared.

Case 4, uterus and tumor size of three month's pregnancy reduced to size of normal uterus.

Case 5, tumor 9 inches in diameter reduced to one 4½ inches in diameter.

Case 6, a huge tumor filling pelvis and lower abdomen has entirely disappeared.

Case 7, uterus and tumor size of a two months' pregnancy reduced to the size of a normal uterus.

Case 8, no report on size of tumor, except that it is markedly smaller.

Case 9, huge tumor filling pelvis and abdomen to umbilicus reduced to the size of a two and one-half months' pregnancy.

Case 10, uterus and tumor the size of three months' pregnancy now a normal uterus.

Case 11, tumor reaching to within 1 cm. of umbilicus reduced to the size of a six weeks' pregnancy.

Case 12, tumor 5 inches in diameter reduced to 2½ inches in diameter. Duration of observation only six weeks.

Case 13, no report obtained.

Case 14, tumor 6 inches in diameter reduced to 1 inch in diameter.

Case 15, tumor size of four months' pregnancy reduced to that of a six weeks' pregnancy.

Case 16, tumor size of four months' pregnancy reduced to one of six weeks' pregnancy.

Case 17, uterus size of three months' pregnancy reduced to a normal uterus.

Case 18, huge tumor filling pelvis and lower abdomen to umbilicus reduced to one-third original size.

Case 19, six years past the menopause, tumor 6 inches in diameter reduced to one 3 inches in diameter, and still decreasing.

Case 20, uterus twice normal size, reduced to normal size.

Case 21, practically no change in size of tumor which is about 4 cm. in diameter.

With intense radiation of the fibroids, the reduction is usually rapid, occurring within two or three months. Where the principal effect has been on the ovary, the disappearance may be much slower extending over months or even years, as in the cases reported by Robert Abbé.[6, 7]

TABLE 4.—FOURTH GROUP: MYOMATA UTERI

No.	Name	Age, Yrs.	Date	Duration	Hemorrhage	Size and Position of Tumor	Condition of Other Pelvic Organs	Treatment	Immediate Results	Complications	Final Results
0	Case 1 Mrs. E. R. W.	45	3/18/13	6 months	Menorrhagia, 10 days; clots profuse; some anemia.	Subperitoneal and interstitial uterus and fibroid size of 3 months' pregnancy.	Normal	30 mg. for 48 hrs.	Nauseated 24 hours. No fever. Abdominal discomfort several weeks.	None	Leukorrheal discharge for 2 months. Moderate period in April and May, none since. Uterus size of 6 weeks' pregnancy. General health splendid. Marked menopausal symptoms.
55	Case 2 Miss E. G. E.	35	3/23/13	1 year	Menorrhagia, excessive, 10 days; moderate anemia.	Interstitial; 4 inches in diameter	Normal	30 mg. 48 hrs. 3/25/13 38 mg. 48 hrs. 5/1/13 55 mg. 24 hrs. 1/1/14	Nauseated headaches and leukorrhea.	None	Good deal of pain and aching in the back and abdomen. Between May and November regular 3-day periods, scant. Excessive in December. Uterus slightly smaller. No period after January. Uterus normal. Feels splendidly.
175	Case 3 Mrs. F. P.	44	5/17/13	1 year	Rather marked; 7 or 8 days; menorrhagia.	Interstitial; indistinguishable from uterus; 6 inches in diameter; one-half way between symphysis and umbilicus.	Normal	80 mg. 24 hrs.	Some nausea and vomiting for 24 hours.	None	Moderate flow in June, 1 day in July. No further bleeding. Mild menopausal symptoms. Uterus normal in size. Most of the decrease before December, 1913.
119	Case 4 Miss K.	46	5/27/13	4 months	Menorrhagia, 10 days.	Just reaching out of the pelvis; interstitial; little larger than a 3 months' pregnancy.	Normal	50 mg. 24 hrs.	No discomfort.	None	Missed June period; moderate menstruation in July. No menstruation between July and November. In November fibroid plainly felt in anterior wall 4 cm. in diameter. From December on regular menstrual periods of 3 days' duration. Fibroid entirely gone.
274	Case 5 Mrs. A. A. W.	51	7/22/13	3 years	Menorrhagia; marked anemia apparent.	Interstitial, subperitoneal, submucous; cross diameter 9 ins.; extends far up in abdomen.	Ovarain cyst of right ovary 18 in. in diameter.	60 mg. 47 hrs.	Nauseated for 48 hours. Abdominal distress for several weeks mild.	None	No further hemorrhage whatever. By October 25 fibroid reduced to one-half original size. Entirely intrapelvic. Ovarian cyst no more than 1½ inch in diameter. Same condition in June, 1914.
281	Case 6 Miss M. B.	33	8/25/13	2 years	Marked menorrhagia.	Interstitial and subperitoneal; fills entire pelvis and extends 4 fingers above umbilicus.	Normal	120 mg. 18 hrs.	Nauseated, vomiting, some temperature for some days.	For nearly 2 mos. marked discharge; some afternoon temperature	Irregular bleeding for 2 months. Then complete cessation. Very mild menopausal symptoms. Splendid general health. Tumor entirely disappeared.
324	Case 7 Miss E. B.	43	10/ 4/13	2 or 3 years	Menorrhagia 10 days; very low hemoglob.; metrorrhagia for 1 month before treatment.	Interstitial and subperitoneal; uterus size of 2 months' pregnancy; one subperitoneal nodule 1 inch in diameter.	Normal	80 mg. 24 hrs.	Nauseated for 24 hours. Some leukorrhea and abdominal tenderness for 4 weeks.	None	One moderate period in December. Complete amenorrhea. Uterus normal in size. Slight menopausal symptoms. General health splendid.
332	Case 8 Mrs. M. M.	40	10/ 7/13	4 years	Menorrhagia and metrorrhagia; hemoglobin 40 per cent.; condition of exophthalmic goiter complicates situation.	Subperitoneal, interstitial, and submucous; immense tumor filling entire pelvis and lower abdomen to level of umbilicus.	Not made out.	Abdo. 734 mg. 6 hrs. 484 mg. 4 hrs.	Thyroidism, nausea and vomiting for a week. Rather high fever.	Thyroidism	Patient had Roentgen-ray treatment by Dr. Stern of New York. Although tumor decreased, bleeding continued in November and December. Further Roentgen-ray treatments were given by Dr. Stern. Amenorrhea reached in January. Since then no bleeding. General health has been excellent. Tumor reported to be much smaller.

TABLE 4.—FOURTH GROUP: MYOMATA UTERI—(*Continued*)

475	Case 9 Miss A. D. S.	48	1/ 4/14	4 years	Marked menorrhagia; metrorrhagia; marked anemia; 30 per cent. hemoglobin; foul discharge; daily fever.	Fills pelvis, lower abdomen to umbilicus.	Not made out	100 mg. 12 hrs. April 25 on abdomen 1,100 mg. 1 hr. 40 min.	Marked nausea; fever for 10 days; purulent discharge from uterus.	None	Since the treatment in January no hemorrhages. On several occasions slight bleeding. *Uterus now size of 2½ months' pregnancy, freely movable.* Hemoglobin and general condition excellent.
637	Case 10 Miss O. F. F.	40	2/22/14	7 years	Menorrhagia and metrorrhagia; marked anemia and general symptoms from anemia; shortness of breath; hemoglobin 50 per cent.	Uterus size of 3 months' pregnancy; 1 small nodule felt on posterior surface.	Normal	100 mg. 10 hrs.	Nausea and considerable upset for 2 days; abdominal tenderness and miserable feeling for 6 weeks which kept her in bed.	None	No menstrual period after a moderate one in March. Reports she is feeling splendidly, better than for years. The growth has entirely disappeared.
681	Case 11 Miss B. S.	39	3/16/14	About 1 year	Menorrhagia and metrorrhagia; marked anemia.	Subperitoneal, interstitial and submucous, reaches to 1 cm. of umbilicus.	Normal	300 mg. 1½ hrs. April 25 1,100 mg. 2½ hrs. on abdomen.	Twenty-four hours nausea; soreness in abdomen for 10 days; temperature 1 degree above normal for 8 hrs.	None	Normal menstrual periods in March, April, May and June. On April 25 growth one-half original size. *On June 14 growth found to be entirely gone.*
825	Case 12 Mrs. A. L.	38	4/30/14	1 year	Menorrhagia, marked.	Uterus size of 6 weeks' pregnancy; attached to its right wall is a fibroid 5 in. in diameter filling the right broad ligament.	Normal	560 mg. 3 hrs.	Little nausea	None	Rather profuse menstrual period in May. None up to present time in June; *growth is about half original size.*
771	Case 13 Mrs. L. H. C.	44	4/20/14	1 year	Menorrhagia 10 days, but not very anemic looking.	Interstitial, 15 cm. in diameter, reaches half-way to umbilicus, fills pelvis.	Normal	400 mg. 1½ hrs.	None	None	No report secured.
333	Case 14 Mrs. C. N. B.	43	10/ 8/13	4 years	Menorrhagia	Interstitial; uterus and tumor inseparable; fully 6 in. in diameter; reaches half-way to umbilicus.	Normal	60 mg. 24 hrs. 300 mg. 21 hrs. from abdomen.	Nausea 3 or 4 days, marked discomfort in pelvis for 1 month.	None	No further menstrual period; general health splendid; uterus normal in size, small, attached to its right wall; a small pedunculated myoma 1 in. in diameter.
334	Case 15 Mrs. C. E. D.	40	10/20/13	2 years	None	Interstitial; inseparable from uterus; size of large cocoanut; reaching almost to the umbilicus.	Normal	100 mg. 26 hrs. 60 mg. on abdomen 1½ hrs.	Nausea for 24 hours.	None	Normal menstrual period in November; none since then; general condition splendid; no menopausal symptoms; tumor practically gone; uterus freely movable; slightly larger than normal; no fibroid can be felt.
370	Case 16 Mrs. H. W. T.	59	11/ 6/13	4 years	Although 59 yrs. old patient is apparently still menstruating; for 4 years has been having irregular excessive menstrual periods.	Interstitial; size of 4 months' pregnancy; reaches half-way to umbilicus.	Apparently cystic left ovary.	100 mg. 24 hrs.	No upset.	None	No further bleeding; splendid health; growth reduced to one-third original size.
394	Case 17 Mrs. A. McG.	46	11/18/13	2 years	Rather marked menorrhagia; symptoms of pressure.	Uterus size of 3 months' pregnancy; freely movable; growth interstitial.	Normal	60 mg. 17½ hrs. 60 mg. 2 hrs., 1/6/14.	Period in December, rather excessive; none since.	None	Feels splendidly; no menopausal symptoms; no bleeding; tumor entirely gone.
375	Case 18 Mrs. W. T. D.	33	12/10/13	1½ years	Menorrhagia 8 days.	Interstitial, subperitoneal, irregular; fills pelvis and lower abdomen.	Not made out	60 mg. 18½ hrs.	No disturbance.	None	One menstrual period; since then complete amenorrhea; growth reduced to one-third original size; splendid health.

TABLE 4.—FOURTH GROUP: MYOMATA UTERI—(*Continued*)

No.	Name	Age	Date	Duration	Hemorrhage	Size and Position of Tumor	Condition of Other Pelvic Organs	Treatment	Immediate Results	Complications	Final Results
792	Case 19 Miss M. L. C.	49	4/25/14	At least 10 years.	None. Patient is past menopause 6 years.	15 cm. in diameter, in right broad ligament; uterus to left of tumor; size of 6 weeks' pregnancy.	Normal	150 mg. 6 hours	None except leukorrheal discharge.	None	June 5 tumor only 7 cm. in diameter; general condition of patient excellent.
614	Case 20 Mrs. A. H. M.	46	2/ 6/14	1 year	Very marked menorrhagia; marked anemia.	Uterus about twice normal size; one subperitoneal fibroid on anterior wall measures 4 cm. in diameter.	Pelvic inflammatory disease; chronic	170 mg. 13 hrs. 15 min.	Nausea and vomiting; some temperature; abdominal pain for 3 weeks.	Lighting up of pelvic inflammatory disease with formation of pelvic abscess.	No further menstrual periods; pelvic abscess healed spontaneously; no menopausal symptoms; uterus normal in size; general condition splendid.
340	Case 21 Miss A. A.	32	10/ 8/13	2 years	Menorrhagia 8 days.	Uterus 10 cm. in diameter, round and globular.	Normal	30 mg. 25 hrs. 10/19/13 300 mg. 11 hrs., abdominal, 10/19/13 35 mg. 10 hrs. 11/18/13 35 mg. 12 hrs. 11/20/13 60 mg. 25 hrs. 1/7/14 400 mg. 6 hrs. abdominal 1/7/14	No upset except nauseated a few hours after application.	None	Neither tumor nor hemorrhages markedly changed. The applications here were to the cervix and not intra-uterine. Radical operation carried out 3/14/14.

CONCLUSION

We feel sure as the result of these remarkable experiences that radium offers a marvelous means for controlling, as well as for completely doing away with uterine hemorrhages, in the classes of cases cited.

We believe also that it is perfectly suited to secure the disappearance of fibroid tumors. A radium treatment ranks in severity as scarcely more serious than a simple uterine curettage.

In its brilliancy of curative results it is fully equal to radical surgical procedures while offering the advantages of freedom from danger, pain, suffering and the various postoperative complications and sequelae. Furthermore, when radium fails we still have the operation to fall back on and have not lost in the waiting. As compared with the Roentgen ray, radium is simpler of application, more rapid in bringing about the desired effect, and finally is better in that it acts on the diseased organ, the uterus, with more intensity than on the ovaries. Radium offers the possibility in the fibroid cases of doing away with the tumor without destruction of the ovaries.

We also insist that the fibroid itself should receive the major radiation, whether with the Roentgen ray or with the radium.

The radium can bring about a complete amenorrhea at any age.

The menopausal symptoms which follow this amenorrhea are absent in 50 per cent. of the cases and mild in nearly all of them.

We insist on the intra-uterine application, in contradistinction to the vaginal or cervical, and in this connection wish to contrast the shortness of the radiations in hours as compared with the exposures reported by Chéron[5] and Gauss and Krinski.[9] We feel that it is quite possible that suitable abdominal radiation with radium or the Roentgen ray may add to the rapidity of the results.

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ROENTGENOTHERAPY IN UTERINE HEMORRHAGE *

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The treatment of uterine hemorrhage by means of the Roentgen rays, is no longer a novelty, but has become an established method in most of the leading clinics in Europe, and is being well established in America. The first cases were treated and placed on record ten years ago by Deutsch. Since then reports have been made by several hundred roentgenologists and gynecologists, and the number of cases now definitely recorded are considerably over a thousand. There has been sufficient time for all the doubts and fears to have materialized, but instead, all hopes have been realized, the technic has been fairly well established, and the indications and contra-indications reasonably well outlined, so that to-day the method stands as one of the most brilliant achievements of roentgenology.

In 1904 Deutsch[1] found that the rays relieved four cases of uterine hemorrhage connected with fibroids. This report seemed to have been forgotten until

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Deutsch: Die Radiotherapie bei Gebärmuttergeschwülsten, München. med. Wchnschr., 1904, p. 1646.

Foveau de Courmelle[2] made a report on forty-five cases of uterine fibroids in 1906, and on fifty-three in 1907. I[3] began treating these cases in January, 1906. Since then the publications on this subject have been so numerous that it would require all the time allotted to me for this paper, if I only referred to them.

THEORY OF THE ACTION OF THE ROENTGEN RAYS IN GYNECOLOGY

It has been proved by experiments on animals and human beings (Albers-Schonberg,[4] Phillips,[5] Halberstaedter,[6] Heineke,[7] and others), that the ovaries and testicles are the most sensitive of all the tissues of the body to the action of the Roentgen rays, and that these organs can be seriously affected without producing visible effects on the overlying skin. It is likely that the results referred to in this paper are chiefly due to this special action of the rays on the ovaries, and secondarily to their direct effect on uterine fibromas, the uterine tissue, and malignant cells, when present.

If the activities of the ovaries send out a stimulus to prepare the mucous membrane of the uterus for the reception of the ovum, and the degree of this stimulation governs the menstrual flow, then the depression of this function will decrease the menstrual flow and finally lead to its obliteration. This lack of congestion and nutriment probably leads to an atrophy of the fibroids. By decreasing the hemorrhage, at least such pains as are due to the expulsion of the clots will be relieved, and by decreasing the functions of the ovaries there is probably a decrease in the irritability of the nervous mechanism of the ovaries, thus bringing about, consequently, a relief in the dysmenorrhea of neurotic subjects.

Saretzky,[8] in a series of experiments on sixty-two rabbits, found the ovarian tissue to be especially sensitive to the rays, and, of the ovarian tissue, the ripe and ripening follicles were first affected. Only the weakest dose showed no effect. Progressively increasing doses affected, in proportion to the quantity of treatment, first the ripe and ripening follicles, then the prefollicular cells and, finally, the interstitial tissue.

At certain stages he found that a beginning atrophy of the follicles undergoes a regeneration, the ovarian tissue develops anew and the ovaries entirely regain their functions. If the treatment is persisted in, however, a complete atrophy takes place. He found that if only one ovary was treated, the other ovary and the entire genital tract retained their normal functions, and the animal was capable of reproduction.

Based on these theories and experiments, we easily find the explanation of the fact that, as we approach the menopause, the quantity of treatment needed to produce sterility and an artificial menopause is very much less than is needed in younger patients in whom the functions of the ovaries is very much more active, and the resistance greater. The resistance of the ovaries in younger people is sometimes remarkable, and on this account the Roentgen-ray treatment is not the method of choice in patients under 40 years of age. One patient, aged 34, whom I treated over the spleen and abdomen for chronic cyanotic polycythemia and who received a great deal of treatment over the pelvic region during two and a half years, became pregnant and gave birth to a healthy child who is now 4 years old.

Good results of roentgenotherapy, as given by Albers-Schonberg in 1909 and confirmed by myself and many others, are as follows:

1. A cessation of the menses, and associated with this (*a*), a decrease in the size of the myomas; (*b*) a decrease or cessation of the hemorrhage associated with myomas, whether it be menstrual or intermenstrual; (*c*) a disappearance of the pains associated with myomas; (*d*) a cessation of preclimacteric hemorrhages or pains, whether due to myomas or not; (*e*) sterilization when indicated.
2. The obliteration of postclimacteric hemorrhage.
3. Disappearance or healing of myomas unassociated with bleeding, such as occurs after the menopause.
4. The control of menstrual disturbances at any age, at times without sterilization and, when necessary, with sterilization.

INDICATIONS AND CONTRA-INDICATIONS

The treatment of uterine hemorrhage by means of the Roentgen rays really consists in the treatment of the causes of the hemorrhage, and, I believe, of first importance, is a careful diagnosis made by a competent gynecologist or by one who is capable of making an accurate diagnosis. There is still some difference of opinion as to the indications and contra-indications for treatment. Those who are most skilful, and who have had most experience, are generally most enthusiastic. As a result their indications cover a wider field, and the contra-indications are fewer.

Indications in Hemorrhages Due to Myomas.—1. All cases of myoma in older women in whom there is already a well-advanced anemia, which may be the cause of an anemic heart. 2. All elderly and young women with myomas, in whom there is marked organic heart-disease, diabetes mellitus, chronic nephritis, marked lung-disease and goiter with cardiac symptoms. 3. All patients beyond the age of 40, in whom there is no contra-indication to the treatment. In general, the older the patient, and the nearer she has approached the menopause, the more prompt and satisfactory will be the result. Under 40, roentgenotherapy is not the method of choice, but good results can be obtained, though the younger the patient, the more treatment will be required. 4. The intramural, or the interstitial variety of tumor gives the best results.

Contra-Indications.—1. All cases of myomas in which the tumor is pedunculated, or which can be excised without destroying the reproductive powers of the patient. 2. Fibroids that have undergone malignant degeneration, or that have become gangrenous, should not be treated. 3. Fibroids associated with disease of the adnexa. 4. Fibromas which are producing such marked symptoms that the patient is endangered more by waiting two or three months for results of roentgenotherapy, than by the result of an operation.

RESULTS TO BE EXPECTED IN THE TREATMENT OF FIBROIDS

The decrease, or cessation of the hemorrhage, is the first result to be expected. The effect is more prompt the older the patient, or the nearer the menopause has been reached. Generally there is a decrease or cessation of the flow within a month or two after the first two series of the application of the rays. At times, after the first series of treatments, there may be an increase in the hemorrhage; in fact, the two subsequent menstrual periods may at times be increased. Generally, the first menstrual period following the first series of irradiations is not decreased and is at times increased. The second period, which usually follows the second series of irradiations, is usually diminished and the third menstrual period commonly disappears. The increase in hemorrhage following the first series of irradiations, is due to the stimulating effect of the rays on the cells. Following this the vitality of the cells is depressed, and finally destroyed. Increase in hemorrhage is more often observed with the subserous variety of fibroids, and in patients who are very anemic. Therefore, when one begins treatment in this class, there should be a special effort made to place the patient in bed following the treatment, and the attending physician should be prepared, if necessary, to tampon the vagina. In none that I have treated has this been necessary.

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[2] Foveau de Courmelle: Action atrophique glandulaire des rayons X, Compt. rend. de l'Acad., 1907, cxl, No. 9, p. 606.

[3] Pfahler, George E.: Roentgen Therapy in Gynecology, New York Med. Jour., June 25, 1910.

[4] Albers-Schonberg: Ueber eine bisher unbekannte Wirkung der Röntgenstrahlen auf den Organismus der Tiere, München. med. Wchnschr., 1903, l, 1859.

[5] Phillips: Die Röntgenbestrahlung des Hoden des Mannes, Fortschr. a. d. Geb. d. Röntgenstrahlen, viii, 114.

[6] Halberstaedter: Die Einwirkung der Röntgentstrahlen auf Ovarien, Berl. klin. Wchnschr., 1905, No. 1.

[7] Heineke: Ueber die Einwirkung der Strahlen auf Tierische Organe, München. med. Wchnschr., 1903, No. 18, 1904, No. 18.

[8] Saretzky: Durch Röntgenbestrahlung der Ovarie hervorgerufene Amenorrhea, Ref. Geb.-Gynäk. Gesellsch. in St. Petersburg, Nov. 20, 1908; Fortschr. a. d. Geb. d. Röntgenstrahlen, Nov. 20, 1908, p. 42.

In patients beyond the age of 40, there are usually required from three to six series of irradiations given in from three to five months. The number of series will depend somewhat on the number of doses, or amount of treatment, given in each series. In patients under 40, considerably more treatment will be needed than in the older patients, and at times it seems only possible to stop the intermenstrual flow, and restore the menses to a normal quantity. At times the cessation of hemorrhage is almost miraculous. In one patient, the bleeding, which had been constant, stopped after the application of one full dose. With the establishment of permanent amenorrhea or an artificial menopause, the patient is likely to have the same group of symptoms which occur with a normal menopause. They are more likely to occur if the menopause has been produced rapidly. In my cases only three patients complained of such symptoms as flashes of heat, a dull headache and restlessness.

With the cessation of hemorrhage, the general health improves, the patient regains color, weight, strength and appetite; sleep improves and the hemoglobin and red corpuscles increase to nearly normal. Albers-Schonberg[7] urges most strongly that each patient have a record made, at the beginning of treatment, of the amount of hemoglobin and the weight. Both the hemoglobin and the weight should be recorded repeatedly during the course of treatment, for if there is no increase in the weight and hemoglobin, he thinks we are justified in understanding that the case is not purely one of myoma, but should always make one suspicious of a malignant disease. One must, of course, bear in mind that other conditions than that of malignancy may be the cause of loss of weight, and it is only when one cannot account for the loss of weight by any other means, that it should be attributed to a possible malignancy.

The tumor is usually the last to show any effect. Occasionally it decreases in size before the bleeding ceases. Generally there is a decided reduction in the size of the tumor at the time of cessation of treatment, and the reduction continues from this time forward. For instance, if the tumor extends to the umbilicus at the time of beginning of treatment, at the end it may be the size of an orange. The tumor continues to decrease in size long after the cessation of treatment. In one case, the tumor originally extended to the umbilicus. At the end of two years it was the size of an orange, and at the end of five years had disappeared. In another case, the tumor originally extended to the umbilicus. At the end of two years it was very much reduced, and at the end of four years it could not be found. In 75 per cent. of my patients who have ceased treatment, the tumor has disappeared. With a decrease in the size of the tumor, the pressure symptoms disappear.

The question of malignant degeneration subsequent to this treatment, has been raised. No such case has been observed.

The relief of pain will depend in great part on its cause. If it is caused by pressure of a large fibroid, the pain, of course, will not be greatly relieved until there is sufficient reduction in the size of the tumor to release the pressure. If the pain is due to hypersensitive ovaries or ovarian excitability, it will be relieved comparatively early, because the earliest effect of the rays is shown on the ovaries. Such conditions sometimes exist in dysmenorrhea. The relief of pressure symptoms, such as constipation, swelling of the lower extremities, irritability of the bladder, etc., will, of course, await the reduction of the size of the tumor, and, since this is the latest effect to be seen, it may persist for several months after beginning treatment.

HEMORRHAGES DUE TO MALIGNANT DISEASE

Some good results have been recorded from the treatment of malignant disease of the uterus. I began the treatment of malignant disease of the uterus thirteen years ago. In the first patient I apparently obtained brilliant results, with complete disappearance of the disease, which at the beginning was an ulcerating mass filling the entire pelvis, hopelessly inoperable. The patient returned to the hospital one year later for the treatment of a severe Roentgen dermatitis, or degeneration. At this time there was no evidence of malignant disease in the pelvis.

Following this I treated, in all, fifteen cases. All were inoperable or recurrent. In all I got some reduction in the hemorrhage and some improvement in the general symptoms, but, in the end, all the cases but the first case were failures. During the subsequent eight years I then refused to treat such cases, but during the past six months I have taken new courage and enthusiasm from the general results obtained in deep roentgenotherapy.

I have under treatment now, five recurrent cases, following hysterectomy. In all there has been some improvement, some reduction or disappearance of the bloody discharge, relief from pain and improvement in the general health. One seems to have gotten well. In one other case there was no improvement, and the patient died about six weeks after the first and only series of treatments, from ulceration into the bowel. The attending physician believed that this was only the natural course of the disease and not due to the treatment, for there was no damage to the skin.

At the International Congress at London, 1913, Kroenig referred to ninety-six cases of carcinoma of the uterus which had been treated with radium and Roentgen rays, radium being used for the local effect and the Roentgen rays used over the abdomen for the general effect. In forty-six cases of these, the lesions were healed. The longest period of healing, however, had only been one and one-half years.

A review of the twenty-one cases treated by Albers-Schonberg (reported at the International Congress at London, 1913), shows encouraging results, but he feels that several years must pass before we can draw any accurate conclusions.

In general, while we now have some encouragement in the treatment of malignant disease of the uterus, it is not sufficient to justify us in recommending it to replace operation. We should, therefore, urge immediate operation in all cases in which the diagnosis is made while in an operable stage.

For the present we should only recommend roentgenotherapy in the inoperable and recurrent cases. While such cases are correspondingly more difficult, and, therefore, our statistics equally poor, we can hope to do some good in all, and each patient that recovers is just one more saved from the grave. It is to be hoped, however, that such patients will be referred immediately and not allowed to progress for months, and then in the terminal stage sent with the hope that a miracle can be performed.

I believe, too, that the results that have been obtained in the treatment of deep-seated malignant disease justify the surgeon in recommending postoperative roentgenotherapy in all cases operated on. This treatment should be given as soon as the patient can be safely removed to the laboratory. It should be given vigorously, but carefully and skilfully. The possession of Roentgen apparatus is no more a guarantee of skill in roentgenology than is the possession of surgical instruments a guarantee of skill in surgery.

METROPATHIC HEMORRHAGE

Under this heading Eymer and Menge include the following:

1. Cases of bleeding connected with disease of the uterus in which there is no tumor or none recognizable, cases of so-called "metritis."
2. Cases of hemorrhagic endometritis.
3. Climacteric hemorrhages, which are not malignant in origin. In this class of cases deep roentgenotherapy has accomplished good results, and is especially indicated.

Roentgenotherapy has also accomplished good results in some cases of hemorrhage connected with inflammatory disease of the adnexa (Menge), and is indicated in those cases in which operation is contraindicated for some reason or other.

TECHNIC

In general, the object of the treatment is (1) to depress or obliterate the functions of the ovaries, thus producing an amenorrhea or oligomenorrhea; and (2) to cause an atrophy of fibroids, if present, (*a*) by action on the ovaries; (*b*) by direct action on the tumor; (3) to cause degeneration of the carcinoma cells, which should be replaced by healthy connective tissue; and (4) to restore the bleeding mucous membrane in the metropathic cases, to a normal or healthy condition. This should be accomplished without damage to the skin, the bowels or the lymphatic glands, with a fair degree of certainty and within a reasonably short time. Therefore, the greatest attention must be given to technic. To learn this technic, one must learn the principles of roentgenography, as well as roentgenotherapy. This technic is not easily learned, or more men would know it.

The exciting instrument should give a uniform current of high voltage, and sufficient in quantity to excite any given tube to a high degree of efficiency. Previous to the development of the Coolidge tube, I preferred the high-power, high-speed static machine, 40 plates. Since the development of this new tube, which marks a wonderful advance in roentgenotherapy, I prefer the transformer type of inductor having a rhythmeur attachment, which I believe gives the greatest degree of efficiency, and enables one to give a dose in the shortest period of time. In using this very powerful type of equipment, however, special skill is necessary or harm will result. In general, any type of exciting apparatus can be used if the proper balance is maintained between the amount of current used and the proper degree of penetration of the rays from the tube, with a corresponding duration of the treatment. Therefore, the induction coil, transformer type of inductor or the static machine can be successfully used.

The tube should be one that will keep a constant high vacuum of from 7 to 8 Benoist. If the tube is allowed to get soft, the rays will be absorbed in the superficial tissues, resulting in a burn, and the deep effect on the ovaries will not be obtained. Since the development of the Coolidge tube and one or two other recent types, it is possible to adjust the degree of vacuum at will and maintain it uniformly, at the same time using a large quantity of current.

The most practical distance of the target of the tube from the skin of the patient, with our present type of holder and present shape of tubes I have found to be 8 inches. Later, I think we shall develop apparatus which will permit us to get nearer and so to get a greater quantity and more divergence of the rays, which will pass through the small area of skin.

The field of application of the rays is over the diseased area, and in the case of fibroids should be especially directed toward the ovaries, and include the fibroid from every possible direction. The rays should be confined to the area treated as much as possible. If a rapid result is desired, large doses must be given, and since one must not exceed the tolerance of the skin over any particular area, the field of application must be subdivided in such a manner that, by cross-firing, an increased dose will reach the deep tissues without affecting the skin. It is this subdivision of the skin-area which has permitted the large doses especially referred to by Gauss and Lembcke and usually spoken of as the Freiburg technic, in which they aim to give all the treatment necessary at one time. This is the other extreme of the swing of the pendulum, as compared with the often repeated, very small doses which were first used by myself and others. It has, however, landed the more conservative man into the middle-road technic, which consists in giving full doses through a number of fields at one time rather than often repeated small doses through the entire lower abdomen, scattered over a long period.

The Freiburg technic is very often spoken of in contradistinction to the Hamburg, or Albers-Schonberg technic. It must not be forgotten, however, that all the prominent roentgenologists are progressive, and what was referred to as the Hamburg or Freiburg technic a year or two ago, is not referred to as the Hamburg or Freiburg technic of to-day. The leaders of both these centers have come closer to a middle course. Albers-Schonberg, like the rest of us to-day, divides the area into a number of subdivisions, and the leaders in Freiburg are making much fewer subdivisions. At present I am guided by the size of the abdomen, the depth of the tissues to be treated and the extent and the nature of the disease. For instance, if I am treating a small fibroid which is entirely in the pelvis and is in a thin patient, the subdivisions and fields for the entrance of the rays can be at a minimum, and good results can be obtained by giving a series of treatments through three fields anteriorly and one field in the perineal region. On the other hand, if the fibroid is large and the abdomen thick, I commonly divide the area into twenty-five or more doses, and in carcinoma of the abdomen I at times treat through thirty-five or forty subdivisions, giving the limit of skin tolerance through each area. So, too, when one is dealing with malignant disease or when one is very anxious to produce very rapid results, the quantity of treatment given in any particular series must be correspondingly increased, and, in order to increase this total dosage, the number of points of entrance of the rays must be correspondingly increased. Generally, in the treatment of fibroids, I believe it is not desirable to bring on a very rapid menopause, for by producing this change gradually, there is given an opportunity for the system to accommodate itself to the change.

Albers-Schonberg[9] has expressed very well the present guiding principles that should govern us in the quantity of treatment, in saying that only such a quantity of rays should be applied as is necessary to produce a satisfactory result, uninfluenced by the duration of the treatment. One can readily see, therefore, that in principle, his ideas are similar to mine—that careful judgment should govern us in each particular case, and that a general rule is no more applicable to all cases in this treatment than is a general rule applicable for an operation to suit all cases.

The time required to give any particular series of treatment will depend on the character of equipment and the technic of the individual operator, as well as on the condition and circumstances of the patient. Generally I use one, two or three days to give any series of treatments, depending chiefly on the number of doses that have to be given in a series. The total dose given in any series varies from 40 to about 800 X. The interval between any series of treatments should not be less than two weeks, and I believe more safely, not less than three weeks.

In one case, in which the malignant disease had matted together all the abdominal viscera, as found by an exploratory operation, I repeated the treatment in two weeks, and in several areas obtained a severe dermatitis. Fortunately, however, these skin ulcerations are practically healed, and the malignant disease in the abdomen, so far as I can tell, has disappeared.

The favorable time for treatment is immediately after a menstrual period. When one has a choice in the matter, the treatment should at least be given ten days before the beginning of the succeeding period. If the bleeding is continuous, the treatment should be given just after the time that would correspond to a period. The skin dose, or total quantity of rays applied to the surface should be carefully measured so as to avoid burns.

A dose refers to the amount of rays that the skin will tolerate without producing more than a slight erythema. This dose, measured by the Kienbock quantimeter, is referred to as 10 X. Measured by the Sabouraud and Noire pastiles or disks, it is recognized as Tint B; or, measured by the Holzknecht radiometer, it would correspond to 10 units. As referred to in the general literature, the units 10 X (Kienbock) or 5 H. (Holzknecht) correspond to an erythema dose, given without filtration. With filtration, this dose, when measured under 3 mm. of aluminum, can be increased to from 20 to 30 X. To do this, however, one must have a tube that is giving uniform rays.

Filters should be used to cut off the rays that are mostly absorbed by the skin. For this purpose the leather filter, first recommended by myself,[10] has served well. On top of this I now add for this deep roentgenotherapy, 3 mm. of aluminum, and I place these just above the diaphragm of the tube stand.

At present I am giving a dose of 30 X through each area treated. I am not prepared to recommend this extremely high dosage for general use, and would like to add a word of caution to anyone who has not thoroughly mastered his own technic. Therefore, when I treat a case through four fields, it means that the patient is getting 120 X. If the patient is treated through 30 fields, it means 900 X. In this connection I would like to add what Albers-Schonberg has already said, that no case should receive more treatment than is necessary to produce permanent results, and without regard to the speed with which these results are to be obtained. In the treatment of malignant disease, one must use enormous doses to accomplish results.

Skin effects, in the hands of skilful operators, have been of almost no consequence. In a number of patients treated an erythema developed, and in others the skin became pigmented or tanned. These effects disappeared, leaving the skin undamaged. In a few cases a dermatitis of the first degree has been produced. In these later cases telangiectases develop in the skin about a year later. In the treatment of malignant disease, skin irritation is of secondary importance, but one should never go beyond the production of a slight erythema.

DISADVANTAGES AND ADVANTAGES OF THE TREATMENT

The disadvantages are the following:

1. The prolonged course of treatment that is usually necessary. This can be somewhat shortened by giving enormous doses through a large number of fields. If by this means the course of treatment is reduced to two or three months, it will probably only equal the time required for operation and convalescence therefrom.
2. There is danger to the overlying tissues, if the rays are not properly applied. By careful attention to the technic and exact measurements of the skin dose, this can be eliminated.
3. It has been claimed to be more expensive than operation. In a sense this is true. If one considers, however, that by this treatment the expense of board and hospital care is eliminated, both in the case of charity and private patients, and that in both instances they can go about their usual duties, I believe we must conclude that it is not more expensive.

The advantages are:

1. It is painless.
2. It avoids the shock of an operation.
3. It preserves to a certain extent, we believe, the internal secretion which is lost in a complete oophorectomy.
4. It does not interrupt the usual habits.
5. Confinement in a hospital is avoided.

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[9] Albers-Schonberg: Tr. Sect. Radiology, Seventeenth Internat. Cong. of Med., London, 1913.

[10] Pfahler, George E.: Tr. Am. Roentgen-Ray Soc., September, 1905.

6. In the hands of a skilful operator it is without risk.
7. The menopause is brought on gradually, when necessary.
8. The amount of treatment can be graded to the needs of the patient.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. NOVAK, KELLY AND PFAHLER

Dr. Charles C. Norris, Philadelphia: As I view the subject it is largely one of the study of etiology—in other words, to treat uterine hemorrhage intelligently we must be cognizant of its cause. Uterine hemorrhage is a symptom and not a disease, and no rule of thumb can be successfully employed in its treatment. If any criticism whatever can be applied to the excellent papers comprising this symposium, it is that this point has not been sufficiently dwelt on. Each case must be studied and treated individually. Some of the chief causes of hemorrhage are myomas and carcinoma of the uterus, endometrial polyps, hypertrophic thickening of the endometrium, displacements, adnexitis, ovarian neoplasm, disturbances of the functions of the various ductless glands, especially the ovary, certain constitutional diseases, especially syphilis, tuberculosis, hemophilia, chronic liver and heart, kidney and lung disease, besides other less frequent conditions. When we consider the great number of diseases which may cause hemorrhage, the importance of accurate diagnosis is apparent. As an example of this I may cite a case in which I was recently asked to perform a curettage for hemorrhage on a patient suffering from syphilis. The pelvic examination was negative and the exhibition of neosalvarsan checked the hemorrhage very quickly. A curettage in this case would have been of no benefit. The constitutional disease was what required treatment. The treatment of myomas of the uterus with radium or Roentgen rays undoubtedly has a very definite place in gynecology. No one however skeptical can fail to be convinced by the excellent results reported by Drs. Kelly and Pfahler, as well as those by Krönig and Gauss and others. Personally, however, I doubt very much if the Roentgen rays or radium will ever supersede surgery in the routine treatment of uterine myomas. The extremely small operative mortality and the excellent postoperative results are strong arguments in favor of the surgical treatment, whereas the prolonged treatment required and the expense, as well as the somewhat less certain results, are points that must be considered before Roentgen-ray or radium treatment is selected. Another important point of practical value is that carcinoma of the fundus is occasionally and indeed relatively frequently an accompaniment of myoma of the uterus. In all patients suffering from hemorrhage at or near the cancer age it is our first duty to exclude carcinoma, and this is particularly true in those cases in which the pelvic examination is negative or reveals only a slightly enlarged uterus. Dr. Kelly, you will remember, has very properly performed a curettage for the purpose of determining this point as a preliminary step before instigating the radium treatment. In closing I would again urge the necessity of studying the etiology of each individual case, for only by so doing can the proper treatment be instigated.

Dr. John A. McGlinn, Philadelphia: So far as the nervous element of the bleeding from the uterus is concerned, it is not so much due to shock to the nervous system as it is to the result of the shock on some of the ductless glands. In the few cases following shock I have noticed other metabolic changes, such as falling of the hair and change in menstrual bleeding. Some time ago I sent out a letter to the members of the American Surgical Society asking whether in their opinion surgery could be eliminated in the treatment of fibroid tumors of the uterus. Eighty replied that positively it could not be. The same question was asked the Roentgenologists and eight out of 90 replied that it could be and that the Roentgen ray should take the place of surgery. I feel that we should not confuse the cure of fibroid tumors of the uterus with the relief of bleeding from fibroid tumors of the uterus. I have no quarrel with radium or with the Roentgen ray, but that surgery can be eliminated in the treatment of fibroid of the uterus I do not believe. I believe that even with the Roentgen ray and radium, surgery is still the best treatment. The mortality of surgery in these cases is due to the various complications present other than sarcomatous degeneration; so that, considering the mortality, it will be found that the Roentgen-ray treatment has not a great advantage over surgery, taking into consideration the ultimate cure. The reports given by Dr. Kelly are amazing. According to the reports gathered in the clinics in Europe, but 5 per cent. of the tumors entirely disappeared. That simply means that 95 per cent. of these tumors are in a condition to undergo complications which will bring the high operative mortality; whereas, if the cases were treated by surgery, even if 5 per cent. of the patients do die, at least 95 per cent. of the cases are cured against 5 per cent. cured by the Roentgen ray.

Dr. William S. Newcomet, Philadelphia: I am glad to know that when Dr. McGlinn sent out that little note, only eight out of one hundred roentgenologists decided that all tumors could be treated by the Roentgen ray. As a rule I think that roentgenologists try to be conservative, and this proportion shows well for our work. The work of Dr. Kelly and Dr. Pfahler shows that under these good reports was skill. No doubt the great trouble often in the matter of results is that many patients are treated by persons who do not understand how to use these methods. Furthermore, I am glad also to hear Dr. Kelly mention the fact that the Roentgen ray and the gamma ray are not to be regarded the same. It was twice stated in this meeting by men in other Sections that the Roentgen ray and the gamma ray are identical and that they can be used one for the other. Any one who has ever had any experience with the Roentgen ray and with radium and has seen the reaction from each, must be impressed with the entirely different process following the application of either of these methods. Also if you should have a burn or a reaction from the Roentgen ray in the same proportion as you have a reaction or burn from radium you would have a lifetime injury; whereas the reaction from radium will clear up in a very short time. It is a curious thing that abscess follows the destruction of tissue in these cases from radium. Dr. Kelly has referred to this, and I have seen it twice in my own experience. On the other hand, it is very rare to have abscess follow destruction of tissue from a Roentgen-ray burn. Dr. Kelly's results exceed any I have seen so far published. They far exceed those of the London Radium Institute, which I am in the habit of quoting because I think they are given from a very conservative basis. Another important point taken from Dr. Kelly is that his applications are directly on the tumor, while in the vast majority of cases treated by the Roentgen ray, the influence on the fibroid is from the reaction on the ovary. Curiously enough, it has been cited time and time again that in these pelvic cases treated by the Roentgen ray sterility usually follows. About ten years ago I treated for Dr. George Erety Shoemaker a patient with a large sarcoma of the pelvis about the size of a seven months' pregnant uterus. The woman recovered and became pregnant twice, the first pregnancy occurring two years after the disappearance of the tumor. The woman is now in good health.

Dr. Stephen E. Tracy, Philadelphia: Before we can intelligently treat a case of uterine bleeding it is necessary to make a diagnosis, and this is not always possible before operation. I cannot speak of radium, as I have had no experience with it, but I want to congratulate Dr. Kelly on the wonderful results. There are those who assert that all cases of carcinoma of the uterus and all fibromyomas of the uterus should be treated by roentgenotherapy, and I trust that Dr. Kelly in closing the discussion will state his position in this matter. Dr. Pfahler has designated what cases of uterine bleeding are suitable for roentgenotherapy, and I believe that most of us will agree largely with his statements. We all know that Roentgen-ray treatment for malignant disease of the female pelvic organs has been practically worthless. In regard to fibromyomas of the uterus, it is well known that malignancy is present in from 4 to 5 per cent. of the cases. Malignancy and the various other degenerations of fibromyomas of the uterus are found in 15 per cent. of the cases which come to operation, and such cases are not suitable for roentgenotherapy. When we add to this 15 per cent. the complications and associated conditions in the appendages, we have in between 30 and 35 per cent. of the cases conditions which would not be cured by roentgenotherapy. At least 25 per cent. of the women with fibromyomas of the uterus who have come to operation, would have perished, sooner or later, if they had been relegated to the roentgenologist. It is generally conceded that women under the age of 40 years are not good subjects for Roentgen-ray treatment. It has been clearly shown that after the age of 40 years the dangers of fibromyomas of the uterus increase with advancing years. In a collected series of approximately 700 cases I found that 70 per cent. of the degenerations took place in women after the age of 40 years, and that over 90 per cent. of the malignancies were found after that age. When all these facts are considered, the conclusion is inevitable that the best treatment for the majority of these tumors which produce symptoms is early surgical intervention, unless Dr. Kelly can cure them all for us with radium.

Dr. Curtis F. Burnam, Baltimore: I have been studying with Dr. Kelly the cases reported. I have seen them from the very beginning and therefore have taken a very lively interest in the foregoing papers and the discussions. I incline to believe that many cases of uterine hemorrhage are really dependent on uterine and not ovarian conditions. This view is partly substantiated by a series of cases in which I operated on young girls for hemorrhage; curettage having failed to relieve them, resection of the ovaries was finally resorted to. In spite of the reduction of the ovaries the bleeding continued. In one of the group intra-uterine application of radium brought about a return to normal menstruation after operation had failed. An interesting point in connection with all these cases is the frequent absence of menopausal symptoms when complete amenorrhea has been produced by the treatment. It is quite astonishing to interview a patient who gives no history of menstrual or other bleeding and yet reports not the slightest general disturbance. Proceeding to the therapeutic questions involved in these cases, I should like to be put on record with Dr. Kelly in asserting definitely that the ray treatment will perhaps entirely replace operative surgery and will certainly do it in most cases. The treatment itself is extremely simple, without danger, is not time-consuming, and in no way prevents going on later to surgical methods if it proves unsuccessful in any given case. I should like also to say in reply to one of the speakers, that the recent reports from Freiburg of mesothorium treatment in similar conditions in every way conformed to these results here reported. Gauss and Lempke state that in sixteen fibroids radiated, fifteen have entirely disappeared and one greatly decreased. I should like also to emphasize that the effects of radiation in uterine fibroids, as also in polypoid endometritis, and perhaps also in cases of metrorrhagia hemorrhagica should be on the tumor and uterus and not on the ovaries. So far as I know no one has treated a large fibroid tumor of the uterus in which the growth disappeared within a few months after radiation and the patient continued with normal menstruation up till the cases which we report. The efforts of most European roentgenologists have been directed toward devising technic to radiate the ovaries. It has been assumed that the effect on the fibroid is indirectly through the ovaries, although many have stated that there may be an effect on the tumor itself. Our plan is to protect the ovaries and radiate the tumor. Under radiation the tumor disappears rapidly; from ovarian ablation the disappearance is slow, extending over months and years. Radium has the advantage over the Roentgen ray because it is applied inside the uterus, affects directly the tumor and to a lesser degree the ovaries. It would seem easily possible, however, to devise a technic for the Roentgen ray which will radiate the uterus and not the ovaries. I am far from saying that in a very short time results as rapid and complete cannot be gained by the Roentgen ray as well as by the radium. In polypoid endometrium amenorrhea cases cessation of bleeding was brought about immediately from the day of the treatment.

Dr. George Erety Shoemaker, Philadelphia: I have a word to say on the subject of any treatment which leaves the tumor in the pelvis, when there is a tumor. The complications are often more important than the tumor and bleeding is the only one of them which may be modified by the Roentgen ray. Dr. Pfahler in his interesting paper mentioned that the question of malignant degeneration had been raised but that no case had been reported. I had the experience two months ago of operating in a case to be later more fully reported which had been under Roentgen treatment by a competent operator for fibroid tumor, but which later developed sarcoma. The whole treatment by other means than hysterectomy went through seven years, first, for a year by that active electrical treatment which we no longer hear about. Then the patient had Roentgen treatment twice a week for many months and the hemorrhage stopped, as it does in some fibroid cases. She still shows purplish spots in the skin over the abdomen, due to the Roentgen ray. After five years of cessation, her tumor increased in size, she began to bleed again, and her physician, Dr. Evans, sent her to me for hysterectomy. She had a fibroid tumor of the uterus with sarcomatous degeneration scattered in various parts through it. After years of treatment she had to have the operation after all. In Dr. Kelly's series of polypoid endometritis cases there is one confusing element. He says he curetted each one before the application of radium. Of course the curet alone will in good hands stop the hemorrhage in a certain number of cases. According to his table some of the patients had not previously been curetted.

Dr. George C. Johnston, Pittsburgh: Dr. Kelly states that he has taken the opportunity to bring this matter before the general profession through the medium of this meeting and through the medical press. In regard to the Roentgen-ray treatment of fibromas, I am surprised at the attitude taken by some of the profession. We roentgenologists do not want to treat these cases. Our position is this: we are engaged in our work, and in walks a prominent gynecologist. He says, "Don't you see what they are doing over in Freiburg?" We perfect our technic and devote ourselves to this work and then we are blamed for taking these cases. We do not want them, but if you men will not take them, we shall be obliged to. We will treat only those cases that are referred to us by competent gynecologists who say that in their opinion these cases are better treated at the hands of a competent roentgenologist than by the surgeon.

Dr. Emil Novak, Baltimore: In the present state of our knowledge it is unwise to be dogmatic as to the relative importance of the uterus and ovary in the causation of functional uterine hemorrhage. Even though it be shown that uterine bleeding is caused by a local factor in the endometrium, it seems probable that the presence of this factor is in some way due to the activity of the ovary. The assumption that there is a local physiologic disturbance in the endometrium would seem to explain why curettage will sometimes relieve uterine bleeding, even though the removed endometrium is microscopically normal. In these cases it is not unlikely that the cessation of the bleeding is due to the removal of the accumulated coagulation-inhibiting substance in the endometrium. As I stated in my paper, anatomic changes in the endometrium are often, no doubt, the result rather than the cause of menstrual aberrations. We must learn to look on the endometrium as a sensitive plate which registers the more fundamental phenomena of menstruation. Certain histologic changes are now recognized as characteristic of the normal menstrual cycle, and in the same way we must learn to appreciate that various histologic pictures, abnormal as to degree or time of appearance, may be encountered when menstruation is abnormal.

Dr. John M. Fisher: I want to ask Dr. Kelly whether the fibroid tumors were selected cases?

Dr. Howard A. Kelly, Baltimore: The fibroid tumors were not selected in this series. If I had any extensive abscesses or cancer of the body complicating the fibroid I would not use the radium, but would take any other case that came along. In hemorrhage cases and the fibroids with or without hemorrhage, the first thought is radium and not operation. Curettage was done at the time the patients were treated. Many of them had been curetted previously but unsuccessfully, or they would not have come into our hands for treatment for the hemorrhage. It is an entire innovation in our methods and in the matter of the benefit of the patient. The operative cures of sarcomas of the uterus are practically nil. In about 400 cases treated with radium and Roentgen rays in Freiburg there is no case on record with history of subsequent development of malignancy. In illustration as to the effect in sarcomas: A tall overgrown lad with a big tumor in the left abdomen comes for treatment. After treatment for several months, on examination nothing could be felt through the abdomen but a small mass through the rectum. Dr. Burnam took that out and it was found to be a testicle which had become sarcomatous. On the other side there were two fallopian tubes and a little uterus in between. In other words, it was a case of mixed sex elements. Something new has come into our midst and something big. We must take hold of it and see what comes of it. We are using radium every day for uterine hemorrhage, for fibroid uteri. We have radiated many carcinomas of the cervix uteri. In some cases we have later removed the uterus. In not one have we discovered any cancerous elements remaining. In one of them we found some of the pelvic lymphatic glands infected. In one case we found the glands enlarged at the operation. We have a very definite hope that we can follow these cases in a considerable series. A number of cases come to us with other ailments, such as Bright's disease, diabetes and carcinoma of the uterus, which cannot be operated on. Some have profound anemia; others tuberculosis. To all these cases radium comes as a great boon, which is going to be extended and which we hope to develop in this class of cases. It does not take such a large amount of radium that the slender pocketbook cannot afford it.

Dr. George E. Pfahler, Philadelphia: I want only to answer one or two points, one with reference to the disappearance of the tumor. I said that 75 per cent. of the tumors I had treated had disappeared, and so they have, and you must not forget that these quotations made by Dr. McGlinn are mostly based on the work of men of few years of experience. They have treated more cases than I have. The roentgenologists have been working for from eight to ten years, and that is the reason we can speak with a little greater emphasis than these men can, because the tumor continues to disappear long after the treatment has stopped. With reference to degeneration of the tumor, I inquired of the physician who treated the patient referred to by Dr. Shoemaker. The patient came weekly for treatment through the years when the treatment was much less developed than at present. He referred the patient for operation. Regarding degeneration of these tumors, it has been stated by men who know that 5 per cent. undergo malignant degeneration. If this is true, why have not 5 per cent. of those treated undergone degeneration? And if they have, do you believe that the physicians of this country have so neglected their duty that they will not call the attention of the profession to the fact that these tumors undergo degeneration later? Until we have definite data we have no right to assume that these tumors will undergo subsequent degeneration.

Insects and Disease.—When the history of medicine during the past quarter of a century comes to be written, the one outstanding feature of the period will be shown to be "the part played by insects in the spread of disease," and the application of this knowledge as a practical hygienic factor. Vermin have been "detested, shunned by saint and sinner," since the creation of man, but the reason for the abhorrence has only been proved of late years. That the mosquito can carry malaria, yellow fever and filaria; and that the bedbug, the louse, the flea, the fly, the blackbeetle, the tick, the itch insect and other vermin are agents in the transmission of a given disease is now common knowledge. This information has placed the subject of domestic and public hygiene and sanitary endeavor on a sure foundation, and given a stability to preventive measures hitherto unattainable.—*Jour. Trop. Med. and Hyg.*, April 15, 1914.

AN UNUSUAL CASE OF BROMODERMA OF THE LEG*

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Of the three halogen elements which play such a great rôle in the household of nature, bromin, discovered by Bayard in 1826, is the youngest. The others are iodin, discovered by Schele in 1774, and chlorin by Curtois, in 1812. English and French physicians were the first to use bromin and to study its action.[1] In Germany Otto Graf (1840) emphasized its sedative and depressant action on the nerve-centers. But it remained for Sir Charles Locock to introduce it in 1851, and to acquaint the profession with its main therapeutic virtues. Its position at present is that of a neuromuscular depressant and as such its main use, logically, is directed against the best-known of all convulsive diseases, epilepsy. Inasmuch as in potassium bromid the acid bromin, as well as the base potassium, has a sedative active on the nerve-centers and on the muscles, the salt is eminently fitted to cope with the explosive attacks of epileptic convulsions and hence is the most widely used of the numerous bromid compounds. It is excreted by the kidneys more rapidly than other compounds because of double decomposition in the blood, with the formation of potassium chlorid, which acts as a diuretic and increases the chlorin excretion through the kidneys. While small doses administered for a long period cause blunting of the sensory nerves, impairment of motor and diminution of reflex activity, continued large doses will cause the more pronounced depressive attacks known as bromism.

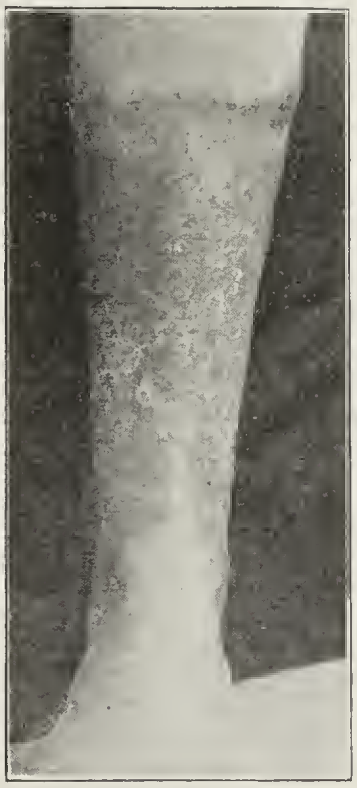
Fig. 1.—Bromoderma of leg; showing a slightly scalloped border with a few partly healed ulcerations. Lower border ends abruptly in a semi-circular line. Quiescent stage. No active symptoms at present. Leg shows smooth atrophic surface with thin easily detachable scales.

Although, as shown by Kross,[2] Albertini,[3] Nencki,[4] Fell,[5] Hoppe,[6] and especially by von Wyss,[7] Ellinger[8] and others, in chronic bromid intoxication the central nervous system has to bear the main brunt of attack, yet the symptoms of bromism are not due to a surcharge by it of these centers, but rather of the blood. It replaces with avidity the chlorin content of the blood and the gastric juice and is found in the secretory and excretory organs.[9]

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Sharp: Pharm. Jour., 1911, xxxiii, 128.
[2] Kross: Arch. f. exper. Path. u. Pharmakol., 1876, v, 6.
[3] Albertini: Arch. f. exper. Path. u. Pharmakol., 1882, xv, 248.
[4] Nencki: Arch. f. exper. Path. u. Pharmakol., 1893, xxxiv, 313.
[5] Fell: Inaug. Diss. Wurzburg, 1899.
[6] Hoppe: Neurol. Centralbl., 1906, xlv, 266; ibid, 1908, xliv, 186.
[7] Von Wyss: Arch. f. exper. Path. u. Pharmakol., 1906, xlv, 266.
[8] Ellinger: Arch. f. exper. Path. u. Pharmakol., 1911, lxv, 87.
[9] Ellinger: Med. klin., 1910, No. 38.

It has been shown that those organs richest in chlorin contain the greatest amount of bromin, hence blood-serum contains the greatest amount of it, next in order being mother's milk, tears, saliva and the skin. In a regimen of salt-poor diet in animals Von Wyss has demonstrated that 40 per cent. of the chlorids must be replaced by bromids to cause poisoning, and Hoppe[10] found in the gastric secretions of epileptics one-third of the chlorids replaced by bromids when the bromin influence showed itself. The antagonistic effect of these two elements is remarkable. Bromism is caused by the accumulation of bromid-ions and diminution of chlorid-ions in the blood and in all the other body juices and organs. Both conditions, it seems, are interlocking; it may be the plus of bromin or the minus of chlorin that causes the intoxication. When table-salt is withheld from the diet of epileptics they become more susceptible to the action of bromin, while abundant administration of table-salt causes the bromism to disappear by increased kidney activity.

ETIOLOGY OF DRUG ERUPTIONS

These will be encountered chiefly in epileptics as they are the principal consumers of the bromin compounds. Though almost any drug may cause an eruption, yet, for obvious reasons, those caused by the iodids and bromids have merited the greatest attention by the profession. The mode of development of these eruptions has hitherto been quite conjectural, but certain observations have brought us nearer to concrete facts, although not to perfect understanding. There are several theories extant concerning the nature and manner of drug eruptions. It is somewhat disappointing that the most natural explanation, the excretion of the "materia peccans" by way of the blood through the glandular system of the skin, is doubted.

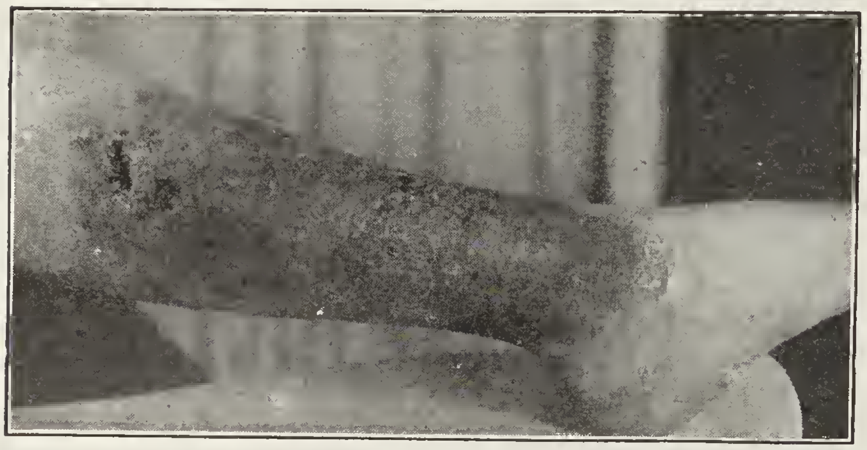
Fig. 2.—Bromoderma of leg; showing the convex lower border and centrifugal extension of the process downward. Outside aspect of right leg. Also shows some activity yet, as seen in the healing ulceration on the upper border.

Not many facts resting on a solid basis have been adduced to prove modern and fanciful theories. Humoral pathology in modern garb, to which we unconsciously are drifting, offers a plausible explanation. If we substitute the modern toxin for the obsolete "materia peccans" and discard the mysterious "critical sweats and eruptions" by calling them reflex phenomena or vessel changes, then we have a working basis at least approximately serviceable to explain drug eruptions. The general consensus is to call drug eruptions only such phenomena of the skin as follow the ingestion and absorption of certain drugs. Skin lesions produced by the external application of drugs are called artificial dermatitis or dermatitis venenatae. Their action is due to their irritating properties exerted on the skin, which depend on the strength of the drug; while the drug exanthems *per se* do not generally depend on dosage. Here a predisposition, a so-called idiosyncrasy, must be present, an intolerance, as it were, for the particular drug or food (crabs, strawberries, etc.). But this arbitrary division becomes untenable when we consider that drugs like salicylic acid, antimony, chloral, antipyrin, etc., may cause eruptions when used both internally or externally; while others will not cause eruptions when applied externally, but will when taken internally (strophanthus, rhubarb, etc.). Again, iodoform is taken internally without unfavorable consequences, while externally it causes great irritation in some persons. It is, therefore, impossible to systematize the etiology of drug eruptions. They may be caused in different ways, either through irritation of the skin glands or their vessels in excreting the toxic substance, or through reflex irritation of the vessels.[11]

On the other hand, external skin irritants like rhus or chrysarobin may cause very intensive constitutional symptoms. The theory of cumulative action, while it fits certain phenomena, does not explain why certain individuals will show a skin eruption very soon after the ingestion of small quantities of a drug which does not harm the great majority of others. Such a predisposition may be a lasting or a temporary one, or one becomes accustomed to skin irritants. With quinin eruptions a hereditary predisposition is observed, while in some instances such abnormal sensitiveness may be acquired and in others become lost. Kaposi[12] thinks that the vasomotor influence cannot hold good in all instances. Some rare cases of urticaria appear as soon as the provoking substance is taken into the mouth. Here the eruption can be explained only by a reflex irritation via the gustatory nerves.

Again the same drug may cause different forms of eruption in different individuals while different drugs will always cause the same form in the same person.[13] The polymorphism of these drug eruptions is one of the main features distinguishing it from other well-defined inflammatory types which they may simulate and which are dependent on a functional disturbance of the vasomotor nerves (angioneuroses). For instance, in urticaria *ab ingestis* the toxins generated by the fermentative products from the gastro-intestinal canal act on the vasomotor centers in the same manner as the irritant drug iodin or bromin.

It is, therefore, as stated before, impossible to narrow down all the enunciations of drug exanthems into a system. Neither from the point of view of the drug, nor from that of the different response on the skin is such a generalization possible. We must have recourse to more or less proved theories, namely: an especially vulnerable skin, differences in the anatomic structures or their distribution (vessels, nerves), a peculiar receptivity of the system, deviation from the normal of the position of the skin-glands, secretory and excretory alterations of their functions and many other incidents partly speculative, partly scientifically demonstrable. Predisposition for and idiosyncrasy against a certain drug, food, or external irritant are yet valid as causes but fortunately not the exclusive explanations in this contradictory domain. If I add to these more or less plausible theories that the skin lesions are caused by the drug itself or its metabolic changes directly or by reflex action via the vasomotor or trophic apparatus, we have in a nutshell all that is known of the causation of drug eruptions.[14] Skin eruptions of a kindred type are observed also after adenoid operations, icterus, serum-therapy, etc.; here the trauma, the bile, the decomposed albuminous products are the causative agents of the skin eruptions.

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[10] Hoppe: Neurol. Centralbl., 1906, No. 21.

[11] Passini: Ann. de dermat. et de syph., 1906, vii.

[12] Kaposi: Pathologie u. Therap. d. Hautkrankheiten, i, 238.

[13] Joseph: Lehrbuch der Haut- und Geschlechtskrankheiten für Aerzte und Studierende, 1892, p. 120.

SYMPTOMS, DIAGNOSIS AND PATHOLOGY OF BROMODERMA

The best evidence that drug eruptions are of angioneurotic character, caused by functional disturbances of vasomotor nerves, is the fact that they simulate almost to the point of confusion other well-known exanthems like erythema nodosum, erythema multiforme, urticaria, scarlatiniform eruptions, etc., known to be of angioneurotic origin; that fever and general systemic disturbances are mostly absent or when present appear only in a mild degree. This forms a distinctive point in the diagnosis of a drug eruption. The differentiation from the infectious angioneuroses—acute exanthems,—will not be a difficult task if we take into account their onset, development and the highly violent systemic disturbances accompanying them.

Iodin and bromin eruptions have some marked peculiarities which differentiate them from other medicinal skin lesions which show a tendency to appear either discrete or generalized. The two have very much in common and, in cases in which the vitiating drug is unknown, they may present some obstacles to a correct diagnosis. There are certain etiologic as well as clinical and histological features, however, which enable us to distinguish the one from the other in most instances.

The average bromin eruption, as is well known, starts with acne-like lesions in places where acne vulgaris usually appears. In its severer types the base of these papulopustules becomes infiltrated and the lesion appears to be raised above the surface. Soon others will appear and a patch of grouped pustular lesions clustered together become confluent in places, occupying a space the size of a silver dollar or larger. This type usually is found on the extremities, with a preference toward the lower one. This agglomeration is characteristic of bromid eruptions. Through proliferation and hyperplastic changes, tuberous, furuncular, and anthracoid formations develop which soon break down, forming fungating, papillomatous or ulcerated highly colored elevations, appearing as if a sarcoid had broken down. The borders of these elevations carry small, sieve-like perforations, giving it the appearance of a honeycomb, from which a foul-smelling smegma issues. These conglomerate patches soon become covered with greenish adherent crusts occupying large areas of several square inches, favoring the lower part of the leg, as in the case I will describe; or they may appear in discrete patches all over the body. Phlyctenular eruptions of the conjunctiva bulbi, and furuncular lesions of the external auditory canal[15] have also been observed. I have seen painful furuncles of the follicles of the vibrissae of the nostrils, causing an erysipeloid inflammation of the alae nasi. Comby,[16] Marzianni and others[17] have seen in infants bromodermas acquired through their mother's milk.

The diagnosis of a bromin eruption, if the cause is unknown, may offer considerable difficulty. Diagnosis of the discrete, acne-like or the papulopustular form necessitates the knowledge of quite a goodly number of dermatoses which they resemble. Those which are ushered in as a generalized eruption will naturally make the diagnostician consider the possibility of one of the acute contagious exanthems, but fortunately there are distinguishing points from which one may arrive at a proper diagnosis. Common to all forms is the suddenness of outbreak and in the generalized forms the violence of development, both local and systemic; the brevity of the acute stage, and the relative quickness of defervescence. In the chronic conglomerated, fungating and exulcerating forms occupying at times almost the entire lower extremity, the risk of a faulty diagnosis is imminent, and sometimes fraught with grave danger to the patient. In the oft-cited case[18] of Köbner, amputation of the leg was avoided only in the nick of time and in his case of a scarlatiniform quinin eruption a prioress was quarantined for suspected scarlet fever for weeks. In Caspari's case,[19] an alleged pemphigus chronicus turned out to be a bullous antipyrin rash. Innumerable other instances of this kind could be cited.

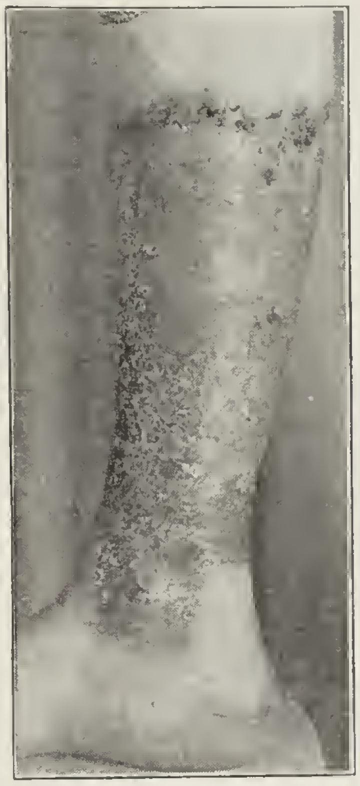

Fig. 3.—Inside aspect of right leg showing the same centrifugal extension as Figure 2. Note smooth atrophic scaly appearance.

The pathology of bromin eruption is that of a more or less deep inflammation and will vary with the particular form it assumes. Changes in the papillary layer, in the periglandular tissues and the vessels surrounding them, a hyperkeratosis and parakeratosis and minute abscess formation in the corium are its main characteristics. Guttman[20] was the first to demonstrate bromin in the pustule and Fox and Gibbes[21] found that the process starts in the cutis vera in the form of minute abscesses. The coil-glands show changes, but the pilosebaceous glands are slightly and only secondarily involved. Hence they declare that the so-called bromid acne is not a real acne.

While Von Wyss and Ulrich[22] consider local intolerance of the skin as the cause of bromid acne, Laudenheimer [23] declares it to be a real symptom of bromin intoxication. According to Gley[24] and Cannizarro[25] bromin has a vicarious action on the ganglia almost similar to the active principle of the thyroid gland. Its administration may cause hyperthyroidism.

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[14] Compare Neuman: Lehrbuch d. Haut Krankheiten, French translation; Auspitz: System der Hautkrankheiten, Vienna, 1881; Crocker: Brit. Med. Jour., 1893, p. 1208; Szadeck: Zur Casuistik des Bromexanthems, Arch. f. Dermat. u. Syph., 1888, xx, 599; Besnier, Brocq and Jacques: La Practique Dermatologique, ii, 480.

[15] Gruber: Allg. med. Ztg., 1887, xli, 409.

[16] Comby: Bromides cutanées chez les nourissons, Bull. Soc. de pédiat. de Paris, 1912, xiv, 153.

[17] Marzianni: Di un bromoderma tuberoso osservato contemporaneamente nella madre e nel bambino lattante, Boll. d. Soc. med. di Parma, 1912, Series 2, v, 53.

[18] Kobner: Arch. f. Dermat. u. Syph., 1873, International Dermat. Cong., Vienna, 1892.

[19] Caspari: Zur Lehre von den Arznei-Auschlägen., Arch. f. Derm. u. Syph., 1894, v, 26.

[20] Guttman: Virchows Arch. f. path. Anat., 1888, lxxiv, No. 4, p. 22.

[21] Fox and Gibbes: Brit. Med. Jour., 1885, p. 971.

[22] Von Wyss and Ulrich: Neurol Centralbl., 1910, p. 75.

[23] Laudenheimer: Zur Behandlung und Theorie des Bromismus, Neurol. Centralbl., 1910, lxxiv, 461.

[24] Gley: Recherches sur le function de la glande thyroide, Arch. de physiol. et de path., April, 1892.

[25] Cannizarro: Deutsch. med. Wchnschr., March 3, 1892.

REPORT OF CASE

History.—A. L., aged 24, of healthy parentage, both parents living, had measles when 1 year old. At the age of 8, she contracted scarlet fever, complicated with kidney trouble and convulsions. After recovery she remained quite well for a year, when the convulsions returned. From this time on she was subject to epileptic fits, against which the use of bromids was advised. One year after the use of the drug—potassium bromid—she had acne of the face and on the border line of the scalp, and soon the right leg became the seat of a papulovesicular eruption. In the beginning discrete, later these lesions through conglomeration became confluent, occupying the middle of the tibial region, and calf of the right leg. Considerable pain and impairment of locomotion was present. One of the peculiarities of the case consists in the strange phenomenon that the eruption becomes aggravated in the fall and winter, and assumes a milder aspect or complete cessation in the spring. The patient denies a more abundant use of the bromid during the winter months, asserting that, in order to avoid seizures, she uses the drug more frequently during the summer. She had no attacks for seven years. When she stopped taking bromid the attacks returned. The eruption, however, continued when medication was interrupted. For six years she has taken a patent medicine containing bromid and for the last two months she has stopped medication entirely with the result at present of the complete cessation of active skin lesions. When I first saw the patient three years ago, she had on her left leg a patch of aggregated papulopustules, on an infiltrated base about the size of her palm and covered with crusts. On the left upper thigh a fungating ulcer the size of a half-dollar was observable, which developed through the exulceration of several confluent lesions. It was very painful and bled at the slightest touch. This latter symptom will be dwelt on presently. The most interesting change occurred on the right lower limb. Here an inflamed surface presented itself, extending from the upper third of the leg down to both malleoli. The front aspect (Fig. 1) shows a crusty, slightly-scalloped border studded with a few partly healed sallow ulcerations. The lower border ends abruptly in a semicircular concave line at about the crest of the tibia. The part which now presents a smooth atrophic surface covered with thin cigarette-paper-like easily detachable scales, in the active stage showed an oozing, angry-looking surface, studded with innumerable pin-head- to split-pea-sized discrete and coalescing papulopustules considerably raised above the surface. The border of these papillomatous lesions had a honeycomb or sieve-like appearance from which a smegma-like offensive-smelling substance could be expressed. Some of these anthracoid and necrobiotic ulcerations as a remnant of former activity can yet be seen on the inner and outer border of the leg (Figs. 2 and 3). A most prominent feature, to my knowledge observed only once, though I have searched for it in the literature for the past thirty years, consists in a venous capillary hemorrhage from these ulcerations. At times, usually in the defervescing stage, a lamellous epidermic exfoliation would take place, exposing painful surfaces. Kudisch's case[26] resembles mine. It occupied three-quarters of the leg, had a vegetating appearance, bled easily, and had festooned borders. The hemorrhage, however, was not so abundant and there was no such epidermic exfoliation. My patient is not afflicted with hemophilia, has a normal blood-count, no nosebleed, no excessive menstruation and has healthy gums. At first varicose veins were thought of as the cause of this unusual symptom, but they were not found. Microscopic examination of an excised portion, however, revealed very marked dilatation of the blood- and lymph-vessels causing these extensive capillary hemorrhages in the pars papillaris. This finding explained the unusual feature of the lesion, caused by an excessive development of the vascular loops of the papillae, which formed the anatomic basis of the fungating lesion.

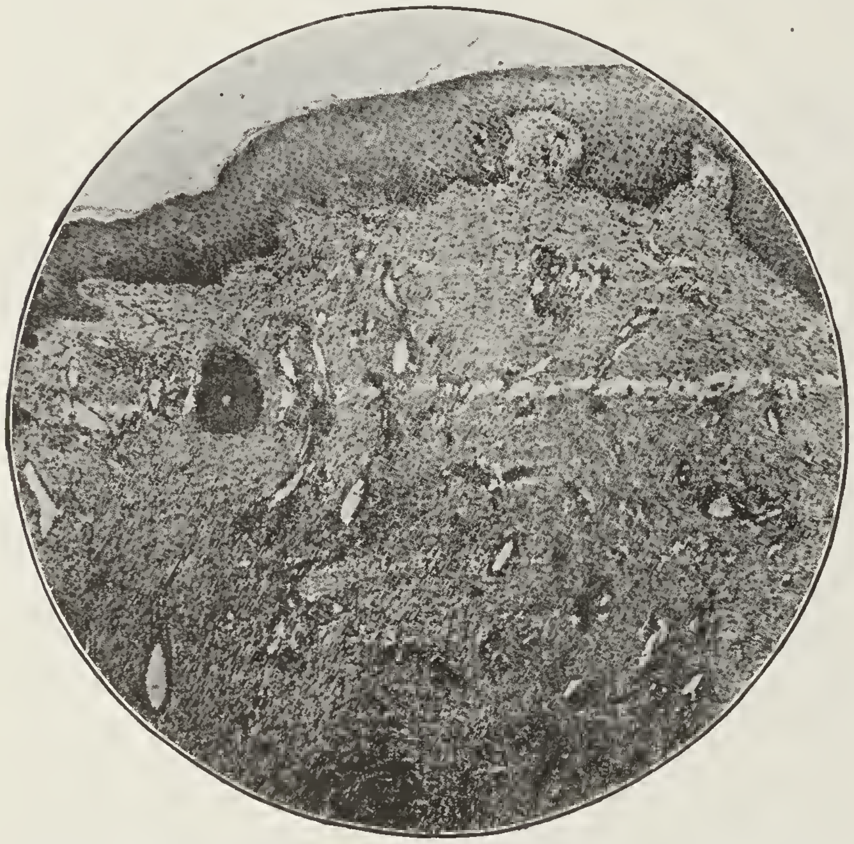

Fig. 4.—Bromoderma, showing partial obliteration of the papillary pegs. Spongiosis and intracellular edema. Dilation of lymph-spaces, moderate cell infiltration.

Histologic Examination.—By Dr. W. McMurtry of the Pathological Division of the Dermatological Department of the Vanderbilt Clinic.

Epidermis: This shows considerable acanthosis. The interpapillary prolongations are shortened or absent generally. The rete malpighii is slightly edematous in spots and the intercellular spaces contain more than the usual number of leukocytes. In one area only, marked parakeratosis is seen, but elsewhere the stratum granulosum and corneum are approximately normal; the latter shows hyperkeratosis in certain areas although clinically a marked tendency to scaling was seen. Certain rete cells show intracellular edema while others are somewhat swollen and stain faintly.

Derma: The entire derma is markedly thickened. The hyperplasia is due partly to a swelling of the collagen, an increase in the connective-tissue cells, fixed and transitional, and to a very marked dilatation of both blood and lymph-vessels and the presence around both of fairly dense cell infiltrations. The latter consists of some mononuclear and polynuclear leukocytes, a great many lymphocytes and a considerable number of plasma cells. Extensive capillary hemorrhages are noted in the pars papillaris. The walls of the larger blood-vessels show no evidences of degenerative changes. The elastic fibers are seen only in the deeper portion of the derma and appear thickened and broken. In the center of the sections there is an abscess. This has evidently begun as a follicular pustule and has then extended downward in an hour-glass shape. Surrounding it is a perifollicular infiltration of leukocytes, lymphocytes and connective cells with considerable number of red blood-corpuscles. No giant cells and no chorioplaques were found. The sweat and sebaceous glands show periglandular infiltration. No evidence of either syphilis or tuberculosis is seen. Macrophage cells (*Schaumzellen*) as described by Passini[27] were not found.

Figures 2 and 3 show the convex outline of the lower border of the lesions and the centrifugal extension of the process downward. It has not extended beyond this limit in the last two years, but shows some activity, as seen on the upper border. The photograph was taken in February and represents the usual, although at this time slight, winter exacerbation. At present, in June, there are no ulcerations visible. The leg shows now a reddish-brown, smooth, slightly scaly, atrophic appearance. Its circumference is two inches less than the right one. The skin is tensely drawn and when pinched shows thin-ridged sallow papery folds. The whole process has lasted over three years. Bromids are taken and discontinued occasionally and for a short time. Bacterial cultures were negative, chemical analysis of sections also negative. The urine showed specific gravity of 1.013, traces of albumin, a large excess of indican, subnormal excretion of urea, frequent crystals of calcium oxalate. No bromids were detected after careful search. This finding corresponds with the veracity of the patient with reference to the ingestion of bromids.

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[26] Kudisch: Drei Fälle von Bromoderma Tuber. Veget., Dermat. Ztschr., 1912, p. 703.

[27] Passini: Pathology des eruptions bromides, Ann. de Dermatol., 1906, No. 7, p. 1.

DIFFERENTIAL DIAGNOSIS

In the foregoing the confounding of medicinal eruptions with syphilis has been dwelt on as the most serious of possible mistakes. I will try to offer some points on differential diagnosis. The sudden onset and the usual topographic distribution of these eruptions should be constantly kept in mind. Thus, a pustular bromid acne will develop more acutely than a pustular syphilid. It will show a predilection for the head, face, and extremities, while the syphilitic eruption will be found irregularly scattered over the body though it adheres more or less to a symmetrical arrangement. Bromid acne extends down into the cutis and is harder to the touch than the syphilitic or necrotic variety. The absence of inflammation in acne cachecticorum will serve to distinguish it from bromid acne; and from acne vulgaris it can be differentiated by its rapid and simultaneous appearance on the scalp and other hairy parts, by the absence of seborrhea oleosa and comedones and of other concomitant signs of pilosebaceous gland alterations. Finally, bromid eruptions like to develop on scar tissue.

Acne caused by iodin has a more acute onset. Ehrman,[28] however, classes it also with the bromid variety, while Szadeck attributes to the former a more acute beginning. I venture to remark that the affection of the mucous membranes as an almost always present symptom of iodin intoxication, will serve as an useful differential diagnostic sign. It should also be remembered that the iodin eruption shows a tendency to assume a bullous type.

To distinguish it from an exulcerated iododerma is at times very difficult. This develops from the bullous type, rarely observed in bromoderma and is accompanied by a highly inflamed, often erysipelatous, swelling, deeper necrobiosis and more intensive systemic disturbance. Moreover, it does not occupy, as does the bromoderma, the lower extremities by predilection, and does not show the marginal honeycombed smegma-excreting walls. The examination of the urine and anamnesic data will also prove helpful toward a correct diagnosis.

Both the bromoderma and the iododerma offer at times insurmountable difficulties to differentiation from the exulcerated gummous syphilid. Both form ulcers by central breaking down; both show steep walls. The studded pustular points around the margin, the flabby, sluggish feel to the touch of the bromoderma, will vividly contrast with the gyrate serpiginous configuration and convex margin of the ulcerating tuberculosyphiloderm. The Wassermann reaction and, eventually, a provocative salvarsan injection will soon solve the question.

TREATMENT

The antagonism between the two haloids, bromin and chlorin, one replacing the other and vice versa, has been utilized against bromin intoxication. Bromin retention in the system is due to ineffective kidney excretion. Bromin is absorbed quickly from the intestine, and if not excreted soon by the intestinal tract it rapidly manifests itself in the blood, deplacing its chlorids. It is, therefore, administered in cases of bromin intoxication in epileptics when untoward symptoms require cessation of the bromids. The same holds good in skin eruptions. Theoretically, the application of saline compresses on bromodermas and the ingestion of table-salt would recommend themselves. Ulrich[29] recommends also salt baths for the same reason. Ointments invariably aggravate the condition. In my case rest and a 4 per cent. boric acid solution applied continually and held in place by a soft gauze bandage kept moist, was very effective.

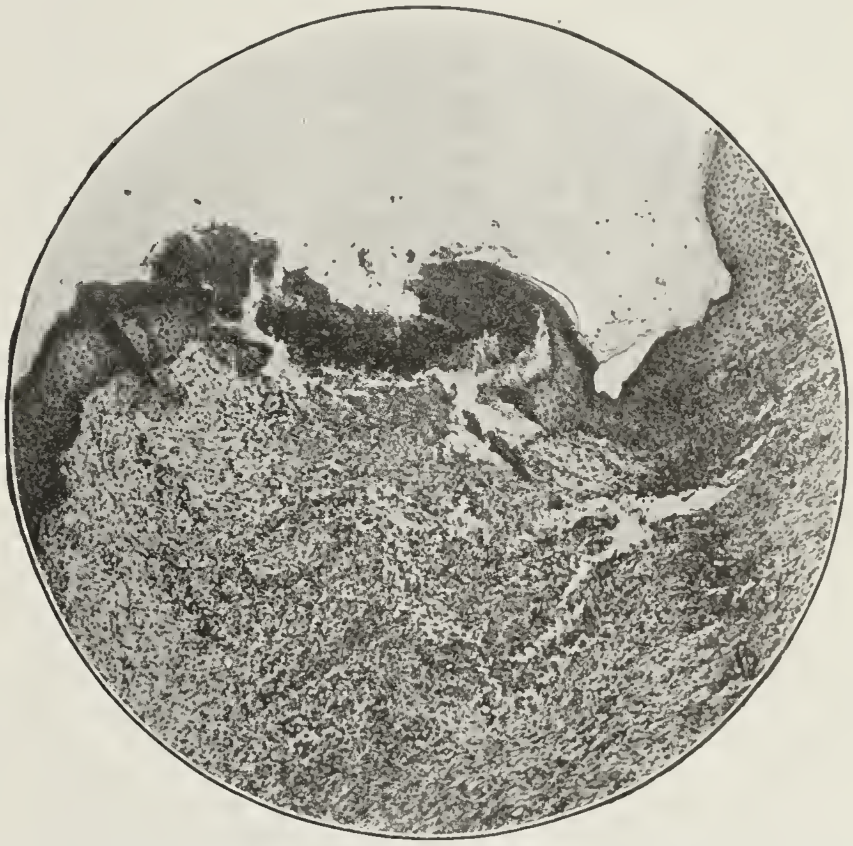

Fig. 5.—Bromoderma. Pustulation, atrophy of epidermis. Hemorrhage and round-cell infiltration.

CONCLUSIONS

1. Drug eruptions may simulate almost any known skin affection.
2. A skin eruption starting suddenly without any prodromal symptoms is almost sure to be a medicinal eruption.
3. The violence of development, the preponderance of the local over the systemic disturbances is characteristic of drug eruptions.
4. The brevity of the acute stage and the quickness of defervescence constitute a notable asset in diagnosis.
5. The usual four stages of the acute contagious exanthems, namely, the prodromal stage, the eruptive, the fully developed and retrogressive and the desquamative stage are wanting.
6. The temperature never rises to the point shown by the acute exanthems and the affection of the mucous membrane is never so severe.

42 West Ninety-First Street.

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[28] Ehrman: In Mracek's Handbuch der Hautkrankheiten, Vienna, 1891, part 3, p. 505.

[29] Ulrich: München. med. Wchnschr., 1910, No. 22.

ABSTRACT OF DISCUSSION

Dr. Ernest L. McEwen, Chicago: Cases of bromoderma are sometimes found in epileptics in which the skin eruption closely simulates blastomycosis. I recently saw a bromoderma in a girl of 16, an epileptic, who for a long time had been taking large doses of bromids. The lesion in this case appeared suddenly and extended rapidly, totally unlike what we see in true blastomycosis. Dr. Oliver S. Ormsby of Chicago, reported a similar case some years ago, in which the lesion spread with astonishing rapidity and closely simulated blastomycosis.

Dr. A. Ravogli, Cincinnati: Not long ago I saw a child with massive tumors on the face and head. The child had been treated with the Roentgen rays and was getting worse and the treatment had also set up a Roentgen dermatitis. On inquiry, it was learned that the child had been taking bromids, and when this was discontinued, the lesions healed under simple treatment. I have also seen an acneiform eruption on the legs, due to bromid which was very difficult to diagnose.

Dr. M. L. Ravitch, Louisville: I do not agree with Dr. Weiss that these cases are so very unusual; I think many cases of bromodermas have been reported in the literature, and I have seen many cases more in private practice than in the asylums. The insane patients stand bromids better than normal people. I recall one case of bromoderma in an infant in which the diagnosis of small-pox was made and the child sent to an isolation hospital. I do not think bromoderma is confined to any particular season of the year. I have seen cases of bromoderma simulating blastomycosis, in winter, fall and summer.

Dr. George M. MacKee, New York: I had the opportunity of studying this case very carefully, and it offered considerable difficulty in the diagnosis. Among other things, we considered tuberculosis, syphilis and blastomycosis, and finally arrived at the correct diagnosis by the process of elimination.

Dr. Ludwig Weiss, New York: Bromoderma is not a very rare condition, but in my case there were some unusual features. The hemorrhages from the vegetations were at times very profuse, owing to the dilated venous loops in the papillary layer. I mentioned the seasonal occurrence of bromoderma only as a curiosity. We find that erythema nodosum and other forms of erythema are worse in cold weather and improve in the summer. As Dr. MacKee has already pointed out, the lesions in this case had to be and were differentiated from a syphilid, pemphigus and other forms of eruption.

FAVUS AND RINGWORM OF THE NAILS

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Favus and ringworm of the nails are supposed to be rather rare conditions. The finding of 101 such cases among the aliens arriving at Ellis Island during the first eight months of the present fiscal year goes to show that these disorders are probably more common, at least among our foreign population, than is generally believed.

Clinically both diseases present practically the same symptoms. The affected nail is thickened, brittle and sometimes even caseous. The natural color and transparency of the involved portion is lost and it becomes opaque and yellow or dirty-white in appearance. The process generally starts at the distal end and slowly infiltrates the nail toward the base, the diseased portion crumbling away gradually, because of the trauma to which the part is necessarily exposed in the ordinary vocations of life (Figs. 1, 2, 3, 4 and 5).

The side or base of the nail, however, may occasionally be first involved. Rarely the whole nail appears to be simultaneously attacked, and there is a more or less universal involvement of the whole horny substance. If the nail does not flake and break away, leaving a rough, uneven, diseased surface, it is very much thickened and deformed. Only one nail may be involved, or several or all. The thumb, index-finger and middle fingers are the ones most commonly attacked, and as the nails are generally infected from scratching the scalp, this distribution would be expected.

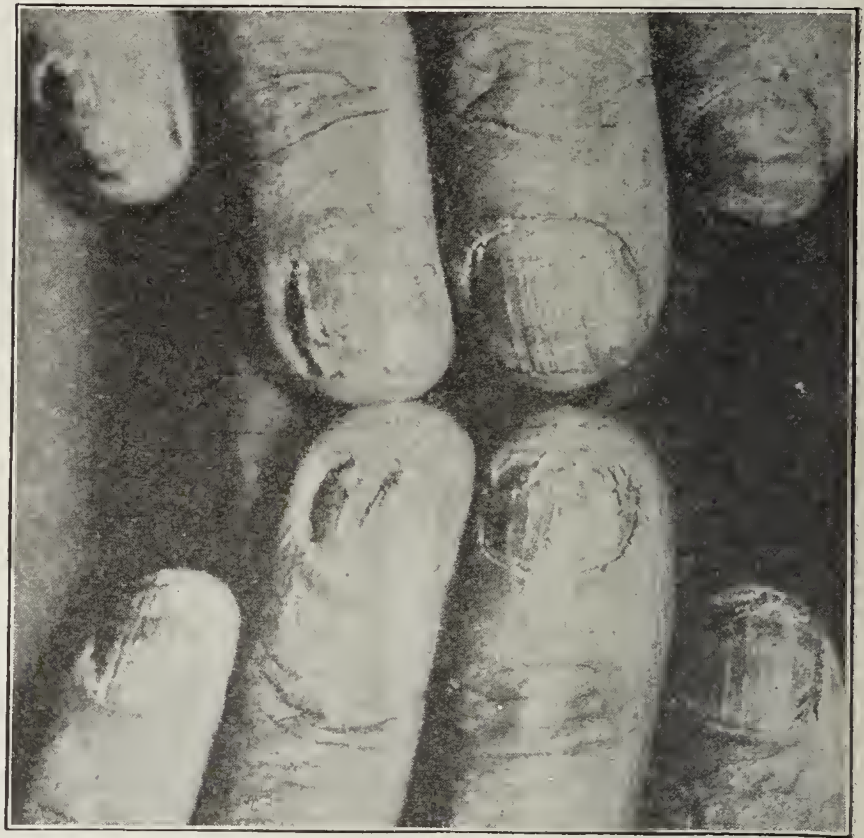
Fig. 1.—Ringworm of nails.

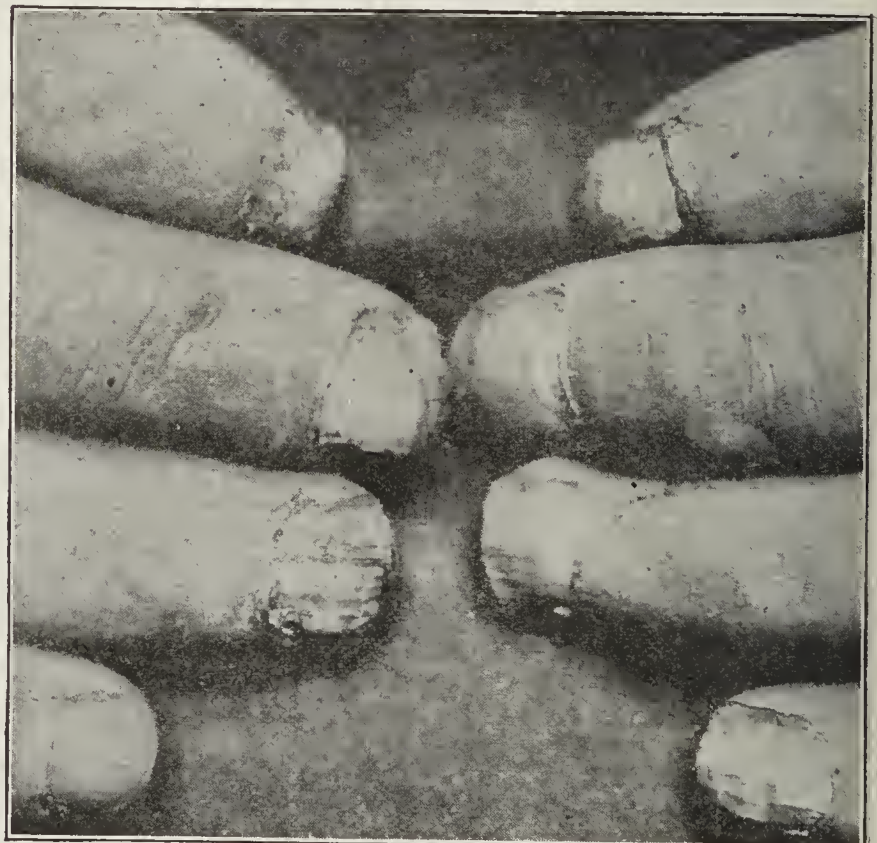
Fig. 2.—Favus of the nails.

The disease does not appear to be painful nor does it seem, at least in our experience, to predispose toward setting up any acute inflammatory conditions of the surrounding soft parts.

PROGNOSIS

The process is essentially chronic, and if untreated continues indefinitely. The youngest patient whom we have encountered was 3 years old, the oldest 72. Reliable histories were hard to obtain, but one unfortunate asserted that this condition had been present for fifty-two years.

DIAGNOSIS

While the mottled, yellow, thickened and crumbly condition of the nails affected is highly characteristic, there are other conditions, besides an infiltration of these specific fungi, which resemble it very closely. These are syphilis, psoriasis, eczema, simple atrophy and hypertrophy, grave constitutional disorders, and some other skin diseases (Figs. 6, 7, 8, 9 and 10).

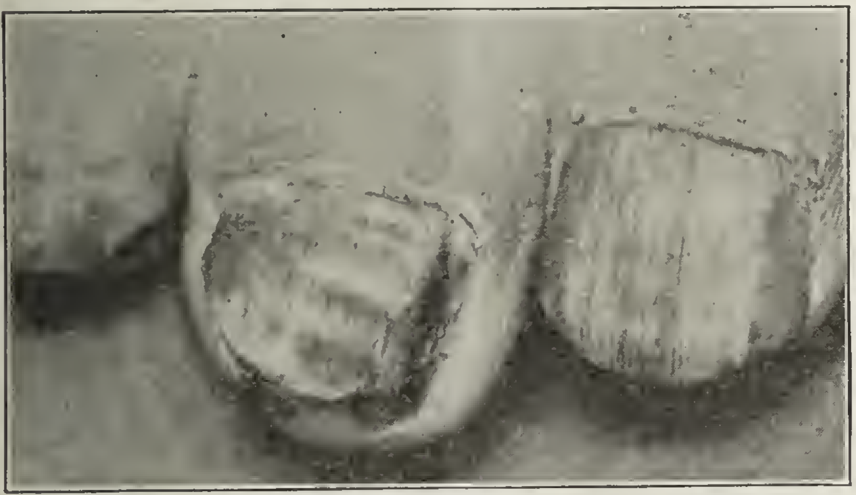
Fig. 3.—Ringworm of the nails enlarged, showing peculiar deformity.

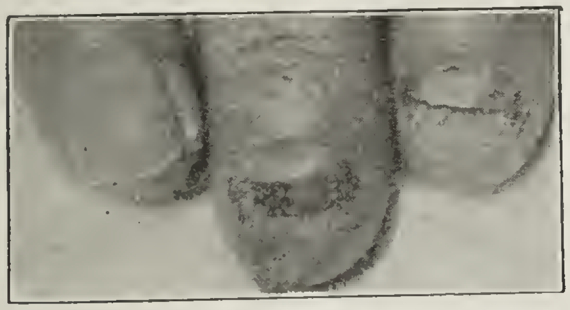
Fig. 4.—Favus showing crumbling of the nails. This case was of four years' duration.

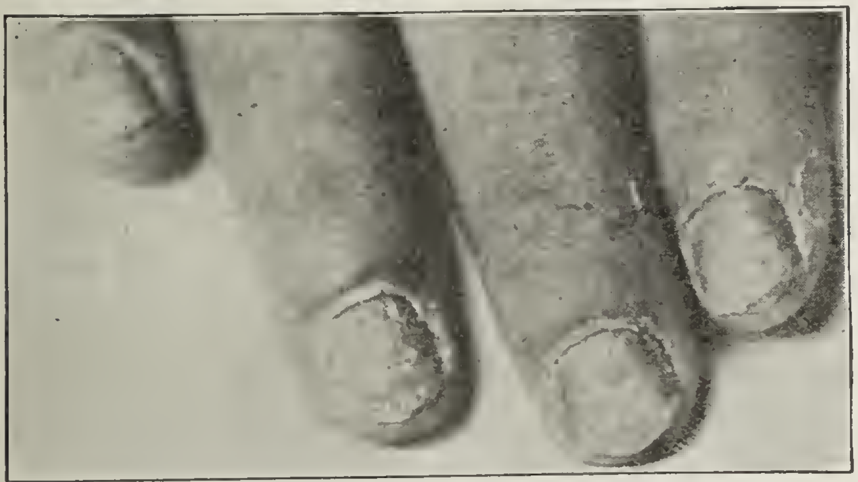
Fig. 5.—Ringworm of nails showing general yellow infiltration but no loss of substance.

When the nails are affected by some general constitutional process, it is usual to find all of them involved. In ringworm and favus one or more often escape. Hypertrophic and atrophic conditions of the nails likewise involve all of them and the entire nail substance.

Fortunately it is not necessary to endeavor to find clinical points of difference, as a microscopic examination enables us to make the diagnosis with certainty.

METHOD OF EXAMINATION

Several drops of a 20 per cent. solution of potassium hydroxid in water are placed on a slide and a few fine scrapings from the suspected areas dropped in the solution. The slide is moderately heated once or twice and allowed to stand a few minutes. In a little time the suspected material becomes increased in size and soft in consistency. The "clearing-up" process may be hastened by gently separating and dividing the specimen with an ordinary teasing-needle. Several of the smaller bits of the softened scrapings are then placed on another slide and a drop of the solution of potassium hydroxid added and a cover-slip placed over all. The slip is gently pressed down so as to make a fairly thin preparation.

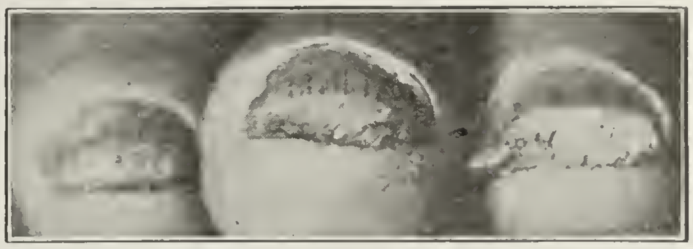
Fig. 6.—Simple hypertrophy of nails, end view, natural size. The patient, an alien, asserted that the condition had existed from birth.

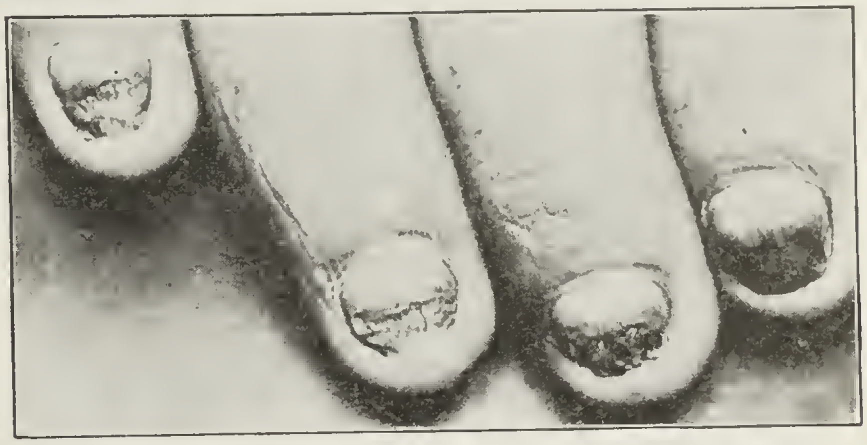
Fig. 7.—Simple atrophy of nails, asserted to exist from birth.

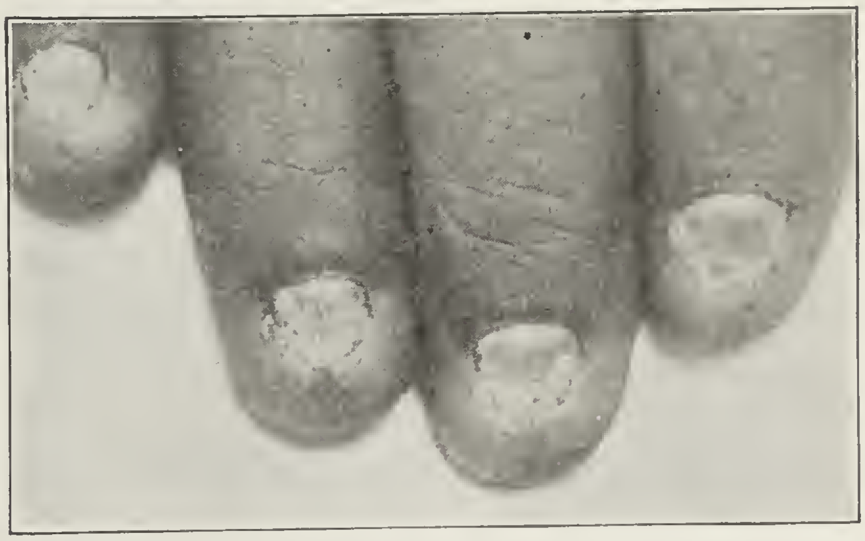
Fig. 8.—Atrophic condition of nails due to severe burn received during childhood.

Examined with a 4 eye-piece and a 7 objective with subdued light, the fungi appear as highly refractive, slightly greenish, transparent, branching threads among the partly disintegrated elements of the nail. If properly applied the potassium hydroxid solution clears up and partially dissolves the normal nail material, leaving the fungi standing out distinctly in the field (Figs. 11, 12, 13 and 14).

If the clearing-up process is too slow, reheating will materially hasten it. A little search may be necessary to find them, but in many specimens every field will be found to contain a number of the threads. Generally the organism of both favus and ringworm when obtained from the nails appears as plain, hyaline, branching threads which here and there show faintly the separation into spores or which contain at more or less regular intervals a small, round, highly refractive spore. Occasionally, as in the illustrations, the spore formation is very prominent; but such a distinct separation into spores is not the rule.

INVOLVEMENT OF THE SKIN OF THE PALMS AND FINGERS

In a number of these cases I have noted that the skin of the palm and palmar surface of the fingers was unusually hard, horny, calloused, and had a tendency to crack and peel off in flakes. While this condition is generally observed to a moderate degree in laborers who use the pick and shovel constantly as a means of livelihood, yet it is unusual to see it to the extent present in many of these nail cases. We have lately been examining scrapings from these hands and have found the organism to be generally present in the skin, presenting practically the same appearance as in the nails.

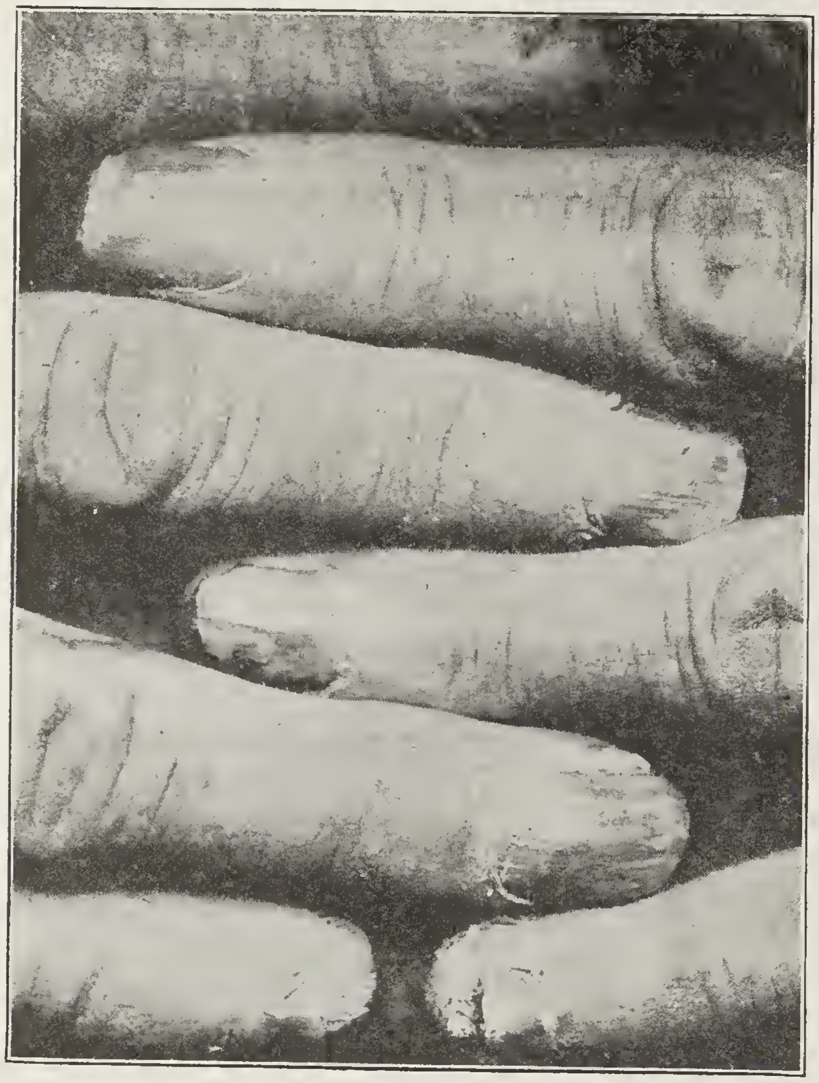

Fig. 9.—Syphilis of the nails. The palm of this case is shown in Figure 17.

While ringworm and favus of course frequently attack the glabrous skin, the clinical symptoms when involving the thickened horny epiderm of the palm and fingers is so different that there is no similarity to ringworm elsewhere (Figs. 15, 16 and 17).

The lesions are not red or circular, but merely what would ordinarily be considered as an extreme degree of callosity with a marked tendency to peeling, and it would appear that the disease in this location has been frequently overlooked, as I have found no description of this condition in the literature on the subject to which I have access.

DIAGNOSIS OF FAVUS FROM RINGWORM

As stated above, both disorders present clinically practically the same symptoms, and the fungi of ringworm and favus when obtained from the nails resemble each other so closely when examined microscopically that a separation of the two diseases on these findings alone is generally impracticable. If there be favus of the scalp or elsewhere on the body, or if the scalp bear the scars of old favus, it is proper to assume that the condition of the nails is also due to the same organism. Similarly if other parts are involved with ringworm, it is likely that this is also the cause of the onychomycosis. If neither active favus nor ringworm is present elsewhere, and there is no evidence of old favus, it is customary to make a diagnosis of ringworm, as ringworm of the scalp often disappears spontaneously after puberty and leaves no scars, and it is likely that the disease was transferred to the nails when it was active in the scalp.

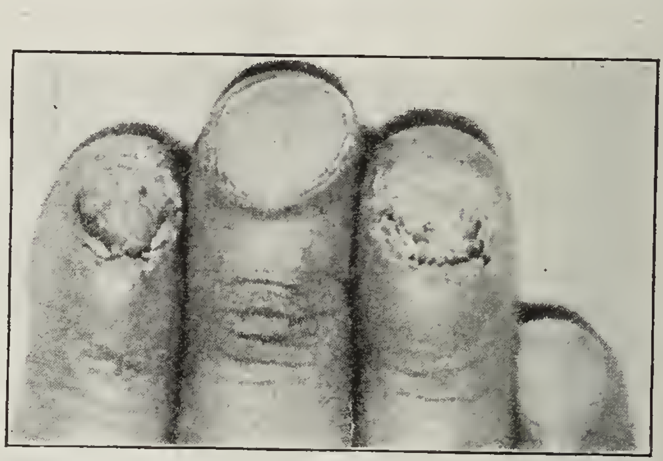

Fig. 10.—Idiopathic loss and destruction of two nails. Case was kept under observation for a number of weeks and repeated examinations made, but no cause for the condition could be discovered.

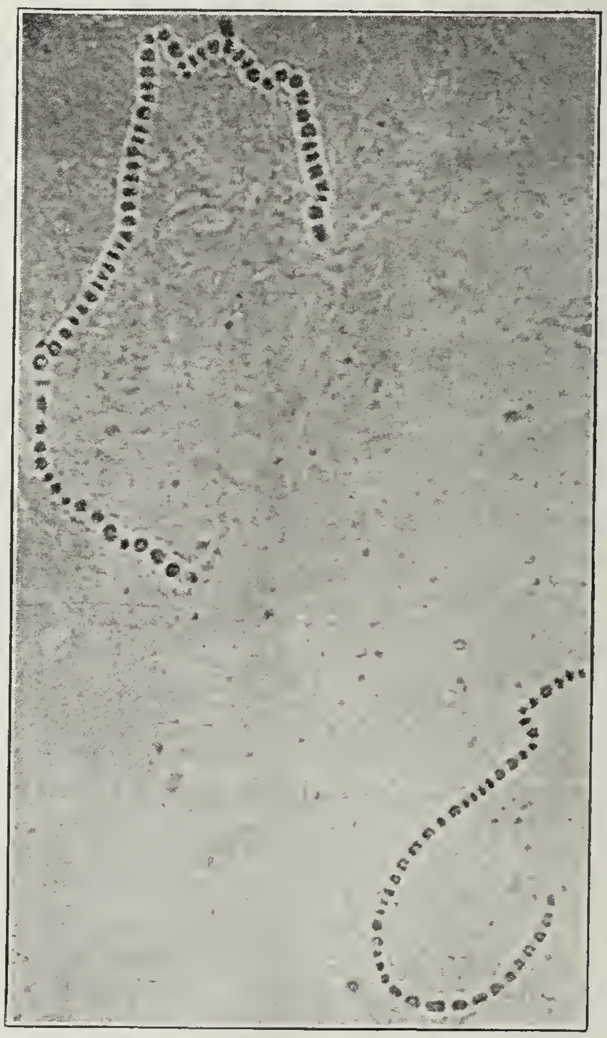

Fig. 11.—Photomicrograph of the organism of ringworm, × 330. It is unusual to see such marked spore formation.

COMPARATIVE FREQUENCY OF THE TWO DISEASES

In our series of 101 cases eighty-four were ringworm and seventeen favus. This would indicate that ringworm is encountered about five times as often as favus. It may also be interesting to know that these 101 cases were discovered among 521,366 aliens who were examined. Roughly speaking, the ratio of cases was about one to five thousand of these foreigners.

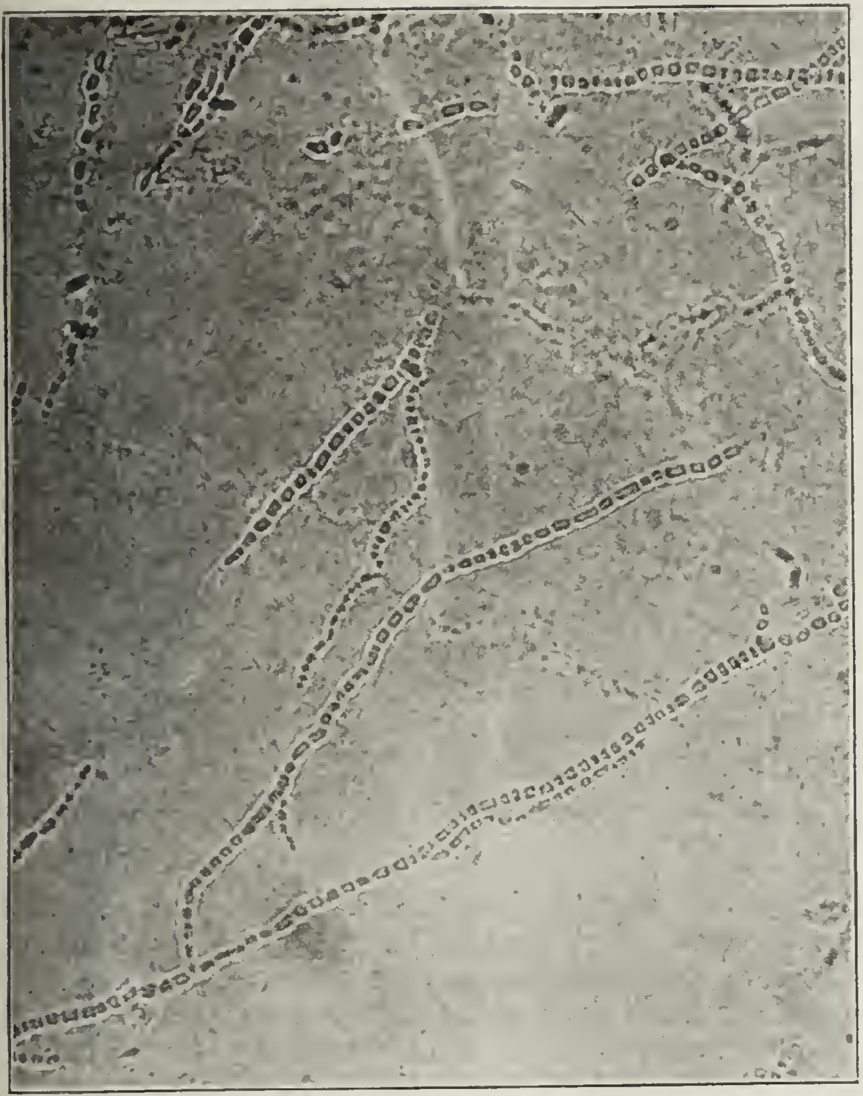

Fig. 12.—Photomicrograph of the organism of ringworm, × 330. It is unusual to see such marked spore formation.

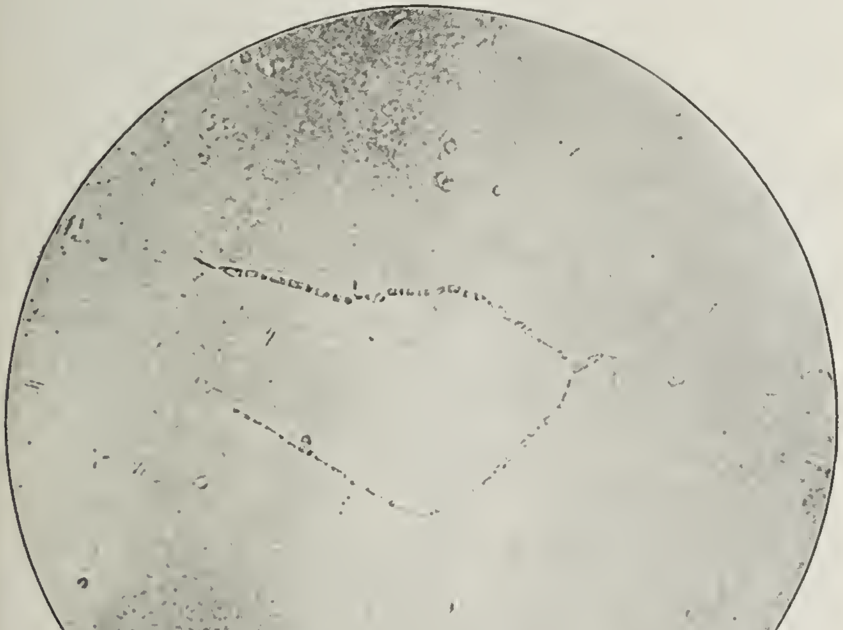

Fig. 13.—Photomicrograph of the organism of favus, × 330. Usually the spores are not so distinct. From the case shown in Figure 4.

TREATMENT

All authorities agree that the onychomycoses are extremely stubborn and resistive to all forms of treatment, and from the pathology of the disorder we would expect this to be the case.

The organism grows into the nail substance and down into the matrix, where it cannot be reached by any local applications. Any form of treatment must be preceded by curetting and scraping away the diseased part of the nail so as to apply the antiseptic to the denuded surface. Continuous application of the desired remedy may be obtained by pulling rubber finger-cots over the infected fingers and placing the medicine inside of them. Care must be taken to avoid setting up a general inflammation of the part by too severe or too prolonged treatment.

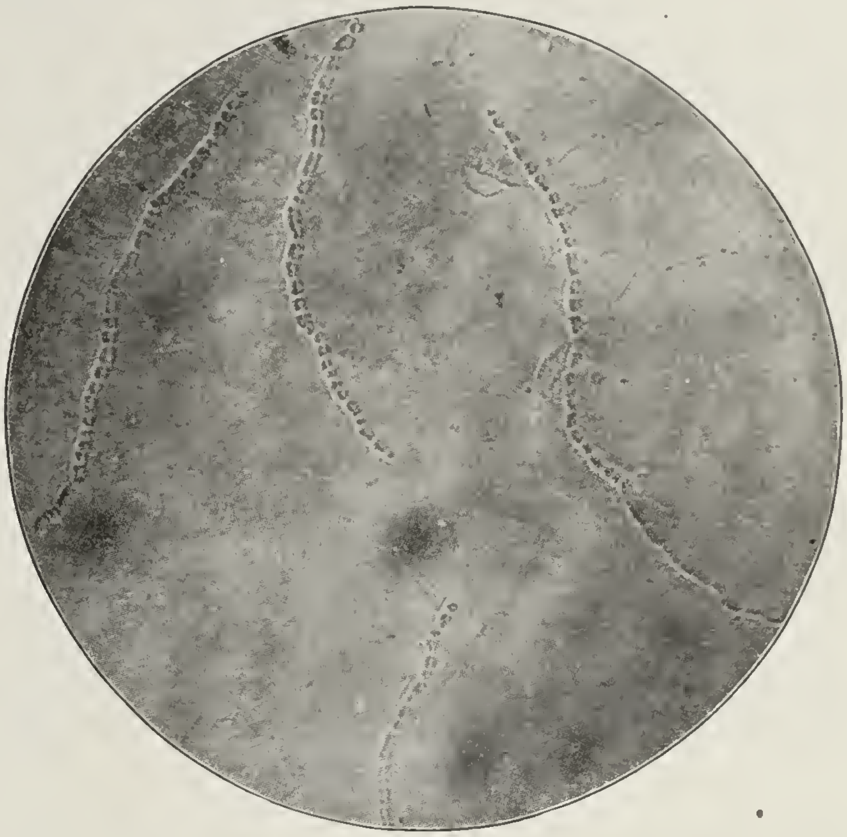

Fig. 14.—Photomicrograph of the organism of favus, × 330. Usually the spores are not so distinct. From the case shown in Figure 4.

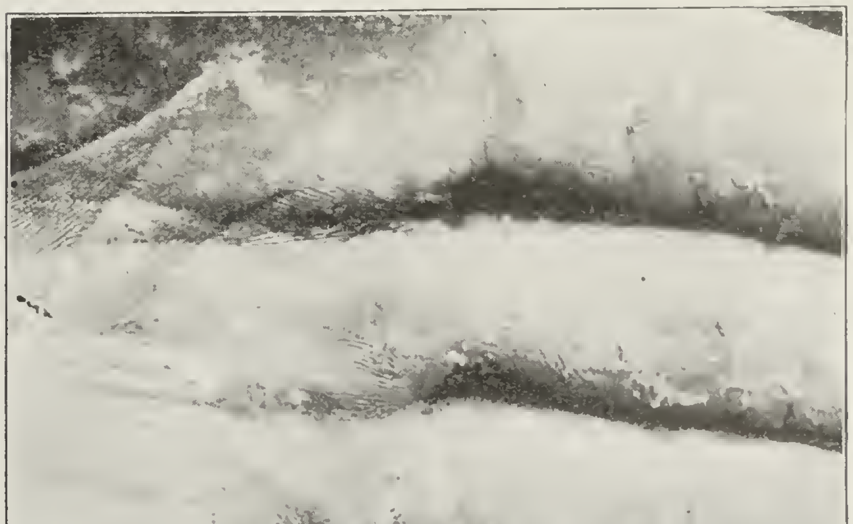

Fig. 15.—Ringworm of the palm. The nails also were involved.

Stelwagon recommends dipping the finger-ends in a solution of mercuric chlorid, from 1 to 3 grains to the ounce, for from five to ten minutes daily, allowing it to dry in and then enveloping the parts with an ointment of white precipitate or calomel, a dram to the ounce. He also recommends the use of a 20 per cent. solution of sodium thiosulphate, subsequently followed by enveloping the fingers with an ointment of precipitated sulphur, 1 dram to the ounce. He also speaks of Harrison's treatment, which consists in applying a 6 per cent. solution of potassium iodid in equal parts of 20 per cent. solution of potassium hydroxid and spirits of wine for three or four minutes at a time. This is done two or three times at intervals of two or three days, and then Solution 2 is applied. This solution consists of 4 grains of mercuric chlorid dissolved in 4 drams each of spirits of wine and water. It is asserted that by this process mercuric iodid is formed deep in the tissues. Tincture of iodin and a host of other germicides have been recommended.

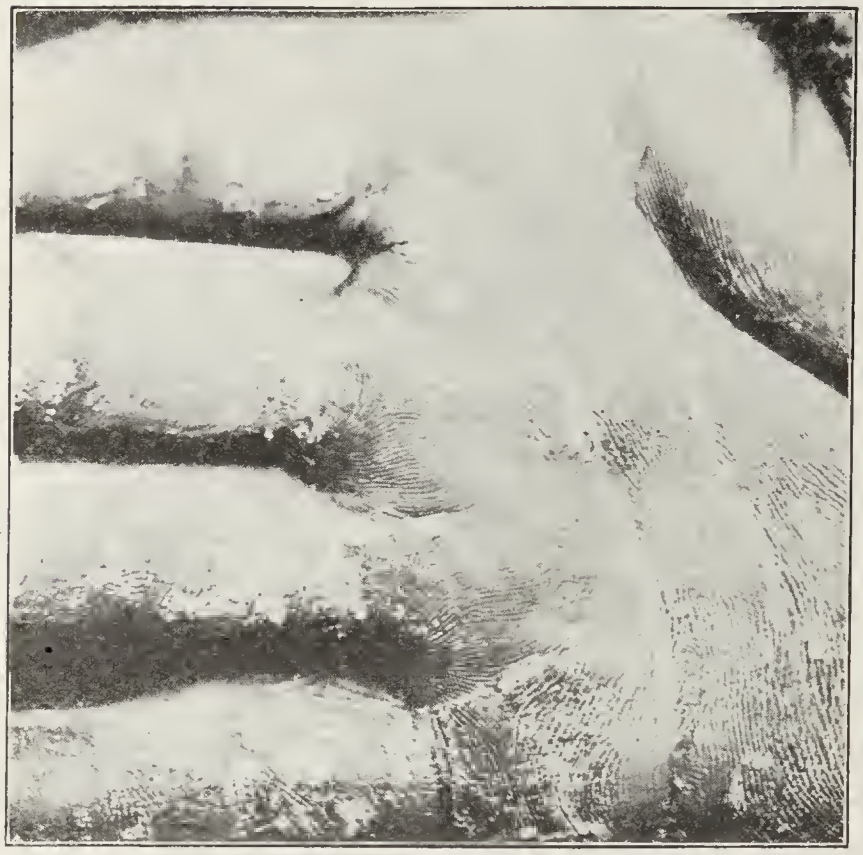
Fig. 16.—Favus of the palm; the nails also were involved.

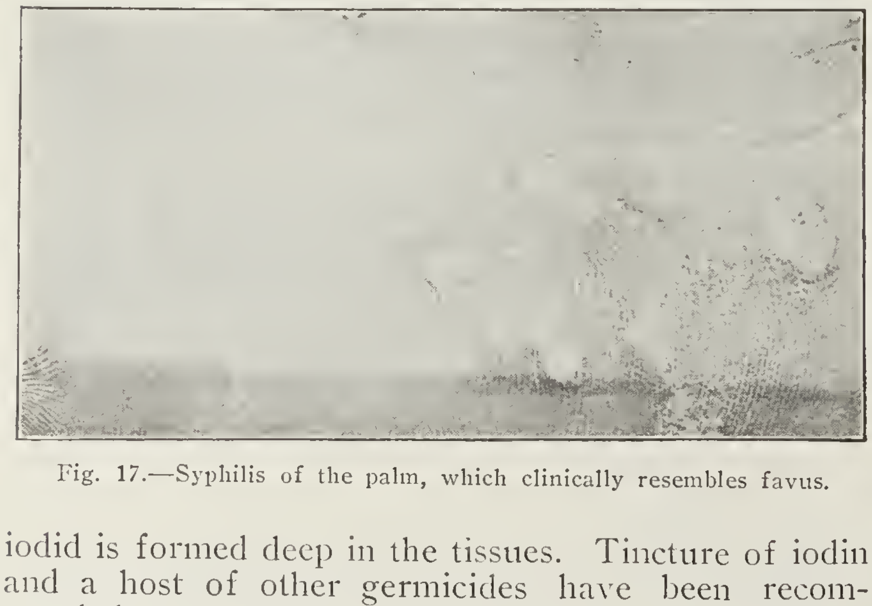
Fig. 17.—Syphilis of the palm, which clinically resembles favus.

My experience with these remedies on the nails is too limited to justify my expressing an opinion concerning their utility. Concerning ringworm of the scalp, I am in a position to say that all medical applications in my hands have been extremely disappointing. We have the records of a family of three children aged, respectively, 6, 8 and 11 years, who were treated most persistently in two hospitals for two years by several skilful men, one of them an eminent New York specialist. They were then treated as out-patients in another hospital for six months. At the expiration of this two years and six months' treatment, a microscopic examination showed the organism in all of them and they were apparently no nearer a cure after all this prolonged medication than at the beginning.

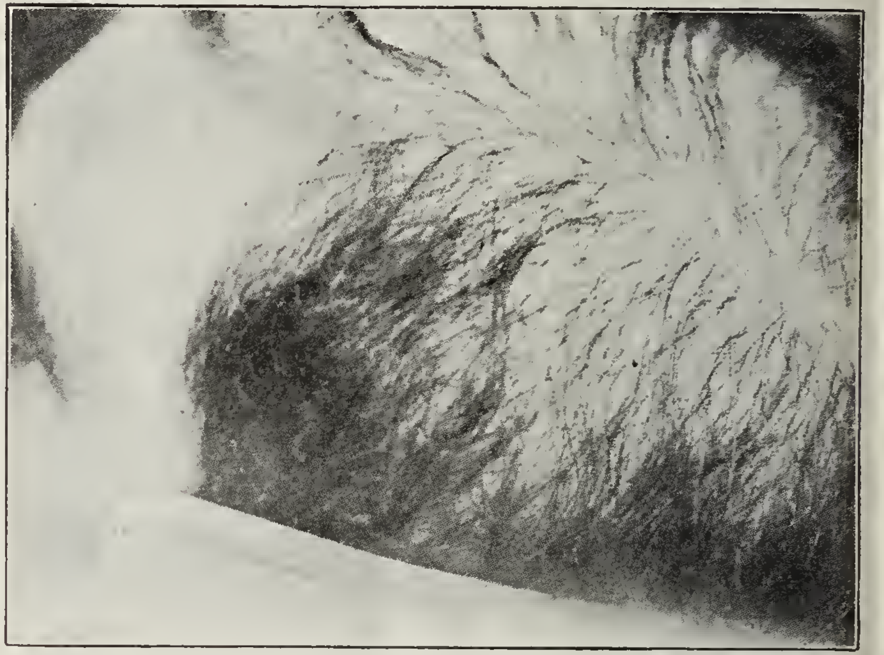
Fig. 18.—Wiry hair and scarred scalp following favus in a young adult.

I am of the opinion that some of the reported rapid cures of ringworm of the scalp were either errors of diagnosis in the first place or that the cure could not have been sustained by a competent microscopic examination. I have frequently seen patients in whom the clinical symptoms promptly disappeared in a few months on the application of the ordinary remedies, but in whom a microscopic examination revealed plenty of hairs infested with the spores of ringworm.

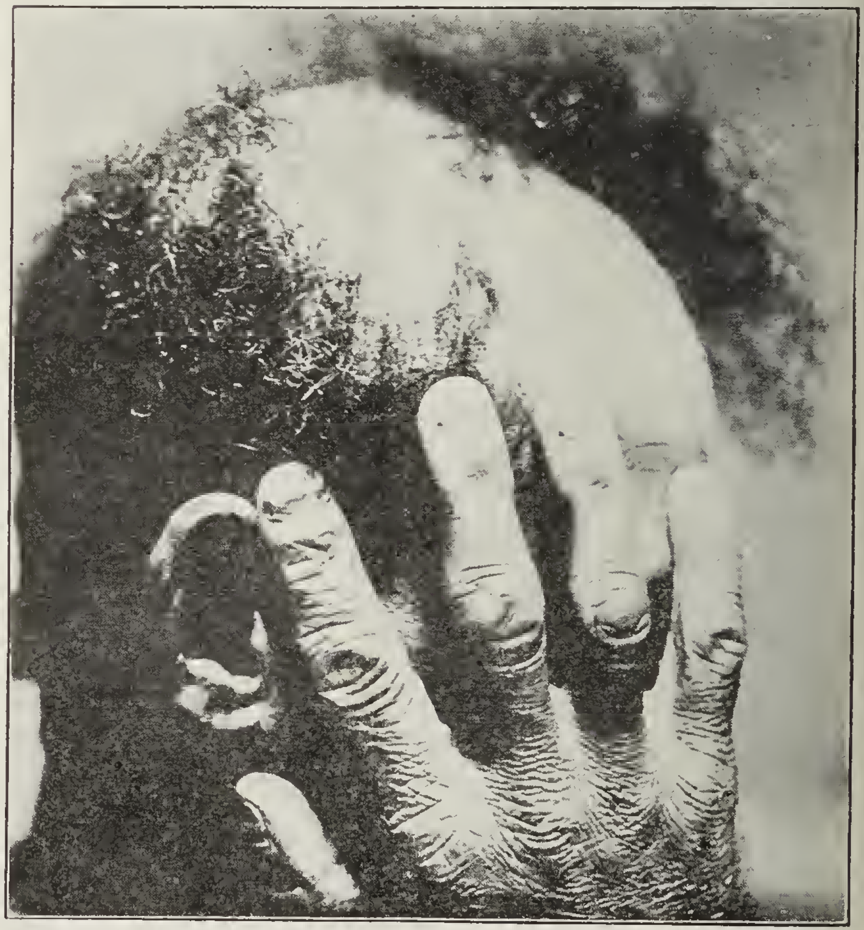
Fig. 19.—Old favus of the scalp and active favus of the nails. Cause and effect.

Much more encouraging reports are made from the use of the Roentgen ray, but as it has no direct action on the organism and acts simply by producing epilation (Sequeira), it would not appear to be applicable in combating the condition in the nails.

In view of the tediousness and uncertainty of medical treatment, the avulsion of the nail and the application of some germicide to the matrix may be justifiable. We have adopted this procedure in two cases.

PROPHYLAXIS

When the hands and nails are involved by either of these fungi, the likelihood of their transmission to others is probably much greater than in cases of the same disorder occurring in the scalp. The sufferer is constantly scattering far and wide particles of disintegrated nail substance and flakes of skin which are loaded with the organism. His hands are continually in contact with objects of common use and very often directly with the persons of others. More ideal conditions for disseminating the infection could scarcely be devised. Imagine the situation should a barber or hair-dresser contract the disease in the nails and continue to practice his vocation!

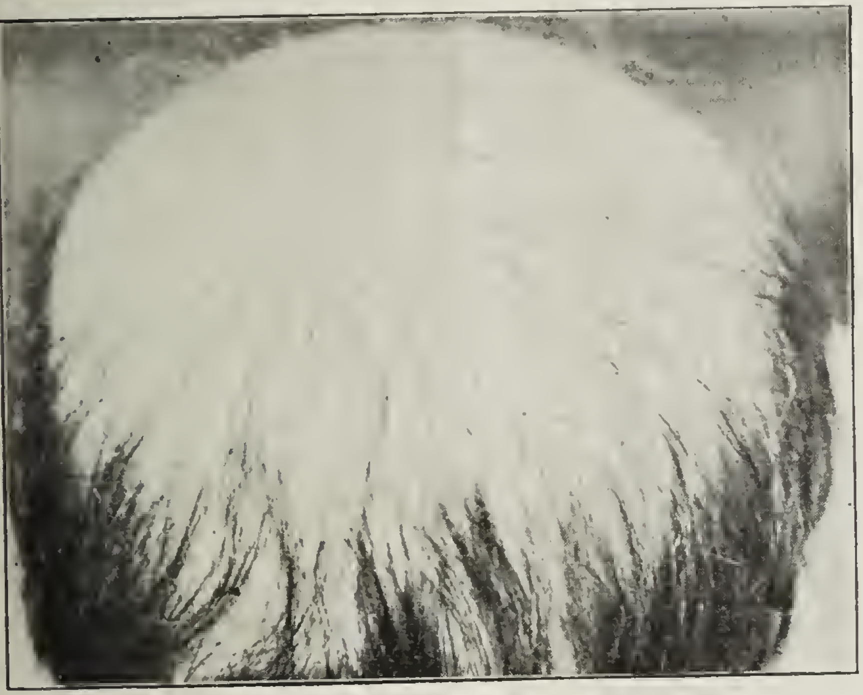

Fig. 20.—Old favus, recovered, of the scalp, in man aged 28. Note the loss of hair and the coarse, wiry appearance of the hair present.

Favus of the scalp or nails is a severe and loathsome disease. Unless energetically and carefully treated from the start for a very long period, it always results in permanent loss of the hair and scarring of the scalp in the areas involved with great disfigurement (Figs. 19 and 20).

Fortunately the disease is rather infrequent in America and our strict immigration inspection prevents new cases from being introduced from those foreign countries in which it is prevalent.

In view of the danger to the community at large, it would seem that favus should be added to the list of notifiable diseases and that cases occurring in this country should be placed under such restraint by the local health authorities as may be necessary to prevent the spread of the disease to others.

My thanks are due to Surgeon L. L. Williams of the U. S. Public Health Service for his kindness in permitting me to refer to these cases. I desire also to make my acknowledgments to Assistant Surgeon J. H. Smith, who has done the microscopic work, and to Pharmacist Charles Slough who has given valuable assistance in making the negatives.

Ellis Island.

A COURSE IN SURGICAL TECHNIC *

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AND
FREDERIC W. BANCROFT, M.D.
NEW YORK

The course in surgical technic here described was designed to meet a demand in the surgical training given in Columbia University. It is realized that familiarity, by actual observations on animals, with the use of aseptic materials, the appearance and manipulation of living tissues, the control of hemorrhage, and the methods employed to prevent contamination and subsequent infection of recent wounds, is an equal advantage to the graduate whether he enters practice immediately on graduation or prepares himself further by a hospital training. The opportunity to participate in operating-room routine, such as the preparation of the patient, the surgeon, the instruments and materials, is now of recognized value, and this recognition has created a need for special training in the details of aseptic surgical technic.

The course is given to fourth-year medical students in the Laboratory of Surgical Research, where there is a well-equipped animal hospital. In order to provide an opportunity to educate recent hospital graduates in teaching methods as well as to instruct the students, the teaching staff has been made unusually large. It includes twelve instructors in surgical technic and two in surgical pathology, all of whom have had surgical service in a hospital.

Four of these instructors are on duty at the same time. Each instructor serves for three months, but, by a scheme of rotation, he acts as assistant instructor during the first two, supervising the students at one table where he fills the place of second assistant, while during the third month he is instructor in chief and attending surgeon at the University Animal Hospital, where he makes a daily visit. The schedule is so arranged that each instructor becomes the chief twice in a period of twenty-four scholastic months.

The course is an optional one, but so great is the interest it has aroused that at least three-fourths of the fourth-year students elect it, and each of the sections into which the class is divided contains ten men on an average. Each section receives instruction for eight periods of two hours each. It is divided into groups of three men, so that an average section furnishes operating staffs for three tables, and the men at each table rotate at successive lessons in the position of anesthetist, first assistant and operator.

The nurse in charge is a graduate of a hospital training-school. She is familiar with all surgical requirements and has supervision over the animal hospital and operating-room, under the direction of the attending surgeon on duty. At its initial lesson she instructs each section in the preparation of surgical supplies and their sterilization, the care of instruments and utensils, and in the manipulation of sterile gowns, gloves, etc. She also prepares for the operative sessions exactly as in the operating pavilion of any first-class hospital.

The operating-room is furnished and equipped on modern lines. It is 20 feet square, lighted by side-lights and skylights, and provided with powerful arc-lights. Adjacent rooms are used for sterilizing, anes-

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* From the Department of Surgery, College of Physicians and Surgeons of Columbia University, New York.

thesia and private operations, and there is a detached room for necropsies. The sterilizing plant includes an autoclave, instrument boiler, utensil boiler and water sterilizers of the latest type.

The animal hospital has been fitted up with every regard for the animals' comfort. Each animal has a separate cage, and there are especially heated ones for recovery from anesthesia. The entire time and attention of one man is given to these animal patients. The animals themselves, as well as their surroundings, are kept scrupulously clean with the aid of a bath-tub, sluicing-hose, proper disinfectants and abundant light and ventilation. As the hospital is maintained to treat animals with surgical lesions, many dogs suffering from tumors, infections and prolapsus uteri have been received as private patients. Thus the students under direction of the attending surgeon have had the opportunity of assisting at operations on real pathologic conditions. In his daily visits the attending surgeon inspects all the animals and gives such directions for their care as may be necessary to the nurse in charge and her assistant. Daily notes of temperature and general condition are entered on each patient's chart for the information of the surgeon and the students.

Operating-room for the class in surgical technic, Department of Surgery, Columbia University.

In order to preserve uniformity of instruction, the professor of surgery has prescribed a definite series of demonstrations and operations for the course. A printed outline of these is furnished to every student at his first lesson.

First Session: The course opens with a lecture and demonstration on (*a*) suture materials and instruments; (*b*) preparation and sterilization of surgical supplies; (*c*) the administration of anesthetics to animals; (*d*) the preparation of the animal for operation; (*e*) the sterilization of the surgeon's hands, and relative values of different methods in use, and (*f*) prescribed method of putting on cap, mask, gown and gloves.

Second Session: The abdominal incision and its repair in layers. Repair of wounds in the intestine. Enterotomy performed, and intestinal suture illustrated. Technic of applying dressings.

Third Session: Lateral entero-enterostomy.

Fourth Session: Posterior gastro-enterostomy.

Fifth Session: End-to-end entero-enterostomy, by suture.

Sixth Session: Exploratory laparotomy, for a stab-wound of the abdomen, inflicted under anesthesia. The location and repair of the lesions are demonstrated.

Seventh Session: Nephrectomy, illustrating the treatment of the pedicle.

Eighth Session: Repetition by each table of any operation which has been unsuccessful.

The routine of a session is as follows: The chief instructor outlines briefly, at the beginning of the lesson, the steps of the operation to be performed, illustrating them by diagrams on the blackboard. He then assigns the students to their duties, and the usual routine of an operating-room begins. The anesthetist starts the anesthesia in the etherizing-room, the animal is placed on the operating-table and the field prepared by the first assistant (the hair has been removed and the animal given a full bath on the day before by the attendant). The skin is prepared by scrubbing with green soap and water, then with alcohol 70 per cent., and rinsing with mercuric chlorid 1 :10,000. The table is then wheeled into the operating-room and draped with sterile sheets by the operator, who has previously scrubbed up and has put on cap, mask, gown and gloves, under the supervision of his instructor.

During the operation the instructor at each table directs every step and calls particular attention to the observation of asepsis, handling of instruments, placing of sutures, control of hemorrhage and the importance of handling living tissues with gentleness. Before leaving the room the student operator writes a description of his procedure on the history sheet of the chart, which is to hang by the animal's cage.

At the conclusion of the operation, every step of which has been done under full anesthesia in every case, suitable dressings are applied to the wound and the animal is carried to the hospital and placed in a "warming cage," in order that chill may be prevented and the animal made comfortable. The animal receives special attention during convalescence, its temperature and general condition are noted daily on the chart, and the diet is carefully regulated by the attending surgeon. The student-operator is urged to visit his convalescent patient and to consider the outcome of his procedure of importance equal to that of the operative result on a human being.

At the beginning of each operative session, necropsies are performed by one of the instructors in surgical pathology on any animals which have died as a result of operation. A few, selected from the convalescents, are chloroformed and necropsied for the purpose of showing the students the contrast between the normal repair at various intervals after operation, and

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the pathologic conditions produced when an operation has been unsuccessful. Attention is drawn to the resistance of the healing wound to tension, in both abdominal and intestinal walls, to the constant formation of peritoneal adhesions, and to the benefit or harm which may result from the attachment of the great omentum to the various viscera. Preceding a necropsy on a pathologic animal, the student who operated on it is questioned as to his procedure, and as to any postoperative symptoms which might indicate the cause of death. He is also questioned regarding the treatment he would pursue with a human patient who exhibited similar signs and symptoms, and is asked to give his reasons therefor. Thus a constant effort is made to keep clear in the minds of the students the clinical aspects of the case, and the importance of necropsies is emphasized, as a means of correlating them with the various pathologic conditions and processes that are found to exist. This practice is intended as an aid to the interpretation of physical signs and to the understanding of the principles of treatment in human surgery.

Specimens of tissues are selected at the necropsies, and microscopic sections are made to show the students the cellular morphology of all common postoperative conditions, including wounds healing by first intention, infected wounds, and the various types of peritonitis, with or without adhesions. At the close of each necropsy, the student-operator is required to write a complete report of the pathologic findings, and these reports are bound with the histories. To increase the interest of the students, a comparative record of the results of each section's work is kept, which proves a stimulus to both students and instructors.

The routine performance of necropsies has brought out many interesting surgical facts which should be of lasting benefit to the students. Peritonitis occurred most frequently after the operation of end-to-end intestinal anastomosis. In the cases of gastro-enterostomy the most frequent cause of death was pneumonia, suggesting the increased percentage of pneumonia due to surgical interference in the upper abdominal cavity. To indicate the value of pathologic material that may occur during the year and the benefits that may be derived from the study of such material, a few of the unusual causes of death occurring with the various operations are briefly mentioned here:

1. *Gastro-Enterostomy.*—One case of enormously distended stomach with contracted intestines, due to a small band with a valve-like action, causing obstruction to the entrance to the jejunum. One case of death due to inanition caused by anastomosis of the stomach to the descending colon; here sufficient care had not been taken to identify the loop of intestine used for the anastomosis.

2. *Enterorrhaphy.*—One case of gangrene of the intestine in which the intestinal clamps had been too tightly applied.

3. *End-to-End Entero-Enterostomy.*—One case of cirrhosis of the liver with ascites; death was due to oozing. One case of infection of the abdominal wound, followed by protrusion of the omentum with beginning gangrene.

4. *Exploratory Laparotomy for Stab-Wound.*—One case of general peritonitis, due to an overlooked stab-wound in the intestine. One case of thrombosis of the superior mesenteric vein, with gangrene of the small intestine. This was probably due to excessive traction on the mesentery, as no other cause could be found. One case of general peritonitis due to a gauze sponge that had been left in the abdominal cavity.

The sections that saw these last three necropsies learned a lesson in surgery which they will probably never forget, so clearly was brought out the necessity for careful handling of the tissues, and for keen systematic observation.

Intussusception was found to be a frequent cause of death, and has apparently no relation to the type of operation performed. It is probably due to the handling of the intestine. Both cross-sections and longitudinal sections have been made to show the students the relations of the layers of intestine and constriction of the mesentery in such conditions.

The private animal patients admitted to the hospital have been the means of demonstrating several neoplasms as well as other instructive conditions. One student section had the opportunity of operating on congenital oblique inguinal hernia occurring in three youthful pigs, all from the same litter. The students had the subsequent satisfaction of having these three animals returned home, discharged cured, and the wounds healed by first intention.

The advantages of a course of this kind are numerous. The existence of a staff of instructors, each occupying in turn the position of chief, not only makes each instructor's service short enough to maintain constant enthusiasm, but also acts as a stimulus, because of the element of competition. Each surgeon has an opportunity to observe the teaching methods of his associates, and to note their merits or defects, with a view to increasing his own efficiency. The combination in a single course of the technic of operative procedure with the pathologic findings in the cases in which operation has been performed leads the student, when brought into contact with clinical cases, to reason in terms of pathologic processes and conditions. This assists him to correlate his knowledge of anatomy, pathology, bacteriology and physiology with surgery. He is trained to base his conclusions on observations of facts rather than on dogmas.

Finally, after such a course the student has become acquainted with the technic of asepsis, the use of surgical instruments and the other essentials of general surgical procedure; he has learned that an operation must be conducted exactly and methodically, and he has felt a personal responsibility for its success or failure.

When, therefore, he enters practice and is confronted with the necessity of operating, he is no longer an untried apprentice. Already familiar with the fundamental principles of aseptic surgical work, he is enabled to avoid many a costly mistake, and is far better fitted to do credit to himself and justice to his human patients.

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The Logical Starting-Point.—The diseases common to child life are spread by the mingling of the sick with those who are well. The public schools are the places where the children of all ages and degree assemble. It follows then that the public school is the logical point at which to begin the important work of controlling those diseases that are spread as has been stated, by the mingling of the sick with the well.—*Bull. Chicago School Sanit. Instr.*

THE MEDICAL SCHOOL AND THE STATE*

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The layman who ventures to speak concerning a matter so technical in some respects as medical education owes perhaps an explanation to the public and to the medical practitioners. What can the layman say as to the training of medical experts which is of value or which the public cares to hear?

There are three main reasons why the layman has a right to be heard in the matter. First of all, medical education is primarily a matter of education, not a matter of medicine. The educational test which shall be imposed, the premedical education itself, the educational methods of the medical school, are all matters not of medicine but of education.

Secondly, the layman who gives thought to these matters has a right to speak from the point of view of his own interest for it is the layman after all who is to be either made or marred by the medical practitioner. The general public is profoundly interested in the question whether the medical expert has been rightly trained for his profession.

In the third place, the layman is necessarily interested in the medical school as a matter of state administration. The legal conditions which are finally to be imposed on medical education may originate with medical practitioners, but they will be passed on and finally put in form by legislators. The matter of the public health will be in the keeping of skilled physicians, but the form of administration under which they will work and the relations of the different parts of this organization will be decided by laymen.

To put the whole matter tersely, the practice of medicine is a quasi public profession. The laws which admit to its practice must be framed by those who are not members of the profession, but who are looking at it from the point of view of the public good. Medicine will never gain its rightful place until the intelligent laymen, the legislator, the citizen, realize the public nature of the profession of medicine and their own obligations as to its support, its standards and its regulation.

It is this last relationship, namely, the relation of the state to medicine and to medical teaching, which we need at this time most clearly to develop. We need to distinguish between the opportunity of the individual on the one side and the obligation of the state on the other.

The public health of the inhabitants of a state is without doubt the largest single interest with which a state needs to concern itself. Expressed even in commercial terms it exceeds all others. Disease, ill-health, insanitary public conditions, cost more than any other form of public neglect. The conservation of the public health is therefore the largest interest to which the state must give its attention.

Our American commonwealths have begun only within a very few years to be conscious of this problem. In a few states steps have been taken to deal with the problem in orderly and efficient form. It therefore seems worth while on such an occasion as this to lay special emphasis on this public duty; to call attention to the fact that the medical school and the hospital ought to form the very heart of those agencies by which the state undertakes to deal with the public health and that there must be worked out a form of administration under which the state shall coordinate all its agencies, the board of health, the medical school, the hospital, the laboratory, for an efficient handling of the problem of the public health.

The present demand for an effective organization of public health agencies arises out of the progress of what we call to-day scientific medicine as compared with what twenty-five years ago was empirical or sectarian medicine.

Following the great discoveries of the chemists, the biologists, the bacteriologists, all sectarian divisions of medicine became meaningless. Men came to realize that medicine is applied science and that it should rest like all other technical and scientific practice on the results of experimental knowledge. It avails itself of whatsoever could be shown by careful experiment to be true in the practice of any medical body. It subjects every appliance to the scientific test, and while this process wiped out all distinctions of caste it set up as a condition for entering the profession the possession of the inquiring, active, critical, scientific spirit. Sects in medicine are no more possible under this conception than in botany or astronomy. Deliberately to label oneself an allopath or a homeopath or an eclectic is to return to a past epoch of medical history.

One of the first results of this change of attitude in the profession in its relation to laymen lay in the willingness of the practitioner to admit the limitations of his knowledge. The student of scientific medicine no longer hesitates to say he does not know; he does not pretend to universal knowledge; but he has possession of methods which ultimately will lead to the solution of most if not all of our problems. Scientific medicine does not pretend to say that the solution of all these has now been attained.

Another significant result of the introduction of the scientific method and its universal activities lies in the fact that the emphasis on preventive medicine becomes greater. Modern medicine realizes that it is not enough to cure those already ill; it is not enough to build hospitals for the sick; it is not enough for the surgeon to relieve the pain of those actually suffering. All this is a part of the work of modern medicine, but a still greater part lies in the prevention of illness, in creating conditions favorable for health, in so dealing with the problem of the public health that there shall be a minimum of disease, a minimum of ill health, a minimum of suffering. It is the rise of preventive medicine, based on the science of chemistry, biology and physics, which has brought home to the state the realization of its own supreme duty in safeguarding the physical well-being of all its people. The state has long accepted the problem of caring for the helpless sick. To-day it faces the duty of preventing the helpless from falling into unnecessary illness.

The working out of this problem means not only the betterment of sanitary conditions, not simply the provision against infection and the stamping out of nuisances, but it means more than all else the education of the whole people of a state to the knowledge of the elementary sanitation laws. This education of the people lies at the very base of preventive medicine, and preventive medicine lies at the base of the state's ability to safeguard the public health.

The rise of preventive medicine and the enlargement of the state's function in the conservation of the public health is rapidly bringing about a change of attitude in our whole social and economic treatment of disease and ill health. In the past the care of the sick poor has been a matter of charity; the obligations of society no less than the ideals of Christian service have urged civilized men to continual effort for those suffering from illness who are in want of the necessities of life. This obligation and this service will not cease, but the vista which preventive medicine opens up enables us to anticipate a time when a large share of the suffering and disease which now falls to the lot of the poor will be prevented when the conditions of living will be more wholesome, when the need of charitable service will be limited to those cases which no preventive measures can safeguard. The entrance of the state into the great work of health preservation, while it will not be a substitute for private philanthropy, will nevertheless relieve much of the suffering to which private philanthropy has hitherto ministered, and it ought to diminish in an ever-increasing measure the suffering and the misery of poor and rich alike. This is one field of human endeavor in which an ounce of prevention is worth many pounds of cure.

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* Address delivered at the dedication of the Robert W. Long Hospital of Indiana University at Indianapolis, June 15, 1914.

If one looks forward a decade into the future along the lines which modern scientific medicine opens up, and if he admits that the state must shoulder the responsibility for a uniform and effective system of public health administration, it is clear that the state can accomplish this enormous service, that it can conserve the great interest of the public health effectively, only by some harmonious coordination of its various agencies. To-day the problem of the public health is dealt with by a number of agencies, oftentimes unrelated and disassociated. On the part of the state itself stands an official board of health with similar boards representing communities and cities. The medical school, the hospital and the laboratory are the natural agencies through which any administrative board of health must carry out its measures. Finally, the practitioners themselves must stand in some relation to the state's health activities. Some method must be worked out by which the profession of medicine, quasipublic as it is, shall find a relationship to the state and to the state's work in the matter of the public health which shall be more definite and more satisfactory both to the public and to practitioners than the present arrangement. To state the matter a little more definitely, if the state is to enter on a constructive program in the matter of the public health, if the general public through the state is to reap the benefits of a wise system of preventive medicine, an organization capable of dealing with the problem must be devised, and that organization must be elastic enough to include the board of health, the medical school, the hospital, the laboratory and the practitioner.

What form of organization will suffice for this fundamental public work? That question is the practical one which is to-day being attempted by many American states.

To accomplish the end sought there is needed not so much a hard-and-fast organization as intelligent cooperation between those which have been created. Thus a state board or commission with its executive officers will doubtless continue to be the organization through which the state authority will be exerted. The medical school with its hospital and laboratory will continue to be under the control of the university. Experience has shown that whatever be the weakness of the university, it has been the only agency through which the spirit of scientific inquiry and devotion has flourished. Only in a university have scientific ideals had their fair chance to get into the practice.

What is needed, therefore, is the closest correlation between the state board of health and the university school of medicine. In the state of Indiana it is fortunate that all these agencies are under state control. This simplifies enormously the problem of working out a right coordination. However important and far-reaching are the powers of a state board of public health, the medical school will always remain the heart of the public health activities for the reason that in the medical school practitioner and student meet. The enthusiasm of the teacher and of the investigator give a spirit to the public health effort which no other combination can give. Here as nowhere else the laboratory of the chemist and of the biologist and of the pathologist are brought face to face with the problems of disease in the hospital. Of all human efforts, of all human organizations as yet devised, no other has brought together the same qualities of skill, of devotion, of enthusiasm, as that which comes from the association of student and teacher, of experimenter and practitioner. The medical school with its teachers, its students, its laboratories, its hospital, will be both the inspiration and the hands of the public health service. Fortunate it is for this state that it already controls and is developing a modern school of medicine, imbued with the spirit of scientific medicine, in touch with the research spirit of the day, and ready to develop into the most fruitful agency for the solution of the problems of the public health which this commonwealth must face. It is because I regard the medical school, and when I speak of the medical school I mean to include faculty and students, laboratories and hospital, it is because I regard the medical school and its proper development, its cooperation with the board of health, as the greatest step in the public health service that I venture to spend the remaining few minutes of my talk in a consideration of certain conditions which from the point of view of the educator make for the right growth of the medical school and therefore of the state service.

If the medical school is to be the right hand of the board of health, it must not only cooperate by the training of medical students, by the use of its laboratories for tests and examinations and by the study of disease in its hospital, but it must also take the broadest possible conception of its duties in the matter of education.

There are two fields of medical education which are generally overlooked and which the state school of medicine must vigorously undertake—one is the education of the public in the elementary knowledge of sanitary matters, the other is the education of the present generation of practitioners into an appreciation of the modern conception of the profession of medicine. I venture to spend a few words on each of these topics.

The education of the public into a practical knowledge of the elements of the science necessary for the conservation of the public health is still in its infancy. It has not yet been successfully undertaken by any school of medicine for its own state. By lectures, through the daily press (which has always been a cordial ally in such an endeavor) in all the ways by which a democracy can be educated, the people of a state must be taught the elementary science which prevents disease, cuts down the death-rate of infants, prevents the spread of infection, brings the appreciation of fresh air and cleanliness to every citizen. Only in a very limited degree does the average intelligent man appreciate how much of the disease and suffering in his community is due to his own neglect. Finally, such a campaign of education must do something to teach the average citizen to use ordinary care in the selection of a medical adviser. It must teach him to discriminate between the graduate of a commercial medical factory and the graduate of a school whose ideals represent the highest step in our civilization, for there is no ideal of human service more creditable to our progress in civilization than that which is set before the student of medicine in our better schools.

There remains still an unfulfilled duty to the men now in the practice. Ill-trained and unfit as many of them are, they represent in a large majority of cases the victims of a condition. Few men deliberately choose a defective and impossible medical training. Well-meaning young men by the thousand have gone into such schools in the honest belief that they were to receive a fitting preparation for the profession of medicine. The victim of the commercial medical school usually finds out his mistake after he gets into practice. If he has the right spirit he seeks by every possible means to repair his defects. To such men the state school of medicine should offer a most hospitable opportunity.

The postgraduate school of medicine as it has hitherto been conducted has generally grown up apart from the university medical school. It has been generally conducted by groups of practitioners—sometimes with excellent purposes and motives, sometimes with a very strong commercial flavor. The postgraduate school should be by all means a part of the university medical school. To no other men will the spirit and ideals of the university hospital, laboratory and medical school be more welcome. And in no way can the medical school educate the people of a whole state so surely as to establish a helpful relation with every practitioner in the most remote village who has ambition for improvement. Every such postgraduate student becomes a center of education in the public health.

It ought to be clear to the layman as well as to the practitioner of medicine that a single school of modern medicine in a state like Indiana is the true solution of the problem of educating practitioners of medicine and of serving the public health. Indiana to-day has about as many doctors to the square mile as any state in the Union. For every 500 inhabitants, including men, women and children, there is an Indiana physician. This result is in part due to the fact that near the state of Indiana is the city of Chicago, which is the great factory for medical degrees. I regret that an institution in this state still conducts a medical school in Chicago. There is no justification for a second school of medicine in Indiana. One moderate-sized medical school, conducted on right lines, can supply more physicians than the state of Indiana can possibly absorb. For many years to come there will continue to be many more physicians, at least in name, than the state needs. In time we may hope that with a growing education of the public, the layman will select his practitioner of medicine with at least as much care as he would select a clerk or a foreman, that he will at least make some inquiry as to the source of his medical education and the extent of his medical experience. Until the public can be educated to know the difference between a well-trained practitioner of medicine and one who obtained a degree by short-cut methods, the whole problem of the public health will be delayed.

In this connection I venture to spend a moment to emphasize one phase of this problem which is very commonly misunderstood. The plea put forward in behalf of the commercial medical school is couched in terms calculated to deceive the public. The commercial medical school describes itself as an institution maintained in the interest of the poor boy, and, secondly, as an institution devoted to the training of the country physician. If one reads the catalogs of these institutions, one can easily believe that in the commercial medical school as in no other institution the interests of the poor boy and of the resident of the country are deeply cherished. Both claims are without foundation. The poor boy pays as much money to go to a commercial medical school as he does to a medical school conducted in the highest spirit. This has to be because the commercial medical school exists only on the fees which the students pay, notwithstanding the fact that those who conduct such schools expect their return in the by-products of the school rather than in the fees. The boy of limited means is too often tempted into such a school and discovers too late that the kind of education he receives is not that which enables him to deal with disease.

The argument of the commercial school that only by its existence can the country side be settled with physicians is clearly misleading. The very idea is abhorrent to all sense of social justice. Are we deliberately to create a situation in which the men and women who live in the country are to accept an inferior type of medical practitioner? Is our civilization so constituted that we must provide one class of practitioners for the city and another for the country? As a matter of fact there is absolutely nothing in this contention. It is true that the graduates of the strong medical schools and of the weak medical schools alike go in overwhelming numbers into the cities. It is equally true that the graduate of the good medical school goes to the little town and to the country wherever he can make a living. A most careful examination has shown that a physician of the best training can be secured in any village or country-side where the practitioner of medicine can earn even a modest living. If there were being turned out from the medical schools only men rightly trained in some proportion to the number of places available, one can foresee the time when all places which could furnish a moderate living to the physician could be supplied. There are parts of our country so sparsely settled that no practitioner of medicine, whether well-prepared or ill-prepared, could make a living. For such a situation, a solution of a different kind must be found, and this is one of the problems with which the public health service of the state will in the long run deal. The fear that the country would be bereft of doctors if the inferior medical schools were abandoned is one of the singular theories, founded partly on lack of knowledge of the situation, partly on the assertions of those directly interested in keeping alive such schools.

One has only to recall the way in which young men come into the practice of medicine to realize the hollowness of the statement. The country or village doctor is in nearly all cases the neighborhood boy—oftentimes the son or the nephew of the resident practitioner. He gets his preliminary education in the neighborhood and goes off to the medical school and returns to take up the practice gradually being given up by his elders. The question whether he goes to a poor school or a good one has little to do with his return.

I venture also to say one word of the significance to the state and to the public health service of an educated profession of medicine. No method has been devised in our country or on the other side by which unfit men can be excluded from the profession of law, of medicine, or of the ministry, or of any other great profession, but the experience of the older country shows that there is one condition which can be imposed which does more than all others to bar out the unfit and the unworthy, and that is the standard which is imposed by the demand for a high order of preliminary education. No other condition can be imposed which will in the long run bring together so unselfish, so skilled, so devoted a class of men into a profession as the demand for a good preliminary education. Among our American communities this demand also has been looked on as somewhat undemocratic, an argument which has been used with the greatest possible effect by the commercial medical school. As a matter of fact, there is nothing undemocratic in such a demand. The right to practice medicine is not one into which a man is born. It is a right conferred on him by the state under such conditions as the state may fix. There is no condition which the state can make which in the long run will bring into the service of the profession and of the public, physicians of such high order as the requirement that they shall be, first of all, educated men, and the influence which the profession itself will have on the public will never attain its right proportions until such a condition has been accepted.

Looking forward then to the history of medicine in your commonwealth for the next decade, one can well believe that the conservation of the public health will be one of the chief functions of the state, that this work will be carried out by an organization so planned that all its factors may cooperate freely and heartily, and that the very center of such organization, furnishing to it the life-blood of devotion, of enthusiasm and of high endeavor, will be the state school of medicine, where practitioner and teacher, where student and investigator mingle together in an atmosphere which is charged not only with scientific skill, but also with the highest conceptions of patriotism.

Safe Drinking-Water.—Allen J. McLaughlin in *Public Health Reports*, June 26, 1914, says that there is a tendency in America to accept any raw water, however bad, as a source of supply for a municipal filtration-plant. This places an unreasonable burden on the filtration-plant, which not only depends on proper mechanism, but which also must be operated under careful bacteriologic control and is subject to the results of human error. While properly constructed filter-plants can produce safe water from bad raw water, especially by the use of hypochlorite or liquid chlorin, the responsibility of effecting such purification every hour of every day in the year is unreasonable and unfair, and raw water demanding such extraordinary treatment, constitutes a constant threat of disaster. There is no margin of safety under such conditions, and raw water should be furnished of such character that a plant can turn out safe water without the aid of chemical germicides. This would reserve chlorination as an additional margin of safety for use in extraordinary fluctuations of the raw water or during accidents to the plant.

INSTRUCTION IN ROENTGENOLOGY

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The committee of the Deutsche Röntgen-Gesellschaft has submitted its report on instruction in medical roentgenology in the German higher institutions, this report has been sent to the medical faculties of the German-speaking higher institutions of Germany, Austria and Switzerland, and it has also been published.[1] Some parts of it have been taken from data collected by Klingmüller, Kienböck, Holzknecht and Kreuzfuchs, and published in Volume XIX of the *Fortschritte*.

After calling attention to the rapid advances made in Roentgen science during a decade and a half, and to the utilization of this science by nearly all other branches of medicine, the report says:

> Therefore, if complete medical training is to be secured in the universities, it is quite essential that there be the possibility of obtaining a systematic knowledge of roentgenology.

It is from this point of view that the Deutsche Röntgen-Gesellschaft has undertaken to direct the attention of the medical faculties of the various German-speaking institutions to the necessity of thorough instruction in roentgenology, and to the desirability of having the fostering cooperation of the universities in future research in this field.

The report summarizes the results of the "unwearied work of doctors and physicists" in the few years in which the x-rays, that is, the unknown rays, have been subjected to investigation. This work has made roentgenology an "independent specialty," which has both manysidedness and also oneness. Just as the fact that no physician can dispense with a knowledge of internal medicine does not exclude the need of specialization in internal medicine, so the utility of some insight into Roentgen procedures on the part of the general practitioner does not nullify the advantages of specialization in roentgenology. This specialty requires in a marked degree a broad and deep foundation in general medicine and the other specialties. Even in these few years, the Roentgen technic has become complicated and hence difficult, whether used for diagnostic or therapeutic purposes. Some of the injuries that a false therapeutic technic may cause have already been found out. To have any real value, both the fluoroscopic examination and the making of plates must be carried out with accurate technic, and the interpretation must be made with good knowledge of the sources of possible errors. Faulty, or even moderate, Roentgen technic is ineffective, and may be injurious.

To quote a few sentences from this report:

> The erroneous idea that one needs only to be well versed in general medicine, in order to be able to interpret a Roentgen picture, is even to-day too wide-spread. Only on the basis of a many-sided experience gained by earnest study continued for years is it possible to analyze correctly that which is seen, and then, to interpret it, and to separate the essential from the non-essential. The interpretation of the

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[1] Der Unterricht in der medizinischen Röntgenologie auf den Deutschen Hochschulen, Fortschr. a d. Geb. d. Röntgenstrahl., Hamburg, 1913, xxi, 245.

Roentgen picture, therefore, requires knowledge which embraces almost the entire field of medicine and a good part of physics, and in addition a fundamental special experience. This is demonstrated also by the frequently observed fact, that many a specialist in another branch, who was using roentgenology in his specialty, finally either devoted himself entirely to roentgenology, or, if he remained true to his own subject, was no longer able to follow the advances of roentgenology. To master simultaneously and completely roentgenology and another specialty is in general impossible. The field of roentgenology has already become too great for that.

It was in view of such facts as these that the Deutsche Röntgen-Gesellschaft (with 609 members, almost nine-tenths of whom are active roentgenologic physicians) at its eighth congress, 1912, unanimously adopted the following resolutions:

1. Roentgenology is a fully justified medical specialty.
2. The roentgenologist is a specialist, and as such, and in accordance with generally accepted usages, is consulted by physicians or patients for the making or the verification of a diagnosis.
3. The roentgenologist, in addition to general clinical methods, makes use of the Roentgen procedure. He decides which procedure (photograph, fluoroscopic examination, orthodiagraphy, teleroentgenography, etc.) should be used.

This consensus of opinion has led to the expression of a desire that "in accordance with the ever-increasing importance of roentgenology this specialty henceforth be taught in the higher institutions by its own representatives, by a lecturer with this as his main line who receives a teaching appointment for this specialty."

The details of the report on the existing instruction in roentgenology in the German-speaking higher institutions might not be pertinent at this distance. But the conclusion drawn from these data is that this instruction is not now adequate, that roentgenology is not being taught to an extent consonant with its importance. At present almost the only available way for a physician to orient himself in the general field of roentgenology is to itinerate from one factory to another for certain phases of the subject, and from one clinic to another for others. The fact is emphasized that this situation does not accrue to the interest of this specialty or to that of medical science as a whole. The entire subject in all its multiplying ramifications should be transferred to the universities, and teaching should be done by specially prepared instructors. The retention of Roentgen outfits already in use in connection with the several specialties is contemplated, but in correlation and cooperation with the central roentgenologic department. The anticipated resultant advantages to all are great. Medical roentgenology will be taught where all other branches of medicine are taught—in the universities. Each of the other specialties need teach only such parts of roentgenology as pertain directly to its work. The Roentgen specialists themselves "constantly can test out the newly created methods of the restlessly advancing technic, before the clinics squander time and money on them; further, in difficult cases they can assist the physicians of the other clinics technically and scientifically; they can support the proficient with expert advice, and, above all, enlarge the scientific work of the specialty, as well as prepare a secure place for roentgenology in academic instruction."

The report also notes that, if it is granted "that every physician entering practice must have at his disposal a certain but not too limited degree of systematic information about roentgenology," then "there follows also the necessity of taking account of this requirement in state medical examinations."

The positions taken regarding instruction in roentgenology by these compatriots of Roentgen seem justified by the facts presented. This being granted, these positions may be considered as applicable as fully to this country as to the countries for which they were originally formulated.

This report has led us to a study of the roentgenologic instruction in the United States. For this purpose has been chosen the list of the "A plus" group of medical colleges as given in The Journal of the American Medical Association, August 23, 1913, p. 585. The latest catalog (that is, the publication representing the teaching work of 1912-1913 or the announcements for 1913-1914) of each of these institutions has been carefully examined for information regarding instruction in roentgenology of whatever quality or quantity. Only a summary of the details of this compilation will be given here:

1. *Titles Used in Designating This Instruction.*—The terms used in referring to the subject are, actinography, radiography, radiology, roentgenology, Roentgen ray and x-ray, with more institutions using the word "roentgenology," than any other one term. This is also the word adopted in Germany. Of the institutions whose catalogs furnish any data, two have professors of this one subject, two have an associate professor for this and another specialty combined, two have an instructor for roentgenology; two, a lecturer; one, a demonstrator, and some of these have assistants in addition; five recognize positions of varying titles in connection with some hospital: all of which tends to show that up to the present time there has been no standardizing of the position of the teacher of roentgenology in American medical colleges.

2. *Roentgenology as a Distinct Department of Instruction.*—Four institutions—Northwestern University, Harvard University, Cornell University and the University and Bellevue Hospital Medical College—recognize roentgenology as a distinct department of instruction coordinate with the other medical specialties. In those institutions in which a course in roentgenology is offered but in a subordinate relation to some previously existing department, there is no uniformity as to the department with which it is incorporated.

3. *Year in Which Instruction in Roentgenology is Offered.*—Concerning the institutions whose catalogs furnish any data, the facts are: undergraduate course, required, in second year, 1; in third year, 2; in fourth year, 6; in third and fourth years, 1; undergraduate course, elective, in fourth year, 1; graduate course, 1.

4. *Number of Hours of Undergraduate Instruction in Roentgenology, and Character of Instruction Whether Didactic or Laboratory* (exclusive of use of plates to illustrate work in other subjects).—Concerning the institutions whose catalogs furnish any data, the facts are: *Didactic,* instruction given but hours not stated, 4; "all day throughout the year," 1; 9 hours, 1; 11 hours, 1; 16 hours, 2; 17 hours, 1; 30 hours, 1;—*laboratory,* "elective," 1; instruction given but hours not stated, 1; 40 hours, 1; 51 hours, 1.

The self-evident conclusion from this study of the official catalogs of the medical colleges in the "A plus" group is that in about one-third of them instruction in roentgenology is omitted altogether, and that in the others it has no standardized status. Further, this being the case in the highest group, it is fair to infer that still less instruction in this subject is given in the other groups. Therefore, it becomes apparent that the opportunities in this country for the systematic study of medical roentgenology are very meager.

Yet the Council on Medical Education of the American Medical Association enumerates "Roentgen-ray apparatus" among the "essentials of an acceptable medical college," and the Association of American Medical Colleges in its "proposed minimum standard for clinical equipment," says, "Adequate rooms and equipment must be provided for x-ray work and for electrotherapeutics." Highly complicated technical apparatus certainly implies technical instruction in its use, its limitations and its dangers.

As a branch of medicine, roentgenology is in touch with all other branches of medicine. Although it is associated more closely with some of them than with others, experience has demonstrated its possible service to the other medical specialties, and the growing dependence of these specialties on roentgenologic findings. Roentgenology is a new science but it has already made contributions of value. In view of the extensive and increasing applicability of the Roentgen rays both in diagnosis and therapy, has the time not fully come when some adjustment should be made in American medical colleges which will give to roentgenology its logical place in medical instruction and research? If it is not taught systematically, how can the best results be obtained in actual practice? Can any American medical college otherwise well-equipped afford to ignore it? Does roentgenology not deserve a definite status in the medical curriculum?

PUBLIC HEALTH WORK AS A CAREER *

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The medical profession has always made a strong appeal to young men of fine character, as offering a career unsurpassed in opportunities for real human service. It is essentially that type of profession. To-day, with the rapid development of the science of preventive medicine, the opportunities are still greater, and the appeal to young men of high aims stronger than ever before. Particularly is this true in the comparatively new field of public health service.

This is the day of the efficiency expert. The public health officer is an efficiency engineer in the most important department of human life — good health. He is a constructive searcher after truth. Instead of tamping and patching up the machinery here and there, he builds anew. He has to know the whole works, not merely one process; he deals with society as a whole, instead of with a few separate units. Translated into the terms of his calling, his task is to keep all the people well and strong, instead of concerning himself only with the unfortunates who come to him in dire necessity. Economically, he is a wholesaler, free and unrestricted in his operations, dealing in a commodity everybody wants, rather than a retailer with whom, generally speaking, nobody really wishes to do business. He is the servant of the community, tied to no man, but free to do his duty as he sees it, whether that duty be to purge a Cuba of yellow fever, clean a pestilential Panama, or wipe out the double scourge of hookworm and typhoid from some rural community. The public health officer is dependent for his material rewards, not on haphazard personal fees, but on the good faith of a public which is fast learning to pay adequately for adequate service by experts.

For a young man on the threshold of his career, however, there are certain very practical points to be considered. At least three questions may be asked by any vocation, whether it be public health work, private medical practice or any other. First, what are the immediate chances of employment? Second, what is the compensation? Third, is the work sufficiently permanent in character to warrant giving one's life to it? These three questions are fundamental. How does the field of public health work measure up to them, especially when compared with that of private practice of medicine?

It may be stated with full assurance at the outset that there are already more positions open for trained health officers than can be satisfactorily filled. The demand is increasing all the time. It comes from federal, state and city health departments; from the International Health Commission and similar quasi-public health agencies; from the schools, and more recently from rural counties. Medical inspection of schools has made rapid strides in the last year or two, both city and county. Twenty-one states now have medical inspection laws, ten of which are mandatory; while in many of those states without special laws on the subject many individual cities have inaugurated medical inspection systems. The medical inspection work is more and more being centered about the whole-time health officer. Maryland is looking for men to fill positions created by the sanitary district bill passed at the last legislature. New York State is in the market for a large number of trained health officers. North Carolina employs eleven whole-time county health officers at salaries that attract capable men irrespective of residence. Sooner or later all the states will exert that control over hygienic and sanitary conditions which a few now exert, and this will mean an ever-increasing demand for public health officers to give their entire time to the community. Already some of our educational institutions are coming forward with special courses to train men for the new work — the "School for Health Officers" of Harvard and Massachusetts Institute of Technology is sufficiently well known; and at least five American universities—Harvard, Pennsylvania, Michigan, Wisconsin and Tulane—now grant the degree of Doctor of Public Health for special public health work over and above the requirements for the regular medical degree.

With the increased demand for trained health officers has come higher compensation for such work. Specially trained men are commanding salaries much more nearly adequate than in the past. In the days of political appointments the candidate for health officer was glad to get a small regular salary for a little of his time to supplement his always uncertain and frequently uncollectable private fees. With whole-time men engaged, better salaries come as a natural development. Already the salaries paid health officers compare more than favorably with the present incomes of private practice. Investigation has shown that, despite the large earnings of a few medical men, the average

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* Address delivered at the Commencement Exercises of the Medical College of Virginia, Richmond, June 2, 1914.

salary for a physician in the United States is between $800 and $1,200.[1] In New York City the salaries of health officers range from $900 to $1,500, but this amount is felt to be so little that the physicians are allowed to take some outside practice. Salaries of school medical inspectors in twelve cities enumerated by Dr. Heitmuller, of Washington, D. C., ranged from $1,200 to $2,000.[2] These figures do not include the administrative pay in public health work, which is of course much higher. Surgeon-General Blue, of the United States Public Health Service, notes that the municipalities are offering such good inducements that many of the men in his branch of the government are leaving the service to take positions as health officers, and he foresees a steady rise in compensation.

That salaries will continue to grow better in public health work is evident from an analogous development in another field in which what was once a private, individual matter has become a public function — that of education. When school superintendents were elective the pay was low and tenure insecure, and few thoroughly capable men were attracted to the profession. To-day the city school superintendent is one of the highest paid of municipal officers, and enjoys an independence of political affiliations that is the envy of other public officials. It happens that in the case of state and county school superintendents the process has not been completed; in some states partisanship has been entirely eliminated from the schools, and school officers are on a thoroughly professional basis; in others this is not yet the case. It is possible to look over the states and tell at a glance where the pay is high or low, according to whether the position is or is not political. New Jersey's commissioner of education is an educational expert who receives $10,000 a year. His politics have never been inquired into; he was brought from a distant state because he was considered the best man for the position. Nebraska's state superintendent of public instruction, nominally with the same qualifications as New Jersey's commissioner, is elected on a party ticket. He is paid $2,000 a year. The county superintendents in the six to nine hundred dollar class are for the most part in states that have not yet fully accepted the scientific attitude toward expert public service; the $3,000 county superintendents are in states that have learned, as all will soon learn, the basic economy involved in high pay for expert service.

What has taken place in the field of education is taking place just as definitely in the field of public health work. More enlightened public sentiment with regard to medical standards is removing the health officer from politics and increasing his pay to a point at which well-trained men are sought and obtained for the work.

To ask if public health work will be permanent is to ask whether good health will always be desired and whether community spirit will grow. The public health officer need not fear for employment; he is a necessary factor in progress. His field, dependent as it is on community good health, rather than individual ill health, will grow ever more important as prevention replaces treatment in the handling of disease. The young man inclined to choose between private practice and public health work would do well to bear in mind the essentially permanent character of community health service, unaffected by the many temporary conditions that make or unmake opportunities in the field of private practice.

One thing is certain. The field of public health work is no place for the poorly trained medical man. Medical men are needed for health work, but only highly trained medical men. The public is going to employ more and more health officers; it will be liberal in its compensation, but it will insist on men specially equipped for the work. At present it is difficult to get the precise training that is needed. The universities and medical schools are just beginning to awake to the supreme importance of positive health work in the community as compared with mere negative combating of disease. The health officer should have something that will do for his future work what the hospital does for the ordinary medical man. In default of other agencies to provide this special preparation, new agencies will have to be devised; and pending this, promising young men who have completed the regular medical course in the institutions of higher grade should be selected to serve an apprenticeship under trained health officers in actual service, both in the field and in the administrative offices.

Once get the idea of the trained health officer at his work, mapping a community, surveying it with a view to sound principles of sanitation and inspiring the citizens with the ideals of healthful living, and it does not require a much greater flight of the imagination to see this work of survey, prevention and health-teaching done everywhere — in all local communities, under county supervision; in all counties, under efficient state supervision, and all states under efficient national supervision. One might go a step further and picture a broadly organized international health organization, making a survey of the leading nations, taking the best to be found in the experience of the different nations and setting up standards for all the nations to attain. All this may seem too far afield; or at least too remote for men now living; but it does not seem so impossible of realization when we consider the other scientific achievements of our day, in medicine itself, if you please; and a vision like this will in any case serve to reassure those who may enlist in this war that it is not a war of a day, or even of a generation, but a permanent indispensable service to society.

There appears to be some danger that the public health work may to some extent escape the control of those most competent to direct it—the medical profession. This is emphatically a movement in which leadership belongs to the trained medical man. The lay sanitarian, no matter how efficient he may be in his own particular line, cannot wholly take the place of the physician, with his peculiarly valuable background of education and human experience. As routine medical treatment yields before preventive medicine, readjustment will have to take place; but I believe that readjustment is nearer than many of us realize; and I have sufficient faith in the men of my profession to believe that in large measure this readjustment will come from within. Something like it is already taking place in England, where the community ideal has recently gone forward by leaps and bounds. The spirit certainly exists among medical men in the United States. Does not the constitution of the American Medical Association recite that its aim shall be the "enlightening and directing of public opinion in regard to the broad problems of hygiene"? And the corresponding section of the constitution of the North

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[1] Pennsylvania Med. Jour., 1901-1902, v, 362.

[2] From unpublished memoranda.

Carolina State Medical Society goes even further in acknowledgment of the public health aim of the medical profession — it not only urges the extension of medical knowledge, better standards of medical education and "the enlightenment and direction of public opinion in regard to the great problems of state medicine," but urges as the motive for this "that the profession shall become more capable and honorable within itself, *and more useful to the public in the prevention and cure of disease and in adding comfort to life.*"

Surely no richer field of labor can be conceived of than that of public health work. The medical man has always stood for something a little more than just his profession; as confidant, as valued counselor in time of trouble, as the keeper of family secrets, he has played the rôle of an idealist in human history. Add to these individual and personal attributes of the old-time physician the ideals of the health officer in his social service of to-day, of positive effort in behalf of all his fellowmen, and you will produce a band of men who will indeed be valued guardians of the outposts of civilization.

THE VALUE OF THE MEDICAL COLLEGE LIBRARY TO THE STUDENT *

CHARLES FRANKENBERGER
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PHILADELPHIA

Only in recent years have medical colleges realized the value of a medical library as an essential part of the college equipment. Medical students two decades ago were without the help of a medical library; they had to be content with a case of books, largely obsolete, in a corner of some out of the way room. A student in those days was expected to do his reading in his preceptor's library. Often older graduates, on visiting our library, have said to me, "We didn't have anything like this when I was a student."

A modern medical library, in charge of an experienced librarian, is one of the requirements of the Council on Medical Education of the American Medical Association. To receive recognition as an acceptable medical college, "The college should have a working medical library to include the more modern text and reference books with the 'Index Medicus' and thirty or more leading medical periodicals; the library room should be properly lighted and heated, and easily accessible to students during all or the greater part of the day; it should be equipped with suitable tables and chairs, and have a librarian in charge."

The maintenance of a well-equipped medical library as a part of the medical school or college has a number of advantages. In the first place it is a convenience to the students in that it makes it unnecessary for them to carry about a number of their own text-books to which they might wish to refer. The library, however, is not intended to take the place of the students providing themselves with such books as they should have for their own use in their homes. Some students are not in a position to supply themselves with all the necessary text-books required, and for these the library provides an aid much desired and appreciated. Were it not for the library facilities, these students would be compelled to follow such notes as they could take in the lecture room and clinic. The instruction so acquired would satisfy those students who were simply bent on gaining sufficient knowledge to pass their examinations. They would not, however, have the broader knowledge and culture obtained by the students who supplemented their lectures and clinics by reading the fuller accounts in the various standard text-books and systems, as it is not possible for any teacher to cover in detail in the time allotted the many subjects of his particular branch of medicine as fully as it is given in an authoritative text-book. It is necessary for the student, while in college, to confine himself to certain text-books and instruction of his teachers, but by reading he can become familiar with the opinions and methods of other authorities which it would be well for him to know, not so much for use during his medical course, but as a broader knowledge for use in his future professional career.

Another advantage of the medical college library and a comfortably equipped and attractive reading room, easily accessible, well-lighted and heated, is that it encourages the student to use the library during his odd moments instead of wasting his time on the streets or elsewhere.

Possibly the greatest advantage of such a library is that it places about the student an environment which has a tendency to inspire in him a desire to read and become acquainted with the literature of his profession so freely available. It gives the student the opportunity to keep in touch with the literature in the more important current medical periodicals, and to become acquainted with the recent books and monographs on special subjects. If there is only time to look hastily through them and to become sufficiently familiar with them to know that such a work has been written on that particular subject, it will be valuable knowledge that will prove helpful at some future time.

To cultivate in the student the habit of reading in the odd moments and spare time of his medical course is to be encouraged and fostered in every way, for the possession of such a habit after entering on practice will be of inestimable value to him. It is safe to say that many who do not acquire this habit during their college career never attain it after graduation.

The great difficulty in endeavoring to encourage the acquiring of this habit by the student is the very limited spare time allowed in our already crowded curriculums.

The teacher who is himself thoroughly familiar with the literature of his profession can accomplish a great deal in the way of creating in the student an interest in seeking further information and knowledge by referring in his lectures and clinics to the masterpieces of medical literature, or to the biographies of those to whom the medical profession is indebted for their pioneer work or achievements in medicine and surgery. He can refer his students to the originals of articles which present results of experiments or investigations that have proved epoch-making. This avoids the necessity of the student investigator using his limited time to wade through a lot of valueless and ephemeral literature in order to find these masterpieces of scientific research.

Dr. Thomas McCrae of our faculty has followed the plan of assigning to certain students the preparation of a brief biography of those on whose experiments and investigations have resulted the foundation principles of some of our progress in medicine. These biographies are read by the student before the class prior to the lecture on the particular disease or subject at hand, and are made more interesting by the additional remarks that may be made by the teacher.

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* Extract from a paper read at the seventeenth annual meeting of the Medical Library Association, Atlantic City, June 22, 1914.

It is a regrettable fact that the great majority of our medical students graduate and pass out of the medical college and enter on their professional careers with practically no knowledge of how to obtain the literature on a particular subject should they wish to prepare a paper or to do research work. They do not have the least idea where and how to look up references and that such references even exist outside of their text-books. They know practically nothing of the value and contents of the "Index Catalogue" and the "Index Medicus" or how to use them. Of course they have had little or no occasion to refer to these during their college course, but it seems to me that every graduate in medicine should be familiar with these publications and know how to use them.

Would it not be well for our medical colleges to provide somewhere throughout the course in medicine an opportunity for instruction in the use of the various indexes and bibliographic reference works so valuable to the medical writer and investigator? Could not this instruction best be given by the one most familiar with the subject, the librarian in each institution?

This instruction would include the explanation of the use of the card catalogue of the local library, the contents, arrangement, mode of using to obtain the information desired in the least space of time and in the most thorough manner, of the various bibliographic indexes such as the "Index Catalogue of the Library of the Surgeon-General's Office," the "Index Medicus," the various year-books, annuals, *Jahrbücher* and *Jahresbericht;* where and how to find abstracts, as in the "Current Medical Literature" section of The Journal of the American Medical Association and the *International Abstract of Surgery* and the various *Centralblätter;* and information as to how to obtain publications from the Library of the Surgeon-General's Office in towns where there are no medical libraries or where the library does not have the desired books. All this and much more helpful information might be given in such a talk.

While the student would not recognize the value of such instruction while in college he would readily appreciate it when entering on his medical literary work.

Would not the "knowing how" thus acquired by the student be an impetus to him in the preparation of any papers that he may wish to write or in doing reference work for others?

When a student has fully realized the value of a library, when he has learned the relative value of the literature of medicine and has become acquainted with the various methods of bibliographic work and the use of library facilities, he has laid a literary foundation that will be an efficient means in acquiring a better medical education and a broader medical culture.

It is hoped that the foregoing will impress on those in authority in our medical colleges the essential value of the medical library to the institution and especially to the students, and help to inculcate in the student a greater desire to avail himself of the abundant opportunities afforded for the widest possible knowledge to be acquired in his chosen profession.

Tenth and Walnut Streets.

FOREIGN BODIES IN THE BLADDER

Louis Gross, M.D., San Francisco

While the literature teems with interesting cases of foreign bodies in the bladder, the first case here recorded is unique in many respects and should teach us a few valuable facts.

C. K., of San Bernardino, Cal., hotel proprietor, was referred to me with the following history: Family history was negative. Patient had some difficulty in urination, for the relief of which a suprapubic prostatectomy was done. June 27, 1912. Following the operation the patient had two postoperative hemorrhages; suprapubic drainage was removed three weeks later; patient urinated through the urethra from five to six weeks after operation; bladder wound closed in the ninth or tenth week. Patient consulted Dr. George K. Herzog, June 16, 1913, almost one year later, and was immediately referred to me. His history was one of continued frequency of urination, nocturnally and diurnally, tenesmus, and stinging pain at glans penis. Urinary examination showed turbidity, acid reaction, 1.030, no casts, many red blood-cells, no crystals, and a few spherical epithelial cells. Cystoscopy showed a calculus in the bladder.

June 19, litholapaxy was done and a large amount of fragments was removed with the evacuator. Patient also passed a considerable number through the urethra. As not all were crushed in the one sitting, June 21, Nitze's operation-cystoscope with lithrotite attachment was used; as operation became too painful, nitrous oxid-oxygen anesthesia was given. Many small fragments were broken and then a foreign substance was caught in the jaws of the instrument, which was also *attached to the bladder wall* at the site of the previous prostatectomy. A suprapubic cystotomy was then performed and what was thought, when observed through the operation-cystoscope, to be a piece of gauze, proved to be a piece of the ordinary soft-rubber catheter about 20 F. and about 1½ inches long. The catheter was attached to the wall of the bladder at the site of the former operation. Patient made an uneventful recovery. July 16, cystoscopy showed a normal bladder. This case is recorded to warn us of the great danger lurking in the use of deteriorated rubber drainage-tubes, to urge the testing of all tubing before insertion into the bladder, the avoidance of tubing too small in caliber, and to examine all cases of this character cystoscopically as a control.

A physician called on me one morning much disturbed and related the following interesting story: A patient of his had a stricture of the urethra which could not be passed by sounds of ordinary size. After the use of all the smaller sizes of exploratory bougies he used a filiform, succeeded in entering and immediately passed a Goulcy tunneled sound. During this manipulation the filiform suddenly slipped beyond his reach and entered the bladder. I informed him that a stricture admitting only a filiform would not allow the passage of an operation-cystoscope for its removal; furthermore if he would wait a few days the filiform would pass out. Being obdurate to this plan of procedure, the patient was brought to my office the same afternoon. Various sounds were tried without success until I changed my position from the right to the left side of the patient. This is a method we should take note of, as often the tip of the sound will be caught in a pocket and the shifting of one's position from left to right or vice versa will cause supposed strictures to disappear immediately.

With the Buerger operation-cystoscope and with a long pair of Buerger forceps passed through this instrument, the edge of the filiform was grasped and removed through the instrument. I may state here that in the removal of filiforms, it is necessary to grasp the filiform at either thin end and not in the thick center.

This case teaches us the necessity in the treatment of filiform strictures of exercising great care in grasping the filiform with a pair of hemostatic forceps as soon as the Goulcy tunneled sound or catheter is passed over the filiform; otherwise it may be carried into the bladder.

45 Kearny Street.

MEDICAL COLLEGES OF THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA BY THE COUNCIL ON MEDICAL EDUCATION

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances in which such reports were not received the information published is from other reliable sources. Figures for graduates include all who graduated since July 31, 1913. Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's returns for 1910. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work.

ALABAMA

Alabama, population 2,138,093, has two medical colleges, the School of Medicine of the University of Alabama and the Birmingham Medical College, located, respectively, in Mobile and Birmingham. The population of Mobile is 51,521 and of Birmingham 132,685.

In order to secure licenses to practice medicine in Alabama, students matriculating in the session of 1915-16 and thereafter, must have completed *two years* of work in an approved college of liberal arts including courses in physics, chemistry, biology and a modern language prior to entering on the study of medicine.

Birmingham

Birmingham Medical College, Avenue F and Twentieth Street.—Chartered in 1894. The first class graduated in 1895. In 1913 became the Graduate School of Medicine of the University of Alabama. There are 19 professors and 13 assistants, total 32. The course of undergraduate instruction now embraces one session of eight months. Only seniors will be enrolled. When this class has graduated, the college will cease to do undergraduate teaching. The fees are $130. The secretary is Dr. E. P. Hogan. Registration, 1913-14, 57; graduates, 30. The twenty-fourth session begins Oct. 1, 1914, and ends May 28, 1915.

Mobile

University of Alabama School of Medicine, St. Anthony and Lawrence Streets.—Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868, inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907, when the present title was assumed. At present, one year and, for the session of 1915-16, *two years* of college work will be required for admission. The faculty consists of 14 professors and 41 lecturers and assistants, a total of 55. The course of study covers four years of thirty-two weeks each. The total fees for each of the four years, respectively, are $160, $155, $155 and $175. The Dean is Dr. Eugene D. Bondurant. The total registration for 1913-14 was 94; graduates, 21. The forty-ninth session begins Sept. 24, 1914, and ends June 9, 1915.

ARKANSAS

Arkansas, population 1,574,449, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 45,941.

To secure licenses to practice medicine in Arkansas, students matriculating in the session of 1915-16 and thereafter must have completed at least one year of collegiate work including college courses in physics, chemistry, biology and a modern language before beginning the study of medicine. This applies to all graduates of 1919 and thereafter.

University of Arkansas Medical Department, Markham and Center Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class graduated in 1880. The faculty consists of 15 professors and 36 lecturers and assistants, total 51. Entrance requirements will be increased to include a year of collegiate work beginning with the session of 1915-16. The course of study covers four years of thirty-two weeks each. The fees are $125 for each of the first three years and $150 for the fourth year. The Dean is Dr. Morgan Smith. Total registration, 1913-14 was 95; graduates, 34. The thirty-sixth session begins Sept. 14, 1914, and ends May 13, 1915.

CALIFORNIA

California, population 2,337,459, has eight medical colleges. Four are located in San Francisco, a city of 416,912 inhabitants. They are Leland Stanford Junior University School of Medicine, College of Medicine of the University of California, Hahnemann Medical College of the Pacific and the College of Physicians and Surgeons. The College of Physicians and Surgeons and the California Eclectic Medical College are situated in Los Angeles, population 319,198. The Oakland College of Medicine and Surgery is in Oakland, population 150,174. The College of Medical Evangelists is located at Loma Linda, a village of 110 people.

To secure licenses to practice medicine in California under the "physician's and surgeon's" certificate, students matriculating in medical colleges in and after the session of 1915-16 prior to such matriculation must have completed at least one year of recognized collegiate work including college courses in physics, chemistry, biology and a modern language. This applies to all graduates of 1919 and thereafter.

Berkeley-Los Angeles-San Francisco

University of California College of Medicine. University Campus, Berkeley; Second and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The first class graduated in 1865. In 1872 it became the medical Department of the University of California. In 1909 the College of Medicine of the University of Southern California, at Los Angeles, by legislative enactment, became a clinical department. This Los Angeles portion was changed to a graduate school in 1914. *Two years* of collegiate work are required for admission. The work of the first two years is given at Berkeley and the work of the last two years at San Francisco. The faculty is composed of 21 professors and 55 associates and assistants, a total of 76. The course covers four years of nine months each. Fees for the four years respectively are $195, $180, $165 and $165. The Dean is Dr. Herbert C. Moffitt, San Francisco. Total registration for 1913-14 was 124; graduates 13. The forty-second session begins Aug. 7, 1914, and ends May 8, 1915.

Loma Linda

College of Medical Evangelists.—Organized in 1909. The faculty numbers 11. The first class graduated in 1914. The course extends over five years of nine months each, but includes a study of the Bible and evangelistic training—non-medical subjects. The total fees each year are $136; matriculation fee, $5, payable but once; graduation fee, $10. The Dean is Dr. Alfred Shryock. The total registration for 1913-14 was 75; graduates, 6. The sixth session begins Sept. 13, 1914, and ends June 8, 1915.

Los Angeles

College of Physicians and Surgeons, 516 East Washington Street.—Organized in 1903, first class graduated in 1905; became Medical Department, University of Southern California Aug. 11, 1909. The course covers four years of nine months each. One year of collegiate work is required for admission. The faculty consists of 19 professors and 59 associate professors, lecturers and instructors, a total of 78. The fees for the four years respectively are $177, $172, $160 and $175. The Dean is Dr. Charles W. Bryson, Delta Building, Los Angeles. The registration for 1913-14 was 153; graduates 34. The next session begins Sept. 9, 1914, and ends June 10, 1915.

California Eclectic Medical College, 846 Lyon Street.—Organized in 1879 at Oakland as the California Medical College. Removed to San Francisco in 1887. Suspended in 1906. Reorganized at Los Angeles with the present title in 1907. Classes were graduated in 1880, and in all subsequent years except 1907. The registration for 1913-14 was 38; graduates, 11.

Oakland

Oakland College of Medicine and Surgery, Thirty-First and Grove Streets.—Organized in 1900, opened in 1902. The first class graduated in 1906. The faculty numbers 44. The course covers four years of nine months each, and the classes are limited to ten students each. The total fees for each of the four years, respectively, are $210, $200, $175 and $175. The Registrar is Dr. Edward N. Ewer. The total registration for 1913-14 was 15; graduates, 3. The thirteenth session begins Aug. 18, 1914, and ends May 22, 1915.

San Francisco

Hahnemann Medical College of the Pacific. Homeopathic. Sacramento and Maple Streets. —Organized in 1881 as the Hahnemann Medical College. The first class graduated in 1884. In 1888 it became the Hahnemann Hospital College of San Francisco. It assumed the present name in 1902. It has a faculty of 22 professors and 16 lecturers, instructors, etc., a total of 38. The course covers four years of thirty-four weeks each. Total fees for the first year are $155, and $100 for each of the other three. The Dean is Dr. James W. Ward, 391 Sutter Street. The total registration for 1913-14 was 40; graduates, 5. The thirty-third session begins Aug. 11, 1914, and ends April 29, 1915.

College of Physicians and Surgeons, 344 Fourteenth Street.—Organized in 1896. The first class graduated in 1897. The faculty numbers 24. The course covers four years of nine months each. The fees for each of the four years, respectively, are $165, $160, $160 and $185. The Dean is Dr. L. W. Spriggs. Registration for 1913-14 was 34; graduates, 8. The eighteenth session begins Sept. 2, 1914, and ends June 4, 1915.

San Francisco-Palo Alto

Leland Stanford Junior University, School of Medicine, University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The faculty consists of 36 professors and 57 lecturers, assistants, etc., a total of 93. Three years of collegiate work are required for admission. The course covers four years of nine months each. Students matriculating in September, 1914, and thereafter will be required to take a five year course including a year of practical or intern work prior to graduation. The total fees for the first are $160; for the second, $155 and for the third and fourth years, $150 each. The Dean is Dr. R. L. Wilbur, San Francisco. The total registration for 1913-14 was 75; graduates, 13. The fifth session begins Sept. 2, 1914, and ends May 17, 1915.

COLORADO

Colorado, with a population of 799,024, has one medical college, the University of Colorado School of Medicine. The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 213,381.

The Colorado State Board of Medical Examiners will register without further examination graduates of medical colleges in good standing who present licenses issued after examination granted by any other licensing board. The law permits any one, graduate or non-graduate, to try the Board's written examination. No graduate of 1914 or thereafter is eligible to obtain a license in Colorado on indorsement of his credentials unless he graduated from a medical college which at the time he matriculated required at least *two years'* study without conditions in an accredited college of liberal arts which work must have included courses in physics, chemistry, biology and one modern language.

Boulder-Denver

University of Colorado School of Medicine.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911, when the legal right to teach the last two or clinical years in Denver was secured. The faculty embraces 49 professors and 24 lecturers and assistants, a total of 73. The work embraces a graded course of four years of nine months each. The entrance requirements are *two years* of college work counting toward a degree in arts in an accredited college or university. The tuition is $75 per year; there are no other fees. The Dean is Dr. William P. Harlow. The total registration for 1913-14 was 54; graduates, 17. The thirty-third session begins Sept. 14, 1914, and ends June 9, 1915.

CONNECTICUT

Connecticut, with a population of 1,114,756 has one medical college, located in New Haven, population 133,605.

Candidates for license to practice medicine in Connecticut, who graduate in 1914 or thereafter are not eligible unless, prior to entering on the study of medicine they had completed, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

New Haven

Yale Medical School, York and Chapel Streets.—This is the Department of Medicine of Yale University. In 1810 a charter was granted for the establishment of this school, and in 1813 it was organized as the Medical Institution of Yale College. The first class graduated in 1814. The faculty consists of 16 professors and 50 lecturers and assistants, a total of 66. The requirement for admission is *two full years* of collegiate work plus evidence of satisfactory preparation in physics, general inorganic chemistry and general biology. The course covers four years of nine months each. The fees for the four years, respectively, are approximately $223, $170, $153 and $163. The Dean is Dr. George Blumer. The total registration for 1913-14 was 49; graduates, 8. The one hundred and second session begins Oct. 1, 1914, and ends June 23, 1915.

DISTRICT OF COLUMBIA

Washington, population 331,069, has three medical colleges; George Washington University Medical School, Georgetown University School of Medicine and Howard University School of Medicine.

Washington

George Washington University Medical School, 1325 H Street, N.-W.—Organized in 1825 as the National Medical College, Medical Department of Columbian College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. The faculty is composed of 22 professors and 51 instructors, demonstrators and assistants, a total of 73. One year of collegiate work is required for admission. The course covers four years of thirty-two weeks each. The total fees are $150 per year. The Dean is Dr. William C. Borden. The total registration for 1913-14 was 171; graduates, 16. The ninety-third session begins Sept. 30, 1914, and ends June 9, 1915.

Georgetown University School of Medicine, 920 H Street, N.-W.—Organized in 1851. The first class graduated in 1852. The faculty contains 33 professors, 54 instructors and assistants; total, 87. Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one-half months each. The fees for the first year are $165, and for each of the other three years, $150. The Dean is Dr. George M. Kober. The registration for 1913-14 was 99; graduates, 21. The sixty-fourth session begins Sept. 25, 1914, and ends June 13, 1915.

Howard University School of Medicine, Fifth and W Streets, N.-W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 19 professors and 20 lecturers and assistants, 39 in all. The admission requirements are one year of collegiate work including physics, chemistry, botany and zoology and a reading knowledge of one modern language besides English. The course covers four years of thirty-two weeks each. The fees of each of the four sessions, respectively, are $107, $102, $102 and $109. The Dean is Dr. Edward A. Balloch. Registration for 1913-14 was 110; graduates, 32. The forty-seventh session begins Oct. 1, 1914, and ends June 2, 1915.

GEORGIA

Georgia, population 2,609,121, has two medical colleges; University of Georgia, Medical Department, located in Augusta, population 41,040 and the Atlanta Medical College, in Atlanta, a city of 154,839 population.

Atlanta

Atlanta Medical College.—Butler and Armstrong Streets.—Organized in 1854. Classes graduated, 1855 to 1861, when it suspended. Reorganized in 1865. In 1898 it merged with the Southern Medical College (organized in 1878) taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming its first title. One year of collegiate work is required for entrance. It has a faculty of 34 professors and 78 instructors, assistants, etc., a total of 113. The course of study is four years of thirty-two weeks each. The fees are $150 each year. The Dean is Dr. W. S. Elkin. Total registration for 1913-14 was 488; graduates, 125. The next session begins Sept. 28, 1914, and ends June 1, 1915.

Augusta

University of Georgia, Medical Department, Railroad Avenue and Harper Street.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the University in 1911. Classes were graduated in 1833 and in all subsequent years except 1862 and 1863. The faculty includes 20 professors and 27 assistants, 47 in all. One year of collegiate work is required for entrance. The course is four years of thirty-four weeks each. Fees are $150 each year. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1913-14 was 58, graduates, 20. The eighty-third session begins Sept. 16, 1914, and ends June 1, 1915.

ILLINOIS

Illinois, population 5,638,591, has eight medical colleges, two of which give instruction at night, all located in Chicago, a city of 2,185,283 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College and Hospital, Bennett Medical College, Chicago College of Medicine and Surgery, Jenner Medical College and the Chicago Hospital College of Medicine.

To be eligible for license to practice medicine in Illinois, students matriculating in the session of 1914-15 and thereafter, in addition to an accredited four-year high school education, must have completed at least a year of collegiate work including courses in physics, chemistry, biology and a modern language, to be taken either in a preliminary year given by a recognized medical college, or in an approved college of liberal arts.

Chicago

Rush Medical College.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 100 professors, 188 associates, instructors, etc., a total of 288. The requirements for admission are *two years* of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. Classes are limited to 100 students in each of the freshman and sophomore classes and to 120 students in each of the clinical years. No application for admission is accepted after September 1. The course covers four years of eight and a half months each. A fifth year, consisting of a hospital internship or of a fellowship in one of the departments, will be required of all students matriculating for the summer quarter of 1914 and thereafter. All freshmen and sophomore studies are given at the University of Chicago. The clinical years are given in the building at the corner of Wood and Harrison Streets. The total fees are $180 each year. A matriculation fee of $5 is paid but once, and there are incidentals amounting from $2 to $5 annually. The

Dean is Dr. John M. Dodson. Total registration 1913-14 was 462; graduates, 97. The seventy-second session begins Oct. 1, 1914, and ends June 19, 1915.

Northwestern University Medical School, South Dearborn Street, between Twenty-Fourth and Twenty-Fifth Streets.—Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 58 professors and 80 lecturers and assistants, a total of 138. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus *two years* of college work including courses in physics, chemistry, biology and a modern language. The course covers four years of eight months each. The fees for the four years, respectively, are $190, $195, $190 and $206. The Dean is Dr. Arthur R. Edwards. The total registration for 1913-14 was 180; graduates, 69. The fifty-fifth session begins Sept. 29, 1914, and ends June 6, 1915.

University of Illinois College of Medicine, Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1896 and an integral part in 1910. The relationship with the university was canceled in June, 1912, but restored in March, 1913. The American Medical Missionary College was absorbed in 1910. *Two years* of collegiate work are required for admission. The faculty is composed of 60 professors, 89 assistants and instructors, a total of 149. The fees are $155 each year. The Dean is Dr. D. A. K. Steele. Total registration for 1913-14 was 422; graduates, 113. The thirty-third session begins Oct. 1, 1914, and ends June 11, 1915.

Chicago College of Medicine and Surgery, 706 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part of the name was dropped in 1902 and it became the Medical Department of Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. One year of collegiate work, including courses in physics, chemistry, biology and a modern language is required for admission. The course covers four years of eight months each. The faculty numbers 114. The total fees of each of the four years are $150. The Dean is Dr. W. J. Butler. The total registration for 1913-14 was 638; graduates 177. The fourteenth session begins Sept. 29, 1914, and ends May 24, 1915.

Hahnemann Medical College and Hospital of Chicago, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The faculty includes 32 professors and 46 lecturers, assistants, etc., a total of 78. One year of collegiate work, including courses in physics, chemistry and biology and a modern language is required for admission. The course extends over four years of eight months each. The tuition fees for the four years, respectively, are $146, $131.50, $165 and $186.50. The Dean is Dr. Joseph P. Cobb. The total registration for 1913-14 was 92; graduates, 17. The fifty-fifth session begins Sept. 28, 1914, and ends May 27, 1915.

Bennett Medical College, Fulton and Ada Streets.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Dropped Eclecticism in 1909. In 1910 it united with the Illinois Medical College and became by affiliation the Medical Department of Loyola University. The first class graduated in 1870. The faculty numbers 68. The course covers five years of thirty-two weeks each. The fees are $150 each year. The Dean is Dr. Maximilian Herzog. The total registration for 1913-14 was 406; graduates, 111. The next session begins Sept. 30, 1914, and ends May 28, 1915.

Jenner Medical College, an afternoon and night school, located at 701 South Wood Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. The faculty numbers 48. The Secretary is Dr. John D. MacKellar. Total registration for 1913-14 was 199; graduates, 11. The next session begins Sept 1, 1914, and ends June 13, 1915. *Reported not recognized by the licensing boards of thirty-one states.*

Chicago Hospital College of Medicine, another afternoon and night school, located at 3832 Rhodes Avenue.—Organized in 1913. Claimed to have had a registration of 75 in 1913-14. There was 1 graduate. *Official reports indicate that the diplomas from this college are not recognized by the licensing boards of thirty-one states.*

INDIANA

Indiana, population 2,700,876, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 233,650 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Candidates for license to practice medicine in Indiana who matriculated between Jan. 11, 1910 and Jan. 11, 1914, must have completed one year of collegiate work in addition to an accredited four-year high school course prior to beginning the study of medicine. Those matriculating subsequent to Jan. 11, 1914, must have completed *two years* of work in a recognized college of liberal arts. This additional preliminary work must have included college courses in physics, chemistry and biology.

Bloomington and Indianapolis

Indiana University School of Medicine.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907 by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1869), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879) merged into it. The first class was graduated in 1908. The faculty consists of 72 professors and 58 lecturers, associates and assistants, a total of 130. *Two years* of collegiate work are required for admission. The work of the first year is emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees for the four years, respectively, are $100, $100, $130 and $130. A fifth optional year leading to the "M.D. cum laude" has been added. The Secretary at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1913-14 was 133; graduates, 22. The next session begins Sept. 29, 1914, and ends June 23, 1915.

IOWA

Iowa, population 2,224,771, has two medical colleges. The College of Medicine and the College of Homeopathic Medicine of the State University of Iowa, both located in Iowa City, population 10,091.

Candidates for license to practice medicine in Iowa who graduated subsequent to Jan. 1, 1911, must have completed *two years* of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry and biology.

Iowa City

State University of Iowa College of Medicine. University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. The faculty is made up of 21 professors, 21 lecturers, demonstrators and assistants, a total of 42. *Two years* of collegiate work, including courses in physics, chemistry, biology and French or German, are required for admission. The course of study covers four years of thirty-six weeks each. Total fees for each of the four years, respectively, are $110, $100, $100 and $110. The Dean is Dr. Lee Wallace Dean, Iowa City. Total registration for 1913-14 was 108; graduates, 13. The forty-fifth session begins Sept. 21, 1914, and ends June 16, 1915.

State University of Iowa College of Homeopathic Medicine.—Organized in 1877. The first class graduated in 1878. The faculty is composed of 15 professors and 15 lecturers and assistants, a total of 30. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa, and it has the same entrance requirements. The fees are $100 each year, plus a matriculation fee of $10, paid but once, and a graduation fee of $10. The Dean is Dr. George Royal. Total registration for 1913-14 was 5; no graduates. The thirty-seventh session begins Sept. 21, 1914, and ends June 16, 1915.

KANSAS

Population 1,690,949, has one medical college. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 330,662.

Candidates for license to practice medicine in Kansas who matriculated in the session of 1910-11 and thereafter must present credentials showing that he matriculated in and graduated from a medical college which required for admission at least one year of collegiate work including college courses in physics, chemistry and biology in addition to an accredited four-year high school course. This applies to all graduates of 1914 and thereafter.

Lawrence and Rosedale

University of Kansas School of Medicine.—Organized in 1880. In 1905 it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. Absorbed Kansas Medical College in 1913. The faculty, including lecturers and clinical assistants, numbers 58. The requirements for admission are *two years* of collegiate work. The course covers four years of nine months each. The total fees are for each of the first two years, $30 per year (and for non-residents of the state, $45); for the last two years $100 and $105, respectively. The Dean is Dr. S. J. Crumbine; Associate Dean, Dr. M. T. Sudler. The total registration for 1913-14 was 105; graduates, 10. The thirty-fifth session begins Sept. 16, 1914, and ends June 10, 1915.

KENTUCKY

Kentucky, population 2,289,905, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 223,928 inhabitants.

To be eligible for license to practice medicine in Kentucky all students matriculating in and after the session of 1914-15 must have completed, in addition to an accredited four-year high school course, at least one year's work in an approved college of liberal arts including college courses in physics, chemistry, biology and a modern language.

Louisville

University of Louisville Medical Department, First and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the hospital College of Medicine and the Kentucky School of Medicine. One year of collegiate work is required for admission. It has a faculty of 35 professors and 58 lecturers and assistants, a total of 93. The course covers four years of thirty-two weeks each. The fees are $165 each year; graduation fee $10. The Dean is Dr. Henry Enos Tuley. The total registration for 1913-14 was 278, graduates, 54. The next session begins Sept. 28, 1914, and ends June 3, 1915.

LOUISIANA

Louisiana, having a population of 1,656,388, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 339,075.

New Orleans

Tulane University of Louisiana School of Medicine, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years, except 1863-65, inclusive. It was transferred to Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University in 1884. Present name in 1913 when it became the School of Medicine of the College of Medicine of the Tulane University. The faculty has 29 professors and 86 instructors, demonstrators, etc., a total of 115. The course covers four years of thirty-two weeks each. One year of collegiate work is required for admission. Total fees are $195 per year; graduation fee, $30. The Dean is Dr. Isadore Dyer. The total registration for 1913-14 was 327; graduates, 77. The eighty-first session begins Sept. 28, 1914, and ends June 2, 1915.

MAINE

Maine, population 742,371, has one medical college, located in Brunswick and Portland, the latter having a population of 58,571.

Brunswick-Portland

Medical School of Maine. The medical department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820. The first class graduated in 1820. The faculty numbers 66. The course covers four years of eight months each. The total fees are $110 for each of the first three years and $135 for the fourth. The Dean is Dr. Addison S. Thayer, 10 Deering Street, Portland. The total number of students in 1913-14 was 67; graduates, 19. The ninety-fourth session begins Oct. 15, 1914, and ends June 24, 1915.

MARYLAND

Maryland, with a population of 1,295,346, contains three medical colleges, all located in Baltimore, a city with 558,485 inhabitants. They are as follows: Johns Hopkins University Medical Department, School of Medicine of the University of Maryland and the College of Physicians and Surgeons.

Baltimore

Johns Hopkins University Medical Department, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 37 professors and 90 clinical professors, etc., a total of 127. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university or (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from a year's course. The course extends over four years of eight and one-half months each. The charge for tuition is $240 for the first year and $200 for each of the other three years. The Dean is Dr. J. Whitridge Williams. Total registration for 1913-14 was 360; graduates, 91. The twenty-second session begins Oct. 6, 1914, and ends June 8, 1915.

College of Physicians and Surgeons, Calvert and Saratoga Streets.—Organized in 1872. The first class graduated in 1873. In 1878 it united with Washington University School of Medicine. The faculty consists of 19 professors and 50 lecturers, demonstrators, etc., a total of 69. A year of collegiate work is required for admission. The work covers four years of eight months each. Total fees are $165 each year; graduation fee $30. The dean is Dr. William F. Lockwood. The total number of students registered in 1913-14 was 184; graduates, 58. The forty-third session begins Oct. 1, 1914, and ends June 1, 1915.

University of Maryland School of Medicine, Lombard and Greene Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. The faculty numbers 139. A year of collegiate work is required for admission. The course covers four years of eight months each. The total fees are $170 each year; graduation fee, $30. The Dean is Dr. R. Dorsey Coale. The total number of students registered in 1913-14 was 454; graduates, 97. The one hundred and eighth session begins Oct. 1, 1914, and ends June 1, 1915.

MASSACHUSETTS

Massachusetts, population 3,366,416, has four medical colleges: Medical School of Harvard University, Boston University School of Medicine, College of Physicians and Surgeons and Tufts College Medical School. They are all situated in Boston, a city of 670,585.

Boston

Medical School of Harvard University, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 58 professors and 149 associates, assistants, etc., a total of 207. Candidates for admission must present either a recognized college degree with courses in inorganic and organic chemistry or credits for *two years* of work in a recognized college or scientific school, which must include courses in physics, inorganic and organic chemistry and biology. The session is four years of eight months each. The total fee for each is $225. The Dean is Dr Edward H. Bradford. The total registration for 1913-14 was 305; graduates, 64. The one hundred and thirty-third session begins Sept. 28, 1914, and ends June 24, 1915.

Boston University School of Medicine, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. One year of collegiate work is required for admission. The faculty includes 33 professors, 35 associates, etc., a total of 68. The course covers four years of eight months each. Total fees for each of the four years, respectively, are $152, $147, $127 and $155. The Dean is Dr. John P. Sutherland. Total registration for 1913-14 was 113; graduates, 22. The forty-second session begins Oct. 1, 1914, and ends June 2, 1915.

Tufts College Medical School, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 42 professors and 80 assistants, lecturers, etc., a total of 122. One year of collegiate work is required for admission. The course covers four years of eight months each. The total fees are $155 each year. The Dean is Dr. Charles F. Painter. Total registration for 1913-14 was 311; graduates, 62. The twenty-first session begins Sept. 30, 1914, and ends June 1, 1915.

College of Physicians and Surgeons, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. The college announcement gives the names of 228 "matriculants and applicants" for the session of 1913-14, which included both dental and medical students. Fairly reliable information, however, shows that the total attendance of medical students during 1913-14 was 110. There were 13 graduates. *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of thirty-one states.*

MICHIGAN

Michigan, population 2,810,173, has three medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan, are located at Ann Arbor, a city of 14,817 people. The Detroit College of Medicine and Surgery is located at Detroit, a city of 465,766 inhabitants.

To be eligible for license to practice medicine in Michigan, all students matriculating in and after the session of 1914-15, in addition to an accredited four-year high school education, must have completed at least one year's work in an approved college of liberal arts including college courses in physics, chemistry and biology, prior to beginning the study of medicine.

Ann Arbor

University of Michigan Department of Medicine and Surgery.—Organized in 1850. The first class graduated in 1851. It has a faculty composed of 19 professors and 56 associates, instructors, etc., a total of 75. The entrance requirements are *two years* of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for the entire course of four years is $350 and for others about $400. The Dean is Dr. Victor C. Vaughan. The total registration for 1913-14 was 282; graduates, 36. The sixty-fifth session begins Sept. 29, 1914, and ends June 24, 1915.

University of Michigan Homeopathic Medical College.—Organized in 1875. The first class graduated in 1877. Although the work of the first two years is taken in the same classes with the Department of Medicine and Surgery of the University of Michigan, nevertheless the entrance requirements have been kept at one year of collegiate work; the requirement for the other department is two years of collegiate work. The Dean is Dr. W. B. Hinsdale. The total registration for 1913-14 was 73; graduates, 22. The next session begins Sept. 29, 1914, and ends June 24, 1915.

Detroit

Detroit College of Medicine and Surgery, St. Antoine and Mullett Streets.—Organized in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. Entrance requirements are one year of collegiate work. The faculty embraces 23 professors, 146 lecturers, instructors, etc., a total of 169. The course covers four years of eight months each. The Secretary is Dr. F. B. Walker. The total registration for 1913-14 was 249; graduates, 54. The thirtieth session begins Sept. 21, 1914, and ends June 3, 1915.

MINNESOTA

Minnesota, population 2,075,708, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis. Minneapolis and St. Paul are practically one city, and have a combined population of 516,162.

Candidates for license to practice medicine in Minnesota who graduated subsequent to June 1, 1912, in addition to an accredited four-year high school education must have completed *two years* of work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

University of Minnesota Medical School.—Organized in 1883; reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital Medical College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. The faculty includes 11 professors and 37 associate and assistant professors and 70 instructors and assistants, a total of 118. The curriculum covers four years of nine months each and a year's internship in an approved hospital. The entrance requirements are *two years* of university work which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and French or German, all in addition to a four-year high school course, including two years of Latin. Students entering hereafter will be required to secure a degree of B.S. or A.B. before the M.D. is granted. Total fees are $150 each year. The Dean is Dr. E. P. Lyon. The total registration for 1913-14 was 169; graduates, 30. The twenty-seventh session begins Sept. 16, 1914, and ends June 11, 1915.

MISSISSIPPI

Mississippi, population 1,797,114, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 1,825 inhabitants.

Oxford

University of Mississippi Department of Medicine.—Organized in 1903. Gives only the first two years of the medical course. The session extends over eight and a half months. Entrance requirements are one year of collegiate work in addition to an accredited four-year high school education. The total fees each year are, respectively, $102 and $100. The faculty numbers 14. The Dean is Dr. W. S. Leathers. The total registration for 1913-14 was 35. The twelfth session begins Sept. 17, 1914, and ends June 1, 1915.

MISSOURI

Missouri, population 3,293,335, has seven medical colleges. St. Louis, population 687,029, contains four of these, viz., the School of Medicine of St. Louis University, Washington University Medical School, St. Louis College of Physicians and Surgeons and the American Medical College. Kansas City, which with Kansas City, Kan., has a total population of 330,662, has two colleges, namely: the Kansas City Hahnemann Medical College and the Eclectic Medical University. The School of Medicine of the University of Missouri is at Columbia, a town of 9,662 people.

Columbia

University of Missouri School of Medicine.—Organized at St. Louis in 1845; was discontinued in 1859, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 9 professors and 6 assistant professors, lecturers, etc., a total of 15. The course covers two years of nine months each. The entrance requirements are *two years* of college work including English, 5 hours; German, 5 hours; general zoology, 5 hours; physics, 5 hours; inorganic chemistry, 5 hours; elective, 35 hours. Equivalent work in foreign language may be substituted for the English and German. Total fees are $40 each year. The acting Dean is Dr. Guy L. Noyes. Total registration of students for 1913-14 was 55. The next session begins Sept. 14, 1914, and ends June 3, 1915.

Kansas City

Kansas City Hahnemann Medical College, 916 Tracy Avenue.—Organized in 1888 as the Kansas City Homeopathic Medical College. The first class graduated in 1899. In 1902 it united with the Hahnemann Medical College of Kansas City University, taking the present title. The faculty numbers 40. The fees are $125 each year. The Registrar is Dr. Sam H. Snow. Total registration for 1913-14 was 46; graduates, 13. The next session begins Sept. 8, 1914, and ends May 20, 1915.

Eclectic Medical University, 1423 Independence Avenue.—Organized at Kansas City, Mo., in 1898 with the present title. Moved to Kansas City, Kan., in 1907, and took the name of Western Eclectic College of Medicine and Surgery. Returned to Kansas City, Mo., in 1909 and resumed the present title. First class graduated in 1900. The total registration for 1913-14 was 65; graduates 14. *Reported not in good standing by the Missouri State Board of Health and by twenty-eight other state licensing boards.*

St. Louis

Washington University Medical School, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. In 1855 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Washington University Medical School. In 1899 it absorbed the Missouri Medical College. The faculty comprises 23 professors and 56 lecturers, instructors, etc., a total of 79. *Two full years* of college work are required for admission including courses in English, physics, chemistry and biology and a reading knowledge of German. The course is four years of eight months each. The total fees for the four years are, respectively, $155, $150, $150 and $155. The Dean is Dr. Eugene L. Opie. The total registration for 1913-14 was 61; graduates, 15. The next session begins Sept. 24, 1914, and ends June 10, 1915.

St. Louis University School of Medicine, 1402 South Grand Avenue.—Organized in 1901 by union of Marion-Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 53 professors, 69 lecturers and assistants, a total of 122. One year of college subjects preliminary to the four years of medical subjects is given in the medical school. The curriculum covers four years of thirty-four weeks each. The total fees are $140 each year. The total registration for 1913-14 was 204; graduates, 45. The Dean is Dr. Hanau W. Loeb. The next session begins Sept. 15, 1914, and ends May 17, 1915.

St. Louis College of Physicians and Surgeons, Jefferson Avenue and Gamble Street.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. It was reorganized in 1879. Classes graduated in 1880 and subsequent years. Total registration for 1913-14 was 48; graduates, 24.

American Medical College, Garrison and Lawton Avenues.—Organized in 1873 as an Eclectic College. Eclecticism dropped in 1910. Absorbed the Barnes Medical College in 1911. Became the Medical Department of the National University of Arts and Sciences in 1912. Two classes were graduated each year from 1874 to 1883, inclusive. Since then one class has graduated each year. The course covers four years of eight and a half months each. Beginning with the session of 1914-15 a five-year course will be required including a preliminary year in physics, chemistry and biology. Fees: matriculation, $5; tuition each year, $135. The Dean is Dr. James Moores Ball. The total registration for 1913-14 was 146; graduates, 34. The next session begins Sept. 22, 1914, and ends June 7, 1915.

NEBRASKA

Nebraska, population 1,192,214, has three medical colleges. The University of Nebraska College of Medicine and the John A. Creighton Medical College of Omaha, population 124,096, and the Cotner University Medical College at Lincoln, population 43,973.

Bethany-Lincoln

Cotner University Medical College. Eclectic. University Campus Bethany, and corner Thirteenth and P Streets, Lincoln. It is the Medical Department of Cotner University.—Organized in 1890 as the Lincoln Medical College. Assumed present title in 1911. The first class graduated in 1891. The faculty numbers 33. The fees are $100 each year. The Registrar is Prof. R. L. Hoff, Lincoln. The total registration for 1913-14 was 29; graduates, 5. The next session begins Sept. 14, 1914, and ends May 27, 1915.

Omaha

John A. Creighton Medical College, Fourteenth and Davenport Streets. It is the Medical Department of Creighton University.—Organized in 1892. The first class graduated in 1895. It has a faculty of 15 professors and 38 associates, lecturers and assistants, a total of 53. One year of collegiate work is required for admission. The course of study embraces four years of eight months each. The total fees for the four years, respectively, are $130, $120, $120 and $120. The Dean is Dr. A. L. Muirhead. Total registration for 1913-14 was 182; graduates, 35. The twenty-third session begins Sept. 1, 1914, and ends April 30, 1915.

University of Nebraska College of Medicine, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha university in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913 when all four years were transferred to Omaha. The faculty is composed of 31 professors and 27 lecturers and instructors, total 58. *Two years* of collegiate work are required for admission including courses in physics, chemistry, zoology and German. The fees are approximately $100 per annum. The Secretary is Dr. Irving S. Cutter. Total registration for 1913-14 was 84; graduates, 11. The next session begins Sept. 14, 1914, and ends June 4, 1915.

NEW HAMPSHIRE

New Hampshire, population 443,140 has one medical college, located at Hanover, population 1,884.

Only graduates of medical colleges registered by the Regents of New Hampshire are eligible to obtain licenses to practice medicine. Medical colleges to be registered, for all students matriculating in the session of 1914-15 and thereafter, must require for admission at least one year of collegiate work, including college courses in physics, chemistry and biology in addition to a standard four-year high school education.

Dartmouth Medical School.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 19 professors and 7 instructors, a total of 26. *Two years* of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the B.S. degree in Dartmouth College may substitute the work of the first two years in medicine for that of the junior and senior years in the academic department. Candidates for the A.B. degree may make a similar saving of one year. The fees for the two years in medicine are, respectively, $169.50 and $173.50. Dean, Dr. John M. Gile; Secretary, Colin C. Stewart. The next session opens September 24, 1914, and ends June 24, 1915.

NEW YORK

New York State, population 9,113,614, has ten medical colleges. Seven of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, New York Medical College and Hospital for Women, Cornell University Medical College, the University and Bellevue Hospital Medical College and Fordham University School of Medicine, are located in New York City, population 4,766,883. Albany Medical College is located in Albany, a city of 100,253 people. The University of Buffalo Medical Department is situated in Buffalo, population 423,715. The College of Medicine, Syracuse University, is in Syracuse, a city of 137,249 inhabitants.

Albany

Albany Medical College, Lancaster and Jay Streets.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. The faculty is composed of 18 professors and 85 lecturers, assistants, etc., a total of 103. One year of collegiate work, including college courses in physics, chemistry and biology are required for admission. The curriculum covers four years of eight months each. The fees for each of the four years are, respectively, $135, $140, $120 and $130. The Registrar is Dr. Joseph D. Craig. The total registration for 1913-14 was 258; graduates 52. The eighty-fourth session begins Sept. 22, 1914, and ends May 25, 1915.

Buffalo

University of Buffalo Medical Department, High Street, near Main.—Organized in 1846. The first class graduated in 1874. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 33 professors and 67 lecturers, assistants, etc., a total of 100. One year of collegiate work, including college courses in physics, chemistry and biology are required for admission. The course covers four years of eight months each. The total fees for the four years, respectively, are $185, $180, $140 and $140. The Dean is Dr. Herbert U. Williams. Total registration for 1913-14 was 236; graduates, 47. The sixty-ninth session begins Sept. 21, 1914, and ends June 4, 1915.

New York

Columbia University College of Physicians and Surgeons, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. Affiliated with Columbia College in 1814 and was permanently connected in 1860, when it became the Medical Department of Columbia College. That institution became Columbia University in 1891. The faculty is composed of 76 professors and 133 instructors, demonstrators, etc., a total of 209. *Two years* of collegiate work, including courses in physics, chemistry and biology are required for admission. The work covers four years of eight months each. The Dean is Dr. Samuel W. Lambert. The total fees for the first year are $255; for the second and third, $250, and $275 for the fourth year. Total registration for 1913-14 was 308; graduates, 71. The one hundred and seventh session begins Sept. 23, 1914, and ends June 2, 1915.

Cornell University Medical College, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 38 professors and 99 assistants, lecturers, instructors, etc., a total of 137. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. The fees for each of the four years are, respectively, $190, $185, $185 and $200. The Dean is Dr. William M. Polk. Total registration for 1913-14 was 108; graduates, 20. The seventeenth session begins Sept. 30, 1914, and ends June 10, 1915.

Fordham University School of Medicine, Bathgate Avenue and Fordham Road.—Organized in 1905. First class graduated in 1909. The faculty consists of 49 professors and 50 lecturers and assistants, a total of 99. The course of instruction covers four years of eight and a half months each. Fees, $200 each year. A year's work in a recognized college of liberal arts, including college courses in physics, chemistry and biology, is required for admission. The Dean is Dr. William P. Healy. The total registration for 1913-14 was 175, graduates, 29. The tenth session begins Sept. 25, 1914, and ends June 8, 1915.

Long Island College Hospital, Henry Street, near Atlantic Avenue, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 39 professors and 74 assistants, instructors, etc., a total of 113. A year of collegiate work including college courses in physics, chemistry and biology is required for admission. The course covers four years of eight months each. Fees: First year, $210, second year, $205, third, $200, and $200 for the fourth year. The Secretary is Dr. Joseph H. Raymond. Total registration 1913-14 was 360, graduates, 79. The fifty-seventh session begins Sept. 22, 1914, and ends June 7, 1915.

New York Homeopathic Medical College and Flower Hospital, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College for the State of New York. The present title was assumed in 1869. The first class graduated in 1861. The faculty consists of 27 professors and 44 assistants, lecturers, etc., a total of 71. The total fees for each of the four years respectively are $165, $160, $150 and $180. The Dean is Dr. Royal S. Copeland. Total registration for 1913-14 was 237, graduates, 43. The fifty-fifth session begins Sept. 30, 1914, and ends May 26, 1915.

New York Medical College and Hospital for Women (Homeopathic) 17-19 West One Hundred and First Street.—Organized in 1863. The first class graduated in 1864. The faculty consists of 30 professors and 28 lecturers and assistants, a total of 58. The course covers four years of thirty weeks each. The fees for each of the four years, respectively, are $155, $150, $135 and $155. The Dean is Dr. Cornelia C. Brant. The total registration for 1913-14 was 42, graduates, 7. Matriculants are not listed in the annual announcement. The fifty-second session begins Sept. 23, 1914, and ends June 3, 1915.

University and Bellevue Hospital Medical College, First Avenue and Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. The faculty is composed of 69 professors and 56 instructors, etc., in all 125. The course covers four years of eight months each. Entrance requirements are one year of collegiate work, in addition to a standard four-year high school course, including college courses in physics, chemistry and biology. The fees are $200 per year; graduation fee, $25. The Secretary is Dr. Samuel A. Brown. Total registration for 1913-14 was 333, graduates, 83. The next session begins Sept. 23, 1914, and ends June 9, 1915.

Syracuse

Syracuse University College of Medicine, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875. The first class graduated in 1873 and a class graduated each subsequent year. In 1884 the amalgamation with the university was made complete. Two years of a recognized college course are required for admission. The course covers four years of thirty-five weeks each. The total fees for each of the four years are respectively, $192, $187, $187 and $207. The faculty is composed of 23 professors and 50 associate and assistant professors, lecturers and instructors. The Dean is Dr. John L. Heffron. The total enrollment for 1913-14 was 96; graduates, 16. The forty-third session begins Sept. 15, 1914, and ends June 9, 1915.

NORTH CAROLINA

North Carolina, population 2,206,287, has three medical schools, all of which give only the first two years of the medical course. The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,200. The Leonard Medical School is at Raleigh, population 19,218. Wake Forest College School of Medicine is at Wake Forest, population 823.

Chapel Hill

University of North Carolina School of Medicine.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. One year of collegiate work is required for admission. The faculty is composed of 12 professors and 13 lecturers, assistants, etc., a total of 25. The total fees for the two years, respectively, are $120 and $125. The Dean is Dr. I. H. Manning. The total registration for 1913-14 was 60. The twenty-ninth session begins Sept. 10, 1914, and ends June 2, 1915.

Raleigh

Leonard Medical School.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years, including 1914 when clinical teaching was discontinued. A year of collegiate work is required for admission. It has a faculty of 14. The course covers four years of seven and a half months each. The total fees for each year are $57; graduation fee, $10. The Dean is Dr. George H. Stoddard. Total registration for 1913-14 was 78; graduates 8. The thirty-third session begins Sept. 30, 1914, and ends May 13, 1915.

Wake Forest

Wake Forest College School of Medicine.—This school was organized in 1902. The faculty, including the professors of chemistry, physics, and biology numbers 10, exclusive of laboratory assistants. Only the first two years of the medical course are offered after the completion of freshmen and sophomore college work, and on this combined course the B.S. degree is conferred. Each annual course extends over nine months. The fees for each year aggregate $103. The Secretary is E. B. Earnshaw. The total registration for 1913-14 was 28. The thirteenth session begins Sept. 1, 1914, and ends May 21, 1915.

NORTH DAKOTA

North Dakota, population 577,056, has one medical college, the School of Medicine of the University of North Dakota, which is situated at University, near Grand Forks, a city of 12,478 people. It gives only the first two years of the medical course.

Candidates for license to practice medicine in North Dakota who graduated in 1912 and thereafter, in addition to a four-year high school education must have completed *two years* of work in an approved college of liberal arts including courses in Latin, physics, chemistry, botany and zoology, prior to beginning the study of medicine.

University

University of North Dakota School of Medicine.—Organized in 1905. The faculty is composed of 5 professors and 12 instructors, a total of 17. The course consists of *two years'* academic work and two years of medical college subjects, occupying nine months each year. The total fee for each of the medical years is $50. The Dean is Dr. H. E. French. The total registration for 1913-14 was 14. The tenth session begins Sept. 22, 1914, and ends June 16, 1915.

OHIO

Ohio, population 4,767,121, has five medical colleges. Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 364,463 inhabitants. Cleveland, population 560,663, contains one medical school, Western Reserve University School of Medicine. Columbus, population 181,548, contains one medical college, the Ohio State University College of Medicine.

Cincinnati

The Medical College of the University of Cincinnati, Clifton Avenue, west of Vine Street.—Organized in 1909 by the union of the Ohio Medical College (founded in 1819) with the Miami Medical College (founded in 1852). The Ohio Medical College became the Medical Department of the University of Cincinnati, April 26, 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. The faculty consists of 37 professors, 100 associates, assistants, etc., a total of 137. *Two years* of college work are required for admission. The course covers four years of eight months each. The fees are a tuition fee of $150 a year; a matriculation fee of $5, payable but once, and a graduation fee of $25. The Dean is Dr. Christian R. Holmes. The total registration for 1913-14 was 60; graduates, 14. The next session begins Sept. 29, 1914, and ends June 12, 1915.

Eclectic Medical College, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 23 professors and 12 lecturers and assistants, a total of 35. The course covers four years of eight months each. The fees are $120 for each year. The Secretary is Dr. John K. Scudder. Total registration for 1913-14 was 87; graduates, 19. The next session begins Sept. 10, 1914, and ends May 10, 1915.

Cleveland

Cleveland-Pulte Medical College, Prospect Avenue and Huron Road.—Homeopathic.—Organized in 1849 as the Western College of Homeopathic Medicine. The first class graduated in 1853. In 1857 it became the Western Homeopathic College and in 1870 it became the Homeopathic Hospital College when the Homeopathic Medical College for Women, organized in 1868, merged into it. In 1894 it became the Cleveland University of Medicine and Surgery. In 1898 it merged with the Cleveland Medical College, organized in 1890, and assumed the title of Cleveland Homeopathic Medical College. In 1910 Pulte Medical College of Cincinnati merged into it and the present title was assumed. Total registration for 1913-14 was 53; graduates, 11. It is reported that this college has been transferred to the Ohio State University at Columbus where the establishing of a homeopathic college is contemplated.

Western Reserve University School of Medicine, 1355 East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. The faculty includes 44 professors and 53 lecturers, assistants, etc., a total of 97. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission. The total fees for each of the four years are, respectively, $162, $153, $150 and $155. The Secretary is Dr. F. C. Waite. The total registration for 1913-14 was 157; graduates, 34. The seventy-second session begins Oct. 1, 1914, and ends June 17, 1915.

Columbus

Ohio State University College of Medicine.—Buttles Avenue and Park Street.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized 1834) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. The faculty consists of 38 professors and 38 lecturers, demonstrators, etc., a total of 76. One year of collegiate work is required for admission. Beginning with the session of 1915-16, *two years* of collegiate work will be required. The course covers four years of eight months each. Matriculation, $5; tuition of $150 each year. The Dean is Dr. W. J. Means. The total registration for 1913-14 was 284; graduates 54. The next session begins Sept. 16, 1914, and ends June 1, 1915.

OKLAHOMA

Oklahoma, population 1,657,155, has one medical college, the School of Medicine of the University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 3,040 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 64,205 and which is eighteen miles north of Norman.

Norman and Oklahoma City

University of Oklahoma School of Medicine.—Organized in 1900. Gave only the first two years of the medical course until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 17 professors and 73 instructors, a total of 90. The course is four years of nine months each. An optional course of six years is offered for the degrees of B.S. and M.D. The total fees for the four years are, respectively, $55, $28, $100 and $105. The Dean is Dr. Curtis R. Day, 317 East Fourth Street, Oklahoma City. The total registration for 1913-14 was 94; graduates, 14. The fifteenth session begins Sept. 22, 1914, and ends June 10, 1915.

OREGON

Oregon, population 672,765, has one medical college, the University of Oregon Department of Medicine located in Portland, a city of 207,214 population.

Portland

University of Oregon Department of Medicine, Lovejoy and Twenty-Third Streets.—Organized in 1887. The first class graduated in 1888. The Willamette University Medical Department was merged in 1913. It has a faculty of 19 professors and 43 lecturers, assistants, etc., a total of 62. Entrance requirements are one year of college work or its equivalent. The course is four years of eight months each. Fees: Matriculation, $5; tuition, $150 each year. The Dean is Dr. K. A. J. Mackenzie. The total registration for 1913-14 was 79; graduates, 26. The twenty-eighth session begins Oct. 1, 1914, and ends June 1, 1915.

PENNSYLVANIA

Pennsylvania, population 7,665,111, has seven medical colleges. Of these Philadelphia, having a population of 1,549,008, contains six, as follows: University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania, Medico-Chirurgical College of Philadelphia and Temple University Department of Medicine. The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 533,905.

To be eligible for license to practice medicine in Pennsylvania, students matriculating in the session of 1914-15 and thereafter, in addition to a four-year high school education must have completed a year's work either in an approved college of liberal arts or in a preliminary year in the medical college, including college courses in physics, chemistry and biology, before beginning the study of medicine. He must also have completed an internship of at least one year in an approved hospital.

Philadelphia

University of Pennsylvania School of Medicine, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia, which was changed to the present title in 1791. It granted the first medical diploma issued in America. The faculty is made up of 35 professors, associate, adjunct and assistant professors and 139 demonstrators, lecturers, associates, instructors, etc., a total of 174. The requirements for admission are the equivalent of work prescribed for the first *two years* in recognized colleges, which work must include a knowledge of physics, chemistry and general biology or zoology and two foreign languages, one of which must be French or German. The course embraces study of four years of thirty-four weeks each. The total fees for each of the four years are, respectively, $229.50, $211.50, $210 and $213. The Dean is Dr. William Pepper. Total registration for 1913-14 was 266; graduates, 74. The one hundred forty-third session begins Sept. 25, 1914, and ends June 16, 1915.

Jefferson Medical College, Tenth and Walnut Streets.—Organized in 1825 as the Medical Department of Jefferson College, Cannonsburg. The first class graduated in 1826. The present title was assumed in 1838. It has a faculty of 27 professors and 130 lecturers, demonstrators, etc., a total of 157. Entrance requirements are a completed course in a standard secondary school and in addition a preliminary year devoted to college courses in physics, chemistry and biology. The course of study covers graded work of four years of eight and a half months each. The tuition is $200 a year, with a matriculation fee of $5, paid but once. The Subdean is Dr. Ross V. Patterson. The total registration for 1913-14 was 648; graduates, 147. The ninetieth session begins Sept. 24, 1914, and ends June 5, 1915.

Medico-Chirurgical College of Philadelphia, Cherry Street, between Seventeenth and Eighteenth Streets.—Organized in 1881. The first class graduated in 1882. The faculty is composed of 45 professors and 69 lecturers, assistants, etc., a total of 114. Entrance requirements are a completed course in a standard secondary school and in addition a preliminary year devoted to college courses in physics, chemistry and biology. The work embraces four years of eight months each. The fees for each of the four years are, respectively, $162.50, $159, $155.50 and $153. The Dean is Dr. Seneca Egbert. The total registration for 1913-14 was 350; graduates, 75. The thirty-fourth session begins Sept. 21, 1914, and ends June 4, 1915.

Woman's Medical College of Pennsylvania, Twenty-First and N. College Avenue. Organized in 1850. Classes were graduated in 1851 and in all subsequent years except 1861 and 1862. It has a faculty of 11 professors and 50 assistants, lecturers, etc., in all 61. Entrance requirements are a completed course in a standard secondary school and in addition a preliminary year devoted to college courses in physics, chemistry and biology. Beginning in 1915 this requirement will be further increased to *two years* of collegiate work. The curriculum covers four years of eight months each. Fees for each of the four years are, respectively, $187, $181, $178.50, $179.50. The Dean is Dr. Clara Marshall. The total registration for 1913-14 was 93; graduates, 18. The sixty-fifth session begins Sept. 16, 1914, and ends June 2, 1915.

Hahnemann Medical College and Hospital, 226 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the present title. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition a preliminary year devoted to college courses in physics, chemistry and biology. It has a faculty of 36 professors and 53 lecturers, instructors, etc., in all 89. The work covers four years of eight and a half months each. Fees: For each year, $180; matriculation, $5; laboratory fee, $10. The Dean is Dr. William A. Pearson. The total registration for the college year 1913-14 was 93; graduates, 14. The sixty-seventh session begins Sept. 21, 1914, and ends June 3, 1915.

The Temple University Department of Medicine, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 97. It gives a five-year day course. The fees are $150 per year. The Dean is Dr. Frank C. Hammond. The total registration for 1913-14 was 101; graduates, 18. The fourteenth session begins Sept. 17, 1914, and ends June 5, 1915.

Pittsburgh

University of Pittsburgh School of Medicine, Grant Boulevard.—Organized in 1886 as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. The faculty is composed of 16 professors and 79 associates, assistants, etc., 95 in all. Entrance requirements are *two years* of recognized college work, to have included essentially courses in chemistry (inorganic and organic), physics, biology and German or French, based on a four-year high school preparation. It is possible for students to get the degree of B.S. and M.D. in six years. The course of study for medicine alone is four years of eight and a half months each. The tuition is $220 a year, $210 if paid in advance. The Dean is Dr. Thomas S. Arbuthnot. The total registration for 1913-14 was 124; graduates, 46. The twenty-ninth session begins Sept. 28, 1914, and ends June 16, 1915.

SOUTH CAROLINA

South Carolina, population 1,515,400, has one medical college, situated in Charleston, a city of 58,833 people.

Charleston

The Medical College of the State of South Carolina, Queen and Franklin Streets—Founded in 1823 as the Medical College of South Carolina. In 1832 it was chartered with the present title. Classes were graduated in 1825 and in all subsequent years except 1861 to 1865, inclusive. In 1912 by legislative enactment it became a state institution. It has a faculty of 29 professors and 33 lecturers, instructors, etc., a total of 62. The course covers four years of eight months each. One year of collegiate work including courses in physics, chemistry and biology is required for admission in addition to a standard high school preparation. The total fees are $140 each year. The Dean is Dr. Robert Wilson, Jr. Total enrolment for 1913-14 was 104; graduates, 19. The eighty-sixth session begins Oct. 1, 1914, and ends June 3, 1915.

SOUTH DAKOTA

South Dakota, population 583,888, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a city of 2,147 people.

To be eligible for license to practice medicine in South Dakota graduates of 1915 and thereafter must show that they matriculated in and graduated from medical colleges which required at least *two years* of collegiate work for admission, including courses in physics, chemistry, biology and a modern language. This affects all students who matriculated in the session of 1911-12 and thereafter.

Vermilion

University of South Dakota College of Medicine.—Organized in 1907. Offers only the first two years of the medical course. *Two years'* work in a college of liberal arts is required for admission. The fees are $60 each year. The faculty numbers 9. The Dean is Christian P. Lommen, B.S. The total registration for 1913-14 was 14. The eighth session begins Sept. 15, 1914, and ends June 10, 1915.

TENNESSEE

Tennessee, population 2,184,789, has four medical colleges. Of these Vanderbilt University Medical Department and Meharry Medical College are situated in Nashville, a city with a population of 106,476. The College of Medicine of the University of Tennessee and the University of West Tennessee College of Medicine and Surgery are located in Memphis, population 136,363.

Memphis

University of Tennessee College of Medicine, three buildings, 879 Madison Avenue, 880 Monroe Avenue, and 718 Union Avenue.—Organized in 1876 at Nashville as Nashville Medical College. Became Medical Department University of Tennessee 1878. First class graduated 1879 and a class graduated each subsequent year. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The Trustees of the University of Nashville by formal action of that Board named the University of Tennessee College of Medicine as its legal successor in medical teaching, transferring all of its college and hospital equipment to the successor. This college then removed to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Entrance requirements are a completed secondary education plus one year of collegiate work. The fees are $100 per year for bona fide residents of the state and $125 per year for non-residents; graduation fee $25. The Dean is Dr. Herbert Thomas Brooks. Total registration 1913-14, 321; graduates, 77. The next session begins Sept. 22, 1914, and ends June 4, 1915.

University of West Tennessee College of Medicine and Surgery. Colored. 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904 and a class graduated each subsequent year. It has a faculty of 21. The course is four years of thirty weeks each. The fees are $55 per year; graduation $10 extra. The Dean is Dr. M. V. Lynk. Registration for 1913-14 was 73; graduates, 25. The fifteenth session begins Sept. 14, 1914, and ends May 1, 1915.

Nashville

Vanderbilt University Medical Department.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 25 professors and 40 lecturers, a total of 65. One year of collegiate work is required for admission. The course covers four years of nearly eight months each. The total fees for each of the first three years are $150, and for the fourth year, $175. The Acting Dean is Dr. L. E. Burch. The total registration for 1913-14 was 381; graduates, 65. The forty-first session begins Sept. 16, 1914, and ends June 16, 1915.

Meharry Medical College. Colored. Maple and Chestnut Streets.—This school was organized in 1876 and is the Medical Department of Walden University. The faculty is made up of 13 professors and 15 instructors, demonstrators, etc., 28 in all. The work embraces four years of thirty weeks each. The total fees for each of the first three years are $70 and for the fourth year, $80. The Dean is Dr. G. W. Hubbard. Total registration for 1913-14 was 359; graduates, 73. The thirty-ninth session begins Sept. 9, 1914, and ends April 20, 1915.

TEXAS

Texas, population 3,096,542 has four medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 36,981 inhabitants. The Texas Christian University School of Medicine is at Fort Worth, population 73,312. The Baylor University College of Medicine and the Southern Methodist University Medical Department are situated in Dallas, population 92,104.

Dallas

Baylor University College of Medicine, 720 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 46. Entrance requirement is one year of college work in addition to a four-year high school education. The course is four years of eight months each. The fees are $115 each year; matriculation fee of $5, paid but once; graduation fee, $15. The Dean is Dr. E. H. Cary. Total registration for 1913-14 was 50; graduates, 18. The fifteenth session begins Sept. 28, 1914, and ends May 31, 1915.

Southern Methodist University Medical Department.—Organized in 1903 as the Southwestern University Medical College. Name changed as above in 1912. The first class graduated in 1904. It has a faculty of 13 professors and 25 instructors, assistants, etc., a total of 38. The course of instruction covers four years of eight months each. One year of collegiate work in addition to a four-year high-school education is required for admission. The fees for the four years are, respectively, $113, $108, $103 and $125. The Dean is Dr. John O. McReynolds. Total registration for 1913-14 was 51; graduates, 17. The eleventh session begins Sept. 30, 1914, and ends June 3, 1915.

Fort Worth

Texas Christian University School of Medicine, Calhoun and Fifth Streets.—Organized in 1894 as the Fort Worth School of Medicine, the Medical Department of the Fort Worth University. In 1912 the latter institution changed its name to Texas Christian University. The first class graduated in 1895. Became an integral part of Texas Christian University in 1913. It has a faculty of 19 professors and 38 lecturers, assistants, etc., in all 57. One year of collegiate work in addition to a four-year high school education is required for admission. The course covers four years of nine months each. The total fees for each of the four years, respectively, are $114, $113, $108 and $125. The Dean is Dr. I. C. Chase. The total registration for 1913-14 was 48; graduates, 11. The twenty-first session begins Sept. 8, 1914, and ends June 4, 1915.

Galveston

University of Texas Department of Medicine, on the Strand, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 16 professors and 13 lecturers, a total of 29. The curriculum embraces four years of eight months each. The entrance requirement is one year of collegiate work in addition to a four-year high school education. The total fees for the four years, respectively, are $75, $50, $27.50 and $10. The Dean is Dr. William S. Carter. Total registration for 1913-14 was 172; graduates, 23. The twenty-fourth session begins Oct. 1, 1914, and ends May 31, 1915.

UTAH

Utah, population 373,351, has one medical college, the School of Medicine of the University of Utah, situated at Salt Lake City, which has 92,777 people.

To be eligible to secure licenses to practice medicine in Utah, students matriculating in and after the session of 1912-13, in addition to a four-year high school education, must have completed at least one year of collegiate work prior to beginning the study of medicine, this preliminary college work to have included college courses in physics, chemistry and biology.

Salt Lake City

University of Utah School of Medicine.—Organized in 1906. Gives only first two years of the medical course. Each course covers thirty-six weeks. *Two years* of collegiate work are required for admission. The medical faculty consists of 10 professors and 9 lecturers and assistants, a total of 19. The fees are $65 each year for residents and $80 each year for non-residents. Total registration for 1913-14 was 20. The eighth session begins Sept. 14, 1914, and ends June 3, 1915.

VERMONT

Vermont, population 355,956, has one medical school, located at Burlington, a town of 20,468 people.

Students matriculating in and after the session of 1912-13 who desire to practice medicine in Vermont, must have obtained a preliminary training of at least one year of collegiate work in addition to a standard four-year high school education, this additional year's work to include college courses in physics, chemistry and biology.

Burlington

University of Vermont College of Medicine, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1826, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 48. One year of college work in addition to a standard four-year high-school education is required for admission. The course of study covers four years of nine months each. The total fees for each of the first three years are $145, and $175 for the fourth year. The Dean is Dr. H. C. Tinkham. The total registration for 1913-14 was 117; graduates, 39. The next session begins Sept. 23, 1914, and ends June 23, 1915.

VIRGINIA

Virginia, population 2,061,612, has two medical colleges, one, the Department of Medicine of the University of Virginia, situated in Charlottesville, population 6,765, and the Medical College of Virginia at Richmond, population 127,628.

Only graduates of Medical Colleges registered by the Virginia State Board of Medical Examiners are eligible to obtain licenses to practice medicine in this state. Medical colleges to be so registered must require of all students admitted in the sessions of 1914-15 and thereafter, completion of at least one year of collegiate work including college courses in physics, chemistry and biology, in addition to a standard four-year high-school education.

Charlottesville

University of Virginia Department of Medicine.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 14 professors and 21 lecturers, instructors, assistants, etc., a total of 35. The requirements for admission are the completion of a four years' high school course, or its equivalent, and a year of college work devoted to chemistry, physics and biology. Total fees each year are $140. The Dean is Dr. R. H. Whitehead. The total registration for 1913-14 was 104; graduates 17. The eighty-sixth session begins Sept. 14, 1914, and ends June 16, 1915.

Richmond

Medical College of Virginia, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 46 professors and 77 lecturers, instructors, etc., a total of 123. The requirement for admission is a four-year high school education and in addition a full year of collegiate work. The course embraces four years of eight months each. Fees, $164 for the first year and $114 for each subsequent year; graduation fee, $30. The Dean is Dr. Stuart McGuire. The total registration for 1913-14, 386; graduates, 88. The eighty-sixth session begins Sept. 15, 1914, and ends June 1, 1915.

WEST VIRGINIA

West Virginia, population 1,221,119, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 9,150 population.

Morgantown

West Virginia University School of Medicine.—Organized in 1902, and gives only the first two years of the medical course. One year of work in an approved college of liberal arts is required for admission. Session extend through nine months. The faculty numbers 11. Fees: For residents of the state, $25 each year; for non-residents, $50. The Dean is Dr. John N. Simpson. The total registration for 1913-14 was 21. The next session begins Sept. 14, 1914, and ends June 16, 1915.

WISCONSIN

Wisconsin, population 2,333,860, has two medical colleges, the Medical School of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 25,531 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 373,857 people.

Madison

University of Wisconsin Medical School.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least *two years* in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French and German, and at least a year's work in physics, chemistry and biology. It has a faculty of 11 professors and 14 lecturers, instructors, etc., a total of 25. Tuition fees: For residents of the state, $70 each year; for non-residents, $170. The Dean is Dr. Charles R. Bardeen. The registration for 1913-14 was 83. The seventh session begins Sept. 23, 1914, and ends June 18, 1915.

Milwaukee

Marquette University School of Medicine, Fourth Street and Reservoir Avenue.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. It has a faculty of 37 professors and 79 assistants, instructors, etc., a total of 116. The entrance requirements include, in addition to a four-year high school education, one year of college work, including courses in physics, chemistry, biology and a modern language. After Jan. 1, 1915, *two years* of college work will be required. The curriculum is for four years for thirty-four weeks each. The total fees for the four years, respectively, are $180, $175, $175 and $175. The Dean is Dr. Louis F. Jermain. The registration for 1913-14 was 169, graduates 43. The third session begins Oct. 1, 1914, and ends June 17, 1915.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population of 7,635,436, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the Medical Faculty of the University of St. Thomas. They are located in the city of Manila, which in 1903 had a population of 219,928.

Manila

University of the Philippines College of Medicine and Surgery, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty includes 22 professors and 44 lecturers, assistants, etc., a total of 66. *Two years* of collegiate work leading to the degree of Bachelor of Arts are required for admission. The course extends over five years of nine months each with an additional sixth year of intern service. The Dean is Dr. William E. Musgrave. The total registration for 1913-14 was 82, graduates 9. The eighth session begins July 1, 1914, and ends March 30, 1915.

CANADA

The Dominion of Canada has nine medical colleges, all but one of which require a five-year course, including in the first-year courses in physics, chemistry and biology. This course is practically equal to that in the colleges of the United States which require one year of college work for admission, including the science courses named. None of the Canadian colleges has a fixed minimum requirement of two years of collegiate work, or its equivalent, preliminary to or as a part of the medical course. A new medical school at Edmonton, Alberta gives only the first two years of the medical course, including the preliminary science year.

Alberta

University of Alberta, Faculty of Medicine, Edmonton.—Organized in 1913. Offers only the first two years of the medical course, including the preliminary science year. The faculty numbers 7. Fees for the first year are $50; for the second, $75. The registrar is Cecil E. Race, B.A. The registration for 1913-14 was 26. The second session begins Sept. 30, 1914, and ends May 12, 1915.

Manitoba

Manitoba Medical College, Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 58. The fees are $155 for the first year and $150 for each subsequent year. The entire course covers five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. H. H. Chown, 263 Broadway, Winnipeg. Total registration for 1913-14 was 188, graduates, 43. The next session begins Sept. 21, 1914, and ends May 1, 1915.

Nova Scotia

Dalhousie University, Faculty of Medicine, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College in 1885. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the University and the Board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. It has a faculty of 37 professors, lecturers and demonstrators. Requires matriculation examination and a graded course of five years, including preliminary courses in physics, chemistry and biology. Fees are $100 each year. Total registration for 1913-14 was 75, graduates, 15. The Secretary is Dr. A. W. H. Lindsay, 319 Pleasant Street, Halifax, N. S. The next session begins Sept. 9, 1914, and ends May 6, 1915.

Ontario

University of Toronto, Faculty of Medicine, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1903 it absorbed Trinity Medical College. The course of study covers five years of eight months each, the first year including courses in physics, chemistry and biology. It has a faculty of 54 professors and 129 lecturers, associates, etc., a total of 183. The fees are $150 each year. The Secretary is Dr. A. Primrose. The total registration for 1913-14 was 554, graduates, 85. The next session begins Sept. 29, 1914, and ends May 29, 1915.

Queen's University Faculty of Medicine, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the University, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The faculty includes 25 professors and 14 assistants, instructors, etc., a total of 39. The fees amount to $105 each year; fee for M.D., C.M. degrees, $30. The course covers five years of seven months each, the first year including courses in physics, chemistry and biology. The total registration in 1913-14 was 268; graduates, 50. The Dean is Dr. J. C. Connell. The next session begins Sept. 14, 1914, and ends April 28, 1915.

Western University, Faculty of Medicine, London.—Organized in 1881, first class graduated in 1883 and a class graduated each year subsequently. The faculty numbers 37. The course is five years of eight months each, the first year including courses in physics, chemistry and biology. The tuition is $110 each year. The Registrar is Dr. W. E. Waugh. Total registration for 1913-14 was 90, graduates, 27. The next session begins Oct. 1, 1914, and ends June 5, 1915.

Montreal

McGill University, Faculty of Medicine.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each, including the preliminary year devoted to physics, chemistry and biology. The faculty numbers 120. The total fees are $164 for each of the first four years and $191 for the fifth. The total registration for 1913-14 was 382, graduates, 63. The Registrar is Dr. John W. Scane. The next session begins Oct. 1, 1914, and ends June 8, 1915.

Montreal School of Medicine and Surgery, Montreal.—Organized in 1878 as the Medical Department of Laval University. Present name assumed in 1911. First class graduated in 1879. The faculty numbers 60. The course extends over five years, including preliminary courses in physics, chemistry and biology. The Dean is Dr. E. P. Lachapelle. The total registration for 1913-14 was 132, graduates, 22. The next session begins Oct. 1, 1914, and ends June 20, 1915.

Quebec

Laval University Medical Department, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 24. The fees are $60 each year. The course extends over five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. Michael Joseph Ahren, Quebec. Total registration for 1913-14 was 88, graduates, 14. The next session begins Sept. 9, 1914, and ends June 1, 1915.

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Essentials of an Acceptable Medical College

(Revised to August 10, 1914)

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress among the medical colleges in the United States. It also represents the basis on which medical colleges are rated in the Council's classifications.

ADMISSION OF STUDENTS

1. A strict enforcement of the following standards and requirements, the college itself to be held responsible for any instances in which they are not enforced.

[Since the product of the medical school depends largely on the quality of the students admitted, in rating medical colleges, special emphasis is laid by the Council on the strictness and honesty by which the standards of admission and advanced standing are administered. By the admission of unfit students the school is handicapped from the very beginning and, in the opinion of the Council, deserves a low rating regardless of its equipment, its clinical facilities and its teaching force.]

2. A requirement for admission of at least a four-year high-school education, and in addition at least one year of college work, including at least eight semester hours each of physics, chemistry and biology of college grade and a reading knowledge of German or French.

3. These minimum requirements for admission to the study of medicine are set forth in the following statements relating (1) to the high school work and (2) to the work of the preliminary college year. The prescribed minimum of work in physics, chemistry, biology and German or French should be required by every medical school whether given in a preliminary year by the medical school itself or required in one or more years of collegiate work. The statements are as follows:

ADMISSION TO THE PRELIMINARY COLLEGE YEAR

(*a*) For admission to the preliminary college year, students must have completed a four-year course of at least fourteen units in a standard accredited high school or other institution of standard secondary school grade, or have its equivalent as demonstrated by an examination. A transcript of the student's work should be secured direct from the principal of the secondary school by the college authorities and kept on file. This evidence of actual attendance at the secondary school or schools should be obtained for every student no matter whether he is admitted by examination or on presentation of acceptable credentials.

(*b*) The subjects for which credits for admission to the preliminary college year may be accepted are shown in the following schedule:

SCHEDULE OF SUBJECTS OFFERED IN ACADEMIC AND SECONDARY SCHOOLS, CREDITS IN WHICH ARE ACCEPTABLE FOR ENTRANCE TO THE PRELIMINARY COLLEGE YEAR LEADING TO THE MEDICAL COURSES

SUBJECTS	UNITS	REQUIRED	ELECTIVE
ENGLISH			
Reading and Practice	2	2	...
Study and Practice	1	...	1
MATHEMATICS			
Algebra to Quadratics	1	1	...
Algebra (Quadratic Equations, Binomial Theorem and Progressions)	½	...	½
Plane Geometry	1	1	...
Solid Geometry	½	...	½
Trigometry	½	...	½
LATIN			
Grammar and Composition	1	*	1
Caesar	1	*	1
Cicero	1	...	1
Virgil	1	...	1
Cornelius Nepos	1	...	1
Greek			
Grammar and Composition	1	*	1
Xenophon	1	...	1
Homer	1	...	1
German (or French)			
Elementary	2	2*	...
Intermediate	1	...	1
Spanish			
Elementary	2	...	2
Scandinavian			
Elementary	2	...	2
HISTORY			
American History and Civil Government	1	1	...
Greek and Roman History	1	...	1
Medieval and Modern History	1	...	1
English History	1	...	1
Science †			
Botany and Zoology, each	1	...	1
or Biology	1	...	1
Chemistry	1	...	1
Physics	1	...	1
Physiography	½	...	½
Physiology	½	...	½
Agriculture	1	...	1
Drawing	1	...	1
Manual Training	1	...	1
Domestic Science	1	...	1
Music			
Appreciation or Harmony	1	...	1
Total	35½	7	28½

A *unit* is the credit value of at least 36 weeks' work of 4 or 5 recitation periods per week, each recitation period to be of not less than 40 minutes. In other words, a unit represents a year's study in any subject in a secondary school constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

Required Branches: Of the 14 units of high-school work it is suggested that the subjects in capitals aggregating 7 units be required. Other work to the amount of at least 7 units may be made up from any of the other subjects of the above schedule.

* Two units of Greek or Latin may be substituted for the two required units of French or German.

† Credentials of each science course should include evidence of laboratory work.

WORK OF THE PRELIMINARY COLLEGE YEAR

(*c*) The preliminary college year shall extend through one college session of at least thirty-two weeks of actual instruction, including final examinations.

(*d*) In excellence of teaching and in content, the work of this preliminary college year shall be at least equal to the work done in the freshman year in standard colleges and universities.

(*e*) This preliminary college year shall include courses in physics, chemistry, biology and German or French, each course to embrace at least eight semester hours of didactic and laboratory work in each subject as shown in the accompanying schedule, provided that a student may satisfy the requirement of physics in presenting one unit of high-school physics and completing a half year of college physics which continues and does not duplicate the work done in the high school.

(*f*) If a satisfactory "reading knowledge" of German or French is to be obtained in the one year of college work it is essential that an advanced course be offered and that the student have completed as a prerequisite in the high school two units of elementary work in German or French.

(*g*) By requiring two years of collegiate work for admission, medical schools would have a greater latitude in the acceptance of high-school credentials. For example, the language requirement in the high school would not be so essential since the deficiency could easily be made up in the two years of collegiate work.

(*h*) "College work" cannot be considered as acceptable unless it has been preceded by a completed course of study in a standard four-year secondary school or its full educational equivalent.

(*i*) Credits for two or more years of collegiate work cannot be considered acceptable unless courses in physics, chemistry and biology have been completed. It is urged that a reading knowledge of German or French also be required.

(*j*) Medical colleges giving these science courses in a premedical year, should provide expert full-time teachers in the various subjects, should provide laboratory equipment sufficient to enable the student to do the work intelligently and should provide a training in the subjects no less thorough than that given in standard colleges of liberal arts.

(*k*) Postgraduate courses given in high schools by high-school teachers cannot as a rule be considered equal to college courses given by college teachers.

SCHEDULE

Subject	Lectures or Recitations Per Week	Laboratory Periods * Per Week	Total Hours Per Semester	Total Semester Hours Per Year
Physics, 1....	2	2	4	8
Chemistry, 1..	2	2	4	8
Biology, 1....	2 or 3	2 or 1	4	8
German or French, 2...	4 or 3	....	4 or 3	8 or 6
Total	10	6 or 5	16 or 15	32 or 30

* Each laboratory period must extend over at least two hours.

OR, EXPRESSED IN CLASS HOURS

Subject	Total Hours Lectures, or Recitations	Total Hours Laboratory Work	Total Minimum Hours Didactic and Laboratory
Physics, 1....	64	128	192
Chemistry, 1.	64	128	192
Biology, 1....	64 or 96	128 or 64	192 or 160
German or French, 2..	128 or 96	....	128 or 96
Totals	320	384 or 320	704 or 640

(*l*) A year of work in a college of dentistry or a college of pharmacy should not as a rule be considered as an equivalent of the required premedical college science year.

(*m*) The object of the work of the preliminary college year is to provide the student with a training that will enable him to enter more readily and intelligently on the study of the fundamental medical sciences in the medical school.

4. Entrance Conditions. (*a*) During the next few years (until 1917) candidates who have completed at least one year of work in an approved college of liberal arts may be admitted conditioned in one-half of the required course in physics or one-half of the course in a modern language, these conditions to be removed before the beginning of the work of the second medical year.

(*b*) Candidates who have completed two or more years of work in an approved college of liberal arts may be admitted conditioned in all of the required course in physics or all of the course in a modern language, these conditions to be removed before the beginning of the second medical year.

(*c*) Candidates holding baccalaureate degrees from approved colleges of liberal arts but who have not taken the required courses in physics, chemistry or biology, may be admitted conditioned in those subjects, such conditions to be removed before entering on the work of the second medical year. So far as possible, however, all deficiencies should be removed during the summer preceding entrance to the freshman medical year and the summer between the first and second medical years.

5. The college should require that students be in actual attendance in the college within the first week of each annual session and thereafter.

6. Actual attendance at classes should be insisted on except for good cause, such as for sickness, and under no circumstances should credit be given for any course where the attendance has been less than 80 per cent. of the full time.

7. (*a*) Full advanced standing may be granted to students only for work done in other acceptable colleges and in granting advanced standing there should be no discrimination against the college's full-course students. (*b*) In *exceptional cases* students from Class B medical schools may be given advanced standing but not higher than *entrance* to the third year (junior) class and no credit should be given in any subject except on the recommendation of the head of the department teaching that subject. (*c*) In *exceptional cases* students from Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class and then only after thorough examinations in all first year subjects have been passed.

SUPERVISION, EQUIPMENT, TEACHERS

8. There should be careful and intelligent supervision of the entire school by a dean or other executive officer who holds, and has sufficient authority to carry out fair ideals of medical education as interpreted by modern knowledge.

9. There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students by means of which an exact knowledge can be obtained regarding each student's work. Records should also be kept showing readily the attendance of patients at the teaching hospitals and dispensaries; the maternity cases attended by students and the post-mortem cases used in teaching.

10. The college should have a fully graded course covering four years of at least 32 weeks each, exclusive of time required for matriculation and holidays, and at least 30 hours per week of actual work; this course should be clearly set forth in a carefully prepared and printed schedule of lectures and classes.

(*a*) The college should give two years of work consisting largely of laboratory work in thoroughly equipped laboratories in anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis. Present day medical knowledge makes it quite essential that these subjects be in charge of full-time, thoroughly trained teachers.

(*b*) Two years of clinical work largely in hospitals and dispensaries, with thorough courses in internal medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence.

(*c*) As soon as conditions warrant, a fifth undergraduate year should be required which should be spent by the student as an intern in an approved hospital.

11. The college should provide at least six expert, thoroughly trained professors in the laboratory branches, salaried so that they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects. These professors should have a definite responsibility in the conduct of the college, and their first and chief interest should be the training of medical students. It is advised that four of these professors be placed in charge of the departments of (*a*) anatomy, (*b*) physiology, (*c*) pathology and bacteriology and (*d*) physiologic chemistry and pharmacology. The other two may be assigned one to the laboratory course in histology and embryology under the department of anatomy and the other to the department

of pathology and bacteriology, possibly to the course in laboratory clinical diagnosis. There should also be a sufficient number of assistants in each department to look after the less important details. For colleges having sixty students or less in each class, there should be at least one full-time salaried assistant for each of the four departments mentioned, and at least one additional assistant in each of these departments should be provided for each additional thirty students enrolled. This represents a low average of the full-time assistants already employed by the accepted medical colleges.

12. The faculty should be thoroughly organized and should be made up of graduates of institutions recognized as medical colleges and who have had a training in all departments of medicine. Non-medical men should be selected as teachers in medical schools only under exceptional circumstances and only because medical men of equal special capacity are not available. All faculty members should be appointed because of their ability as teachers and not because they happen to be on the attending staff of a hospital or for other like reasons.

CLINICAL FACILITIES

13. The college should own or entirely control a hospital in order that students may come into close and extended contact with patients under the supervision of the attending staff. This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students *or less*) of not less than 200 patients which can be utilized for clinical teaching, these patients to be of such character as to permit the student to see and study the common variety of surgical and medical cases as well as a fair number in each of the so-called specialties.

14. The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

15. At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician. Careful records of each case should be handed in by the student.

16. Facilities should be provided for at least 30 necropsies during each college session which are attended and can be participated in by senior students (for senior classes of 100 students *or less*).

17. The college should own or control a dispensary, or outpatient department, the attendance to be a daily average of 60 cases (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used. The attending staff should be made up of good teachers, should be well organized and be regular in attendance.

OTHER TEACHING FACILITIES

18. The college should have a working medical library to include the more modern text and reference books with the *Index Medicus* and 30 or more leading medical periodicals; the library room should be properly lighted and heated, and easily accessible to students during all or the greater part of the day; it should be equipped with suitable tables and chairs, and have a librarian in charge.

19. A working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from post-mortems there also be kept the record of the post-mortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen.

20. There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver; to provide cross-sections and other demonstration material and to allow of a thorough course for each senior in operative surgery on the cadaver.

21. For modern experimental laboratory work in physiology, pharmacology and bacteriology as well as for a reasonable amount of medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential. Proper provision, also, is necessary for the housing and care of such animals. In any use made of animals great care should be used to prevent needless suffering and work by students should be carefully supervised.

22. A supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a Roentgen ray and other apparatus now so generally used in medical teaching.

23. The college should show evidences of thorough organization and of reasonably modern methods in all departments and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

24. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

By vote of the House of Delegates of the American Medical Association the Council on Medical Education has been given special instructions at various times as follows:

(*a*) Not to rate higher than Class C any medical college which gives the major portion of its instruction after four o'clock in the afternoon (Atlantic City, June, 1907).

(*b*) To include in Class A only such medical colleges as required for admission, in addition to an accredited four-year high school course, at least one year of college credits in physics, chemistry and biology (Atlantic City, June, 1912). In 1914 (June, Atlantic City), it was emphasized that the courses in physics, chemistry and biology to be acceptable should be of college grade.

(*c*) No college is to be rated higher than Class C which is conducted as a stock corporation in the interests of the stockholders. (Atlantic City, June, 1914.)

NOTE.—Correspondence from medical colleges regarding any of the above requirements is invited, and any further suggestions or information available will be gladly furnished.

Definitions of a Medical College* and a Medical School†

"An institution to be ranked as a medical college must have at least (6) professors giving their entire time to medical work, a graded course of four full years of college grade in medicine, and must require for admission not less than the usual four years of academic or high-school preparation, or its equivalent, in addition to the preacademic or grammar school studies."

By a medical school as differentiated from a medical college is meant a part of a university requiring for admission two years of collegiate work, or its equivalent, and offering instruction of not less than two years' duration, leading to the degree of Doctor of Medicine.

Grading of Medical Colleges

As in the previous classifications, all medical colleges were rated by the Council on Medical Education on a civil service basis on a scale of 1,000 points. The data relating to each college were grouped under ten general heads in such manner that the groups would have as nearly equal weight as possible, each group, allowing a possible 100 points (10 per cent.) out of a possible 1,000 points (100 per cent.). The ten heads under which the data were arranged are as follows:

1. Showing of graduates before state boards and other evidences of the training received.
2. Enforcement of a satisfactory preliminary educational requirement, granting of advanced standing and the character of records.
3. Character of curriculum, grading of course, length of session, time allowed for matriculation and supervision.
4. Medical school buildings; light, heat, ventilation, cleanliness.
5. Laboratory facilities and instruction.
6. Dispensary facilities and instruction.

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* This definition of a college is based on that given in the revised ordinances of the state of New York. It has been adopted also by the Carnegie Foundation for the Advancement of Teaching.

† Based on the definition of the term "school" adopted in 1909 by the Association of American Universities.

7. Hospital facilities and instruction, maternity work, autopsies, specialties.

8 Faculty, number and qualifications of trained teachers, full-time instructors, and assistants, especially of the laboratory branches, organization, and extent of research work.

9. Extent to which the school is conducted for properly teaching the science of medicine rather than for the profit of the faculty directly or indirectly.

10. Possession and use made of libraries, museums, charts, stereopticons, etc.

Class A+ colleges are those which are acceptable; Class A those which need improvement in certain respects, but which are otherwise acceptable; Class B, those which, under their present organization, might be made acceptable by general improvements, and Class C, those which require a complete reorganization to make them acceptable.

Third Classification of Medical Colleges

Revised to June 21, 1914

CLASS A PLUS—ACCEPTABLE MEDICAL COLLEGES

1. Giving an Acceptable Four-Year Course:

CALIFORNIA

Leland Stanford Junior Univ., School of Med..San Francisco
University of California, College of Medicine..................................... San Francisco-Los Angeles

CONNECTICUT

Yale Medical School..............................New Haven

ILLINOIS

Northwestern University Med. School...............Chicago
Rush Medical College (University of Chicago)......Chicago

INDIANA

Indiana University School of Medicine..................................... Bloomington-Indianapolis

IOWA

State Univ. of Iowa, Coll. of Med..................Iowa City

LOUISIANA

Tulane University of Louisiana, School of Med..New Orleans

MARYLAND

Johns Hopkins University, Medical Department...Baltimore

MASSACHUSETTS

Medical School of Harvard University..............Boston

MICHIGAN

University of Michigan, Dept. of Med. and Surg..Ann Arbor

MINNESOTA

University of Minnesota Medical School........Minneapolis

MISSOURI

Washington University Medical School............St. Louis

NEBRASKA

University of Nebraska, College of Medicine[1]........ Omaha

NEW YORK

Columbia University, College of Phys. and Surgs...New York City
Cornell University Medical College..........New York City
University and Bellevue Hospital Medical College...New York City
Syracuse University, College of Medicine..........Syracuse

OHIO

Medical College of the University of Cincinnati...Cincinnati
Ohio State University, College of Medicine[2]........Columbus
Western Reserve University, School of Medicine...Cleveland

PENNSYLVANIA

Jefferson Medical College[2].......................Philadelphia
University of Pennsylvania, School of Medicine.Philadelphia
University of Pittsburgh, School of Medicine[2]....Pittsburgh

TENNESSEE

Vanderbilt University, Medical Department[1]........Nashville

TEXAS

University of Texas, Department of Medicine......Galveston

VIRGINIA

University of Virginia, Dept. of Med..........Charlottesville

2. Giving a Two-Year Course Acceptably:

MISSOURI

University of Missouri, School of Medicine........Columbia

WISCONSIN

University of Wisconsin Medical School...........Madison

Total 29

CLASS A—COLLEGES ALSO ACCEPTABLE WHICH COULD MAKE CERTAIN IMPROVEMENTS TO ADVANTAGE

1. Giving a Complete Four-Year Course:

ALABAMA

University of Alabama, School of Medicine..........Mobile

COLORADO

University of Colorado, School of Med......Boulder-Denver

DISTRICT OF COLUMBIA

Georgetown University, School of Medicine......Washington
George Washington University, Med. School....Washington
Howard University, School of Medicine.........Washington

GEORGIA

Atlanta Medical College[3]............................Atlanta
University of Georgia, Medical Dept.[4]..............Augusta

ILLINOIS

University of Illinois, College of Medicine............Chicago

IOWA

State Univ. of Iowa, Coll. of Homeopathic Med...Iowa City

KANSAS

University of Kansas, School of Med.....Lawrence-Rosedale

KENTUCKY

University of Louisville, Medical Department.......Louisville

MAINE

Medical School of Maine................Brunswick-Portland

MARYLAND

College of Physicians and Surgeons...............Baltimore
University of Maryland, School of Medicine.......Baltimore

MASSACHUSETTS

Boston University School of Medicine................Boston
Tufts College Medical School........................Boston

MICHIGAN

Detroit College of Medicine and Surgery[5]............Detroit
University of Michigan, Homeopathic Med. Coll..Ann Arbor

MISSOURI

St. Louis University School of Medicine............St. Louis

NEW YORK

Albany Medical College..............................Albany
Fordham University, School of Medicine[3]....New York City
Long Island College Hospital[5].....................Brooklyn
New York Homeopathic Medical College and Flower Hospital...................................New York City
University of Buffalo, Medical Department............Buffalo

OREGON

University of Oregon, Department of Medicine.....Portland

PENNSYLVANIA

Hahnemann Medical College and Hospital.......Philadelphia
Medico-Chirurgical College of Philadelphia......Philadelphia
Woman's Medical College of Pennsylvania.......Philadelphia

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[1] Rating changed to Class A+ June 21, 1914.
[2] Rating changed to Class A+ Feb. 24, 1914.

[3] Rating changed to Class A Feb. 24, 1914.
[4] Rating changed to Class A Feb. 24, 1913.
[5] Rating changed to Class A June 21, 1914.

TENNESSEE

University of Tennessee, College of Medicine[5]......Memphis

VERMONT

University of Vermont, College of Medicine......Burlington

VIRGINIA

Medical College of Virginia......................Richmond

2. Giving a Two-Year Course:

MISSISSIPPI

University of Mississippi, Department of Medicine...Oxford

NEW HAMPSHIRE

Dartmouth Medical School.........................Hanover

NORTH CAROLINA

University of North Carolina, School of Medicine..Chapel Hill
Wake Forest College, School of Medicine.......Wake Forest

NORTH DAKOTA

University of North Dakota, School of Medicine..University

SOUTH DAKOTA

University of South Dakota, College of Medicine...Vermilion

UTAH

University of Utah, School of Medicine........Salt Lake City

Total 38

CLASS B—COLLEGES NEEDING GENERAL IMPROVEMENTS TO BE MADE ACCEPTABLE

1. Giving a Complete Four-Year Course:

ALABAMA

Birmingham Medical College[6]..................Birmingham

ARKANSAS

University of Arkansas, Medical Department......Little Rock

CALIFORNIA

College of Physicians and Surgeons............Los Angeles
Hahnemann Medical College of the Pacific....San Francisco
Oakland College of Medicine and Surgery...........Oakland

ILLINOIS

Bennett Medical College..........................Chicago
Chicago College of Medicine and Surgery..........Chicago
Hahnemann Medical College and Hospital..........Chicago

NEBRASKA

John A. Creighton Medical College..................Omaha

NORTH CAROLINA

North Carolina Medical College[7]..................Charlotte

OHIO

Eclectic Medical College........................Cincinnati

OKLAHOMA

Univ. of Oklahoma, School of Med..Norman-Oklahoma City

PENNSYLVANIA

Temple University, Department of Medicine....Philadelphia

SOUTH CAROLINA

Medical College of the State of South Carolina[8]....Charleston

TENNESSEE

Lincoln Memorial University, Medical Dept.[9]......Knoxville
Meharry Medical College[10]........................Nashville

TEXAS

Baylor University, College of Medicine..............Dallas
Texas Christian University, School of Medicine[11].Fort Worth
Southern Methodist University, Medical Dept.[11]........Dallas

WISCONSIN

Marquette University, School of Medicine........Milwaukee

2. Giving a Two-Year Course:

NORTH CAROLINA

Leonard Medical School[12]..........................Raleigh

WEST VIRGINIA

West Virginia University School of Medicine...Morgantown

Total 22

CLASS C—COLLEGES REQUIRING A COMPLETE REORGANIZATION TO MAKE THEM ACCEPTABLE

CALIFORNIA

California Eclectic Medical College.............Los Angeles
College of Physicians and Surgeons..........San Francisco
College of Medical Evangelists.................Loma Linda

GEORGIA

Georgia College of Eclectic Medicine and Surgery....Atlanta
Southern College of Med. and Surgery[13]..............Atlanta

ILLINOIS

Chicago Hospital College of Medicine................Chicago
Jenner Medical College.............................Chicago

MARYLAND

Eastern University School of Medicine[14]............Baltimore
Maryland Medical College[14]......................Baltimore

MASSACHUSETTS

College of Physicians and Surgeons[15]................Boston

MISSOURI

American Medical College.......................St. Louis
Eclectic Medical University[16].................Kansas City
Ensworth Medical College......................St. Joseph
Kansas City Hahnemann Medical College........Kansas City
St. Louis College of Physicians and Surgeons......St. Louis

NEBRASKA

Cotner University Medical College..................Lincoln

NEW YORK

New York Med. Coll. and Hosp. for Women..New York City

OHIO

Cleveland-Pulte Medical College.................Cleveland
Toledo Medical College............................Toledo

TENNESSEE

University of West Tenn. Coll. of Med. and Surg...Memphis

Total 20

Note.—Official statements from the following state licensing boards indicate that as a rule the colleges rated in Class C are not recognized:

Alabama
Arkansas (Reg.)
Colorado
Connecticut (Reg.)
Delaware
Florida
Georgia
Indiana
Iowa
Kentucky
Louisiana (Reg.)
Maryland (Reg.)
Michigan
Minnesota
Mississippi
New Hampshire
New Jersey
New Mexico
New York
North Dakota
Ohio
Oklahoma
Pennsylvania
Porto Rico
Rhode Island
South Carolina
South Dakota
Texas
Vermont
Virginia
West Virginia
Wisconsin

Of the above states the boards of New Hampshire, Rhode Island and Virginia recognize only the medical colleges listed in Classes A+ and A.

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[6] Will offer only a postgraduate course after the class of 1915 has graduated.

[7] Has merged with the Medical College of Virginia at Richmond, but will retain a nominal existence until it has granted the degrees for the three remaining classes which will receive the balance of their medical instruction at Richmond. Rating changed to Class B June 21, 1914.

[8] Rating changed to Class B Feb. 24, 1913.

[9] Has merged with the University of Tennessee, College of Medicine at Memphis. The three remaining classes will be taught at Memphis, but the degrees will be granted by the Lincoln Memorial University. Rating changed to Class B June 21, 1914.

[10] Rating changed to Class B Feb. 24, 1914.

[11] Rating changed to Class B May 10, 1914.

[12] Has discontinued clinical teaching, hereafter to give only two years of the medical course. Rating changed to Class B June 21, 1914.

[13] Reported not recognized by the Georgia State Board of Medical Examiners.

[14] Reported not recognized by the Maryland State Board of Medical Examiners.

[15] Reported not recognized by the Massachusetts Medical Society.

[16] Reported not recognized by the Missouri State Board of Health.

State Requirements of Higher Preliminary Education

There are now twenty states which have adopted requirements of preliminary education in addition to a standard four-year high-school education. These states, the number of college years required and the time the higher requirement becomes effective are as follows:

State Examining Board of—	Number of Years Required	Affects Students Matriculating	Affects All Applicants
Minnesota	2	1908-09	1912
North Dakota	2	1908-09	1912
Colorado	2	1910-11	1914
Connecticut	1	1910-11	1914
Kansas	1	1910-11	1914
Indiana	2	1910-11	1914
Utah	1	1910-11	1914
Iowa	2	1911-12	1915
South Dakota	2	1911-12	1915
Vermont	1	1912-13	1916
Illinois	1	1914-15	1918
Kentucky	1	1914-15	1918
Michigan	1	1914-15	1918
New Hampshire	1	1914-15	1918
Pennsylvania	1	1914-15	1918
Rhode Island	1	1914-15	1918
Virginia	1	1914-15	1918
Alabama	2	1915-16	1919
Arkansas	1	1915-16	1919
California	1	1915-16	1919

Colleges Having Higher Entrance Requirements

The thirty-four medical schools which are now requiring as a minimum for entrance *two or more years* of work in a college of liberal arts in addition to a four-year high-school education are as follows:

Requirement Began

CALIFORNIA

Leland Stanford Junior University, School of Medicine 1909
University of California, College of Medicine 1905

COLORADO

University of Colorado, School of Medicine 1910

CONNECTICUT

Yale Medical School 1909

DISTRICT OF COLUMBIA

Georgetown University, School of Medicine 1912
Howard University, School of Medicine 1914

ILLINOIS

Northwestern University Medical School 1911
Rush Medical College (University of Chicago) 1904
University of Illinois, College of Medicine 1914

INDIANA

Indiana University, School of Medicine 1910

IOWA

State University of Iowa, College of Medicine 1910
State University of Iowa, Coll. of Homeopathic Medicine 1910

KANSAS

University of Kansas, School of Medicine 1909

MARYLAND

Johns Hopkins University, Medical Department 1893

MASSACHUSETTS

Medical School of Harvard University 1900

MICHIGAN

University of Michigan, Department of Medicine and Surgery 1909

MINNESOTA

University of Minnesota Medical School 1907

MISSOURI

University of Missouri, School of Medicine 1910
Washington University Medical School 1912

NEBRASKA

University of Nebraska, College of Medicine 1909

NEW HAMPSHIRE

Dartmouth Medical School 1910

NEW YORK

Columbia University, College of Physicians and Surgeons 1910
Cornell University Medical College 1908
Syracuse University, College of Medicine 1910

NORTH CAROLINA

Leonard Medical School 1914
Wake Forest College School of Medicine 1908

NORTH DAKOTA

University of North Dakota, School of Medicine 1907

OHIO

Western Reserve University School of Medicine 1901
Medical College of the University of Cincinnati 1913

PENNSYLVANIA

University of Pennsylvania, School of Medicine 1910
University of Pittsburgh, School of Medicine 1913

SOUTH DAKOTA

University of South Dakota, College of Medicine 1909

UTAH

University of Utah, School of Medicine 1910

WISCONSIN

University of Wisconsin Medical School 1907

The fifty following colleges require, in addition to a four-year high-school course, one year of college work in physics, chemistry, biology and a modern language, the requirement beginning in the year given:

In Force

ALABAMA

University of Alabama, School of Medicine 1914

CALIFORNIA

College of Physicians and Surgeons, Los Angeles 1914
College of Medical Evangelists 1914

DISTRICT OF COLUMBIA

George Washington University, Medical School 1914

GEORGIA

Atlanta Medical College 1914
University of Georgia, Medical Department 1914

ILLINOIS

Bennett Medical College 1914
Chicago College of Medicine and Surgery 1914
Hahnemann Medical College and Hospital 1914
Jenner Medical College 1913

KENTUCKY

University of Louisville, Medical Department 1914

LOUISIANA

Tulane University of Louisiana, School of Medicine 1910

MAINE

Medical School of Maine 1912

MARYLAND

College of Physicians and Surgeons 1914
University of Maryland, School of Medicine 1914

MASSACHUSETTS

Boston University, School of Medicine 1914
Tufts College Medical School 1914

MICHIGAN

Detroit College of Medicine and Surgery 1914
University of Michigan, Homeopathic Medical College 1912

MISSISSIPPI

University of Mississippi, Department of Medicine 1914

MISSOURI

St. Louis University, School of Medicine 1910
American Medical College 1914

NEBRASKA

John A. Creighton Medical College 1914

NEW YORK

Albany Medical College 1914
Fordham University, School of Medicine 1911
Long Island College Hospital 1914
University and Bellevue Hospital Medical College 1912
University of Buffalo, Medical Department 1914

NORTH CAROLINA

University of North Carolina, School of Medicine 1910

OHIO

Ohio State University, College of Medicine 1914

OKLAHOMA

University of Oklahoma, School of Medicine 1914

OREGON

University of Oregon, Department of Medicine 1910

PENNSYLVANIA

Hahnemann Medical College and Hospital 1913
Jefferson Medical College 1913
Medico-Chirurgical College of Philadelphia 1913
Temple University, Department of Medicine 1913
Woman's Medical College of Pennsylvania 1913

SOUTH CAROLINA

Medical College of the State of South Carolina 1914

TENNESSEE

Vanderbilt University, Medical Department 1914
University of Tennessee, College of Medicine 1914
University of West Tennessee, College of Medicine and Surgery 1914

CONTINUED ON PAGE 675

TABLE I.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number.	NAME AND LOCATION OF COLLEGE	Population of city where college is located. (Census of 1910)	Classification by Council on Medical Education.*	No. of students registered 1913-14		Graduates 1914		Grads. with A.B., B.S. or Ph.B.	No. of teachers.	Weeks in college year.	Total Fees (Dollars).				Executive Officer	Session of 1914-15		Marginal Number.
				Men.	Women.	Men.	Women.				1st year.	2d year.	3d year.	4th year.		Begins 1914	Ends 1915	
	ALABAMA			**151**	...	**51**	...	**5**										
1	Birmingham Medical College, Birmingham (a)	132,685	B	57	...	30	...	1	32	32	...	...	...	130	E. P. Hogan, M.D. Secretary	Oct. 1	May 28	1
2	University of Alabama, School of Medicine, Mobile	51,521	A	94	...	21	...	4	55	32	160	155	155	175	Eugene B. Bondurant, M.D., Dean	Sept. 24	June 9	2
	ARKANSAS			**94**	**1**	**34**	...	**1**										
3	University of Arkansas, Medical Department, Little Rock	45,941	B	94	1	34	...	1	51	32	125	125	125	150	Morgan Smith, M.D., Dean	Sept. 14	May 13	3
	CALIFORNIA			**469**	**85**	**78**	**14**	**29**										
4	College of Physicians and Surgeons, San Francisco	416,912	C	31	3	7	1	2	24	36	165	160	160	185	C. O. Southard, M.D., Secretary	Sept. 2	June 4	4
5	Hahnemann Medical College of the Pacific, San Francisco.—H	416,912	B	40	...	5	...	...	38	34	155	100	100	100	James W. Ward, M.D., Dean	Aug. 11	April 29	5
6	Leland Stanford Junior Univ., School of Med., San Francisco	416,912	A+	60	15	9	3	11	93	34	160	155	150	150	Ray Lyman Wilbur, M.D., Dean	Sept. 2	May 17	6
7	University of California, College of Medicine, San Francisco	416,912	A+	98	26	10	3	10	76	36	195	180	165	165	Herbert C. Moffit, M.D., Dean	Aug. 7	May 8	7
8	California Eclectic Medical College, Los Angeles.—E	319,198	C	29	9	9	2	...	30	32	145	110	100	125	...	...	...	8
9	College of Physicians and Surgeons, Los Angeles	319,198	B	143	10	32	2	4	78	36	177	172	160	175	Charles W. Bryson, M.D., Dean	Sept. 9	June 10	9
10	Oakland College of Medicine and Surgery, Oakland	150,174	B	12	3	2	1	...	44	36	210	200	175	175	Edward N. Ewer, M.D., Registrar	Aug. 18	May 22	10
11	College of Medical Evangelists, Loma Linda (b)	110	C	56	19	4	2	2	23	35	141	136	136	136	Alfred Shryock, M.D., Dean	Sept. 13	June 8	11
	COLORADO			**53**	**1**	**16**	**1**	**9**										
12	University of Colorado, School of Medicine, Boulder-Denver	213,381	A	53	1	16	1	9	73	35	75	75	75	75	William P. Harlow, M.D., Dean	Sept. 14	June 9	12
	CONNECTICUT			**49**	...	**8**	...	**8**										
13	Yale Medical School, New Haven	133,605	A+	49	...	8	...	8	66	35	223	170	153	163	George Blumer, M.D., Dean	Oct. 1	June 23	13
	DISTRICT OF COLUMBIA			**377**	**3**	**68**	**1**	**8**										
14	George Washington University Medical School, Washington	331,069	A	170	1	16	...	...	73	33	150	150	150	150	W. C. Borden, M.D., Dean	Sept. 30	June 9	14
15	Georgetown University, School of Medicine, Washington	331,069	A	99	...	21	...	...	87	34	165	150	150	150	George M. Kober, M.D., Dean	Sept. 25	June 13	15
16	Howard University, School of Medicine, Washington	331,069	A	108	2	31	1	8	39	32	107	102	102	109	Edward A. Balloch, M.D., Dean	Oct. 1	June 2	16
	GEORGIA			**646**	...	**186**	...	**7**										
17	Atlanta Medical College	154,839	A	488	...	125	...	4	112	32	150	150	150	150	W. S. Elkin, M.D., Dean	Sept. 28	June 1	17
18	Georgia College of Eclectic Medicine and Surgery. Atlanta.—E (e)	154,839	C	51	...	21	...	...	...	...	...	...	...	...	...	...	...	18
19	Southern College of Medicine and Surgery, Atlanta (d)	154,839	C	49	...	20	...	...	...	...	...	...	...	...	...	...	...	19
20	University of Georgia, Medical Department, Augusta (e)	41,040	A	58	...	20	...	3	47	34	150	150	150	150	W. H. Doughty, Jr., M.D., Dean	Sept. 16	June 1	20
	ILLINOIS			**2331**	**143**	**570**	**26**	**127**										
21	Bennett Medical College, Chicago	2,185,283	B	395	11	110	1	4	68	32	150	150	150	150	Maximilian Herzog, M.D., Dean	Sept. 30	May 28	21
22	Chicago College of Medicine and Surgery, Chicago	2,185,283	B	597	41	165	12	...	114	32	150	150	150	150	William J. Butler, M.D., Dean	Sept. 29	May 24	22
23	Chicago Hospital College of Medicine, Chicago	2,185,283	C	75	...	1	...	...	65	32	110	107	100	105	Edwin Pynchon, M.D., Dean	Sept. 1	May 1	23
24	Hahnemann Medical College and Hospital, Chicago.—H	2,185,283	B	78	14	15	2	...	78	32	146	131	165	187	Joseph P. Cobb, M.D., Dean	Sept. 28	May 27	24
25	Jenner Medical College, Chicago	2,185,283	C	183	16	8	3	3	60	37	145	140	120	155	John D. MacKellar, M.D., Secretary	Sept. 7	June 13	25
26	Northwestern University Medical School, Chicago	2,185,283	A+	180	...	69	...	27	139	33	190	195	190	206	Arthur R. Edwards, M.D., Dean	Sept. 29	June 6	26
27	Rush Medical College (University of Chicago)	2,185,283	A+	430	32	95	2	87	288	34	185	180	180	195	John M. Dodson, M.D., Dean	Oct. 1	June 19	27
28	University of Illinois, College of Medicine, Chicago	2,185,283	A	393	29	107	6	6	149	34	155	155	150	160	D. A. K. Steele, M.D., Dean	Oct. 1	June 11	28
	INDIANA			**128**	**5**	**20**	**2**	**10**										
29	Indiana University, School of Medicine, Indianapolis	233,650	A+	128	5	20	2	10	130	35	100	100	130	130	Charles P. Emerson, M.D., Dean	Sept. 29	June 23	29
	IOWA			**110**	**3**	**13**	...	**7**										
30	State University of Iowa, College of Medicine, Iowa City	10,091	A+	105	3	13	...	7	42	35	110	100	100	110	Lee Wallace Dean, M.D., Dean	Sept. 21	June 16	30
31	State Univ. of Iowa, Coll. of Homeopathic Medicine, Iowa City.—H	10,091	A	5	...	...	...	...	30	35	110	100	100	110	George Royal, M.D., Dean	Sept. 21	June 16	31
	KANSAS			**102**	**3**	**9**	**1**	**9**										
32	University of Kansas, School of Medicine, Rosedale	5,960	A	102	3	9	1	9	58	35	30	25	100	105	Merwin T. Sudler, M.D., Asso. Dean	Sept. 16	June 10	32
	KENTUCKY			**278**	...	**54**	...	**5**										
33	University of Louisville, Medical Department, Louisville	223,928	A	278	...	54	...	5	93	33	170	165	165	175	Henry Enos Tuley, M.D., Dean	Sept. 28	June 3	33
	LOUISIANA			**327**	...	**77**	...	**21**										
34	Tulane University of Louisiana, School of Medicine	339,075	A+	327	...	77	...	21	115	33	195	195	195	225	Isadore Dyer, M.D., Dean	Sept. 28	June 2	34
	MAINE			**67**	...	**19**	...	**9**										
35	Medical School of Maine, Portland	58,571	A	67	...	19	...	9	66	33	110	110	110	135	Addison S. Thayer, M.D., Dean	Oct. 15	June 24	35
	MARYLAND			**974**	**24**	**235**	**11**	**90**										
36	College of Physicians and Surgeons, Baltimore	558,485	A	184	...	58	...	...	69	32	165	165	165	195	William F. Lockwood, M.D., Dean	Oct. 1	June 1	36
37	Johns Hopkins University, Medical Department, Baltimore	558,485	A+	336	24	80	11	91	127	32	240	200	200	200	J. Whitridge Williams, M.D., Dean	Oct. 6	June 8	37
38	University of Maryland, School of Medicine, Baltimore	558,485	A	454	...	97	...	...	139	32	170	170	170	200	R. Dorsey Coale, M.D., Dean	Oct. 1	June 1	38

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* From the Third Classification of Medical Colleges, revised to June 21, 1914. See page 669.

	MASSACHUSETTS			**783**	**56**	**152**	**9**	**70**										
39	Boston University, School of Medicine.—H	670,585	A	89	24	18	4	4	68	32	152	147	127	155	John P. Sutherland, M.D., Dean	Oct. 1	June 2	39
40	College of Physicians and Surgeons, Boston (f)	670,585	C	110	...	13	...	...	58	35	80	100	100	130	Thomas D. Crothers, M.D., Dean	Sept. 16	June 9	40
41	Medical School of Harvard University, Boston	670,585	A+	205	...	64	...	64	207	36	237	208	200	200	Edward H. Bradford, M.D., Dean	Sept. 28	June 24	41
42	Tufts College Medical School, Boston	670,585	A	279	32	57	5	2	122	32	155	155	155	155	Charles F. Painter, M.D., Dean	Sept. 30	May 30	42
	MICHIGAN			**573**	**26**	**110**	**2**	**32**										
43	Detroit College of Medicine and Surgery, Detroit	465,766	A	249	..	54	...	1	169	33	135	130	110	130	Frank B. Walker, M.D., Secretary	Sept. 21	June 3	43
44	University of Michigan, Dept. of Med and Surg., Ann Arbor (g)	14,817	A+	260	22	35	1	31	75	35	138	102	117	77	Victor C. Vaughan, M.D., Dean	Sept. 29	June 24	44
45	University of Michigan, Homeopathic College, Ann Arbor.—H (g)	14,817	A	69	4	21	1	...	18	35	138	102	117	77	W. B. Hinsdale, M.D., Dean	Sept. 29	June 24	45
	MINNESOTA			**162**	**7**	**28**	**2**	**26**										
46	University of Minnesota, Medical School, Minneapolis	301,408	A+	162	7	28	2	26	81	35	150	150	150	150	E. P. Lyon; M.D., Dean	Sept. 16	June 11	46
	MISSISSIPPI			**35**	...	...	...	...										
47	University ot Mississippi, Department of Medicine, Oxford (h)	2,014	A	35	...	...	...	...	14	34	101	101	...	...	Walter S. Leathers, M.D., Dean	Sept. 17	June 1	47
	MISSOURI			**615**	**20**	**150**	**7**	**30**										
48	University of Missouri, School of Medicine, Columbia (h)	9,662	A+	52	3	...	...	...	15	34	40	40	...	...	Guy L. Noyes, M.D., Acting Dean	Sept. 14	June 3	48
49	Kansas City Hahnemann Medical College, Kansas City.—H	248,381	C	44	2	12	1	...	40	34	125	125	125	125	M. T. Runnels, M.D., Dean	Sept. 8	May 20	49
50	Eclectic Medical University, Kansas City.—E	248,381	C	59	6	12	2	...	20	30	100	100	100	100	....	....	....	50
51	Ensworth Medical College, St. Joseph (i)	77,403	C	10	...	9	...	...	...	...	...	...	...	...	....	....	....	51
52	American Medical College, St. Louis	687,039	C	141	5	31	3	1	93	34	140	135	135	135	James Moores Ball, M.D., Dean	Sept. 22	June 7	52
53	St. Louis University, School of Medicine, St. Louis	687,039	A	204	...	48	...	19	122	32	140	140	140	140	H. W. Loeb, M.D., Dean	Sept. 15	May 17	53
54	St. Louis College of Physicians and Surgeons, St. Louis (j)	687,039	C	44	4	23	1	...	...	...	...	...	...	...	....	....	....	54
55	Washington University Medical School, St. Louis	687,039	A+	61	...	15	...	10	79	34	155	150	150	155	E. L. Opie, M.D., Dean	Sept. 24	June 10	55
	NEBRASKA			**281**	**14**	**49**	**2**	**11**										
56	John A. Creighton Medical College, Omaha	124.096	B	180	2	35	...	4	53	32	130	120	120	120	A. L. Muirhead, M.D., Dean	Sept. 1	April 30	56
57	University of Nebraska, College of Medicine, Omaha	124,096	A+	77	7	10	1	5	69	34	125	120	110	110	Irving S. Cutter, M.D., Secretary	Sept. 14	June 4	57
58	Cotner University Medical College, Lincoln.—E	43,973	C	24	5	4	1	2	33	33	100	100	100	100	R. L. Hoff, Registrar	Sept. 14	May 27	58
	NEW HAMPSHIRE			**23**	...	**6**	...	**5**										
59	Dartmouth Medical School, Hanover (h)	2,075	A	23	...	6	...	5	26	36	173	170	...	...	John M. Gile, M.D., Dean	Sept. 24	June 23	59
	NEW YORK			**2077**	**76**	**432**	**15**	**97**										
60	Albany Medical College, Albany	100,253	A	258	...	52	...	4	103	32	135	140	120	130	Joseph D. Craig, M.D., Registrar	Sept. 22	May 25	60
61	Columbia University, College of Phys. and Surg., New York	1,766,883	A+	308	...	71	...	54	209	33	255	250	250	275	Samuel W. Lambert, M.D., Dean	Sept. 23	June 2	61
62	Cornell University Medical College, New York City	4,766,883	A+	93	15	15	5	20	137	33	190	185	185	200	Wm. M. Polk, M.D., Dean	Sept. 30	June 10	62
63	Fordham University, School of Medicine, New York City	4,766,883	A	175	...	29	..	3	99	33	200	200	200	200	William P. Healy, M.D., Dean	Sept. 25	June 8	63
64	Long Island College Hospital, New York City	4,766,883	A	360	...	79	...	4	113	33	210	205	200	200	Joseph H. Raymond, M.D., Secretary	Sept. 22	June 7	64
65	New York Homeopathic Medical College and Flower Hospital.—H	4,766,883	A	237	...	43	...	...	85	32	165	160	150	180	Royal S. Copeland, M.D., Dean	Sept. 30	May 26	65
66	New York Medical College and Hospital for Women.—H	4,766,883	C	....	42	...	7	...	58	33	155	150	135	155	Cornelia C. Brant, M.D., Dean	Sept. 23	June 3	66
67	University and Bellevue Hospital Medical College, New York	4,766,883	A+	333	...	83	...	3	125	34	205	200	200	225	Samuel A. Brown, M.D., Secretary	Sept. 23	June 9	67
68	Syracuse University, College of Medicine, Syracuse	137,249	A+	92	4	15	1	9	73	35	192	187	187	207	John L. Heffron, M.D., Dean	Sept. 15	June 9	68
69	University of Buffalo, Medical Department, Buffalo	423,715	A	221	15	45	2	...	100	33	185	180	140	140	Herbert U. Williams, M.D., Dean	Sept. 21	June 4	69
	NORTH CAROLINA			**252**	**3**	**36**	...	**5**										
70	Leonard Medical School, Raleigh (h)	19,218	B	76	...	8	...	2	22	30	50	50	50	50	George H. Stoddard, M.D., Dean	Sept. 30	May 13	70
71	University of North Carolina, School of Med., Chapel Hill (h)	1,149	A	60	...	...	...	...	25	35	120	125	...	...	Isaac Hall Manning, M.D., Dean	Sept. 7	June 2	71
72	North Carolina Medical College, Charlotte (k)	34,014	C	88	3	23	...	3	...	...	...	...	...	...	....	....	....	72
73	Wake Forest College School of Medicine, Wake Forest (h)	1,443	A	28	...	...	...	...	10	35	103	103	...	...	E. B. Earnshaw, M.D., Secretary	Sept. 1	May 21	73
	NORTH DAKOTA			**13**	**1**	...	...	...										
74	Univ. of No. Dakota, School of Med., University (Grand Forks) (h)	12,478	A	13	1	...	...	...	17	35	50	50	...	...	H. E. French, M.D., Dean	Sept. 22	June 16	74
	OHIO			**647**	**13**	**130**	**4**	**44**										
75	Cleveland College of Physicians and Surgeons, Cleveland	560,663	A	4	...	4	...	...	...	...	...	...	...	...	....	....	....	75
76	Cleveland-Pulte Medical College, Cleveland.—H (l)	560,663	C	53	..	11	...	...	...	...	...	...	...	...	....	....	....	76
77	Western Reserve University, School of Medicine, Cleveland	560,663	A+	153	...	30	...	30	90	33	162	153	150	155	F. C. Waite, Ph.D., Registrar	Oct. 1	June 7	77
78	Eclectic Medical College, Cincinnati.—E.	363,591	B	82	5	18	1	5	35	32	120	120	120	120	John K. Scudder, M.D., Secretary	Sept. 10	May 10	78
79	Medical College of the University of Cincinnati	363,591	A+	55	5	12	2	7	137	34	155	150	150	175	Christian R. Holmes, M.D., Dean	Sept. 29	June 12	79
80	Ohio State University, College of Medicine, Columbus (m)	181,511	A+	281	3	53	1	2	76	34	150	150	135	135	William J. Means, M.D., Dean	Sept. 16	June 1	80
81	Toledo Medical College, Toledo (n)	169,497	C	19	...	2	...	...	...	...	...	...	...	...	....	....	....	81
	OKLAHOMA			**94**	...	**14**	...	...										
82	Univ. of Oklahoma, School of Med., Norman and Oklahoma City.	64,205	B	94	...	14	...	...	56	34	37	24	10	10	Curtis R. Day, M.D., Dean, Oklahoma City	Sept. 22	June 10	82
	OREGON			**77**	**2**	**25**	**1**	**3**										
83	University of Oregon, Department of Medicine, Portland	207,214	A	77	2	25	1	3	62	32	150	150	150	150	Kenneth A. J. Mackenzie, M.D., Dean	Oct. 1	June 1	83
	PENNSYLVANIA			**1570**	**105**	**373**	**19**	**79**										
84	Hahnemann Medical College and Hospital, Philadelphia.—H	1,549,008	A	93	...	14	...	3	89	33	195	190	180	180	William A. Pearson, M.D., Dean	Sept. 21	June 3	84
85	Jefferson Medical College, Philadelphia	1,549,008	A+	648	...	147	...	17	157	33	200	200	200	200	Ross V. Patterson, M.D., Sub-Dean	Sept. 24	June 5	85
86	Medico-Chirurgical College of Philadelphia	1,549,008	A	350	...	75	...	...	114	33	162	159	155	153	Seneca Egbert, M.D., Dean	Sept. 21	June 4	86
87	Temple University, Department of Medicine, Philadelphia	1,549,008	B	90	11	17	1	...	97	34	150	150	150	150	Frank C. Hammond, M.D., Dean	Sept. 17	June 5	87
88	University of Pennsylvania, School of Medicine, Philadelphia (o)	1,549,008	A+	266	...	74	...	50	174	35	230	212	210	213	William Pepper, M.D., Dean	Sept. 25	June 16	88
89	Woman's Medical College of Pennsylvania, Philadelphia	1,549,008	A	....	93	...	18	5	61	34	187	181	178	180	Clara Marshall, M.D., Dean	Sept. 16	June 2	89
90	University of Pittsburgh, School of Medicine, Pittsburgh	533,905	A+	123	1	46	...	4	95	34	235	220	220	225	Thomas S. Arbuthnot, M.D., Dean	Sept. 28	June 16	90
	SOUTH CAROLINA			**104**	...	**19**	...	**6**										
91	Medical College of the State of South Carolina, Charleston	58,833	B	104	...	19	...	6	62	32	140	140	140	140	Robert Wilson, Jr., M.D., Dean	Oct. 1	June 3	91

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(*Concluded*)

Marginal Number.	NAME AND LOCATION OF COLLEGE	Population of city where college is located. (Census of 1910)	Classification by Council on Medical Education.*	No. of students registered 1913-14		Graduates 1914		Grads. with A.B., B.S. or Ph.B.	No. of teachers.	Weeks in college year.	Total Fees (Dollars).				Executive Officer	Session of 1914-15		Marginal Number.
				Men.	Women.	Men.	Women.				1st year.	2d year.	3d year.	4th year.		Begins 1914	Ends 1915	
	SOUTH DAKOTA			**14**	...	...	...	...										
92	University of South Dakota, College of Medicine, Vermilion (h)..	2,187	A	14	...	...	...	...	9	35	60	60	...	...	Christian P. Lommen, Dean	Sept. 15	June 10	92
	TENNESSEE			**1197**	**12**	**258**	**1**	**19**										
93	Lincoln Memorial University, Medical Department, Knoxville (p)..	36,346	C	74	1	19	...	1	...	...	...	...	...	...	....	....	....	93
94	Meharry Medical College, Nashville	110,364	B	353	6	72	1	11	28	29	70	70	70	80	George W. Hubbard, M.D., Dean	Sept. 9	April 20	94
95	Vanderbilt University, Medical Department, Nashville	110,364	A+	381	...	65	...	...	67	36	150	150	150	175	Lucius C. Burch, M.D., Acting Dean	Sept. 16	June 16	95
96	University of Tennessee, College of Medicine, Memphis	131,105	A	316	5	77	...	4	103	33	125	125	125	150	Herbert T. Brooks, M.D., Dean	Sept. 22	June 4	96
97	University of West Tennessee, Coll. of Med. and Surg., Memphis..	131,105	C	73	...	25	...	3	21	30	55	55	55	65	M. V. Lynk, M.D., Dean	Sept. 14	May 1	97
	TEXAS			**306**	**15**	**66**	**3**	**12**										
98	Texas Christian University, School of Medicine, Fort Worth	73,312	B	48	...	11	...	1	47	33	114	113	108	125	I. C. Chase, M.D., Dean	Sept. 8	June 4	98
99	University of Texas, Department of Medicine, Galveston	36,981	A+	160	12	20	3	11	29	32	75	50	28	10	W. S. Carter, M.D., Dean	Oct. 1	May 31	99
100	Baylor University, College of Medicine, Dallas	92,104	B	48	2	18	...	...	46	32	120	115	115	125	E. H. Cary, M.D., Dean	Sept. 30	May 31	100
101	Southern Methodist University, Medical Department, Dallas	92,104	B	50	1	17	...	...	38	32	113	108	103	125	John O. McReynolds, M.D., Dean	Sept. 30	June 3	101
	UTAH			**19**	**1**	...	...	...										
102	University of Utah, School of Medicine, Salt Lake City (h)	92,777	A	19	1	...	...	...	19	34	64	66	...	...	J. T. Kingsbury, President	Sept. 14	June 3	102
	VERMONT			**117**	...	**39**	...	**2**										
103	University of Vermont, College of Medicine, Burlington	20,468	A	117	...	39	...	2	44	36	145	145	145	170	H. C. Tinkham, M.D., Dean	Sept. 23	June 23	103
	VIRGINIA			**490**	...	**105**	...	**17**										
104	Medical College of Virginia, Richmond	127,628	A	386	...	88	...	10	123	34	164	114	114	144	Stuart McGuire, M.D., Dean	Sept. 15	June 1	104
105	University of Virginia, Department of Med., Charlottesville	6,765	A+	104	...	17	...	7	35	36	140	140	140	140	R. H. Whitehead, M.D., Dean	Sept. 14	June 16	105
	WEST VIRGINIA			**18**	**3**	...	...	...										
106	West Virginia University, School of Medicine, Morgantown (h)	9,150	B	18	3	...	...	...	11	36	60	40	...	...	John N. Simpson, M.D., Dean	Sept. 14	June 16	106
	WISCONSIN			**243**	**9**	**43**	...	**4**										
107	Marquette University School of Medicine, Milwaukee	373,857	B	167	2	43	...	4	116	34	180	175	175	175	Louis F. Jermain, M.D., Dean	Oct. 1	June 17	107
108	University of Wisconsin Medical School, Madison (h)	25,531	A+	76	7	...	...	...	25	35	170	170	...	...	Charles R. Bardeen, M.D., Dean	Sept. 23	June 18	108
	PHILIPPINE ISLANDS			**80**	**12**	**7**	**2**	**3**										
109	Univ. of the Philippines, College of Med. and Surg., Manila (q)	234,409	....	80	12	7	2	3	66	36	...	...	...	...	William E. Musgrave, M.D., Dean	July 1	Mar. 30	109
	CANADA			**1759**	**33**	**320**	**1**	**25**										
110	University of Alberta, Medical Faculty, Edmonton, Alta. (r)	24,900	....	26	...	...	...	...	7	30	50	75	...	...	Cecil E. Race, B.A., Registrar	Sept. 30	May 12	110
111	Dalhousie University, Faculty of Medicine, Halifax, N. S. (s)	46,619	....	70	5	14	1	6	37	32	100	100	100	100	A. W. H. Lindsay, M.D., Secretary	Sept. 9	May 6	111
112	Queen's University, Faculty of Medicine, Kingston, Ont. (s)	18,874	....	268	...	50	...	...	39	31	105	105	105	135	J. C. Connell, M.D., Dean	Sept. 14	April 28	112
113	Western University, Medical Faculty, London, Ont. (s)	46,300	....	90	...	27	...	1	37	32	110	110	110	110	H. A. McCallum, M.D., Dean	Oct. 1	June 5	113
114	McGill University, Faculty of Medicine, Montreal, Que. (s)	470,480	....	382	...	63	...	12	120	32	164	164	164	191	John W. Scane, M.D., Registrar	Oct. 1	June 8	114
115	Montreal School of Medicine and Surgery, Montreal, Que. (s)	470,480	....	121	...	22	...	...	60	33	110	118	126	138	E. P. Lachapelle, M.D., Dean	Oct. 1	June 19	115
116	Laval University, Medical Faculty, Quebec, Que. (s)	78,190	....	88	...	14	...	...	24	36	60	60	60	60	Michael J. Ahern, M.D., Dean	Sept. 1	June 1	116
117	University of Toronto, Faculty of Medicine, Toronto, Ont. (s)	376,538	....	530	24	85	...	2	183	32	150	150	150	150	A. Primrose, M.D., Secretary	Sept. 29	May 29	117
118	University of Manitoba, Manitoba Medical College, Winnipeg (s)..	136,036	....	184	4	45	...	4	58	33	155	150	150	150	H. H. Chown, M.D., Dean	Sept. 21	May 1	118

* From the Third Classification of Medical Colleges, revised to June 21, 1914. See page 669.

REFERENCES

(a) After the one remaining class has been graduated, this college will discontinue undergraduate medical teaching.

(b) Gives a five-year course, including a number of theological, non-medical subjects.

(c) It is rumored that this college has been suspended.

(d) Reported closed following withdrawal of recognition by the Georgia State Board of Medical Examiners.

(e) No tuition fees charged by this college for students who are bona fide residents of Georgia.

(f) Catalogue contains names of 228 "matriculants and applicants," including dental students. The number of medical students actually in attendance is approximately as given.

(g) Fees given are as charged for non-residents; they are $10 less each year for residents of Michigan.

(h) These colleges give only the work of the first two years of the medical course.

(i) This college has been closed.

(j) No information obtained as to whether this college will reopen or not.

(k) This college has been merged with the Medical College of Virginia at Richmond.

(l) Reported to have transferred its property to the Ohio State University.

(m) This college was formerly the Starling-Ohio Medical College.

(n) Reported closed following withdrawal of recognition by the Ohio State Medical Board.

(o) This medical school will admit women students hereafter.

(p) This college has merged with the University of Tennessee College of Medicine at Memphis.

(q) This medical school is controlled and financed by the government. No tuition fees are charged.

(r) Gives only the work of the first two years of the Canadian five-year course, which corresponds to the preliminary college science year and the first medical year in the United States.

(s) All these colleges give a five-year course, which includes a year of preliminary science work. This is the equivalent of the course given by the fifty medical schools in the United States which require one year of college preliminary science work for entrance. The course is surpassed by thirty-four medical colleges in the United States which require two years of collegiate work for admission.

CONTINUED FROM PAGE 671

TEXAS

Texas Christian University, School of Medicine	1914
University of Texas, Department of Medicine	1910
Baylor University, College of Medicine	1913
Southern Methodist University, Medical Department	1914

VERMONT

University of Vermont, College of Medicine	1912

VIRGINIA

Medical College of Virginia	1914
University of Virginia, Department of Medicine	1910

WEST VIRGINIA

West Virginia University, School of Medicine	1911

WISCONSIN

Marquette University, School of Medicine	1914

The five following medical colleges shown in the above list as now requiring one year of collegiate work for admission have announced that all students admitted in the session of 1915-16 and thereafter will be required to have completed *two years* of such collegiate work.

University of Alabama, School of Medicine.
Ohio State University, College of Medicine.
Woman's Medical College of Pennsylvania.
Medical College of Virginia.
Marquette University, School of Medicine.

The Medical Department of the University of Arkansas and the Hahnemann Medical College of the Pacific announce that all students admitted in 1915-16 will be required to present at least one year of collegiate work or enter on a five-year course including a preliminary year of college physics, chemistry and biology.

Hospital Intern Year

Three medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the sessions when the requirement became effective are as follows:

University of Minnesota, Medical School	1910-11
Leland Stanford Jr. University, School of Medicine	1914-15
Rush Medical College	1914-15

One state licensing board, that of Pennsylvania, now requires that every candidate to be eligible for license to practice medicine in that state, must have served at least one year as an intern in an approved hospital. The requirement became effective in 1914.

Graduate Courses in Public Health

Graduate courses in public health have been established in connection with seven medical schools leading to a degree of Doctor of Public Health (Dr.P.H.), Certified Sanitarian (C.S.), Master of Science in Public Health (M.S.(P.H.)) or Master of Public Health (M.P.H.). The course is for one year except at the Universities of Michigan, Minnesota and Wisconsin where the course for the Doctorate covers two years. Wisconsin gives a Diploma in Public Health (D.P.H.) for a one-year course. These colleges are as follows:

Medical Colleges Giving Courses in Public Health

Name of College	Course started in	Degree granted	Years in Course	Degrees required for entrance	Fees
Univ. of Penn. Sch. of Med.	1909	Dr.P.H. C.S.	1 1	M.D. A.B. or B.S.	$150 150
Med. Sch. of Harvard Univ.	1910	Dr.P.H.	1	A.B., or B.S.	†
Univ. of Mich. Dept. M. & S.	1912	M.S.(P.H.) Dr.P.H.	1 2	A.B. or B.S. and M.D.	87* 139*
Univ. of Wis. Med. School	1912	D.P.H. Dr.P.H.	1 2	M.D. M.D.	104‡ 188‡
Detroit College of M. & S.	1913	M.P.H.	1	M.D.	60
Univ. & Bell. Hosp. M. C.	1914	Dr.P.H.	1	M.D.	200
Tulane Univ., Sch. of Med.	1914	Dr.P.H.	1	M.D.	†
Univ. of Minn. Med. School.	1914	Dr.P.H.	2	M.D.	†

* For residents of Michigan the fees for the one- and the two-year courses, respectively are $62 and $104. ‡ For residents of Wisconsin the fees are $70 less each year. † Information not obtained.

State University Medical Schools

Twenty-eight states now have medical schools as integral parts of the state universities or—in one instance—under state control as separate institutions. These states and other interesting data regarding the medical schools are as follows:

State University Medical Schools

Medical School of State University of	Only School in State	Length of Med. Course in Years.	Years of College Work for Admission.	Medical School of State University of	Only School in State	Length of Med. Course in Years.	Years of College Work for Admission.
Alabama	1915	4	1[2]	North Carolina	......	2	1
Arkansas	Yes	4	..[1]	North Dakota	Yes	2	2[3]
California	......	4	2	Ohio	......	4	1[2]
Colorado	Yes	4	2[3]	Oklahoma	Yes	4	1
Georgia	......	4	1	Oregon	Yes	4	1
Illinois	......	4	2	South Carolina	Yes	4	1
Indiana	Yes	4	2[3]	South Dakota	Yes	2	2[3]
Iowa*	Yes	4	2[3]	Tennessee	......	4	1
Kansas	Yes	4	2	Texas	......	4	1
Michigan*	......	4	2	Utah	Yes	2	2
Minnesota	Yes	5	2[3]	Vermont	Yes	4	1
Mississippi	Yes	2	1	Virginia	......	4	1
Missouri	......	2	2	West Virginia	Yes	2	1
Nebraska	......	4	2	Wisconsin	......	2	2

* Have Homeopathic Departments.
1. To require 1 year in 1915
2. To require 2 years in 1915.
3. Similar requirements by Licensing Board.

In fifteen states no other medical schools exist, medical education in the state being entirely in charge of the state university. This will be true in Alabama also in 1915, when an independent medical school now existing will give only post-graduate instruction.

Of the twenty-eight state medical schools, twenty give the complete medical course and grant M.D. degrees while eight give only the first two years of the medical course. Minnesota requires a five-year course, the fifth year to be spent by the student in a hospital as an intern, or in other recognized clinical work. The universities of Iowa and Michigan have Homeopathic departments and one is contemplated also in Ohio. In Iowa the entrance requirements are the same for the two departments, but in Michigan, while for the regular department two years of collegiate work are required for entrance, only one year is required for the Homeopathic College; nevertheless, the students of the two colleges are taught together in the work of the first two years.

As may be noted, fourteen of these state university medical schools are now requiring for admission two years of collegiate work. The medical schools of the University of Alabama and the Ohio State University have announced the two-year requirement to take effect in 1915. As already shown the state schools are supported in this requirement by the state licensing boards in Colorado, Indiana, Iowa, Minnesota, North Dakota and South Dakota. This will be true also in Alabama in 1915. Of the twelve remaining state university medical schools all but the University of Arkansas are now requiring for admission a standard four-year high-school course and in addition one year of collegiate work. The one year requirement becomes effective in Arkansas also in 1915 both for the Medical School and the State Licensing Board.

The Combined Course in Liberal Arts and Medicine

There are fifty-six medical schools which announce that arrangements have been made whereby students can secure degrees in both arts and medicine in six or seven years' time. Many have arranged for the B.S. and M.D. degrees in six years, or the A.B. and M.D. degrees in seven years. Nine of these colleges give only the first two years of the medical course and, therefore, offer only the first four or five years of the combined course. These are indicated by the figures four and five in parentheses. The list of medical schools follows:

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TABLE 2.—DISTRIBUTION OF MEDICAL

Marginal Number.	NAME OF COLLEGE	1 Alabama......380	2 Arizona.........16	3 Arkansas......177	4 California.....396	5 Colorado.......87	6 Connecticut.....189	7 Delaware.......22	8 Dist. of Col.....101	9 Florida.......127	10 Georgia.......598	11 Idaho..........36	12 Illinois......1,258	13 Indiana.......350	14 Iowa.........322	15 Kansas.......241	16 Kentucky......209	17 Louisiana.....212	18 Maine.........114	19 Maryland......252	20 Massachusetts..701	Marginal Number.
1	Birmingham Medical College, Birmingham	56									1											1
2	University of Alabama, School of Med., Mobile	88								1												2
3	University of Arkansas, Medical Dept., Little Rock.	1		80	1											1		3				3
4	College of Phys. and Surgs., San Francisco			1	11								2		2	3						4
5	Hahnemann Medical College of the Pacific.—H*				40																	5
6	Leland Stanford Junior Univ., School of Medicine.				60	1								1			1					6
7	Univ. of California, Coll. of Med., San Francisco				114									1							1	7
8	California Eclectic Med. Coll., Los Angeles.—E				38																	8
9	College of Physicians and Surgeons, Los Angeles		1	1	29	3	1		1		1		14	6	13	3	2				1	9
10	Oakland College of Med. and Surg., Oakland				14																	10
11	College of Medical Evangelists, Loma Linda		2		18	1			1	1			1	3	2							11
12	Univ. of Colorado, School of Med., Boulder-Denver		1	1		37						2	1	1	1							12
13	Yale Medical School, New Haven						36						1								1	13
14	George Washington University, Med. School				2	1	4		46	1	1		5	1				2	1	3	4	14
15	Georgetown University, School of Medicine.					1	7		22		1								1	4	21	15
16	Howard University, School of Med., Washington	2		3					14	4	4		1				3	2		6		16
17	Atlanta Medical College	49			1					37	303				1		1					17
18	Georgia College of Eclectic Med. and Surg.—E										51											18
19	Southern College of Med. and Surg., Atlanta										49											19
20	University of Georgia, Med. Dept., Augusta									3	50											20
21	Bennett Medical College, Chicago			1	2		3			1	1	1	211	15	8	2	2	2	3	1	1	21
22	Chicago College of Medicine and Surgery, Chicago.	11	2	3	4	2	2	1	1	3		2	107	29	21	7	9	5	3	1	5	22
23	Chicago Hospital College of Med., Chicago*												75									23
24	Hahnemann Med. Coll. and Hosp., Chicago.—H					1						1	37	9	8	3			1		1	24
25	Jenner Medical College, Chicago	1		2		1				1			58	8	6	4	3		1		4	25
26	Northwestern University Medical School, Chicago			1		3				1	1	1	72	3	13	6		1			1	26
27	Rush Medical College (University of Chicago)	3	2	1	5	7		1	1		1	3	174	15	36	11	3	1	1		1	27
28	University of Illinois, College of Medicine, Chicago	1				4			1		2	4	207	16	18	12		1	1		2	28
29	Indiana University, School of Med., Indianapolis	1												127			1					29
30	State Univ. of Iowa, College of Med., Iowa City									2			1		98							30
31	State Univ. of Iowa., College of Homeo. Med.—H.														4							31
32	Univ. of Kansas, School of Med., Kansas City												1			96						32
33	University of Louisville, Med. Dept., Louisville	3	1	4	2		1			4	6		17	45	5	3	107	5				33
34	Tulane University of Louisiana, School of Medicine	34		11	1	1				11	8		1	1		1	3	130				34
35	Medical School of Maine, Portland						3								1				56		4	35
36	College of Physicians and Surgeons, Baltimore						9			1	1		1							29	11	36
37	Johns Hopkins University, Med. Dept., Baltimore.	13			11		5	2	2	1	16		10	6	6	4	7	3		59	14	37
38	University of Maryland, School of Medicine	2	1	1	2		13	1	2	6	4		1					1	1	127	21	38
39	Boston University, School of Medicine.—H				1		1									1			5		66	39
40	College of Physicians and Surgeons, Boston†																				110	40
41	Medical School of Harvard University, Boston	1			12	9	6	1	1		3		7	3	5	2	1	1	13	3	123	41
42	Tufts College Medical School, Boston		1				11				2				1				11		242	42
43	Detroit College of Medicine and Surg., Detroit												2	9								43
44	Univ. of Michigan, Dept. of Med. and Surg	1			3		1		1		8	2	8	8	3	3	3				3	44
45	Univ. of Michigan, Homeo. Medical College.—H												3	3	3	2	1			2		45
46	University of Minnesota, Medical School											2	2	1	5	1						46
47	University of Mississippi, Dept. of Med., Oxford																					47
48	University of Missouri, School of Med., Columbia.																					48
49	Kansas City Hahnemann Medical College.—H												1		1	9						49
50	Eclectic Medical University, Kansas City			5												17						50
51	Ensworth Medical College, St. Joseph												1			5						51
52	American Medical College, St. Louis	1		1								2	36	1		4	2					52
53	St. Louis University, School of Medicine			1	1	1	2					1	41	11	8	8	1	1	1			53
54	St. Louis College of Physicians and Surgeons*																					54
55	Washington University Medical School, St. Louis			1								1	9		2	1						55
56	John A. Creighton Medical College, Omaha		1			1							3		25	6						56
57	University of Nebraska, College of Med., Omaha			1		1									6		1					57
58	Cotner University Medical College.—E																					58
59	Dartmouth Medical School, Hanover																		2		10	59
60	Albany Medical College, Albany						2														8	60
61	Columbia University, Col. of Phys. and Surgs	2		1	2	3	10		1		7	1	2	1	2	1			2	1	3	61
62	Cornell Univ. Medical College, New York City				2		6		1			1			1						3	62
63	Fordham Univ., School of Med., New York City						10	1		1			1	1							2	63
64	Long Island College Hospital, New York City						3						1								3	64
65	New York Homeo. Med. Coll. and Flower Hosp.—H.				2		4				1		2						1		1	65
66	New York Med. Coll. and Hosp. for Women.—H				1																	66
67	Univ. and Bellevue Hosp. Med. Coll., New York						10		1				1								2	67
68	Syracuse University, Coll. of Med., Syracuse						1						1			1						68
69	University of Buffalo, Medical Dept., Buffalo													1							1	69
70	Leonard Medical School, Raleigh	1							1	6	5											70
71	Univ. of No. Carolina, School of Med., Chapel Hill																					71
72	North Carolina Medical College, Charlotte									1												72
73	Wake Forest College School of Med., Wake Forest																					73
74	University of North Dakota, School of Med.																					74
75	Cleveland-Pulte Medical College, Cleveland.—H.																					75
76	Western Reserve University, School of Medicine				1								3	2	3	2	1					76
77	Eclectic Medical College, Cincinnati.—E			1	1								1	3		4						77
78	Medical College of the University of Cincinnati												1	1			7					78
79	Ohio State Univ., Coll. of Med., Columbus													2							1	79
80	Toledo Medical College, Toledo																					80
81	University of Oklahoma, School of Med., Norman.	7		3									2			8					1	81
82	University of Oregon, Dept. of Med., Portland														1	1						82
83	Hahnemann Medical College and Hospital.—H						1	1														83
84	Jefferson Medical College, Philadelphia	3	1	2	5		15	7		5	6	3	5	3	2	3	3	1	5	3	10	84
85	Medico-Chirurgical College of Philadelphia	1			2		2	4	1		1		1	2						1	1	85
86	Temple University, Dept. of Medicine, Philadelphia.						2		1				1							2	1	86
87	University of Pennsylvania, School of Medicine	2			2	2		2			3	3	1	4	3	2	2	2		2	2	87
88	Woman's Medical College of Pennsylvania			1			2								2						3	88
89	Univ. of Pittsburgh, School of Med., Pittsburgh																					89
90	Medical College of the State of South Carolina									3	1											90
91	Univ. of South Dakota, Coll. of Med., Vermilion														2							91
92	Lincoln Memorial Univ., Med. Dept., Knoxville*																					92
93	Meharry Medical College, Nashville	27		12		1			1	15	33		5		1	2	13	12		3	1	93
94	Vanderbilt University, Med. Dept., Nashville	41	2	8	1	3				12	19		7	3			24	12				94
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

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* Information showing distribution not obtained. † Number of students, approximate. H.—Homeopathic. E.—Eclectic.

Marginal Number.	21 Michigan.......479	22 Minnesota......302	23 Mississippi.....279	24 Missouri.......528	25 Montana........30	26 Nebraska.......277	27 Nevada..........3	28 New Hampshire..42	29 New Jersey.....352	30 New Mexico......7	31 New York....2,100	32 North Carolina.475	33 North Dakota...62	34 Ohio..........791	35 Oklahoma......128	36 Oregon........103	37 Pennsylvania.1,341	38 Rhode Island....76	39 South Carolina.271	40 South Dakota...50	41 Tennessee......499	42 Texas.........573	43 Utah..........55	44 Vermont........83	45 Virginia.......427	46 Washington.....88	47 West Virginia...202	48 Wisconsin......399	49 Wyoming.......11	50 Philippines, etc.126	51 Foreign.......535	52 Totals......16,502	Marginal Number
1																																57	1
2			5																													94	2
3			1	1											5							2										95	3
4	1			1			1				2					1					1	1									7	34	4
5																																40	5
6		1									1					3				1			2	1				1		1	1	75	6
7							2		1							1										1		1			2	124	7
8																																38	8
9	5	6		7		7			1		7		1	6			7			1	1	1	2					4		1	20	153	9
10																											1					15	10
11	2	2		2	1	5			1	2	1			1	2	1					1	7				5		1	1		11	75	11
12	1	1		2										2				1								1				1	1	54	12
13	1							1	2		4			1				1			1											49	13
14	1	2				1			5		32	2		2	1		12	3	1		1				16	1	1	4		5	10	171	14
15	1								4		6	1		4			4	8	1		1				2	2	1			1	6	99	15
16			1	1					4		4	9	1	1			4		9		4	7			13						13	110	16
17			14	1							5	20					1	1	35		7	3		1	2						6	488	17
18																																51	18
19																																49	19
20																			5													58	20
21	17	8	1	11	1	3			2		10	2		6	6		12	1			1	3	1		4		11	15		27	10	406	21
22	19	19	3	10	9	6			2		39	2	7	22	9	1	31			2	2	9	3	1	4	4	17	40		24	35	638	22
23																																75	23
24	6	4		1		2								5	1	1	2											4			5	92	24
25	6	3		1		3			1		14			4			6				1	4		1		1		4			61	199	25
26	6	12		1		2				1	1		9	5	1	2				8		2	2		1	5	1	14			4	180	26
27	7	22	3	10	7	9			2	1	5		12	28	2	4	1		1	6	4	6	9	1	2	5	2	39		1	7	462	27
28	18	25		6	3	7			1		3			6	4	1	2	2		9	1	2	1			5		34		6	17	422	28
29	1										1			1	1																	133	29
30		2		2									1							1											1	108	30
31		1																														5	31
32				7											1																	105	32
33	1		6	4					1			4	1	1	6		8		2		3	13			2	1	14	2	1	2	3	278	33
34		1	46	9							1	4	1		6	1			2		1	43								2	8	327	34
35								1									1														1	67	35
36									13		6		4	4	1		30	6				2	3		7	1	38				17	184	36
37	2	4	3	8		2		2	11		26	11	2	24	1	8	40	1	8	3	3	5			17	2	5	5		3	5	360	37
38			1	1				4	15		34	55		3			37	5	25				1	2	22	2	21			25	18	454	38
39			1					3	2		5	1		1			3	2	1					2	2		1				15	113	39
40																																110	40
41		4		6				4	2		18	4	1	9	1	1	15	16		2	1	4	3	2	1		2	7		1	10	305	41
42								10			2			1			2	14						3		1				1	9	311	42
43	196	1									3			10	1		2														25	249	43
44	134	3		2		4		1	2		22	1		23		3	13		1		2	1		1		6	2	2		4	11	282	44
45	30	1									9			10	1		3										1				3	73	45
46		128		1		1					1		6	1			1			1						8		8			2	169	46
47			35																													35	47
48				52							1				1										1							55	48
49				27		3																1									4	46	49
50				43																												65	50
51				4																												10	51
52			2	84										2	3		1				1	3					2				1	146	52
53	3	5		76		6					1	1		5	6	1	2			1		2				8		6			4	204	53
54				48																												48	54
55	1			41		1																2						1		1		61	55
56		12		9	4	102					1			2			1			4			1			2			4	1	3	182	56
57		1				71								1						1									1			84	57
58						29																										29	58
59	1							3	3		1													3								23	59
60	1							1			244						1							1								258	60
61	2	2	1	3		2		1	25	1	195	5		3	2	1	8	2	1		1	1	3	1	4	1		2			2	308	61
62									10		71	1		3			2	1			1		2				1			1	1	108	62
63									9		101			1			5													4	39	175	63
64									9		337			1										2							4	360	64
65								1	28		178						7				1	1		4					1		5	237	65
66									6		27			1																	7	42	66
67			1	1					56		250			2			1							1	1			1		2	3	333	67
68									1		82						5					1									4	96	68
69											226						5				1										2	236	69
70			1								5	24					3		15						12						3	76	70
71												55							4												1	60	71
72												76							10						2		1				1	91	72
73												23							1						4							28	73
74													14																			14	74
75														53																		53	75
76	1			1	1						2			113	2		13				1	1	3				4				3	157	76
77	1	1		3		1					5			54			7				1						3					87	77
78														50													1					60	78
79	2				1						3			259			6									1	8				1	284	79
80														19																		19	80
81			2	8							8				45		3		1			5			1							94	81
82																68										8						79	82
83				1					8		1			2			68	1				1			2	1					6	93	83
84		4	5	2	3	5		3	58		26	36		18		3	332	6	11				2	4	6	6	8	2		3	22	648	84
85	1	1						1	29		9	1		2			271					1	2		1	1	1	2			11	350	85
86	1								4		5	1					64				1			1	1					3	13	101	86
87	2	1	2	3		5			15		11	20		2		1	140		1		2				2	5	2	4	1	2	13	266	87
88	1	1						1	7		17	2		4			35	1	1			1		1		1	1				11	93	88
89														3			120										1					124	89
90												3		1					95						1							104	90
91		1																		10						1						14	91
92																					75											75	92
93			37	12					2		1	14		1	4			1	17		47	61			6		2				28	359	93
94	1	1	15	11							2	2	1	1	4				8		150	48			2	1		1			1	381	94
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

Marginal Number.	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Marginal Number.
		Alabama.......390	Arizona..........16	Arkansas......177	California......396	Colorado.......87	Connecticut.....189	Delaware.......22	Dist. of Col.....101	Florida..........127	Georgia.........598	Idaho...........36	Illinois.......1,258	Indiana..........350	Iowa...........322	Kansas..........241	Kentucky.......209	Louisiana.......212	Maine...........114	Maryland.......252	Massachusetts..701	
95	University of Tennessee, Coll. of Med., Memphis..	24	....	28	1	1	....	....	....	3	2	....	1	....	....	....	7	22	....	....	....	95
96	Univ. of W. Tenn., Coll. of Med. & Surg., Memphis	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	96
97	Texas Christian Univ., School of Med., Fort Worth	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	97
98	University of Texas, Dept. of Med., Galveston...	1	1	....	....	....	1	....	....	1	1	....	....	....	....	....	....	3	....	....	....	98
99	Baylor University, College of Medicine, Dallas.....	1	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....	1	....	....	....	99
100	Southern Methodist Univ., Med. Dept., Dallas....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	100
101	Univ. of Utah, School of Med., Salt Lake City...	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	101
102	Univ. of Vermont, College of Med., Burlington...	....	....	....	....	....	12	....	....	....	....	1	....	....	....	....	....	....	5	....	11	102
103	Medical College of Virginia, Richmond...........	....	....	....	2	....	3	....	....	1	1	....	....	1	....	....	....	1	....	2	....	103
104	Univ. of Virginia, Dept. of Med., Charlottesville...	2	....	2	....	....	....	1	1	1	3	1	....	1	....	....	....	....	....	3	....	104
105	West Virginia Univ., School of Med., Morgantown.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	105
106	Marquette Univ., School of Medicine, Milwaukee..	....	....	....	....	2	....	....	....	....	....	....	3	1	2	1	....	....	....	....	....	106
107	University of Wisconsin, Medical School, Madison.	....	....	....	....	....	....	....	....	....	....	....	7	1	1	1	....	....	....	....	....	107
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

* Information showing distribution not obtained. † Number of students, approximate. H.—Homeopathic. E.—Eclectic.

CONTINUED FROM PAGE 675

College	*B.S. and M.D.*	*A.B. and M.D.*
University of Alabama, School of Medicine............	6	1
Leland Stanford Junior University, School of Med...	..	7
University of California, College of Medicine........	7	7
College of Physicians and Surgeons, Los Angeles.....	..	6
College of Medical Evangelists, Loma Linda*	..	7
University of Colorado, School of Medicine..........	6	7
Yale Medical School, New Haven.....................	..	6
George Washington University Medical School	6	7
Georgetown University, School of Medicine..........	6	..
University of Georgia, Medical Department..........	6	..
Bennett Medical College, Chicago	6	..
Chicago College of Medicine and Surgery, Chicago....	6	..
Northwestern University Medical School, Chicago.....	6	..
Rush Medical College (University of Chicago)	6	7
University of Illinois, College of Medicine..........	6	..
Indiana University, School of Medicine............	6	7
State University of Iowa, College of Medicine........	6	7
State University of Iowa, College of Homeopathic Medicine, Iowa City—H........................	6	7
University of Kansas, School of Medicine...........	..	6
University of Louisville, Medical Dept., Louisville....	6	..
Tulane University of Louisiana, School of Medicine..	..	7
University of Maryland, School of Medicine..........	..	7
Boston University, School of Medicine—H...........	6	..
Tufts College Medical School, Boston...............	..	7
University of Michigan, Dept. of Med. and Surg.....	6	7
University of Michigan, Homeopathic Medical College	6	7
University of Minnesota, Medical School†...........	7	8
University of Mississippi, Department of Medicine....	6	..
University of Missouri, School of Medicine..........	..	6 (4)
St. Louis University, School of Medicine............	6	..
University of Nebraska, College of Medicine........	6	7
Dartmouth Medical School, Hanover	6 (4)	7 (5)
Albany Medical College, Albany	..	7
Columbia University, College of Phys. and Surg......	6	7
Cornell University Medical College, New York......	..	7
Fordham University School of Medicine, New York..	6	..
University and Bellevue Hospital Medical College....	6	7
Syracuse University, College of Medicine, Syracuse..	6	7
University of North Carolina, School of Medicine....	6 (4)	..
Shaw University, Leonard Medical School	6 (4)	..
Wake Forest College, School of Medicine, Wake Forest	6 (4)	6 (4)
University of North Dakota, School of Medicine......	..	6 (4)
Western Reserve University, School of Medicine.....	..	7
Medical College of the University of Cincinnati......	6	7
Ohio State University College of Medicine	6	7
University of Oklahoma, School of Medicine........	6	..
Temple University, Department of Medicine.........	..	7
University of Pennsylvania School of Medicine......	..	7
University of Pittsburgh, School of Medicine........	6	..
University of South Dakota, College of Medicine....	..	6
University of Tennessee, College of Medicine.......	7	7
University of Texas, Department of Medicine........	6	7
University of Utah, School of Medicine............	6 (4)	..
University of Virginia, Department of Medicine......	6	..
Marquette University, School of Medicine...........	6	..
University of Wisconsin, Medical School............	6 (4)	7 (5)

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* This college requires a five-year course in medicine and theology, and the combined arts-medical-theological course is seven years.

† Two years in college and five years in medicine are required for the B.S. and M.D. degrees, three years in college and five years in medicine for the A.B. and M.D. degrees. The five-year medical course includes the hospital intern year.

The Association of American Medical Colleges

The requirements for admission to and graduation from colleges holding membership in this association are as follows:

SECTION 1.—Every college holding membership in this Association shall, on and after Jan. 1, 1912, require for matriculation a completed or unconditioned medical student's certificate, to be granted by a state medical examining and licensing board, or a board empowered by statute to grant such certificates, or a certificate of entrance to the academic department of any state university, or a certificate of entrance to an accredited university or college, providing that said certificate is granted on no less than the following requirements:

(*a*) A bachelor's degree from an accredited college or university.

(*b*) A diploma and transcript of record from a fully accredited high school, normal school or academy requiring for admission evidence of the completion of a standard course in primary and intermediate grades, and for graduation, the completion of a standard four-year high-school course, embracing two years (2 units) of mathematics, two years (2 units) of English, two years (2 units) of one foreign language, one year (1 unit) of American history and civics, and seven years (7 units) of further credit in language, literature, history or science, making the total of units at least fourteen; and in addition, one year each of physics, chemistry and biology of college grade of each not less than eight semester hours.

(*c*) An examination in the following branches totaling 14 units:

(A) Required, 7 units.

	Units
Mathematics (minimum 2 years, maximum 3 years), algebra and plane geometry	2
English (minimum 2 years, maximum 4 years)......	2
One foreign language (minimum 2 years, maximum 4 years	2
History (U. S.) and civics	1
Total number of required units...................	7

(B) Elective, 7 units.
To be selected from the following:

	Units
English language and literature (in addition to the required work)	1 to 2
Foreign languages, additional, Latin, German, Italian, French, Spanish or Greek (not less than 1 year in any one)	1 to 4
Advanced mathematics, advanced algebra, solid geometry and trigonometry (½ year each)..	1
Natural science, chemistry 1 year, physics 1 year, and biology, botany, physiology and zoology (½ to 1 year each)	½ to 2
Earth science, physical geography, geology and agriculture (½ year to 1 year each)	½ to 1
Astronomy (½ year)	½
Drawing (½ to 1 year)	½ to 1
History, ancient, medieval and modern, and English (1 year each)	1 to 3
Economics (½ year)	½
Manual training (1 year)	1
Book-keeping (½ to 1 year)	½ to 1

And in addition one year each of physics, chemistry and biology of college grade, of each not less than 8 semester hours.

One unit in any subject is the equivalent of work in that subject for four or five periods per week for a year of at least thirty-six weeks, periods to be not less than forty-five minutes in length. One unit is equivalent to 2 semester credits or 2 points.

THE PRELIMINARY COLLEGE YEAR

(*a*) The preliminary college year shall extend through one college session of at least thirty-two weeks of actual instruction, including final examinations.

(*b*) In excellence of teaching and in content, the work of this preliminary college year shall be equal to the work done in the freshman year in standard colleges and universities.

(*c*) This preliminary college year shall include courses in physics, chemistry, biology and German or French, each course to embrace at least eight semester hours of didactic and laboratory work in each subject as shown in the following schedule, provided that a student may satisfy the requirement of physics in presenting one unit of high-school physics and completing a half year of college physics which continues and does not duplicate the work done in the high school; provided also, that a student may satisfy the requirement of French or German by presenting two units of regular high-school work in either language and completing a half year of college work in that language, which con-

Marginal Number.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	Michigan......479	Minnesota......302	Mississippi......279	Missouri......528	Montana......30	Nebraska......277	Nevada......3	New Hampshire..42	New Jersey......352	New Mexico......7	New York......2,100	North Carolina.475	North Dakota...62	Ohio......791	Oklahoma......128	Oregon......103
95	....	....	83	3	....	....	....	....	....	1	....	2	....	1	5	....
96	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
97	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
98	....	....	1	....	....	....	....	....	....	1	....	1	....	....	....	....
99	....	....	1	....	....	....	....	....	....	....	....	1	....	....	3	....
100	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1
101	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
102	....	....	....	....	....	....	....	6	4	....	18	....	....	1	....	....
103	....	....	....	....	....	....	....	....	2	....	9	81	....	4	....	....
104	....	....	8	....	....	....	....	....	2	....	1	10	....	....	1	....
105	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
106	6	19	....	....	....	....	....	....	....	....	....	....	....	1	....	....
107	....	3	....	....	....	....	....	....	....	....	....	....	1	....	....	....
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	
Pennsylvania.1,341	Rhode Island....76	South Carolina.271	South Dakota...50	Tennessee......499	Texas......573	Utah......55	Vermont......83	Virginia......427	Washington......8	West Virginia...202	Wisconsin......3[illegible]	Wyoming......11	Philippines, etc.15	Foreign......555	Totals......16,502	Marginal Number
....	....	1	....	101	32	....	....	1	1	....	1	....	....	....	321	95
....	....	....	....	73	....	....	....	....	....	....	....	....	....	....	73	96
....	....	....	....	....	46	....	....	....	....	....	....	....	....	....	48	97
....	....	....	....	....	161	....	....	....	....	....	....	....	....	....	172	98
....	....	....	....	1	39	....	....	....	....	1	....	....	....	....	50	99
....	....	....	....	....	48	....	....	....	....	....	....	....	....	....	51	100
....	....	....	....	....	....	15	....	....	....	....	....	1	....	....	20	101
1	3	....	....	....	1	....	50	2	....	....	1	1	....	....	117	102
....	....	9	....	1	....	....	....	235	....	22	....	....	....	12	386	103
2	....	5	....	3	....	....	....	48	....	5	1	....	....	3	101	104
....	....	....	....	....	....	....	....	....	....	21	....	....	....	....	21	105
....	....	....	....	....	1	....	....	....	....	....	129	....	3	1	169	106
....	....	....	....	2	1	....	....	....	....	....	63	....	1	2	83	107
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	

tinues and does not duplicate the work done in the high school, or by presenting three units of regular high-school work in French or German.

In the administration of the entrance requirements of the preliminary college year by the members of this Association conditions may be allowed until September, 1917, amounting to not more than one-half of the requirement in physics and one-half of the requirement in a modern language.

All such conditions shall be removed before registration for the second year.

SCHEDULE

Subject	Lectures or Recitations Per Week	Laboratory Periods* Per Week	Total Hours Per Semester	Total Semester Hours Per Year
Physics, 1..	2	2	4	8
Chemistry, 1	2	2	4	8
Biology, 1..	2 or 3	2 or 1	4	8
German or French, 2	4 or 3	......	4 or 3	8 or 6
Total	10	6 or 5	16 or 15	32 or 30

* Each laboratory period must extend over at least two hours.

OR, EXPRESSED IN CLASS HOURS:

Subject	Total Hours Lectures, or Recitations	Total Hours Laboratory Work	Total Minimum Hours Didactic and Laboratory
Physics, 1....	64	128	192
Chemistry, 1.	64	128	192
Biology, 1...	64 or 96	128 or 64	192 or 160
German or French, 2..	128 or 96	....	128 or 96
Totals	320	384 or 320	704 or 640

(*d*) In medical colleges planning to give the work of the preliminary year, provision should be made for full-time expert teachers in the various subjects. Sufficient equipment should be provided to enable the students to do the work intelligently—in amount such as will compare favorably with the equipment for these courses in standard colleges and universities.

(*e*) It should be remembered that the chief object of the work of the preliminary college year is to provide the student with a training that will enable him to enter more readily and intelligently on the study of the fundamental medical sciences in the medical school.

Sec. 2.—The examination of credentials must be conducted by and under the authority of the board of medical examiners of the state in which the college is located, or by a duly authorized examiner of the college entrance examination board, or the authorized examiner of an accredited university, state or otherwise, or by an examiner whose certificates are accepted by accredited colleges or universities, or by a method approved by the judicial council of this association.

Sec. 3.—The term "accredited" as applied to high schools, academies, colleges and universities means institutions of that type that have been investigated and are accredited by the state university of their respective states, by the North Central Association of Colleges and Secondary Schools, the Association of Colleges and Preparatory Schools of the Southern States, the Association of Colleges and Preparatory Schools of the Middle States and Maryland, the New England College Entrance Certificate Board, the Association of American Universities and the Association of State Universities, provided that such accrediting is based on Article III, Section 1, of this constitution.

Sec. 4.—Colleges in membership in this Association may honor the official credentials presented by students from other colleges having the standard requirements maintained by members of this Association, excepting for the fourth year of the course, but no member of this Association shall admit a student to advanced standard without receiving from the dean, secretary or registrar of such college a direct written communication certifying to the applicant's standing. Credit for time or scholarship cannot be given beyond that of the college issuing the credentials, except by mutual agreement between the colleges.

Sec. 5.—Candidates for the degree of Doctor of Medicine shall have attended four courses of study in four calendar years, each annual course to have been of not less than thirty-two teaching weeks' duration, and at least ten months shall intervene between the beginning of any course and the beginning of the preceding course.

Sec. 6.—No time credit shall be given to holders of a Bachelor's degree, but subject credit may be given on satisfactory examination. Four years of residence in a medical college shall be required of all candidates for the degree of Doctor of Medicine.

Sec. 7.—A college which gives less than a four years' course of study, but does not graduate students, and is possessed of other required qualifications, may be admitted to membership.

Sec. 8.—Each student shall be obliged to attend not less than 80 per cent. of the exercises in every annual course of study for which he seeks credit. No student shall be given credit on examination unless he attains a grade of at least 70 per cent. or its equivalent in any other marking system. And no student shall be graduated unless he shall have attained a passing grade in each and all subjects of the required curriculum.

CURRICULUM

Section 1.—The entire course of four years shall consist of at least 4,000 hours for each student, and shall be grouped in divisions and subdivided into subjects; each division and subject to be allotted the number of hours as shown in the following schedule:

DIVISION 1.—ANATOMY, 720 Hours (18 per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Gross anatomy (including applied anatomy)	510	120	390
(b) Histologic and microscopic anatomy	135	30	105
(c) Embryology	75	30	45

DIVISION 2.—PHYSIOLOGY AND CHEMISTRY, 600 Hours (15 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Inorganic chemistry	180	60	120
(b) Organic chemistry	75	30	45
(c) Physiologic chemistry	104	30	75
(d) Physiology	240	140	100

DIVISION 3.—PATHOLOGY, BACTERIOLOGY AND HYGIENE, 450 HOURS (11.25 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Bacteriology	135	30	105
(b) Hygiene and general dietetics	45	45	...
(c) Pathology	270	60	210

DIVISION 4.—PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS, 240 Hours (6 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) Pharmacology	105	40	65
(b) Materia medica and pharmacology	80	...	...
(c) Therapeutics	55	...	...

DIVISION 5.—MEDICINE AND MEDICAL SPECIALTIES, 970 Hours (24.25 Per Cent.)

	Hours.	Lect. Rec. Dem.	Lab. Wk.
(a) General medicine (including clinical microscopy)	640	...	...
(b) Pediatrics	150	...	...
(c) Nervous and mental diseases	105	. .	...
(d) Jurisprudence, ethics and economics	30	...	...
(e) Dermatology and syphilis ...	45	...	...

TABLE 3.—MEDICAL STUDENTS SHOWN BY CLASSES

Name of College	Enrolled During 1913-14				
	1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total
Birmingham Medical College	......	......	23	34	57
Univ. of Alabama School of Med	38	28	13	15	94
Univ. of Ark. Med. Dept., Little Rock	18	15	21	41	95
College of P. and S., San Francisco	9	4	7	14	34
Hahnemann Med. Coll. of Pacific.—H.	16	8	5	11	40
Leland Stanford Jr. Univ. Sch. of Med.	27	18	16	14	75
University of California Coll. of Med	45	45	19	15	124
Cal. Eclec. Med. Coll., Los Angeles.—E*.	9	2	2	25	38
College of P. and S., Los Angeles	64	23	30	36	153
Oakland Coll. of M. and S., Oakland	5	3	4	3	15
Coll. of Med. Evangelists, Loma Linda.	24	14	14	23	75
Univ. of Colorado School of Medicine	13	18	7	16	54
Yale Medical School, New Haven	23	11	7	8	49
George Washington Univ. Med. School	76	48	27	20	171
Georgetown Univ. School of Medicine	11	16	40	32	99
Howard University School of Medicine	21	24	31	34	110
Atlanta Medical College, Atlanta	77	134	139	138	488
Georgia Coll. of Eclec. Med. and Surg	2	19	9	21	51
Southern Coll. of M. and S., Atlanta	4	8	14	23	49
University of Georgia, Med. Dept	24	6	8	20	58
Bennett Medical College, Chicago	93	118	84	111	406
Chicago College of Med. and Surgery	164	165	115	194	638
Chicago Hospital College of Medicine	......	......	......	......	75
Hahnemann Med. Coll. and Hosp.—H.	32	22	21	17	92
Jenner Medical College, Chicago	98	53	30	18	199
Northwestern Univ. Med. Sch., Chicago.	38	34	38	70	180
Rush Medical College, Chicago †	131	131	106	94	462
University of Illinois Coll. of Med	62	138	106	116	422
Indiana University School of Medicine	45	37	27	24	133
State University of Iowa College of Medicine, Iowa City	34	35	26	13	108
State University of Iowa College of Homeo. Med., Iowa City.—H	3	.....	2	......	5
University of Kansas School of Med	50	29	15	11	105
University of Louisville Med. Dept	96	60	67	55	278
Tulane Univ. of La. School of Medicine.	70	76	88	93	327
Medical School of Maine, Portland	13	10	24	20	67
College of P. and S., Baltimore	31	34	58	61	184
Johns Hopkins University Med. Dept	89	88	91	92	360
Univ. of Maryland School of Medicine	98	106	133	117	454
Boston Univ. School of Med.—H	48	21	22	22	113
College of P. and S., Boston *	38	16	30	26	110
Medical School of Harvard University	68	67	94	76	305
Tufts College Medical School, Boston	111	72	53	75	311
Detroit College of Med. and Surg	92	60	42	55	249
University of Michigan Department of Med. and Surg., Ann Arbor	106	85	52	39	282
Univ. of Mich. Homeo. Med. College	18	12	18	25	73
Univ. of Minnesota Medical School.	65	36	37	31	169
Univ. of Mississippi Dept. of Med.	18	17	......	......	35
Univ. of Missouri School of Medicine	33	22	......	......	55
Kansas City Hahn. Med. Coll.—H*	13	9	11	13	46
Eclectic Med. Univ., Kansas City	23	16	12	14	65
Ensworth Medical College, St. Joseph	......	......	......	10	10
American Medical College, St. Louis	36	38	38	34	146
St. Louis Univ. School of Medicine	60	49	48	47	204
St. Louis College of P. and S.	8	3	13	24	48
Washington Univ. Med. Sch., St. Louis	15	3	28	15	61
John A. Creighton Medical College	49	51	47	35	182
Univ. of Nebraska Coll. of Med	28	30	13	13	84
Cotner University Medical College.—E	5	11	8	5	29
Dartmouth Medical School, Hanover	10	7	......	6	23
Albany Medical College, Albany	83	67	53	55	258
Columbia Univ. College of P. and S	89	60	88	71	308
Cornell Univ. Med. Coll., New York City.	36	32	20	20	108
Fordham Univ. School of Medicine	62	46	38	29	175
Long Island Coll. Hosp., New York City	97	95	79	89	360
New York Homeopathic Medical College and Flower Hospital.—H	47	66	70	54	237
New York Medical College and Hospital for Women.—H	14	12	9	7	42
University and Bellevue Hospital Medical College, New York	101	44	102	86	333
Syracuse University College of Med	34	32	13	17	96
Univ. of Buffalo Med. Dept., Buffalo	90	44	55	47	236
Leonard Medical School, Raleigh	12	12	26	26	76
Univ. of North Carolina, School of Med.	38	22	......	......	60
North Carolina Med. Coll., Charlotte	28	13	22	28	91
Wake Forest School of Medicine	17	11	......	......	28
Univ. of North Dakota School of Med.	9	5	......	......	14
Cleveland-Pulte Medical College	10	13	19	11	53
Western Reserve University School of Medicine, Cleveland	35	48	40	34	157
Eclectic Med. Coll., Cincinnati.—E	24	21	21	21	87
University of Cincinnati Medical College	19	12	15	14	60
Ohio State University Coll. of Med	114	69	43	58	284
Toledo Medical College, Toledo	3	3	6	7	19
Univ. of Oklahoma School of Med	44	18	17	15	94
Univ. of Oregon Dept. of Med., Portland	14	19	20	26	79
Hahnemann Med. Coll. and Hosp., Phila.	37	21	21	14	93
Jefferson Medical College, Philadelphia	134	193	154	167	648
Medico-Chirurgical Coll. of Philadelphia.	101	77	85	87	350
Temple Univ. Dept. of Med., Philadelphia	19	20	29	33	101
Univ. of Pennsylvania School of Med	65	68	57	76	266
Woman's Med. College of Pennsylvania	26	17	31	19	93
University of Pittsburgh, School of Med.	38	27	14	45	124
Medical Coll. of the State of S. Carolina	29	22	28	25	104
Univ. of South Dakota College of Med	5	9	......	......	14
Lincoln Memorial University Med. Dept	13	29	19	14	75
Meharry Medical College, Nashville	114	80	84	81	359
Vanderbilt Univ. Med. Dept., Nashville	134	74	105	68	381
University of Tennessee College of Med	72	84	82	83	321
Univ. of West Tenn. Coll. of M. and S.	8	10	26	29	73
Texas Christian Univ. School of Med	18	5	13	12	48
Univ. of Texas Dept. of Med., Galveston	86	36	27	23	172
Baylor University Coll. of Med., Dallas.	3	11	15	21	50
Southern Methodist Univ. Med. Dept	5	15	13	18	51
University of Utah School of Medicine	12	8	......	......	20
University of Vermont College of Med	18	14	41	44	117
Medical College of Virginia, Richmond	105	88	97	96	386
University of Virginia Dept. of Med	38	23	24	19	104
West Virginia University School of Med.	13	8	......	......	21
Marquette University School of Med	13	51	53	52	169
University of Wisconsin Medical School	61	22	......	......	83
Totals	4684	3981	3807	3955	16502

* Figures are approximate. † There were 262 students in the first two years.

Note.—This table gives for each college, from which the information was obtainable, the number of students enrolled in each of the four classes. Some colleges do not publish classified lists of their students. Nine colleges teach only the work of the first two years. Birmingham Medical College taught only juniors and seniors and the Ensworth Medical College of St. Joseph, Mo., taught only seniors.

This table is very interesting in the light of the rapid trend toward higher entrance requirements and should be studied in connection with the lists of colleges given on pages 671 and 675. Some of the colleges holding to higher standards show an increase in their first year enrollments, thereby recovering from the reductions which immediately followed the adoption of the higher standards. Such increases are shown for Yale Medical School, Rush Medical College, University of Kansas School of Medicine, University of Michigan Department of Medicine and Surgery and the University of Minnesota Medical School.

In numerous instances a larger freshman class shows a college which has continued to hold to a high school education or lower standards for entrance while the majority of medical colleges have voluntarily raised their requirements for admission to one or two years of collegiate work. Among such colleges which have increased freshman classes are: College of Physicians and Surgeons, Los Angeles; George Washington University Medical School; Jenner Medical College; University of Louisville Medical Department; Tufts College Medical School; University of Buffalo Medical Department; Ohio State University College of Medicine; Medico-Chirurgical College, Philadelphia; Vanderbilt University Medical Department and the Medical College of Virginia. Smaller freshman classes will be the rule for these colleges next session, however, since practically all of them hereafter require at least one year of collegiate work for admission in addition to a high school education.

The actual enforcement of higher preliminary standards always results in a decreased enrollment. Atlanta Medical College vigorously enforced a high school educational requirement and reduced its entering class by almost half. That the University of Illinois College of Medicine and Marquette University School of Medicine enforced for the first time the preliminary requirement of one year of collegiate work is evidenced by the smaller freshman classes enrolled.

The six colleges having the largest enrollments are Jefferson Medical College, 648; Chicago College of Medicine and Surgery, 638; Atlanta Medical College, 488; Rush Medical College, 462; University of Maryland School of Medicine, 454, and the University of Illinois College of Medicine, 422. There are twenty-eight medical colleges each of which has over 200 students enrolled.

Division 6.—Surgery and Surgical Specialties, 720 Hours
(18 Per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab. Wk.
(a) General surgery	510		...		...
(b) Orthopedic surgery	45		...		...
(c) Genito-urinary diseases	45		...		...
(d) Eye	60		...		...
(e) Ear, nose and throat	60		...		...

Division 7.—Obstetrics and Gynecology, 300 Hours
(7.5 Per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab. Wk.
(a) Obstetrics	195		...		...
(b) Gynecology (including some abdominal surgery)	105		...		.

Colleges may reduce the number of hours in any subject not more than 20 per cent. provided that the total number of hours in a division is not reduced. Where the teaching conditions in a college are best subserved, the subject may be, for teaching purposes, transferred from one division to another. When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours.

Sec. 2.—Each medical college in membership in the Association shall print in every annual catalogue or announcement a table of the total number of hours work given in said college, arranged both by subjects and years.

Sec. 3.—Each college in membership in this Association shall print annually a list of its students by classes.

MEMBERS OF ASSOCIATION

University of Alabama School of Medicine.
Leland Stanford Junior University School of Medicine.
University of California College of Medicine.
College of Physicians and Surgeons, Los Angeles.
University of Colorado School of Medicine.
Yale Medical School.
Georgetown University School of Medicine.
George Washington University Medical School.
Howard University School of Medicine.
University of Georgia Medical Department.
Northwestern University Medical School.
Rush Medical College.
University of Illinois College of Medicine.
Indiana University School of Medicine.
State University of Iowa College of Medicine.
University of Kansas School of Medicine.
University of Louisville Medical Department.
Tulane University of Louisiana School of Medicine.
College of Physicians and Surgeons, Baltimore.
Johns Hopkins University Medical Department.
University of Maryland School of Medicine.
Medical School of Harvard University.
Tufts College Medical School.
Detroit College of Medicine and Surgery.
University of Michigan Department of Medicine and Surgery.
University of Minnesota Medical School.
University of Mississippi Department of Medicine.
St. Louis University School of Medicine.
University of Missouri School of Medicine.
Washington University Medical School.
John A. Creighton Medical College.
University of Nebraska College of Medicine.
Columbia University College of Physicians and Surgeons.
Cornell University Medical College.
Syracuse University College of Medicine.
University and Bellevue Hospital Medical College.
University of Buffalo Medical Department.
University of North Carolina School of Medicine.
Wake Forest College School of Medicine.
University of North Dakota School of Medicine.
Medical College of the University of Cincinnati.
Ohio State University College of Medicine.
Western Reserve University School of Medicine.
University of Oklahoma School of Medicine.
Hahnemann Medical College and Hospital, Philadelphia.
University of Pennsylvania School of Medicine.
University of Pittsburgh School of Medicine.
University of the Philippines College of Medicine and Surgery.
Meharry Medical College.
Vanderbilt University Department of Medicine.
University of Texas Medical Department.
University of Utah School of Medicine.
University of Vermont College of Medicine.
Medical College of Virginia.
University of Wisconsin Medical School.

The secretary-treasurer of the Association is Dr. Fred. C. Zapffe, 3431 Lexington Street, Chicago.

COLLEGE NOTES

Colleges Closed During the Year.—Six medical colleges have been reported as closed during the year, of which two were closed by merger into other colleges. The colleges are:

Georgia College of Eclectic Medicine and Surgery, Atlanta.

Southern College of Medicine and Surgery, Atlanta, Ga. This college was closed, it is reported, following withdrawal of recognition by the Georgia State Board of Medical Examiners.

Ensworth Medical College, St. Joseph, Mo. This college graduated its last class and voluntarily closed.

North Carolina Medical College, Charlotte, N. C. This college was merged with the Medical College of Virginia at Richmond.

Toledo Medical College, Medical Department of the Toledo University. Reported closed following withdrawal of recognition by the Ohio State Medical Board.

Lincoln Memorial University, Medical Deartment, Knoxville, Tenn. Merged with the University of Tennessee, College of Medicine at Memphis.

Special Items Concerning Medical Education

Alabama.—The University of Alabama School of Medicine will require two years of collegiate work for admission beginning with the session of 1915-16.

——The Alabama State Board of Medical Examiners has adopted two years of collegiate work as the minimum standard of preliminary education which will apply to all candidates matriculating in the session of 1915-16 and thereafter who desire to secure licenses to practice medicine in Alabama. It affects all graduates of 1919 and thereafter.

California.—The Leland Stanford Junior University, School of Medicine, received a gift of $10,000 by the will of Charles G. Latrop.

——A sum of $615,750 was obtained from various donors by the University of California Medical Department and used for building a new teaching hospital.

Colorado.—The faculty of the University of Colorado, School of Medicine, has undergone a complete reorganization. In place of the medical senate there is now an executive committee of five members, including the dean as chairman. Three standing committees on curriculum, hospitals and dispensary have been appointed, the chairman of each being a member of the executive committee.

Connecticut.—Yale Medical School has received $500,000 from the General Education Board (the Rockefeller Foundation), on condition that the school procure complete control of the New Haven General Hospital and that the professors in the main clinical branches be placed on the full-time or university basis.

——Yale Medical School has also received a gift of $400,000 by the will of the late Mrs. George Lauder to establish a chair of public health.

Georgia.—The Georgia legislature appropriated $30,000 for the Medical Department of the University of Georgia for maintenance for two years.

Illinois.—Beginning with the session of 1914-15 all matriculants in medical colleges who expect to secure licenses in Illinois must have completed at least one year in a college of liberal arts before entering on the study of medicine or have its full equivalent in a medical school giving the five-year course.

——The alumni of Rush Medical College have raised $10,000 toward a sum of $30,000 to be added to the endowment fund of their Alma Mater. This college has limited its enrolment to 100 students in each of the first and second years and 120 students in each of the third and fourth years.

——A sum of $1,000,000 has been donated by Mr. James Deering to Wesley Hospital of Chicago to be used as an endowment fund for charity beds. It is provided that Wesley Hospital be a teaching hospital with a staff made up from the faculty of the Northwestern University Medical School.

Indiana.—The Robert W. Long State Hospital at Indianapolis, the teaching hospital of the University of Indiana School of Medicine, has been completed at a total cost of $225,000, which was the gift of Dr. and Mrs. Robert W. Long. The University of Indiana has also received a gift of 160 acres of Texas land, the proceeds from the sale of which will go toward the maintenance of the Long Hospital.

Maryland.—The General Education Board (the Rockefeller Foundation) has given to the Medical Department of Johns Hopkins University a gift of $1,500,000 in order that the professors of the three main clinical departments might be placed on a full-time or academic basis. Another gift of $50,000 from the same source was obtained, to be used in the developing of the Hunterian laboratories.

——Another gift of $250,000 was received by Johns Hopkins University, Medical Department, from James Buchanan Brady for a urological clinic which will be known as the Brady Urological Clinic. Mr. Brady's gift also provides for $15,000 annually for maintenance.

——The Johns Hopkins University, Medical Department, has limited its enrolment to 90 students in each class.

——The endowment funds being raised for the University of Maryland School of Medicine, by its alumni, amounted in the last report to $31,633, of which about one-third is for the pathological endowment fund and two-thirds for the faculty of physic fund. The university is making an effort also to secure some endowed scholarships.

Massachusetts.—Harvard University is to receive "a greater part" of an estate of $500,000—exact amount not stated—to be used for medical research.

——The Peter Bent Brigham Hospital at Boston has been completed at a cost, including the land and the erection of the buildings, of $1,350,000. The grounds immediately adjoin the campus of the Medical School of Harvard University. This hospital has remaining a fund of $4,500,000 to provide an income for maintenance.

Michigan.—Detroit College of Medicine and Surgery is reported to have raised $100,000 toward a $1,000,000 endowment fund.

Minnesota.—The University of Minnesota Medical School has established teaching fellowships in the clinical departments, with a view of providing well-trained, full-time assistants and research workers and at the same time give a basis for graduate instruction in the specialties. The fellowships are in three grades: first year, $500; second year, $750, and third year, $1,000.

——The University of Minnesota, Medical School, has provided a graduate course of two years for the training of specialists in ophthalmology, and opportunity will be provided so that courses in otology, laryngology and rhinology may be taken at the same time. A suitable degree will be granted at the end of the course.

Missouri.—Washington University Medical School received a gift of $150,000 by the will of Adolphus Busch. From the General Education Board $750,000 was received on condition that, from other sources, the sum be increased to $1,500,000, and that it be used to place the professors of the main clinical chairs on a full-time or academic basis.

——The new group of buildings for the Washington University Medical School, the Barnes Hospital and the St. Louis Children's Hospital have been completed on the new campus at Kingshighway and Euclid Avenue, St. Louis. The total cost exceeds $1,000,000. There is also a fund of $2,000,000, the income from which provides for the maintenance of the Barnes Hospital.

Nebraska.—The University of Nebraska, College of Medicine, has moved into its new building on the Omaha campus, and now all four years of the medical course are given in Omaha. The new building was erected at a cost of $115,000.

New York.—A closer affiliation has been established between the Columbia University, College of Physicians and Surgeons and the Presbyterian Hospital which gives to the former larger teaching privileges.

——Columbia University received $200,000 from the family of the late W. Bayard Cutting for traveling fellowships open to graduates of the university, including the medical school. Other gifts were $2,500 for surgical research and $1,000 for salaries in the department of physiology.

——The Long Island College Hospital received $20,000 by the will of Mrs. Matilda E. Webb.

——Under the will of the late Dr. Roswell Park, his entire library consisting of about three thousand volumes was given to the University of Buffalo, Medical Department.

——The New York Homeopathic Medical College and Flower Hospital has received a donation of $25,000 for research work in cancer.

——The University and Bellevue Hospital Medical College received a gift of $10,000 by the will of the late Dr. Joseph D. Bryant to provide for a more thorough teaching of medical ethics.

——Albany Medical College received a gift of $5,000 by the will of Sylvester McDonald. Another gift of $10,000 was received by the will of Dr. John M. Bigelow.

——Cornell University, Medical College, received as an endowment $4,000,000 from (it is believed) Col. Oliver Hazard Paine of New York City. This is perhaps the largest individual gift ever made to a medical school. The gift provides an annual income of about $200,000.

——The endowment of the Rockefeller Institute for Medical Research has been increased by its founder by $2,500,000. An additional $1,000,000 was given to establish a department of animal pathology. The total gifts by Mr. Rockefeller to the institute now amounts to $12,500.000. Mr. James J. Hill gave $50,000 to the new department of animal pathology to use in the study of hog cholera. Dr. Theobald Smith, formerly professor of comparative pathology at the Medical School of Harvard University, has been made director of this new department.

Ohio.—The Medical College of the University of Cincinnati has received from the will of Mrs. Francis W. Gibson the sum of $31,400 to go toward the endowment fund. A gift of $25,000 was received by the will of Mrs. Jeanette Moss to endow the chair of medicine.

Oregon.—A site for the University of Oregon, Department of Medicine, valued at $100,000 has been donated by the Oregon-Washington Railroad and Navigation Company, with the stipulation that the site be occupied by a hospital or by institutions for the furtherance of scientific research and teaching.

Pennsylvania.—The Woman's Medical College of Pennsylvania has received $22,500 toward a $500,000 endowment fund. An appropriation of $10,000 was made by the Pennsylvania legislature for the Hospital of the Woman's Medical College of Pennsylvania.

——Jefferson Medical College has purchased for $12,000 a three-story brick building adjoining the Baugh (Jefferson College) Institute of Anatomy.

——The University of Pennsylvania School of Medicine has received gifts as follows: $15,000 to endow three beds in the children's orthopedic ward of the University Hospital; a residuary fund of $1,500,000 for the University library, the University Hospital, and the departments of dermatology, archeology and paleontology. The faculty has voted to admit women students beginning this fall.

——The University of Pittsburgh School of Medicine has received as a gift the library of the late Prof. Ernest Zeisler, for many years professor of pathology at the University of Freiburg, which was purchased for the University by Mr. Richard Beatty Mellen. In addition to the above Mr. Mellen has endowed a fellowship in internal medicine and also provided funds to install and maintain an electrocardiographic apparatus.

——A scholarship amounting to $12,000 for the benefit of women students has been provided at the University of Pittsburgh School of Medicine by a congress of the women's clubs of western Pennsylvania.

Tennessee.—Vanderbilt University, Medical Department, has been made secure in its rights to use the $1,000,000 given last year by Mr. Andrew Carnegie. This was brought about by the supreme court decision that the Board of Trustees of Vanderbilt University and not the General Conference of the Methodist Episcopal Church had the right to fill vacancies on that board.

Total Gifts During the Year.—During the last twelve months, so far as reports indicate, the total gifts for new laboratories and medical-school buildings was approximately, $567,500; for endowments and maintenance, $8,163,500; for research and public health instruction in medical schools, $675,000, a total of $9,406,000. If to this is added the $4,010,750 given to build and maintain teaching hospitals and the $3,550,000 given for medical research at the Rockefeller Institute, the grand total of donations for medical education, teaching hospital and research during the year would be $16,966,750. This does not include the regular incomes of the medical schools for maintenance coming through the regular university channels.

Another School of Public Health

The University of Minnesota inaugurates, with the fall session, a school of public health to be administered by the medical school, through a committee in direct charge. The ranking member of its faculty will sit in the administrative board of the medical school.

It will begin with the offer of courses for medical health officers. These courses have been laid out for the ensuing year. The doctorate in medicine will be a preliminary requirement. The first year's work may, however, be taken by post seniors of the medical school in lieu of the required year of hospital internship. A certificate of proficiency in sanitary science will be given on the satisfactory completion of the first year's work. This will be followed, however, by advanced courses, for a second year, leading to a degree, probably, in public health.

The first year's curriculum will call for a total of 1,000 hours, of which 500 will be devoted to required work and 500 to elective work.

The required courses will deal with public health laws; public health organization and administration; the theory and practice of statistics; personal hygiene; school hygiene; infant mortality; the sanitation of travel; industrial hygiene; communicable diseases; sex hygiene and venereal diseases; the hygiene of milk; of water supplies and of food; sewerage; refuse collection and disposal; the sanitation of buildings; town planning; housing; labor problems; economic conditions in American cities; school supervision; general physiography; elements of psychology; municipal administration, and hospital administration.

Among the electives provided are courses in epidemiology, public health laboratories, Pasteur institute, sanitary engineering, water and sewage laboratory methods, school hygiene, vital statistics, physical and human geography, protozoology, algae, meteorology, construction and interpretation of geologic maps, infant mortality, mental retardation, experimental psychology, dairy chemistry, study of meats, and animal parasites and parasitic diseases.

The school of public health will also plan and conduct courses in sanitary and hygienic subjects in other departments of university instruction.

It will have general oversight of the health interests of the university communities and will frame sanitary regulations for the benefit of students and faculties.

MEDICAL EDUCATION IN THE UNITED STATES

The tabulated statistics herewith presented (page 657) are for the year ending June 30, 1914, and are based on reports received from the medical colleges or from other reliable sources. We take pleasure in acknowledging here the courtesy and cooperation of the various officials who have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

Table 1 (pages 674-676) gives the colleges in session during 1913-1914; the population of the city; the rating given to the college in the third classification of the Council on Medical Education; the number of students, men and women, registered during the year; the number of 1914 graduates, men and women; the number of graduates holding collegiate degrees; the number of teachers for each college; the number of weeks of actual work in the college year; the total fees for each year; the executive officer of the college, and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 657 are given essential facts concerning all medical colleges arranged by states.

NUMBER OF MEDICAL STUDENTS

The total number of medical students (matriculants) in the United States for the year ending June 30, 1914, excluding premedical, special and postgraduate students, was 16,502, a decrease of 513 below last year, a decrease of 1,910 below 1912 and a decrease of 11,640 below 1904, when 28,142, the highest number of students, were enrolled. Of the total number of students, 15,438 were in attendance at the non-sectarian (regular) colleges, 794 at the homeopathic and 270 at the eclectic colleges. The attendance at the non-sectarian colleges shows a decrease of 481 below that of last year, a decrease of 1,839 below 1912 and a decrease of 9,492 (38 per cent.) below 1903, when 24,930, the largest number of non-sectarian students, were enrolled. In the homeopathic colleges there was a decrease of 55 below the attendance of last year, a decrease of 31 below 1912 and a decrease of 1,105 (58 per cent.) below 1900, when 1,909, the largest number of homeopathic students, were enrolled. The eclectic colleges show an increase of 14 over the registration of last year but a decrease of 38 below 1912 and a decrease of 744 (73 per cent.) below 1904, when the largest number of eclectic students were enrolled.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year.	Non-sectarian.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880..........	9,776	1,220	830	...	...	11,826
1890..........	13,521	1,164	719	...	...	15,404
1900..........	22,710	1,909	522	...	...	25,171
1901..........	23,846	1,683	664	80	144	26,417
1902..........	24,878	1,617	765	91	150	27,501
1903..........	24,930	1,498	848	149	190	27,615
1904..........	23,662	1,309	1,014	123	234	28,142
1905..........	24,119	1,104	578	114	232	26,147
1906..........	23,116	1,085	644	110	249	25,204
1907..........	22,303	1,039	545	97	292	24,276
1908..........	20,936	891	479	90	206	22,602
1909..........	20,554	899	413	52	227	22,145
1910..........	20,136	867	455	49	19	21,526
1911..........	18,414	890	433	49	...	19,786
1912..........	17,277	827	308	...	...	18,412
1913..........	15,919	850	256	...	...	17,015
1914..........	15,438	794	270	...	...	16.502

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending June 30, 1914, was 3,594, a decrease of 387 below 1913, and a decrease of 889 below 1912. The total this year is 2,153 (37.5 per cent.) less than in 1904, when 5,747, the largest number, were graduated. The number of graduates from the non-sectarian colleges was 3,365, or 314 less than last year, and 841 less than in 1912. It is a decrease of 1, 825 (35 per cent.) below 1904, when 5,190, the largest number, were graduated from non-sectarian colleges. From the homeopathic colleges there were 154 graduates, or 55 less than in 1913, and 31 less than in 1912. It is a decrease of 266 (63 per cent.) below 1903, when 420, the largest number of homeopathic physicians, were graduated. The eclectic colleges graduated 70, or 23 less than last year, and 40 less than in 1911. It is a decrease of 151 (68.3 per cent.) below 1890, when 221, the largest number of eclectic physicians, were graduated.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year.	Non-sectarian.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1880..........	2,673	380	188	..	..	3,241
1890..........	3,853	380	221	..	..	4,454
1900..........	4,715	413	86	..	..	5,214
1901..........	4,879	387	148	18	12	5,444
1902..........	4,508	336	138	16	11	5,009
1903..........	5,088	420	149	24	17	5,698
1904..........	5,190	371	146	20	20	5,747
1905..........	5,126	276	153	22	23	5,600
1906..........	4,841	286	186	22	29	5,364
1907..........	4,591	225	121	11	32	4,980
1908..........	4,370	215	116	12	28	4,741
1909..........	4,163	209	84	15	44	4,515
1910..........	4,113	183	114	16	14	4,440
1911..........	4,006	152	110	5	..	4,273
1912..........	4,206	185	92	..	..	4,483
1913..........	3,679	209	93	..	..	3,981
1914..........	3,370	154	70	..	..	3,594

GRADUATES HOLDING DEGREES IN ARTS

Of the 3,594 medical graduates, 807, or 22.5 per cent., were reported to hold also degrees in arts or science, as compared with 18.9 per cent. last year, 17 per cent. in 1912, 16.5 per cent. in 1911 and 15.3 per cent. in 1910. Of the 3,365 non-sectarian school graduates, 794, or 23.5 per cent., were reported to have baccalaureate degrees, while of the homeopathic graduates, 7, or 4.5 per cent., were so reported, and of the eclectic graduates, 6, or 8.6 per cent., were reported as holding degrees from colleges of liberal arts. As will be noted by referring to Table 14, of the 807 graduates holding baccalaureate degrees, 127—the largest number—came from Illinois colleges, followed by 97 from New York, 90 from Maryland, 79 from Pennsylvania and 70 from Massachusetts. It is noted that, as expected, the percentage of graduates holding collegiate degrees is gradually increasing and will continue to increase, particularly in the non-sectarian colleges, because a larger number of medical schools are requiring college work for admission.

TABLE 6.—Medical Graduates with Liberal Arts' Degrees

Year	Non-sectarian			Homeopathic			Eclectic			Totals		
	Graduates.	A.B., B.S.	Per cent.	Graduates.	A.B., B.S.	Per cent.	Graduates.	A.B., B.S.	Per cent.	Graduates.	A.B., B.S.	Per cent.
1910.....	4,113	664	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
1911.....	4,006	683	17.0	152	18	11.8	110	4	3.6	4,273	705	16.5
1912.....	4,206	744	17.7	185	15	8.1	92	4	4.3	4,483	763	17.0
1913.....	3,679	732	19.9	209	20	9.6	93	1	1.1	3,981	753	18.9
1914.....	3,370	794	23.5	154	7	4.5	70	6	8.6	3,594	807	22.5

WOMEN IN MEDICINE

During the past year there were 631 women studying medicine, or 9 less than last year, a decrease of 48 below 1912 and a decrease of 498 (44.1 per cent.) below 1904, when 1,129 women students, the largest number, were reported. The percentage of all medical students was 3.8, the same as last year. There were 121 women graduates this year, or 3.4 per cent. of all graduates. Of all the women matriculants, 135 (21.4 per cent.) were in attendance at the two medical colleges for women, while the remaining 496 (78.6 per cent.) were matriculated in the 54 coeducational colleges. From the two women's colleges there were 25, or 20.7 per cent. of all women graduates, while 96, or 79.3 per cent., secured their degrees from coeducational colleges.

TABLE 7.—Women in Medicine

Year.	Total women students.	Percentage of all students, both sexes.	Total women graduates.	Percentage of graduates, both sexes.	Women's colleges.	Students.	Percentage of all women students.	Graduates.	Percentage of all women graduates.	Co-ed. schools.	Students.	Percentage of all women graduates.	Graduates.	Percentage of all women graduates.
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.1	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5
1913	640	3.8	154	3.8	2	138	21.6	33	21.4	55	502	78.6	121	78.6
1914	631	3.8	121	3.4	2	135	21.4	25	20.7	54	496	78.6	96	79.3

NUMBER OF COLLEGES

Until last year no exact data were available on which absolute statements could be made regarding the number of medical schools existing in the various years prior to 1900. Through the work of the council on Medical Education, however, sufficient reliable data regarding all medical schools were collected and the chart prepared which was published last year,[1] from which the actual number of schools existing in any one year could be positively stated. Table 8 allows of comparisons between the number of colleges existing in recent years.

Since June 30, 1913, six colleges (mentioned on page 681) have suspended or merged with others, leaving 101 medical colleges still existing. The number of colleges is the smallest number since 1880. It was about that time that the movement toward establishing commercial medical colleges became most marked, and the rapid increase in the number of colleges has been paralleled only by the rapid decrease since 1904. There has been a net decrease of sixty-one colleges since 1906, when there were 162 and when this country had about one-half of the world's supply of medical colleges! Eighty-five colleges have been closed by merger or otherwise since 1904, but in the same time twenty-four new colleges were organized, leaving 101 medical colleges which still exist.

The non-sectarian (regular) colleges number 87, a decrease of 5 since last year. The homeopathic colleges number 10, the same as last year and the eclectic colleges number 4, a decrease of 1 since last year. The non-sectarian colleges show a net reduction of 43, or 33.1 per cent., since 1906, when there were 130, the largest number of non-sectarian medical colleges. The homeopathic colleges show a net decrease of 12, or 54.5 per cent., since 1901, when 22, the largest number of homeopathic colleges, were in existence. The eclectic colleges show a net reduction of 6, or 60 per cent., since 1901, when there existed 10, the largest number of eclectic colleges.

TABLE 8.—Medical Colleges

Year.	Non-sectarian.	Homeopathic.	Eclectic.	Physio-Med.	Nondescript.	Total.
1850..........	44	3	4	1	..	52
1860..........	53	6	4	2	..	65
1870..........	60	8	5	2	..	75
1880..........	76	14	8	2	..	100
1890..........	106	16	9	2	..	133
1900..........	126	22	9	2	1	160
1901..........	125	22	10	2	1	160
1902..........	126	20	9	3	2	160
1903..........	126	20	9	3	2	160
1904..........	127	19	9	3	2	160
1905..........	125	19	9	3	2	158
1906..........	130	19	8	3	2	162
1907..........	127	18	9	3	2	159
1908..........	120	18	9	2	2	151
1909..........	115	15	8	1	1	140
1910..........	109	12	8	1	1	131
1911..........	103	12	7	..	..	122
1912..........	101	11	6	..	..	118
1913..........	92	10	5	..	..	107
1914..........	87	10	4	..	..	101

FEWER BUT BETTER COLLEGES

Of the eighty-five medical colleges which have ceased to exist since 1904, forty-nine were closed by merger and thirty-five became extinct. It is noteworthy that this rapid diminution in the number of colleges began with the creation of the Council on Medical Education in 1905. The largest numbers closing in single years were ten in 1907, when the Council's first classification of medical colleges was prepared, thirteen in 1910, when the second classification was published, and fourteen in 1913, when the third classification was made public.

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[1] Life Chart of the Medical Colleges in the United States, The Journal A. M. A., Aug. 23, 1913, p. 578.

It is interesting to note that of the eighty-five medical colleges which have been closed, 44 were rated by the Council on Medical Education in Classes A and B and 41 in Class C. It is also interesting to note that 41, or 93 per cent. of the closures of the medical colleges in Classes A and B were through merger with other colleges, while of the Class C colleges which closed only six, or less than 15 per cent., were through merger with other colleges. In fact, all but three of the colleges which became extinct had been rated in Class C by the Council on Medical Education.

TABLE 9.—Colleges Closed Since 1904

Year.	Class A.*		Class B.		Class C.		Totals		Total Closed
	Mgd.	Ext.	Mgd.	Ext.	Mgd.	Ext.	Mgd.	Ext.	
1905......	8	1	..	..	..	..	8	1	9
1906......	..	..	..	..	..	..	..	..	..
1907......	3	..	3	1	..	3	6	4	10
1908......	2	..	2	..	1	4	5	4	9
1909......	3	..	2	..	..	7	5	7	12
1910......	1	..	3	..	3	6	7	6	13
1911......	..	..	3	..	1	3	4	3	7
1912......	2	..	..	..	..	3	2	3	5
1913......	3	..	6	1	1	3	10	4	14
1914......	..	..	..	..	2	4	2	4	6
Totals...	22	1	19	2	8	33	49	35	85

* Based on the classifications of medical colleges prepared by the Council on Medical Education.

While the total number of colleges is growing smaller, however, and *approaching more nearly the normal supply for this country,* it is encouraging to note that the number of high-grade, stronger medical colleges is constantly increasing. In 1904 only four medical colleges were requiring any preliminary education in advance of the usual high-school education; now there are eighty-four[2] requiring one or more years of advance college work and several others which begin the higher requirement next year. Of these eighty-four colleges, there are thirty-four which are requiring two years or more of collegiate work for admission. Many of the colleges have been remarkably improved also in regard to buildings, new laboratories, better equipment, larger hospital facilities and —most important—more and better full-time, salaried instructors.

TABLE 10.—Reductions in Numbers of Medical Colleges, Students and Graduates

Numbers	Non-sectarian			Homeopathic			Eclectic			Totals		
	Colleges.	Students.	Graduates.	Colleges.	Students.	Graduates.	Colleges.	Students.	Graduates.	Colleges.	Students.	Graduates.
Largest....	139	24.930	5,190	22	1,909	420	10	1,014	221	162	28,142	5,747
Present....	87	15,438	3,370	10	794	154	4	270	70	101	16,502	3.594
Decrease...	43	9,492	1,820	12	1,105	266	6	744	151	61	11,640	2,153
Percentage	33.1	38.1	35.1	54.5	57.9	63.3	60.0	73.4	68.3	37.7	41.4	37.5

FURTHER MERGERS NEEDED

There are still eighteen cities each of which has two or more medical schools, and in seven of these mergers are scarcely possible, owing to the fact that the schools differ as to sect or race, leaving eleven cities where mergers are still possible. These cities and the number of colleges in each are as follows: Chicago, 8; New York, 7; Philadelphia, 6; Boston, 4; San Francisco, 4; St. Louis, 4; Baltimore, 3; Los Angeles, 3; Washington, 3; Dallas, 2, and Omaha, 2. In 1904 there were twenty-four cities having each from two to eight non-sectarian medical schools.

Each of the most famous medical centers in Europe —for example, Berlin, Paris, Vienna—has but one large medical school which makes systematic and practical use of the clinical facilities of the respective city. There is no valid reason why this country should not have equally famous medical centers, but the highest development is prevented by the existence of too many competing medical schools. For the further improvement not only of undergraduate but also of postgraduate medical instruction in this country, there should be other mergers in the eleven cities named.

TABLE 11.—Cities Having Two or More Medical Colleges

City	A+	A	B	C	Total
Chicago...............	2	1	3	2	8
New York............	3	1	2	1	7
Philadelphia.........	1	4	1	..	6
Boston................	1	2	..	1	4
San Francisco.......	2	..	1	1	4
St. Louis.............	1	1	..	2	4
Baltimore............	1	2	..	..	3
Washington.........	..	3*	..	..	3*
Los Angeles.........	..	..	1	2	3
Ann Arbor...........	1	1	..	..	2
Cincinnati...........	1	..	1	..	2
Cleveland†..........	1	..	..	1	2
Dallas...............	..	..	1	1	2
Iowa City..........	1	1	..	..	2
Kansas City..... ...	..	..	..	2	2
Memphis.............	..	..	1	1*	2*
Nashville.............	..	2*	..	..	2*
Omaha...............	..	1	1	..	2

* One school for the colored race.
† One school contemplates removal to Columbus.

LENGTH OF TERMS

The length of term of each college fluctuates somewhat from year to year, but on the whole, during the last twelve years there has been a decided lengthening of college terms. This has reference to the weeks of actual work exclusive of holidays. Only two colleges this year reported sessions shorter than twenty-nine weeks, whereas in 1901, one hundred colleges reported sessions of from twenty-three to twenty-eight weeks. Four colleges claim courses of twenty-nine or thirty weeks of actual work, twenty-five claim courses of thirty-one or thirty-two weeks, and forty-one, the largest number, claim courses of from thirty-three to thirty-four weeks. Of the 101 colleges now existing, 94, or 94.1 per cent., now claim to require from thirty-one to thirty-six weeks of actual work, exclusive of holidays, as compared with 91.5 per cent. in 1913, 85 per cent. in 1912, 76 per cent. in 1910, 42 per cent. in 1904 and only 30 per cent. in 1901. The one college claiming a course of thirty-seven weeks is a night school, but it would require twelve or fourteen years of the usual night school study to obtain the equivalent of four years of thirty-two weeks each in one of the better day colleges.

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[2] See list on page 671.

TABLE 12.—College Terms

Year	23 to 26 weeks.		27 to 28 weeks.		29 to 30 weeks.		31 to 32 weeks.		33 to 34 weeks.		35 to 36 weeks.		Over 36 weeks.	
	No.	%	No.	%	No.	%	No.	%	No	%	No.	%	No.	%
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	....	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9
1913	..	....	3	2.8	5	4.7	29	27.4	41	38.7	27	25.5	1	0.9
1914	..	....	2	2.0	4	4.0	25	24.8	41	40.5	28	27.7	1	1.0

TUITION AND OTHER FEES

Special attention is called in Table 1 on Page 672 to the total amount charged by the various colleges per annum for tuition, matriculation, laboratory and graduation fees for each student. In Table 13 the 101 remaining colleges have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B and C. Fourteen colleges charge fees of $100 or less per year, sixty-six between $100 and $175, and twenty-one charge above $175. Of the fourteen colleges charging $100 or less, eight, or nearly two-thirds, were listed among Class A (acceptable) colleges[3] by the Council on Medical Education, three were in Class B and three of them are found among the Class C colleges. Among the eight Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah. On the other hand, eleven colleges listed by the Council in Class C charge fees of from $100 to $175 per year for each student. As shown on page 670, diplomas from Class C colleges are reported as not recognized by thirty-one state licensing boards. It is a question, therefore, why a student should spend his time and money in a low-grade college the diplomas of which are not recognized in many states,[4] when in the same time and with even less money he can attend one of the best-equipped colleges, the diplomas of which are recognized in all states. Although thirty-seven colleges listed in Class A charge fees ranging from $150 to $275 per year for each student, the actual expense for teaching that student in these colleges amounts to from two or three, to several times these sums. In fact, accurate data secured from sixty-five medical colleges a few years ago showed that the average amount received each year from the individual student was $122, while the average amount actually expended in the training of that student for a year was $410! The excesses of cost over income per student in several schools were, respectively, $2,744, $1,863, $897, $747, $730, $673, $518 and $500. The excess of expense over income from fees per student was over $200 in twenty-eight of the medical colleges which reported. It is also clearly evident that with the same equipment and at practically no additional expense these schools could easily accommodate two, three, or in some instances several times the number of students at present enrolled, which would greatly reduce the disproportion of expense over income from fees. A further reduction in the vast oversupply of medical schools in this country, therefore, would be in the interests of economy as well as of marked advantage to medical education.

TABLE 13.—College Fees

Total Fees	Number of Colleges			
	Class A*	Class B	Class C	Total
$ 50 or less	3	2	..	5
50 to $ 75	5	1	1	7
75 to 100	..	..	2	2
100 to 125	11	6	6	23
125 to 150	12	6	4	22
150 to 175	18	2	1	21
175 to 200	12	2	..	14
200 or above	7	..	..	7
Totals	68	19	14	101

* Based on the latest classification of medical colleges prepared by the Council on Medical Education.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois has heretofore had the largest number of medical colleges, but now, as shown in Table 14, the first place is held by New York, where there are ten colleges. California and Illinois each has eight and Missouri and Pennsylvania each has seven colleges. Illinois still has the largest number of students enrolled, having 2,474 matriculants last session, followed by New York with 2,153, Pennsylvania with 1,675 and Tennessee with 1,209. In regard to the graduates, the same relative position obtains.

Table 15 shows the colleges existing during the last session and their students and graduates grouped according to their rank in the third classification of the Council on Medical Education. As will be noted, there were sixty-eight colleges in Classes A+ and A and 20 each in Classes B and C. It is encouraging to note that 74.7 per cent. of all students are enrolled in the 63 per cent. of colleges which are in Classes A + and A, and that these colleges turn out 73 per cent. of all graduates. At the other extreme, only 8.1 per cent. of all students and 7 per cent. of all graduates are from the 18.5 per cent. of colleges rated in Class C.

HOME STATES OF MEDICAL STUDENTS

Table 2, on 676 to 679, shows from what states the students come who were in attendance at each medical college during the session of 1913-1914. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute

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[3] See list on page 669.

[4] See also in The Journal of May 23, 1914, p. 1650, the table showing in what states the diplomas of the various medical colleges are not given full recognition.

TABLE 14.—Medical Colleges, Students and Graduates by States

State	Colleges		Students		Graduates		Graduates with B.S. or A.B.
	Total	Class C	Men	Women	Men	Women	
Alabama	2	..	151	...	51	...	5
Arkansas	1	..	94	1	34	...	1
California	8	3	469	85	78	14	29
Colorado	1	..	53	1	16	1	9
Connecticut	1	..	49	...	8	..	8
Dist. of Columbia	3	..	377	3	68	1	8
Georgia	2	..	646	...	186	...	7
Illinois	8	2	2,331	142	570	26	127
Indiana	1	..	128	5	20	2	10
Iowa	2	..	110	3	13	...	7
Kansas	1	..	102	3	9	1	9
Kentucky	1	..	278	...	54	...	5
Louisiana	1	..	327	...	77	...	21
Maine	1	..	67	...	19	...	9
Maryland	3	..	974	24	235	11	90
Massachusetts	4	1	783	56	152	9	70
Michigan	3	..	578	26	110	2	32
Minnesota	1	..	162	7	28	2	26
Mississippi	1	..	35	...	...	...	...
Missouri	7	4	615	20	150	7	30
Nebraska	3	1	281	14	49	2	11
New Hampshire	1	..	23	...	6	...	5
New York	10	1	2,077	76	432	15	97
North Carolina	3	..	252	3	36	...	5
North Dakota	1	..	13	1	...	...	...
Ohio	5	1	647	13	130	4	44
Oklahoma	1	..	94	...	14	...	...
Oregon	1	..	77	2	25	1	3
Pennsylvania	7	..	1,570	105	373	19	79
South Carolina	1	..	104	...	19	...	6
South Dakota	1	..	14	...	...	...	...
Tennessee	4	1	1,197	12	258	1	19
Texas	4	..	306	15	66	3	12
Utah	1	..	19	1	...	...	...
Vermont	1	..	117	...	39	...	2
Virginia	2	..	490	...	105	...	17
West Virginia	1	..	18	3	...	...	...
Wisconsin	2	..	243	9	43	...	4
Totals	101	14	15,871	631	3,473	121	807
Average per College	...	..	157	6	35	2	8

more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based in state board examinations,[5] which show the distribution of the alumni of each college, is interesting. The college which has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,100. Pennsylvania contributed 1,341 and Illinois 1,258. The next states, in the order of the number of students contributed, are: Ohio, 791; Massachusetts, 701; Georgia, 598; Texas, 573; Missouri, 528, and Tennessee 499. Four states had less than 20 each, these being Arizona, 16, Wyoming, 11; New Mexico, 7 and Nevada, 3. There were 126 students from Hawaii, Porto Rico and the Philippine Islands, and 555 students from foreign countries.

In Table 3, on page 680, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year in all colleges is larger than that of the second year by 703. More interesting, however, is the study of this table in the light of higher entrance requirements which have been adopted during the last two or three years by a large number of colleges.[6] The effects of these higher requirements are shown in the figures in two ways: smaller enrolments for the colleges which have adopted the higher requirements and larger enrolments for the colleges which have retained the lower requirements. The benefit in larger classes for the "stand pat" colleges can be only temporary, however, so decided is the trend for the higher standards. Already twenty state licensing boards have gone on record for the higher requirements and others are contemplating similar action. The House of Delegates of the American Medical Association in June, 1912, adopted a report instructing the Council on Medical Education to omit from the acceptable list any medical college which after Jan. 1, 1914, does not require for admission in addition to the four-year high-school education, at least one year of higher preliminary work, including courses *of college grade* in physics, chemistry and biology. The Association of American Medical Colleges has adopted a similar requirement. The medical profession in the United States, therefore, has gone on record for entrance qualifications which bring medical education in this country more nearly on a par with the requirements of other countries.

TABLE 15.—Statistics According to College Classification

Colleges*			Students		Graduates	
	No.	Per Cent.	Number	Per Cent.	Number	Per Cent.
Class A+	29	26.9	5,894	35.7	1,218	33.9
Class A	39	36.1	6,442	39.0	1,408	39.1
Class B	20	18.5	2,838	17.2	686	19.0
Class C	20	18.5	1,328	8.1	282	7.0
	108	100.0	16,502	100.0	3,594	100.0

* Includes 7 colleges which will hold no more sessions.

RELATIONS WITH BETTER HOSPITALS

Another great wave of improvement, already well begun, is the establishing of closer relationships between hospitals and medical schools, whereby each of the hospitals will have on its attending staff the most skilled physicians who are engaged in teaching and research, and the medical school will possess a teaching hospital in which students may see and study patients at the bedside. This closer relationship is a direct acknowledgment on the part of the hospital that the medical school has improved to such an extent that it is a real honor and a benefit to have a closer relationship with it. This closer relationship undoubtedly means that the hospitals will be conducted along more modern lines since on their atttending staffs they will have physicians who are in touch with the latest improved methods of diagnosis and treatment. This relationship means that medical students will be given a better training in the examination and care of patients and that—most important—the public will in future be supplied with better qualified physicians.

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[5] The Journal A. M. A., May 23, 1914, page 1640.
[6] See lists on page 671.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, AUGUST 22, 1914

DIETARY TREATMENT AND THE SUGAR CONTENT OF THE BLOOD IN DIABETES

The significance of the sugar-content of the blood in the diagnosis and prognosis of certain disturbances, notably diabetes mellitus, is beginning to be recognized. Data are rapidly accumulating from which it will soon be possible to formulate standards and variations which may be taken as indicative of fairly definite perversions of function. The influence of the ingestion of various kinds of carbohydrates on the level of sugar concentration in the blood has been clearly established, as has the fact that the blood-sugar content of the diabetic departs from the normal both with respect to the existence of a hyperglycemia and in its unlike response to altered alimentary conditions.[1]

If there is any aspect of the subject respecting which the records furnished by the new mode of investigation are not yet as complete as might be desired, it is in connection with the influence of the routine dietary treatment of diabetes on the hyperglycemia. Extensive statistics in this field can be obtained only from the larger hospitals and sanatoriums in which suitable patients and adequate laboratory facilities are available. A series of cases studied with reference to some of the features here emphasized has just been reported from the Rudolf Virchow-Krankenhaus in Berlin.[2] The introduction of a carbohydrate-free regimen consistently produced a decrease in the sugar content of the blood in such cases as were not complicated with chronic nephritis. The extent of the diminution corresponded in general with the severity of the disease. Cases of the mildest type of diabetes were brought to a sugar level characteristic of the normal in perfect health. Moderately severe cases under the same dietary regulations reached a definite level of the blood-sugar which was as a rule higher than the normal, fluctuated with the severity of the symptoms, and was rather unresponsive to further rigorous treatment. Patients in this class usually reacted to the feeding of carbohydrate more intensely in the direction of increased hyperglycemia than did those exhibiting a less severe diabetes. No variations from these general rules were brought about by such complicating factors as tuberculosis of the lungs, cirrhosis of the liver, or arteriosclerosis.

It is a significant and perhaps unexpected fact that when the lower level of blood-sugar, whatever its figure, characteristic of each case, was once reached, further restrictions in the diet produced no additional lowering of the glycemia. Even after a diminution in the protein intake, as on the days on which green vegetables formed the chief ingredient of the diet, thus approaching a partial starvation level, no reduction of the sugar content was manifested in the blood, although the glycosuria sometimes disappeared at this time. Herein the analysis of the blood reveals a picture not afforded by the examination of the urine alone. It is also worthy of note that on the "oatmeal days," the blood-sugar was, if anything, increased in the cases investigated.

In cases that ended by death in coma the patients showed an increased hyperglycemia, even though they were fasting prior to the examination. In such conditions it seems necessary to assume severe disturbances in intermediary metabolism. The symptoms in nephritic persons were also divergent in some cases. Although in suitable instances the urine frequently became free from sugar after the customary diet restrictions, the sugar-content of the blood was invariably above normal. In some cases, for example, those with contracted kidneys, the hyperglycemia increased even when the glycosuria had permanently disappeared. It is evident, therefore, that such studies on the blood serve as a valuable supplement to other current methods of routine examination. They may furnish evidence of a latent defect of metabolism when it no longer manifests itself by way of more familiar methods.

A RARE ANIMAL PARASITE OF MAN

The extension of medical research into the field of the tropics has brought many novelties and rarities into prominence. One of these is a variety of parasites which infest either man or animals or both. The parasitic invaders of the blood-stream have received most attention, in part because the blood is easily made available for examination. Interest is at present especially centered on the alimentary parasites; and increased necropsies in those countries where the unusual organisms are likely to be revealed have resulted in considerable progress in knowledge. The value of a systematic and thorough study of every branch of parasitology does not consist solely of the possibility of eradicating objectionable causes of disease or of relieving the distress produced by some of the undesired invaders of the body. The study of the life-history of even the most uncommon and unimportant of these forms of animal existence may throw light on related harmful species and through the information gained give us more effective means of avoiding or combating parasitic infections. For this reason any advance in the field of parasitology should awaken interest quite aside from the immediate promise of useful application. We sometimes need to recall how few years have elapsed since the suspicion arose of the interrelation of insects and disease.

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[1] The Variations in the Content of Sugar in the Blood, editorial, The Journal A. M. A., Jan. 10, 1914, p. 131; Adrenal Glycosuria in Man, ibid., March 21, 1914, p. 938.

[2] Wolf, L., and Gutmann, S.: In welcher Weise wirken Diätkuren auf das Verhalten des Blutzuckers bei Diabetikern? Ztschr. f. klin. Med., 1914, lxxix, 394.

One of the rarities of tropical medicine, namely, oesophagostomiasis, a disease attributable to a parasitic worm of the genus *Oesophagostoma*, was first described by Brumpt in 1905, in a negro from the Omo River near Lake Randolph, East Africa. According to the very few reports of cases, the malady is characterized by features somewhat akin to hookworm. Hemorrhagic cysts or tumors in the submucosa or muscularis of the large intestine—rarely of the small intestine — usually project both inside and outside of the canal, and contain the immature adult oesophagostoma. At maturity the cyst ruptures and the adult worm escapes into the lumen of the intestine. The ruptured cysts may be invaded by intestinal bacteria, with resultant ulcerations, perforation of the intestine and peritonitis.

Various animals are subject to oesophagostomiasis, but in most of them the infection appears to be due to species of parasites other than that which inhabits man. The worms which are commonly found in the intestines of apes and are known as *Oesophagostoma apiostomum* have been regarded by Leiper of the London School of Tropical Medicine as identical with the specimens obtained from African natives and originally named *Oesophagostoma brumpti*. The study of the development of the forms found in the monkey has therefore been begun in the Bureau of Science at Manila.[1] The ova can be recovered from the feces, and their development takes place in cultures made in the same manner as for the ova of the hookworm. The larva grows rapidly, and under favorable conditions of culture and temperature attains its maturity in from three to four days. In the process of growth it molts twice. At the last molt the skin is not shed, but remains as a sheath enclosing the larva. In this matured form differing in size and shape from the mature larva of the hookworms and strongyloides, it is ready to infect a new host. Walker points out that this development is strikingly similar and wholly comparable with that of *Ankylostoma duodenale*, which is perhaps to be expected from the somewhat near relationship of the two worms. From this similarity one might expect by analogy that the method of entrance of the larva into the body of the host would also be similar. The question as to the way in which it attains its position in the tissues of the large intestine can now be solved experimentally, owing to these successful preliminary studies in government laboratories in the Philippines.

ABUSE OF SPECIAL PRIVILEGE

Many of the prominent newspapers of the country have recently been sent printed copies of a committee document from the United States Senate which was printed for the use of the Committee on Public Health and National Quarantine of the second session of the Sixty-Third Congress. Its title is "Arsenization Method of Preventing Yellow Fever," and it is "a memorial praying that publicity be given by the government to the arsenization method of preventing yellow fever as practically demonstrated in the epidemic at New Orleans, Louisiana, 1905." While the matter has merely been referred to the Committee on Public Health and National Quarantine, and the committee has not yet reached any decision in the matter, the first page bears the words "printed for the use of the committee," and the distribution of these committee documents to the newspapers is actually a definite endeavor to secure through the government printing office the publicity prayed for while the matter is before the committee and without waiting for its decision in the matter.

For the proper information of the newspapers it seems to us unfortunate, or at least lacking in that courtesy that publicity seekers should cultivate, that Senate Document No. 111, printed for the second session of the Fifty-Fifth Congress and dated February, 1898, just sixteen years to the month before the subsequent document, was not submitted at the same time to the editorial writers. The title of this is "Arsenization Method of Treating Cholera." The previous memorial also was referred to the Committee on Public Health and National Quarantine in order to be printed. It contained a similar request from the author of the present appeal praying that a test be made of the arsenization method of treating the disease of cholera. The earlier pamphlet is the best possible commentary on the later document which newspapers are now requested to comment on.

Proverbially the hardest thing in the world in logical reasoning is to prove a negative. An immense amount of observation would have to be made in order to demonstrate that the taking of arsenic in certain quantities prevented the development of a specific infectious disease. That it should prevent two such very different specific infections as cholera and yellow fever raises the difficulty of the solution of the problem almost to what mathematicians would call the nth degree. There are almost necessarily millions of people, always hundreds of thousands, in any country in which such an infection is epidemic, who do not come down with the disease that affects so many of those around them. This has always been true. Their vitality renders them capable of immunizing themselves against the infection. Any of the manifold substances, food materials or drugs that they have been taking might be asserted to be the origin of their immunity. Only the most careful differential investigation under very favorable circumstances for the elimination of disturbing factors would lead to a definite conclusion of any value under such circumstances.

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[1] Walker, E. L.: The Life History of Oesophagostomum Apiostomum: I. Development Outside of the Host, Philippine Jour. Sc., Trop. Med. (B), 1913, viii, 501.

It is interesting to read the account furnished in the latest Senate committee document of the large number of persons who on the bare possibility that arsenic, though in itself a seriously poisonous drug, might help in protecting them from yellow fever, took it in considerable quantities during the epidemic in New Orleans in 1905. The prescription to "take one-one-hundredth of a grain of arsenious acid three times a day for the first week of exposure to infection, twice a day the second week, and once daily thereafter until the remainder of one hundred tablets [why one hundred, except that it is a nice round number, is not clear], granules or powders are taken, or until the epidemic is closed by virtue of sanitary or hygienic precautions or weather conditions" was widely published in the newspapers of the South and "was taken up by the populace of the threatened city in a truly astonishing manner." There was an almost unprecedented rush for the new prophylactic. "Jobbers and wholesalers soon ordered in lots of a million, until upon investigation by representatives of well-known publishing houses it was learned that between fifteen and twenty millions of this particular tablet had been supplied to the trade of New Orleans within the preceding twenty-three days, with many more millions to the trade of outlying infected districts."

Indeed, the only parallel in medical history that we know to such an enormous consumption of a drug is the marvelous spread of the use of tobacco, especially chewing tobacco, when the weed was first introduced. Tobacco was declared to be a wonderful tonic strengthener of the system, a marvelous discovery of the Indians, who by it secured long life and freedom from disease, and above all it was declared to be the most potent of prophylactics. The tradition that was created was so strong that there are still some remnants of it left in the folklore and the popular medicine of all nations. Many a person is still persuaded that to take a chew of tobacco before approaching a small-pox patient or sufferer from other malignant disease is a protective. Undertakers and their helpers still pass on the tradition, in country places at least. In spite of kings and government authorities then and the general condemnation of the learned with even the outspoken disapproval of the church, the use of tobacco spread. That was in the seventeenth century, and we sometimes think that we have progressed beyond the rather childish state of mind which we are inclined to attribute to that period. Incidents like the present raise the question whether or not we have progressed.

In the meantime, the sending of these copies of a document printed at government expense for the use of the Senate committee to the newspapers of the country is an abuse of privilege that deserves severe condemnation. The Committee on Public Health and National Quarantine surely is not willing to allow its privileges to be thus abused, and cannot permit itself to be made a party to this method of securing publicity for a remedy whose efficiency is eminently doubtful and interest in which might well serve to obscure the significance of the true method of preventing yellow fever by eliminating the mosquito, which has been demonstrated to be so effective.

CHOICE OF A MEDICAL SCHOOL

Never before has the choice of a medical school been so simple and easy as at the present time, owing to the abundance of information which is available for the student's guidance. And never was it so important that a careful and wise choice be made.

Formerly the training secured in any medical college was sufficient to give the physician a start in his life work, and to secure a license to practice was also a simple matter. Not so at the present time. Modern medicine is based on scientific knowledge, and without this knowledge the physician of the future will be a failure. To secure such knowledge the student must have a better preliminary education than formerly, and must secure his medical education in a college which has a corps of expert, salaried teachers, well-equipped laboratories and an abundance of dispensary and hospital facilities. Now also definite qualifications are demanded by the various states before the license to practice can be secured.

Before choosing a medical school the student should acquaint himself with the requirements of preliminary and medical education held by the various state licensing boards. These standards have recently been advanced in several states and are bound to be advanced in others in the early future. At present seven states[1] require as the minimum standard of preliminary education two years of liberal arts' college work in addition to a four-year high-school education. In thirteen other states[2] the minimum standard is one year of collegiate work, in addition to the high-school education. If, therefore, a student is intending to practice in one of these twenty states, it will be necessary for him to have the required amount of preliminary education. If the student needs additional preliminary training, the time to acquire it, of course, is before he begins the study of medicine. In fact, this higher preliminary education is now required by all of the better medical colleges. More important, however, a good preliminary education is essential in order that the student may be enabled to master the more complex problems of the modern medical course.

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[1] Alabama, Colorado, Indiana, Iowa, Minnesota, North Dakota and South Dakota.

[2] Arkansas, California, Connecticut, Kansas, Kentucky, Illinois Michigan, New Hampshire, Pennsylvania, Rhode Island, Utah, Vermon. and Virginia.

Another very important matter for the student to consider is the character of the college itself. State licensing boards are now making more common use of their legal power to discriminate between medical colleges and to refuse recognition to those which are deemed not properly qualified to furnish a training in modern medicine. Diplomas from those not recognized do not constitute acceptable qualifications for the license to practice medicine in such states. It is important for the student to make sure not only that he has the adequate preliminary education, but also that he shall obtain his training in a medical college which is given recognition in all states.

The question is: How may the student secure the information needed on these matters? Some medical colleges advertise extensively in the newspapers and in popular magazines, and send out announcements and circulars containing very glowing, if not misleading statements. At present several medical schools are being thus extensively advertised, even though their diplomas are not recognized in from twenty-five to thirty states! It is hardly to be expected that the announcements sent out by these schools will convey the information which the prospective students need. It is essential, therefore, that before choosing a medical school, he should secure further information from impartial and reliable sources, so that he may be sure that he is not enticed into a poorly equipped institution and find on graduation that his diploma is not recognized in a large number of states.

An important matter which the student is always bound to consider is the expense. But it is well for him to know that to enter a low-grade medical college because the fees may be a little lower is very poor economy. The truth is that in the same length of time, and often for even lower fees than he would pay in the poorly equipped institutions, he may acquire his education in one of the best-equipped medical schools in the land. This refers particularly to the medical departments of state universities. On the other hand, he should know that even if some of the better schools do charge higher fees, nevertheless, they spend on each student, per year, several times the amount of money that the student pays in tuition. Here again, it would be poor economy to enter a low-standard college which depends on students' fees alone for its income, when for a few additional dollars each year he can enter a thoroughly equipped institution and get a far better medical training. Even should he be required to work his way through college, in whole or in part, the opportunities for doing so are, as a rule, greater in the better than in the lower standard colleges. Generally, however, worthy students who are poor in purse are the very ones who appreciate not only the value of money but also the value of the medical course they are getting. Such students are seldom beguiled into a poor college by alluring and misleading advertisements.

In order that the student may be thoroughly informed in any and all of the foregoing matters it would be well for him not only to secure the announcements of a number of colleges among which he may be able to choose, but also to secure reliable information from other sources. He should read carefully the reports on medical colleges published from time to time in The Journal by the Council on Medical Education, which can be obtained in reprint form. After an extensive investigation, including several inspections, the various medical schools have been rated by the Council in four classes, namely, A+, A, B and C, depending on their excellence. If the student is otherwise in doubt, he will not make a mistake by choosing one of the colleges contained in the higher classification. If he has had two or more years of collegiate work in addition to a four-year high-school education, and if he earns his diploma at a college in the higher classification, there is no doubt regarding either the quality of the training obtained or his eligibility after graduation to obtain a license in any state of his choice.

The student must bear in mind that in his preliminary and medical training he is laying the foundation for the rest of his life. If a year or two more is needed to enter one of the better medical colleges, he may count it as time well spent, since he is all the more sure of having laid a solid foundation. The medical profession in this country is extremely overcrowded, but there is always room for physicians who are thoroughly competent. The opposite must not be forgotten: disappointed, indeed, will be that student who, because of alluring advertisements or because of lower entrance requirements, is induced to get his training in a poorly equipped college, and who finds after graduation that he is handicapped for life.

Current Comment

FEWER MEDICAL COLLEGES, STUDENTS AND GRADUATES

The statistics published this week show that in the last decade there has been a marked decrease (about 35 per cent.) in the number of medical colleges and corresponding reductions in the number of students and graduates. Of colleges the decrease was from 165 to 101; of students the decrease was from 28,142 to 16,502 and the number of graduates decreased from 5,747 to 3,594. There are some perhaps, who, not knowing the real cause, may look on these marked reductions with alarm and believe that this country will soon be suffering from a dearth of physicians. Alarming statements to that effect are already being circulated, but invariably these statements come from those interested in medical colleges conducted more as business enterprises than as educational institutions; those who look more to the incomes from students' fees than to the quality of physicians turned out. There would not have been the marked reductions referred to had it not been for the vast oversupply of medical colleges existing in this country ten years ago. That there is room for a still greater reduction of medical colleges; that there is no cause for alarm regarding a scarcity of physicians, and that the reductions referred to are distinctly in the interests of the public, are clearly evident to any one acquainted with the facts.

REDUCING AN OVERSUPPLY

Prior to the Civil War there had been a rapid increase in the number of medical colleges, there being at the time about sixty in this country. Following the war, however, the number increased by leaps and bounds, until in 1906, not counting the out-and-out diploma mills, a maximum number of 162 colleges was reached. It was then discovered that this country alone had more medical colleges than all other countries of the world combined! The conditions were preposterous. Although an unusual but real demand for doctors, caused by the rapid development and growth of the country, was what originally led to the formation of proprietary medical colleges, nevertheless, not only was the demand soon supplied, but also there came to be so vast an oversupply as to be actually ridiculous. And such colleges! Although there were some fairly good ones, a very large per cent. were joint stock corporations, conducted solely for profit. They were devoid of equipment, few held seriously to any entrance standard, and whoever could pay the tuition fees—the only requirement—was admitted. In order to swell the number of students, and incidentally the income from fees, glowing advertisements were printed and salaried solicitors were sent to offices, work-shops and farms. Large classes were turned out each year after only two short sessions! Is it a wonder that there has been a marked decrease following the quiet but careful investigation of the Council on Medical Education? There is certainly no question that the great reduction in the number of medical colleges and the remarkable improvement in the quality of those remaining will result in a greatly improved medical profession and—more important—will insure for the people better qualified physicians.

NO DANGER OF A SCARCITY OF PHYSICIANS

That the marked reduction in the number of medical colleges during the last decade will result in a dearth of physicians in this country is a proposition which appears ridiculous to any one acquainted with the facts. The normal proportion of physicians to population in the leading nations of Europe is one to every 1,500 to 2,500 people; this country has one physician to every 600 to 650 people. The figures given for this country do not include the osteopaths, Eddyites and other so-called drugless practitioners, which are scarcely found in other countries. The annual loss of physicians from deaths in this country is approximately 2,000, while the annual output of physicians from the medical colleges for several years exceeded five thousand. Even this year there were 3,594 or nearly twice as many physicians added to the profession as are lost from deaths. It is evident, therefore, that if the annual number of graduates merely replaced the number of physicians removed by death it would still require many years before the supply of physicians would be reduced to the normal quantity needed. Just so long as the colleges continue to turn out more than the number removed by death, just so much longer will it be before the normal proportion is reached. Again, it is apparent that the sixty better medical colleges with their present equipment, and with little if any added expense, could easily take care of all the students at present enrolled in the 101. It is quite clear, therefore, that the number of colleges might be reduced by another fifty per cent. and there would still be no danger of a doctor famine. Thus far we have considered mere numbers. When we consider also the better trained physicians who are now being turned out in place of the product of former years, the danger of a lack of adequate medical service will be pushed still further away. The situation is simply this: A ridiculously large oversupply of exceedingly low-grade, commercial medical colleges with their enormous output of poorly educated doctors is rapidly giving way to a normal quantity—not reached yet—of high-standard educational institutions which are annually turning out a still comparatively large number of more thoroughly trained physicians. There is no question that the change is most beneficial to the public however one may look at it.

MEETING THE SHORTAGE OF IMPORTED DRUGS

Last week we commented[1] on the possible effect of the European crisis on our drug supply, especially the impending shortage of proprietary products (patented or trademarked) of foreign manufacture. As one of the first effects of this shortage physicians will learn that a large number of foreign products sold under proprietary names are available in this country under their non-proprietary, descriptive names if they will prescribe them. Among these may be mentioned dionin, which is offered by American manufacturers as ethyl-morphin hydrochlorid and to be included in the Pharmacopeia under this term; urotropin, which has long been available as hexamethylenamin; and diuretin, available as theobromin sodium salicylate. Atophan is not protected by patent and it is to be hoped that some enterprising American firm will very promptly undertake the manufacture of this product and that American physicians will just as promptly learn to prescribe it under a modified chemical name such as phenyl-quin or any other which may be officially adopted. As regards patented products which are the property of particular foreign firms: It should be demanded of such firms that they take prompt steps to secure the manufacture of these products in this country as has been done for some years, we are informed, in the case of acetylsalicylic acid (aspirin). If these firms are not in a position to establish factories of their own they will find little difficulty in securing the manufacture of their products by competent American firms. In the meantime Congress should revise the patent law to make it agree with that of most foreign countries; that is, the holder of a patent must under penalty of forfeiture begin manufacture of the patented product in this country in a reasonable period of time after the issuance of the patent. At the same time Congress might properly consider the feasibility of revoking foreign patents on medicinal products if their owners fail to take proper steps to secure for us a supply of the product by manufacture in this country if necessary.

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[1] The Journal, August 15, p. 586.

PATENTS ON CERTAIN CHEMICALS EXPIRING

In connection with the shortage of foreign drugs, on which we comment elsewhere, it may be worth while to note that the patent rights on a number of familiar patented products have expired or are about to expire; for instance, the patents on euquinine, pyramidon and protargol have lapsed; those on orthoform-New and aristochin will expire in 1915 and 1916, respectively. Since these products will be public property after the dates indicated, American firms should lose no time in undertaking their manufacture. It should be remembered, however, that if substitutes are to be allowed, standardization should be demanded. Inferior substitutes are a menace greater than the lack of the original products. If salvarsan, neosalvarsan, protargol, etc., are to be made in America, our government should see to it that the American output equals the European product.

Medical News

ILLINOIS

New Officers.—Stark County Medical Association at Toulon, July 27: president, Dr. James R. Holgate, Wyoming; secretary-treasurer, Dr. Clyde Berfield, Toulon.

Illinois Physicians Abroad.—Dr. and Mrs. Harry E. Kerch, Dundee; Dr. James J. Moran, Spring Valley; Dr. Augustus W. Chandler, Rochelle, and Dr. William L. Gray, Champaign, are held in London on account of war conditions.——Dr. and Mrs. William R. Parkes, Evanston, returned from Europe, August 7.

Farm Cottage Annex.—The Illinois Board of Administration has decided to open a farm cottage annex to the Kankakee State Hospital on the site of the new Alton State Hospital. Three farm houses on this property are available, which will accommodate about one hundred patients who have almost recovered their mental poise.

Kane County Board Takes No Action.—Supervisor George F. Sills of Kane County calls attention to an error in The Journal of August 8, page 491. The committee of supervisors, as then stated, have prepared a report opposing the establishment of a county sanatorium, but no action has been taken on this report as there will be no meeting of the board until September.

Chicago

Personal.—Dr. John P. Sprague has been appointed professor of physical education and hygiene at Grinnell College, Grinnell, Iowa.——Dr. Otto L. Schmidt has been elected commodore of the Northwestern Yachting Association and of the Inland Lakes Yachting Association.

Home from Abroad.—The following physicians of Chicago have recently returned from abroad: Dr. and Mrs. Harry J. Stewart, Dr. Casey A. Wood, Dr. and Mrs. Junius C. Hoag, Dr. Wilhelm E. Krieger, Dr. Raymond W. McNealy, Dr. and Mrs. Edward L. Webb and Dr. Jabez D. Hammond.

Physicians Still Detained Abroad.—The following additional names of physicians detained abroad on account of the difficulty of obtaining passage by reason of war conditions are: Dr. and Mrs. Peter C. Schenkelberger, Dr. Paul Owsley, Dr. and Mrs. Alfred Schirmer and daughter, Dr. Ernest A. Loewinger, Dr. Robert H. Buck and Dr. Michael Goldenbuerg.

Cook County Hospital Opened.—The first building of the new Cook County hospital was opened August 15 without ceremony. The building at present in use is the administration hall which will accommodate 656 patients. The entire eighth floor of the building is arranged for surgical work. There are nine operation rooms including two amphitheaters. The silent-call signal system has been installed throughout the institution. The old hospital buildings are now to be wrecked to make room for the new structures which will cost when completed, $16,000,000.

KENTUCKY

State Association Meeting.—The annual meeting of the Kentucky State Medical Association will be held at Newport, September 24-26, with headquarters at the Carnégie Hall.

Personal.—Dr. Arthur L. Nelson has succeeded Dr. Evan E. Owen as secretary and assistant superintendent of the Louisville City Hospital.——Dr. David C. Morton, Louisville, professor of medicine in the University of Louisville and chairman of the City Hospital Committee, has resigned and retired from practice.

Pellagra Conference.—A pellagra conference was held by the State Board of Health in connection with the annual school of city and county health officers at Pineville, August 18 to 20. In addition to the study of pellagra there was an unusual clinic, and the duties of physicians and health officers under the new law in regard to trachoma and other diseases leading to blindness were fully discussed and explained. Special attention was also given to the study of the sanitation of small towns and country districts with a view to the prevention of typhoid fever.

MASSACHUSETTS

Insanity Board Organized.—The new Board of Insanity created under the law relative to the organization and powers of the State Board of Insanity, which went into effect August 1, was organized August 10, with Dr. Michael J. O'Meara, Worcester, president; Dr. L. Vernon Briggs, Boston, executive secretary, and M. Charles E. Ward, Buckland, as the third member. The appointments were made by the governor early in August.

Personal.—Dr. Milo A. Jewett has been appointed United States consul at Kiel, Germany.——Dr. Max Baff, Worcester, has returned from abroad.—Drs. Henry M. Chase and Hilbert F. Day have been appointed surgeons in charge of the Boston Dispensary to fill the vacancies caused by the retirement of Drs. Benjamin Tenney and John Homans, who have been placed on the consulting staff of the institution.——Dr. Simon F. Cox, superintendent of the Tuberculosis Hospital, Mattapan, since 1906, has accepted the position of superintendent of the New Haven hospitals.——Dr. Walter Channing, Brookline, a trustee of the Boston State Hospital, has resigned.

MICHIGAN

Hospital Merger.—Solvay General Hospital, Detroit, with a capacity of fifty beds was merged with the Harper Hospital, August 3. The merged institutions will be under the care of Dr. Wayne Smith, superintendent of the Harper Hospital.

Personal.—Dr. F. Elizabeth Barrett has succeeded Dr. Claude B. Fulkerson as medical inspector of the public schools of Kalamazoo.——Dr. Duncan McKellar, Hillsdale, who has been suffering eight weeks from septicemia, had his right leg amputated recently.

Veteran Honored.—Dr. Theodore A. McGraw, Detroit, in recognition of forty-five years of continuous service as a member of the medical board of St. Mary's Hospital, was honored June 30 by fifty of his associates who presented him with a silver vase as a token of love and appreciation from his co-workers in the hospital.

Michigan Physicians Abroad.—Drs. Ross U. Adams, Kalamazoo, and Francis H. Callow, Mt. Morris, have returned from Europe.——Dr. William F. Hake, Grand Rapids, is reported to have sailed from Europe August 6.——The following Michigan physicians are believed to be held in London by reason of the war situation: Drs. Charles H. Oakman, Angus McLean, James M. Robb, Roland E. Loucks, Ernest W. Haass, Max Ballin, George E. McKean, Don M. Campbell, Alexander W. Blain and J. Everett King. Detroit, and Drs. Charles E. Boys, Kalamazoo, Charles H. Baker, Bay City and Arthur L. Robinson, Allegan.

MINNESOTA

Medical Block Again Burned.—The third fire in four months in the Medical Block, Minneapolis, August 7, did damage amounting to $35,000.

New Officers.—Wabasha County Medical Society at Elgin, July 9: president, Dr. William B. Heagerty, Mazeppa, secretary-treasurer, Dr. William F. Wilson, Lake City.

Minnesota Physicians Abroad.—Dr. William R. Murray, Minneapolis, and Dr. Charles H. Mayo, Rochester, have returned from Europe.——Dr. Charles W. More, Eveleth, Louis A. Fritsche, New Ulm, Frank C. Davis, Minneapolis, and Rowland Gilmore, Bemidji, are believed to be detained in Europe on account of the war conditions.

Personal.—Dr. Ernest A. Anderson, Holdingford, has been elected a member of the board of supreme medical directors of the Modern Woodmen of America with his office at Rock Island, Ill.——Dr. H. G. Lampson has resigned as health officer of Rochester.——Dr. G. W. Moore has been elected mayor of Hopkins.——Dr. Rollo C. Dugan, Winona, has been appointed superintendent and chief surgeon of the hospital recently established in Ottawa, Kans., by the Businessmen's Association of that city. The hospital is located in the old Semple Sanitarium building.

NEW YORK

Sanitary Conference.—The annual sanitary conference of the State will be held in Saragota, September 15 to 17. In addition to the meeting of health officers there will be a sectional conference for registrars of vital statistics.

To Bar Useless Germicides.—A bill is being prepared by Senator William J. Heffernan of Brooklyn for introduction at the next session of the legislature to stop the sale of useless disinfectants. It is claimed that about 25 per cent. of the disinfectants now used are worthless. Maryland is the only state thus far having a law dealing with the sale of disinfectants.

New York City

Fewer Deaths Among Infants.—During the first week in August the total number of deaths among infants under one year of age was 331, or fifty less than during the corresponding period of 1913. Manhattan led in the decrease with 167 deaths as against 198 for the corresponding week of last year.

Brooklyn Hospital Purchases Site.—The Williamsburg Hospital, which has been located on Bedford Avenue for half a century has purchased a site for a new hospital at South Ninth Street and Driggs Avenue. It is intended to erect a modern hospital building early next year which it is expected will cost $125,000.

Personal.—Dr. Alexis V. Carrel of the Rockefeller Institute of Medical Research, who has been visiting his home at Lyons, France, has gone to the front as a surgeon with the French army.——Dr. Moses Kahn has resigned from the resident staff of Sea View Hospital to accept the position of assistant physician in charge of tuberculous cases at the Eloise Infirmary, Eloise, Mich.

High Cost of Food and School Children.—Dr. Sigismund S. Goldwater, Health Commissioner, announces that he proposes to make an investigation of the effect of the increased cost of food on the health of school children. The nurses who visit the school are to make a general examination in September and to make inquiries into the cause of lack of proper nourishment. The information presented will be submitted to the Mayor's Committee.

PENNSYLVANIA

Personal.—Dr. Mary M. Wolfe, Lewisburg, has been appointed superintendent of the State Institution for the Care of Feeble-Minded Women, near Hartleton.

Detained in Europe.—Drs. Oskar Klotz and James D. Heard, Pittsburgh, and Martin E. Griffith, Monessen, are detained in Europe on account of the prevalent war conditions.

Philadelphia

Personal.—Dr. McCluney Radcliffe received the degree of LL.D. from Pennsylvania College, Gettysburg, in June.——Dr. J. E. B. Buckenham was provisionally appointed as acting chief resident physician at the Philadelphia Hospital for Contagious Diseases, during the absence of Dr. S. S. Woody, on vaccation.

Changes at Polyclinic Hospital.—At the last meeting of the board of managers, Dr. Thomas B. Holloway was elected professor of ophthalmology to succeed Dr. James Thorington, resigned; Dr. Charles R. Heed was elected associate professor of ophthalmology; Dr. George S. Crampton was made lecturer on refraction.

Raid on Doctored Drinks.—A determined crusade, supported by the Phipps Institute, where several children are seriously ill from saccharine poisoning, and the child federation, resulted in the arrest, August 13, of twenty-eight persons in the downtown section of the city. Fourteen of them admitted their guilt and were fined $28 to $32 by Magistrate Rooney. Seven cases were continued and seven other violators of the pure food law paid the costs and signed the agreements to quit the business.

Crusade Against Rats.—As several deaths from bubonic plague have occurred in Liverpool, precautions are being taken at this port to prevent an introduction of the disease. Dr. Fairfax Erwin, in charge of the United States Marine Hospital here and Dr. Henry D. Heller of the State Quarantine Board, asked the cooperation of the Health Department to begin a war on rats which infest the river front. Following a conference of Chairman Connelly of councils finance committee and City Controller Walton, August 14, it was announced that $10,000 would be placed at the disposal of Director Harte of the Bureau of Health and Charities for this purpose.

TENNESSEE

New Officers.—Sullivan, Carter and Johnson Counties Medical Society, organized at Johnson City, July 23: president, Dr. Edward S. King, Bluff City, Sullivan County; vice-presidents, Drs. Edwin E. Hunter, Elizabethton, and David R. Butler; secretary, Dr. Conley M. Cowan, Bristol. The next meeting will be held at Bluntville.——State Association of Colored Physicians at Dickson: president, Dr. F. A. Stewart, Nashville; secretary, Dr. Isham H. Hampton, Fayetteville. The next meeting will be held in Nashville.

Personal.—Dr. William D. Haggard, Nashville, returned from Europe on the *Mauretania*.——Dr. Reynold M. Kirby-Smith, Sewanee, has been selected by the American National Red Cross to direct the relief work in one of the belligerent countries of Europe.——Dr. Walter Stewart, Bolivar, has been appointed superintendent for the West Tennessee Hospital for the Insane, succeeding Dr. James J. Neely, resigned. Dr. Edwin W. Cocke, Whiteville, has been appointed assistant superintendent.——Drs. John S. B. Woolford and Henry Berlin, Chattanooga, have been detained in London on account of war conditions.——Dr. James W. Gillespie, for fourteen years coroner of Hamilton County, has resigned and Dr. John J. Gee has been elected his successor.——Dr. Otis M. Hayward, proprietor and president of the Chattanooga Hospital, has accepted the presidency of the Hurlbut Sanitarium and Industrial School, Reeves, Ga.——Dr. Z. D. Massey, physician at the State Prison, has resigned and will resume practice at his old home in Sevierville.

TEXAS

New Officers.—Dallas Medical and Surgical Society, July 25: president, Dr. Oscar M. Marchman; secretary, Dr. Franklin A. Pierce.

Fund for Medical College.—A fund of $40,000 was subscribed for the medical department of the Texas Christian University, Fort Worth, July 23.

Dinner to Surgeon General.—In honor of Surgeon General Rupert Blue, U.S.P.H.S., the Sisters of the Incarnate Word, Galveston, gave a dinner July 13.

Tuberculous Convicts Pardoned.—Thirty convicts in the Texas State Penitentiary in an advanced stage of tuberculosis, have been pardoned by the governor.

Emergency Hospital Provided.—The United States Quarantine Station, Pelican Island, is being fitted up as a possible Emergency Hospital for contagious diseases with especial reference to bubonic plague.

Dr. Osborne not Dead.—Dr. Frank Ely Osborne, McAllen, Texas, states that the notice of his death which appeared in The Journal of August 15, is incorrect; that another person of the same name was in the automobile accident.

Work on Epileptic Colony to Begin.—Plans for the first of the two new buildings for the Epileptic Colony which will be established south of Abilene, have been received and construction work has been commenced. The buildings are to be two stories and basement in height and will be located on the southwest corner of the colony grounds.

Sanitarium News.—An addition to the Texas Baptist Memorial Sanatarium, Dallas, has been erected at a cost of $30,000. The building is to be used for negroes, Mexicans and indigent white patients.——The sanitarium at Sutherland Springs which is being erected at a cost of $10,000 is almost completed.——A cottage for consumptives has been erected at the North Texas Hospital for the Insane, Terrell.——Plans are being prepared for an addition to the St. Paul Sanitarium, Dallas.

Personal.—Drs. Hugh W. Crouse, El Paso and Robert S. Killough, Amarillo, have been detained in Germany on account of the war.——Dr. Henry A. Barr, Beaumont, has returned from abroad.——Dr. Bacon Saunders, Chief Surgeon of the Trinity and Brazos Valley Railway and Dr. Roy Saunders, Assistant Chief Surgeon, Ft. Worth, have resigned. Dr. A. Philo Howard, Houston, has been appointed Chief Surgeon for the Road.——Dr. Thomas J. Milner, Greenville, has been appointed medical director with the rank of Major in the Third Brigade Texas Division, United Confederate Veterans.——Dr. Paul Renger has resigned as health officer of Hallettsville to accept the position of health officer of Lavaca County.——Dr. Charles H. Brownlee, Austin, has resigned as field director of the Texas Hookworm Commission and will reenter practice at his old home in Burnett.

GENERAL

Hospital Experts to Meet.—The annual conference of the American Hospital Association will be held in St. Paul, August 25-28, with headquarters at the Hotel St. Paul.

Electro-Therapeutists to Meet.—The annual meeting of the American Electro-Therapeutic Association will be held in Battle Creek, Mich., September 15 to 17, under the presidency of Dr. George E. Pfahler, Philadelphia.

Anesthetists Elect Officers.—At the annual meeting of the American Association of Anesthetists held in Atlantic City recently, the following officers were elected: Dr. Charles K. Teter, Cleveland, president, and Drs. Mary V. Madigan, Portland, Ore., W. D. Galch, Indianapolis, and T. B. Buchanan, New York City, vice-presidents.

Fraternal Order's Work Against Tuberculosis.—The Loyal Order of Moose at its convention in Milwaukee, which closed July 31, decided to withdraw the appropriation of $125,000 which had been given annually to the official publication, "The Call of the Moose," and to use the money for the establishment and maintenance of a sanatorium for its members suffering from tuberculosis.

Retired Naval Surgeons Abroad.—The following retired officers of the medical corps of the United States Navy are reported to be abroad: Med. Dir. John C. Wise at Bordeaux, Surgeon General William K. Van Ruypen, Med. Dirs. Henry G. Beyer, Dwight Dickman, David Kindleberger and Averly C. H. Russell, Passed Assistant Surgeon Paul E. McDonnold and Assistant Surgeon Arthur C. Stanley, in London.

Bequests and Donations.—The following bequests and donations have recently been reported:

Methodist Hospital, Philadelphia, $5,000 by the will of Miss Hessy R. Miller for the maintenance of a free bed.

The Philadelphia Home for Incurables, $15,000 by the will of Mary J. Van Syckel, for the maintenance of two free beds.

German and St. Mary's Hospital, Philadelphia, an equal donation of the property owned by the late Mrs. L. Gluck at Twenty-fourth and Starley Streets.

Post-Graduate Hospital, New York City, $5,000 by the will of Miss Cora V. C. Catlin in memory of her brother John M. Catlin.

Dr. Gerald R. Maloney, Belleplaine, Minn., property valued at $400,000 by the will of Monsignor Thomas Kennedy.

Old Peoples' Home, Omaha, Neb., a donation of $5,000 toward an endowment fund in memory of Mrs. Ida V. Tilden, Oswego, N. Y., City Hospital, $10,000; New York Association for Improving the Condition of the Poor and St. Luke's Hospital, New York City, each $25,000 by the will of George E. Sloan of Oswego.

American National Red Cross, Colorado Chapter, donation of $1,000 by Lawrence C. Phipps, Denver.

The Plague Situation.—The last case of human plague reported from New Orleans was that of Rosie Southern, reported July 22 and officially diagnosed July 26. Four more cases of plague have been diagnosed since that time and the particulars of these are given below, together with the cases of rodent plague and the details of the work which is being so actively conducted in New Orleans by Assistant Surgeon-General William Colby Rucker, U.S.P.H.S., and his efficient staff with the intelligent and active cooperation of the health authorities of the state of Louisiana and the city of New Orleans. Case No. 14, Henry Chase, male, colored, 22, residing 2136 Eighth Street, car cleaner, working in the L. & N. shops, Girod and Front streets. Sickened July 29, 1914. Right femoral bubo. Officially declared plague Aug. 2, 1914. Case No. 15, Mrs. J. Bua, female, white, 20, residing 1836 Iberville Street, and working at the same address in a grocery. Sickened Aug. 11, 1914. Left femoral bubo. Officially declared plague Aug. 12, 1914. Case No. 16, Anthony Gergurovich, white, male, residence 1817 Carondelet Walk, employed at French market, sickened August 8, left inguinal bubo, diagnosis confirmed August 13. Case No. 17, Herman Schulz, white, male, age 17, residence 1836 Iberville Street, employed at same address, sickened August 1, diagnosis confirmed August 13, right femoral bubo. Cases 15 to 54 of rodent plague have been reported up to August 15. The infected rats were found in the same general localities as heretofore. From the beginning of the work on July 9, 1914, up to and including Aug. 12, 1914, there were captured in traps 42,214 rats, and in the same period a conservative estimate of the number of rats destroyed by the antiplague workers is 60,000. The campaign of publicity and education has been carried forward very vigorously. Three and four public addresses have been made each day, many of them illustrated by means of stereopticon views. As a result, there has been formed an organization in each of the seventeen wards of the city, each of which has established a precinct captain, under whom are monitors for each block. The commissioner of public property, the Honorable E. E. Lafaye, with Assistant Surgeon-General W. C. Rucker, has formed committees for the conduct of clean-up days in the various wards. Several wards have already been treated, and the work will be extended throughout the entire city. Public cooperation has been very extensive, and thousands of yards of concrete and other rat-proofing material are being laid throughout the city, and the city is rapidly becoming more sanitary. Advantage has been taken of the billboards of the city to extend the publicity campaign. There is one large night and day sign 30 feet long by 12 feet high located on Canal Street, and there are distributed throughout the city 400 posters, 42 inches by 84 inches, calling on the citizens to unite in the sanitary campaign. The inspection of outgoing freight has been extended, and there are now employed in this work one chief inspector and eighty-two assistant inspectors. The citizens' committee, which was appointed by Mayor Behrman, was reorganized on August 6 as the Citizens' Health Committee, with Mr. Crawford Ellis as chairman. This committee consists of the original fifteen members appointed by the mayor and seventeen members representing the various wards of the city; a special committee on sanitation, of which Dr. H. Dickson Bruns is chairman; a committee from the New Orleans Parish Medical Society, of which Dr. Jos. Scott is chairman; a committee from the Pan-American Medical Society, of which Dr. Hochfeldt is chairman; the state health officer, the city health officer and the officer in command of the United States Public Health Service are also members of this committee. The committee meets each Thursday for the purpose of considering cooperative work of the campaign. It is anticipated that the women's clubs of the city will be given a representative on the Citizens' Health Committee. During the fortnight ended August 8, 219 vessels were fumigated; 21,827 pounds of sulphur were burned; 172,917 tons of outgoing freight were inspected; 45 clean bills of health and 10 foul bills of health were issued. The overland freight inspection during the same period included 9,888 cars; the rat-proofing of 3,272 cars; the condemnation of 18 cars and the killing of 13 rodents in cars. In the field operations 19,405 rats were trapped, 227 dead were inspected; 18 buildings were fumigated; 33,910 poisons were placed, and 3,926 buildings were inspected. In the laboratory 18,670 rats were examined out of 20,752 received; of these 61 were suspicious and the diagnosis of plague was confirmed in 29. The following circular letter regarding shipment of merchandise was issued August 4:

> *To Shippers, Agents and Others Concerned, City of New Orleans, La.* For your guidance, and in order to prevent unnecessary hindrance to commerce, you are informed that, in compliance with United States Statutes At Large, Vol. 27, page 449, Act of February 15, 1893, no merchandise shall be permitted shipment from New Orleans, except it be so protected as to exclude rats.
>
> This applies especially to merchandise in crates, barrels, hampers or boxes, and packed with excelsior, straw, paper or burlap.
>
> Containers must be so closed at the time of packing as to effectually exclude rodents, and to this end the Service inspectors stationed at the various railroad freight terminals have been instructed to prohibit the loading of any freight not conforming to the above requirements.
>
> W. C. Rucker, Assistant Surgeon General, Commanding.

FOREIGN

Hospital Ship Commandeered.—The British Steamer *Protesilaus* which stopped at Victoria, August 5, on the way from China to Seattle, was boarded by British officers who took command, and ordered her to discharge her cargo of silk. She was then taken to the Esquimault navy yard where she will be equipped as a hospital ship.

Medical Regulations in Korea.—The American consul general at Seoul has forwarded to the Bureau of Foreign and Domestic Commerce, Washington, a translated copy of the recent orders of the government of Chosen for the control of physicians, dentists, Korean old-style physicians and supernumerary medical advisers or public health officers. These regulations became effective the first of the year.

Medal for Oswaldo Cruz.—The last *Brazil Medico* gives an illustration of the square plaque with a bas-relief bust of Cruz and an allegorical figure on the reverse which was recently presented to him with much ceremony in the name of the Seventh Brazilian Medical and Surgical Congress. To Oswaldo Cruz belongs the honor of the sanitation of Rio de Janeiro which has eradicated yellow fever and transformed its public health record in general; also the more recent sanitation of Para in the rubber district. He has also stamped out plague wherever it has obtained a foothold in Brazil in late years.

Offer to Establish Hospitals.—Mrs. Sarah Wilson and Mrs. George Keppel have offered to establish a French-English hospital at LeTouquetor whenever the French government deems it advisable. The hospital will contain 2,000 beds and will be maintained as long as the war lasts.——The American Ambulance Corps in Paris has secured a building in Neuilly which is to be transformed into a hospital. Twelve American physicians headed by Dr. Joseph A. Blake, New York City, and twenty-four nurses, have volunteered for service and $9,000 has already been subscribed for the maintenance fund.

Student Congress in Latin America.—The fourth international biennial Pan-American congress of university students is to be held at Santiago in September. The third meeting was at Lima in 1912. There are eleven subjects appointed for discussion at the approaching congress, including suggestions for reforms in the curriculum and methods; higher education of women; the problem of sexual relations from the point of view of the student; comparison of conditions in regard to sanitation and hygiene in the various countries of America, and conditions in regard to professional and industrial life as affecting choice of a career. Rafael Capurro of Lima, Peru, is one of the secretaries of the Oficina Internacional Universitaria Americana.

CANADA

Indemnity Claims.—The late typhoid fever epidemic in Ottawa, Ont., resulted in the preferring of 2,500 claims for indemnity against the Ottawa city council. Of these 681, representing an amount of nearly $35,000, have been passed for payment.

New Officers.—Alberta Medical Association ninth annual meeting at Medicine Hat July 16 and 17: president, Dr. Robert G. Brett, Banff, secretary, Dr. F. C. Clarke, Calgary.——Vancouver, B. C., Medical Society: president, Dr. William D. Keith, secretary, Dr. J. H. MacDermot.

Dominion Physicians Meet.—The Canadian Medical Association held its annual meeting in St. John, N. B., in July. The next annual meeting will be held in 1915 in Vancouver, B. C., with Dr. R. E. McKechnie, Vancouver, as president. Dr. William W. Francis, Montreal, was re-elected secretary.

New Legislators.—In the recent Manitoba elections the following members of the medical profession were elected to the legislature of that province: Drs. Robert S. Thornton, Deloraine; Dr. McFarden, Emerson; Hon. Dr. W. H. Montague, Minnedosa; and Drs. Armstrong and George Clingan, Virden.

Canadian Physicians Abroad.—Word has been received from Dr. J. George Adami of McGill University that he is at present in Switzerland but will return to London as soon as possible.——When last heard from President Falconer of the University of Toronto was in Sweden.——Mr. Irving Heward Cameron, professor of surgery in the University of Toronto, is in London, England, and expects to return to Toronto in September.

Offer Services for War.—Drs. D. A. McLennahan, Hamilton, David B. Bentley, Sarnia, and Robert E. Wodehouse, Fort William, district officers of health in Ontario, have signified their intention of relinquishing their public health duties and going abroad with Canada's first contingent to the European war.——Dr. John A. Amyot, provincial bacteriologist and professor of public health in the University of Toronto, has offered his services to the federal government for like service.

Personals.—Dr. Samuel J. Streight, Welland, Ontario, has gone abroad for a year.——Drs. Alan G. Brown and J. George A. Campbell have been appointed directors of Child Hygiene, Department of Public Health, Toronto.——Dr. Herbert E. Clutterbuck, Toronto, is doing graduate work in Edinburgh.——Dr. W. Ewart Ferguson, associate editor of *The Canada Lancet*, Toronto, has sailed for Europe.——Dr. David Jamieson, Durham, member for South Grey in the Ontario Legislature is to be the next speaker of that body.

LONDON LETTER

London, July 31, 1914.

THE CLINICAL CONGRESS OF THE SURGEONS OF NORTH AMERICA

(Continued from page 592)

Annual Executive Session

At the annual executive session Dr. Davidson of Illinois presented a report on the standardization of surgery. He said that this should take place on the lines of education and legal enactment modifying and amending the various practice acts in the different states. Dr. Jeff. Miller, New Orleans, presented a report from the committee on cancer. Dr. A. B. Kanavel, Chicago, presented a report on the standardization of hospitals. He said that the replies obtained in answer to a circular from the various hospitals, especially the large hospitals, showed that the project was received with favor. Work should be done by cooperation of the American Medical Association, the American Hospital Association, the Carnegie foundation and various medical educational bodies. The measures proposed were (1) an end-results card catalog, (2) a follow-up system, and (3) an efficiency committee composed of members of all branches of hospital management. A hospital which refused to admit and record its failures and to analyze the reasons for the failure to give relief was not doing its duty. The following officers were elected: president, Charles H. Mayo, Rochester, Minn.; first vice-president, Herbert Bruce, Toronto; second vice-president, R. L. Dickinson, Brooklyn; secretary, F. H. Martin, Chicago; treasurer, A. B. Kanavel, Chicago; general manager, Albert Ballon.

Suture of Levator Ani in Perineorrhaphy

Dr. Henry Jellett, Dublin, opened a discussion on this subject. He pointed out that the levator ani was an essential constituent in the pelvic floor, but none of the older methods provided a means for its suture and many of the present generation of gynecologists continued to practice them because they thought suture of the muscle was difficult and not devoid of danger. Certain writers had introduced unnecessary complications into an operation which was really very simple. The essential features of the operation were as follows: (1) The careful dissection of the necessary amount of vaginal mucous membrane off of the rectum; (2) the exposure and suture of the separated levator ani muscles, and (3) the careful approximation of the cut edges of the vaginal mucous membrane so as to leave no projection or redundancy. The operation was carried out as follows: The extent of the perineal tear was carefully determined, and its anterior edges were marked out by bullet forceps. A third bullet forceps was applied to the perineal skin just behind the posterior edge of the tear. The position of the separated edges of the levator ani was palpated through the mucous membrane of the vagina. An incision was then made from side to side along the line of junction of the skin and the vaginal mucous membrane. This incision cut through the skin and any underlying scar tissue. A flap of vaginal wall was then dissected up off the underlying rectum. At its lowest part it was firmly held to the rectum and the sphincter ani by cicatricial bands, the result of the healing. As soon as these had been cut through, the separation of the remainder of the flap by blunt dissection was easy. When the dissection of the flap was complete a triangular space was exposed, which was bounded laterally below by the remains of the superficial vaginal and perineal muscles, and at a deeper level by the pubococcygeal fibers of the levator ani muscle, while its floor was formed by the rectum. It was then easy to catch the edges of the levator with clip forceps or dissecting forceps, and to draw them downward and inward until they met in the middle line. If the separation and atrophy of the muscle were marked it might not be possible to draw the edges down sufficiently, but in the great majority of cases they could be brought into view. Three or four interrupted sutures of catgut were then passed through them from side to side, so that when tied they would approximate them in the middle line; for the present, however, they were left untied. The next step was to trim the vaginal flap into proper shape, so that when the operation was complete there might be no redundancy. The cut edges of the flap were then brought together by a continuous catgut suture passed from above downward, and ending at the vulvar orifice. This being done, the catgut sutures in the levator muscle might be tied. The last step consisted in the introduction of silkworm-gut sutures passed so as to close the skin edges of the perineal wound. These sutures were passed from side to side, and traverse the skin and the remains of the superficial perineal muscles, and also the levator muscle so as to supplement the buried sutures.

Transplantation of Ovaries

Professor Tuffier, Paris, read a paper on this subject. The grafting of ovaries from one patient into another was difficult, but might become successful with the improvement of technic, and possibly some chemical substance might be found to protect the implanted ovary from the action of the phagocytes. He described the procedure of grafting the patient's own ovaries into the subperitoneal fatty tissue, the uterus being left *in situ*. The graft could be made in the neighborhood of the uterus or elsewhere. The abdomen was opened, adhesions broken down; the ovary, tubes and glands were isolated; the ovary was then dissected out and embedded in a pouch formed in the subperitoneal fat. The fallopian tubes were then removed. Complete hemostasis was important and asepsis was necessary; otherwise the grafts became cystic or sclerosed. If necessary, the gland could be divided into two parts and each portion engrafted. The implanted ovaries remained inactive for about three or four months after operation, and symptoms of climacteric commenced; then for four or five days the ovary became painful and menstruation recommenced. There was usually a period of six months between the operation and the establishment of menstruation.

(*To be continued*)

Marriages

George Reed Tabor, M.D., Crystal Springs, Tex., to Mrs. Augusta Jones Hunting of Houston, Tex., at Birchmont, North Conway, N. H., July 29.

Edward N. Brush, M.D., Towson, Md., to Miss Marie Tregoe Harman of Forest Park, Md., August 6.

Albert Clifford Hirschfield, M.D., Norman, Okla., to Miss Florence Kynette of Dallas, Tex., July 5.

Victor Errill Bellinger, M.D., Mt. Pleasant, Iowa, to Miss Regina Kelley, at Des Moines, Iowa, July 26.

Edward Kent Armstrong, M.D., Chicago, to Miss Caroline Holmes Focer of Cape May, N. J., August 10.

Alice Josephine B. Hopkins, M.D., and Mr. Clarence Carl Tolg, both of Madison, Wis., June 6.

Deaths

Alfred Mercer, M.D. Geneva, N. Y., Medical College, 1845; a Fellow of the American Medical Association; dean of the medical profession of central New York; professor of minor and clinical surgery, and later professor of state medicine and emeritus professor of medicine in Syracuse University College of Medicine; once president of the Syracuse Medical Society, Onondaga County Medical Society and Syracuse Academy of Medicine, vice-president of the Medical Society of the State of New York and treasurer of the Medical Society of Central New York; a member of the British Medical Association and American Public Health Association; a member of the State Board of Health for five years and of the Syracuse Board of Health for seven years; than whom no medical practitioner in the state was held in greater respect and love; died at his home in Syracuse, August 5, aged 93.

William Henry Carr, M.D. University of Pennsylvania, Philadelphia, 1883; a Fellow of the American Medical Association; a specialist in diseases of the eye, ear, nose and throat; for two years resident physician at the Schuylkill County Hospital; died at his home in Lancaster, Pa., August 2, from injuries sustained in a fall some time before.

Victor Clay Barringer Means, M.D. New York University, New York City, 1882; retired Lieutenant Commander, U. S. N.; a Fellow of the American Medical Association; since his retirement, in 1908, a resident of Philadelphia; died in the U. S. Naval Hospital, Washington, D. C., July 18, aged 54.

Phillip F. Dillon, M.D. Minnesota Hospital Medical College, Minneapolis, 1886; a member of the Rhode Island Medical Society; for sixteen years surgeon to the Soldiers' Home, Bristol, R. I.; a veteran of the Civil War; died at the home of his sister in Anacortes, Wash., July 31, aged 72.

Matthew Joseph O'Connell, M.D. Niagara University, Buffalo, N. Y., 1890; a Fellow of the American Medical Association and superintendent of an institution for the treatment of liquor and drug addiction in Buffalo; died in the institution, August 4, from acute gastritis, aged 52.

Walton Bolgiano, M.D. University of Pennsylvania, Philadelphia, 1892; a Fellow of the American Medical Association; for several years a member of the staff of the Presbyterian Hospital, Philadelphia; died at his home in Baltimore, August 2, from heart disease, aged 46.

Isaac W. Hazelett, M.D. Jefferson Medical College, Philadelphia, 1879; a specialist on diseases of the eye, ear, nose and throat; local surgeon of the Santa Fe System at San Bernardino, Cal.; died in the Pacific Hospital, Los Angeles, August 4, from pneumonia, aged 58.

William I. Wood, M.D. University of Worcester, Cleveland, Ohio, 1888; for ten years a practitioner of Massillon, Ohio, but for a month a resident of Seville, Ohio; died in the German Hospital, Cleveland, August 8, after an operation for appendicitis, aged 56.

Michael W. Raub, M.D. Jefferson Medical College, 1865; a member of the Medical Society of the State of Pennsylvania and a noted ornithologist; curator of Franklin and Marshall College, Lancaster, Pa.; died at his home in Lancaster, August 8, aged 78.

Dryden Hemingway Lamb, M.D. University of Michigan, Ann Arbor, 1891; a Fellow of the American Medical Association and a specialist on diseases of the eye, ear, nose and throat; of Owosso, Mich.; died at his home in that city, about August 5.

Edmond M. Cahen, M.D. University of Southern California, Los Angeles, 1908; a Fellow of the American Medical Association; of Los Angeles; died in that city August 4, it is believed by suicide while despondent over business affairs, aged 29.

Phaon D. Keiser (license, Carbon County, Pa., 1881), for fifty-three years a practitioner of Carbon County; a member of the Medical Society of the State of Pennsylvania; died at his home near Lehighton, Pa., July 31, aged 76.

William Henry Eldred, M.D. Rush Medical College, 1882; Hahnemann Medical College, Chicago, 1883; died at his home in Chicago, August 12, aged 56.

Glenn Orville Hymer, M.D. Marquette University, Milwaukee, Wis., 1910, of Williston, N. Dak.; died in Madison, Minn., July 23, aged 28.

Charles Heselton Foster, M.D. Dartmouth Medical School, Hanover, N. H., 1875; for more than thirty years a practitioner of Lisbon, Maine; died at his home in Riverside, Cal., August 2, from pneumonia.

Cleveland Stuart Stilwell, M.D. College of Physicians and Surgeons in the City of New York, 1875; a director of the Peconic Bank and a retired practitioner of Sag Harbor, L. I., N. Y.; was found dead at his home August 6, from asthma, aged 61.

Daniel McD. Yount (license, North Carolina), a practitioner for fifty-five years; a Confederate veteran; twice a representative in the legislature from Catawba County; died suddenly at his home in Conover, N. C., August 8, aged 81.

Elmer Ellsworth Finch, M.D. Albany, N. Y., Medical College, 1886; a member of the Medical Society of the State of New York; died at his home in Schodack Center, N. Y., July 18, aged 48.

John Albin Hamilton (license, Washington, 1900) of Seattle; a practitioner since 1897; died recently from septicemia following an accidental gunshot received while hunting in Alaska.

William F. Richardson, M.D. American Medical College, Eclectic, St. Louis, 1871; of Pierce City, Mo.; died in Carthage, Mo., August 5, from pulmonary hemorrhage, aged 75.

Henry Hersey Mothersbough, M.D. University of Pennsylvania, Philadelphia, 1879; formerly of Beech Creek, Pa.; died at his home in Altoona, Pa., August 1, from nephritis, aged 70.

Lafayette Coffman, M.D. Maryland Medical College, Baltimore, 1905; a member of the Oklahoma State Medical Association; died at his home in Peggs, Okla., August 3, aged 44.

Albert Roderick Warren, M.D. Eclectic Medical Institute, Cincinnati, 1882; mayor of Pekin, Ill., in 1887; a veteran of the Civil War; died at his home in Pekin, August 5, aged 74.

Charles Henry White, M.D. Harvard Medical School, Boston, 1862; rear admiral U. S. Navy (retired); died at his home in Center Sandwich, N. H., July 26, aged 76.

J. H. Dick (license, Kansas, 1901), a practitioner of Lawrence, Kans., for nearly forty years; died at his home August 6, from cerebral hemorrhage, aged 84.

Amable Aurez Laferriere, M.D. Ecole de Medicine et de Chirurgie, Montreal, 1868; died at his home in New Carlisle, Que., April 28, from arteriosclerosis, aged 67.

Bror Otto Ericson, M.D. Jefferson Medical College, Philadelphia, 1897; died at his home in Cassopolis, Mich., July 7, from inflammatory rheumatism, aged 48.

Dennis Francis O'Callaghan, M.D. Harvard Medical School, Boston, 1887; died at his home in Dorchester, Boston, July 29, from septicemia, aged 50.

Walter Frederick Appleton, M.D. New York Homeopathic Medical College, 1906; of Passaic, N. J.; died in White Haven, Pa., August 2, aged 35.

Frank Jones, M.D. University of Buffalo, N. Y., 1903; of Niagara Falls, N.Y.; died in Memorial Hospital, Niagara Falls, August 4, aged 38.

Albert Southworth, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1869; died at his home in Los Angeles, recently, from dysentery.

Thomas J. Smith, M.D. Cincinnati College of Medicine and Surgery, 1869; died at his home in Coshocton, Ohio, July 23, from gastritis, aged 67.

Charles H. Laas, M.D. University of Louisville, Ky., 1890; died at his home in Burton, Texas, August 4, from congestion of the brain, aged 49.

Solomon L. Reefy, M.D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Edinburg, Ill., August 2, from paralysis, aged 75.

Robert R. Church, M.D. University of Pennsylvania, Philadelphia, 1870; died at his home in Wormleysburg, Pa., July 30, aged 69.

Henry Marsh Haskell, M.D. Bellevue Hospital Medical College, 1878; died recently at his home in Redlands, Cal., aged 62.

William Wilford McMurdo, M.D. Washington University, St. Louis, 1905; died at his home in Marissa, Ill., August 6, aged 35.

Jerome E. Butler, M.D. University of Louisville, Ky., 1854; died at his home in Aspen Hill, Tenn., July 24, aged 83.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

ARTICLES ON SOCIALIZATION OF MEDICINE

To the Editor:—I am preparing a paper for the society on the "Socialization of Medicine." Please tell me where I can find something on the subject of medical work by contract or under state law in England, Germany, France or other countries, ancient or modern, where the state has taken a hand in such work.

P. R. H., M.D., Nebraska.

Answer.—The following is a list of articles on this subject:

A State Medical Service, London Letter, The Journal, Jan. 31, 1914, p. 391.

Socialization of Medicine in England, Medical Economics, The Journal, Jan. 24, 1914, p. 316.

Warbasse, J. P.: Socialization of Medicine, The Journal, July 18, 1914, p. 264.

The Insurance Conflict, Berlin Letter, The Journal, Feb. 14, 1914, p. 549.

Benefits of the British Insurance Act, Medical Economics, The Journal, July 26, 1913, p. 296.

A New Form of Insurance in England, Medical Economics, The Journal, Jan. 23, 1909, p. 326.

Medical Men: Their Place and Influence in the State, *Brit. Med. Jour.*, Feb. 14, 1914.

Industrial Insurance in Germany, Medical Economics, The Journal, March 28, 1914, p. 1039.

Industrial Struggles of Physicians Abroad, Medical Economics, The Journal, Jan. 31, 1914, p. 398.

The Place of Medical Men in the Modern State, Medical Economics, The Journal, April 4, 1914, p. 1112.

Medical Remuneration under the Insurance Act, London Letter, The Journal, March 21, 1914, p. 945.

Mr. Lloyd-George on the Insurance Act, London Letter, The Journal, March 7, 1914, p. 789.

Carroll, J. B.: Workmen's Compensation Law and the Physician, *Boston Med. and Surg. Jour.*, Jan. 1, 1914.

French, J. R.: Medical Situation of New Workmen's Compensation Act, *California State Jour. Med.*, April, 1914.

Oliver, T.: Medico-Social Problems from an Insurance Point of View, *Lancet*, London, April 4, 1914.

The National Insurance Act and Scarcity of Physicians, London Letter, The Journal, Jan. 17, 1914, p. 218.

Rogers, B. M. H.: Experiences of Medical Adviser Under Insurance Act, *Brit. Med. Jour.*, June 28, 1913.

Rowntree, C.: Workmen's Compensation Act and Physician, *Practitioner*, London, August, 1913.

Merrick, R. M.: Workmen's Compensation Act as it Affects Physicians, *Boston Med. and Surg. Jour.*, Sept. 18, 1913.

The Crisis in Germany, Current Comment, The Journal, Dec. 13, 1913, p. 2163.

Medical Insurance Abroad, Medical Economics, The Journal, Dec. 27, 1913, p. 2314.

EFFECT OF LOSING TEMPORARY TEETH

To the Editor:—A patient of mine, a child of 4 years, has had the two upper central incisors knocked out. What, if any, is likely to be the effect on the growth of the jaw, and room for the other (permanent) teeth? The teeth were in perfect alignment before the accident.

William H. Goodson, M.D., Liberty, Mo.

Answer.—The accidental removal of the temporary teeth at the age of 4 should have no influence on the growth of the jaw, or on the development of the permanent teeth.

SOURCE OF ARMY ANTITYPHOID VACCINE

To the Editor:—Can you tell me what vaccine (from what laboratory) is used for antityphoid vaccination in the United States Army?

Dr. Rodger-Chenoweth, Escanaba, Mich.

Answer.—These vaccines are prepared in the laboratory of the Army Medical School at Washington, D. C. Vaccine from the same source is furnished for the navy and the organized militia as well as other departments of the government service, which call on the army laboratory for it.

BECK'S PASTE

To the Editor:—1. What is the formula for Beck's paste?
2. Is it indicated in treating intestinal fistula?
3. How is it used?

C. C. Collins, M.D., Roachdale, Ind.

Answer.—1. Two forms of paste are used: (*a*) Bismuth subnitrate 30 parts and petrolatum 60 parts; mix and stir while boiling. (*b*) Subnitrate of bismuth 30 parts, white wax, 5 parts, soft paraffin 5 parts and petrolatum 60 parts; mix while boiling. One per cent. of solution of formaldehyd may be added to these pastes.

2. No.

3. The paste is sterilized before using. It is sucked up into the syringe while still liquid and cooled to the requisite temperature by running cold water over the syringe. It is injected very slowly and the injection is continued until the sense of pressure annoys the patient. Then the syringe is laid aside and a bit of gauze is held for a time over the outlet of the fistula to keep the paste from running out and an ice-bag is put over the region to harden the injected material.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alberta: Edmonton, September 15. Registrar, Dr. Cecil E. Race, University of Alberta, Edmonton.

Iowa: Des Moines, September 10-12. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

Missouri: Karsas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New York: September 22-25. Chief of Examination Division, Mr. Harlan H. Horner, Department of Education, Albany.

Nevada May Report

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 4-6, 1914. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 7, of whom 4 passed, including 1 osteopath, and 3 failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Kentucky School of Medicine	(1906)	77.2
Bellevue Hospital Medical College	(1888)	87.4
Royal University of Naples	(1903)	80.9

FAILED

College	Year Grad.
Kentucky School of Medicine	(1907)*
University of Maryland	(1884)†
Eclectic Medical Institute, Cincinnati	(1890)*

* Papers thrown out because of fraud.
† License not granted because of mental condition.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
State University of Iowa, Coll. of Homeo. Med.	(1908)	Iowa
Tulane University of Louisiana	(1910)	Louisiana
Nebraska College of Medicine	(1907)	Utah
Jefferson Medical College	(1881) Wisconsin; (1903)	Wisconsin
University of Pennsylvania	(1900)	Pa.
Western Pennsylvania Medical College	(1895)	Pa.

New Mexico April Report

Dr. W. E. Kaser, secretary of the New Mexico State Board of Health and Medical Examiners, reports the written examination held at Santa Fe, April 13-14, 1914. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. Eight candidates were licensed on satisfactory credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Hering Medical College	(1904)	85.9
American Medical College, St. Louis	(1913)	75
Grant University, Medical Department	(1904)	82.3
University of Tennessee	(1913)	80.2
Royal University of Padua	(1886)	79.8

LICENSED ON CREDENTIALS

College	Year Grad.
Atlanta Medical College	(1897)
Rush Medical College	(1913)
College of Physicians and Surgeons, Keokuk	(1875)
Omaha University, Medical Department	(1902)
Columbia University, Coll. of Phys. and Surgs.	(1904)
Hahnemann Med. College and Hospital, Philadelphia	(1892)
University of Pittsburgh	(1911)
Vanderbilt University	(1893)

Book Notices

Health Through Diet. A Practical Guide to the Uric Acid Free Diet Founded on Eighteen Years' Personal Experience. By Kenneth G. Haig, L.R.C.P., M.R.C.S., with the Advice and Assistance of Alexander Haig, M.A., M.D. Cloth. Price, $1.25 net. Pp. 227. Philadelphia: J. B. Lippincott Company, 1914.

The importance of diet in securing and preserving health is not to be denied, and when we have a record of personal experience, the results deserve a patient hearing. The book comes to us with a certain handicap since we recognize that the author is thoroughly saturated with his father's peculiar ideas with reference to uric acid and its relation to disease. A glance at the contents soon shows that the term "Diet" is used in a special sense and means a "uric acid-free diet." The adoption of such a diet constitutes admission to a cult which has its stages from the first weaning from tea, coffee and soup, to the full renunciation in which every vestige of the hateful purins has been cast out. This cult uses ordinary terms with strange or exaggerated meanings. To talk of eggs, beans, peas, etc., as poisonous or as containing poison seems strange at first, but we soon learn that the essence of poisons is uric acid and everything which contains or can produce uric acid must at once be classed as poisonous among the initated, although common people have been consuming such substances for ages without showing any ill effects. Then again, plain chemical terms become perverted in meaning in the dialect of the Haigites. "Cane-sugar is a stimulant by virtue of its acidity" (p. 30). What this may mean we cannot divine, but we believe that chemists still teach that pure cane-sugar is a perfectly neutral substance. Perhaps it may in some forms of metabolism give rise to acid products, but we are not aware that this is an ordinary action, unless forming carbon dioxid be recognized as constituting acidity. Again, we are told that "bread on the whole is not a very satisfactory food because it is very acid" (p. 23). It would appear that those saved from the horrors of uric acid have become so sensitive that they revolt at sour bread and we are sorry that England will not furnish them bread sweet enough to eat. The author has a new standard of nutrition, gauging the nutritive value of foods by their content of protein. Thus sugar, starch and butter or other fat are devoid of nutritive properties since they contain no protein.

The distinctness of view of those converted to the new way of life is shown by the following: "The chief argument against cheese as a food is that it is indigestible; from the meat eater's point of view this is so, but it does not hold for those on the Uric Acid-Free diet" (p. 15). The reader will also be interested in the following: "Peanuts, which are botanically not nuts at all, but pulses, are poisonous." "Bread made with baking-powder is certainly to be preferred to that made with yeast, which is poisonous." Lest the House of Haig be overlooked we find at intervals of about ten pages the title, publisher and author of "Some Recipes for the Uric Acid-Free Diet," by G. M. Haig.

The difficulties of the author and of other Haigites in a purin-eating world are enough to excite our sympathy. When venturing into profane society the author tells us that he usually takes some sustenance before leaving home "and then when I get there I eat what I can and play about with the rest, hiding the poisonous things under the knife and fork. This of course is not pleasant, but the matter has got to be faced out." A sad predicament indeed! A waterproof pocket in the dinner-coat to hold the "poison" would surely be handy. The author makes some comforting statements in regard to the effect of the new way of living which we gladly quote. "My temper certainly has been improved by being on Uric Acid-Free Diet." "Another small point is, that since I have been on Diet I have not been bothered by the unwelcome attentions of the flea, the midge, the mosquito and others of the kind. . . . This is a common experience amongst those on the Uric Acid-Free Diet." "Getting out of bed in the morning has no terrors for me and I find the morning the best time for work." Dr. Haig still believes in cooking. He looks forward to an ideal diet consisting of fruit and nuts which will need no cooking, but in the times of imperfection in which we find ourselves he cannot dispense with the culinary art. As a scientific treatise, this book is valueless. As a specimen of the literature of a self-satisfied sect or fad it will prove interesting to any one who will take the trouble to read it.

Modern Anesthetics. By J. Frederick Silk, M.D., Senior Anesthetist, King's College Hospital. Cloth. Price, $1 net. Pp. 200, with 37 illustrations. New York: Longmans, Green & Co., 1914.

As the author says the principal object of this book is to describe in detail those procedures which he has found most useful in his own practice. The anesthetics most commonly used are briefly described, after which the technic to be followed and the difficulties most likely to occur are discussed. The choice of anesthetic in the judgment of the author should be the subject of a consultation between the surgeon, the medical adviser and the anesthetist. He gives his own views as derived from experience, but not in such a way as to be of great assistance to one in doubt. Silk gives little information in reference to the newer anesthetics, and particularly with reference to the use of alkaloids his advice is very indefinite. He is evidently carefully conservative, not wishing to discredit anything that may be of service, but placing the emphasis on those methods which his experience has shown him to be of tried worth. In indicating the principles to follow in choosing the anesthetic, he points out that the nature of the operation should have weight in determining which agent to employ. He states that although there is a general impression that children bear anesthetics well, there is a considerable mortality from this cause and that the number of children who escape by a slight margin is still greater. The technic of administration is fully described and the difficulties and dangers thoroughly considered. The later chapters of the book discuss operations on special regions and the methods of spinal and local anesthesia and analgesia. The author cannot be said to be optimistic for local methods, although he admits that they are especially appropriate in the operations on the eye and the nasal mucous membrane. The anoci-association method of Crile is given in Crile's own words. The brief comments made on the method are favorable.

A Manual of Clinical Diagnosis by Means of Laboratory Methods for Students, Hospital Physicians and Practitioners. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology at the College of Physicians and Surgeons. Eighth Edition. Cloth. Price, $5 net. Pp. 809, with 210 illustrations. Philadelphia: Lea & Febiger, 1914.

In this edition, Simon has included, among other additions, a discussion of the important serodiagnostic tests of Abderhalden based on the appearance of the "protective ferments" in the blood-serum; the applicability of the complement-fixation test to latent gonorrheal infections, and the phenolsulphonephthalein test for renal activity. The subject-matter of the book is divided into two parts. The first is devoted to technical questions and the second to the application of laboratory findings to diagnosis. This is an excellent arrangement, as any one who has had experience with students in this subject will agree. The tests discussed throughout the work, are for the most part, very satisfactory and may be accepted as the best for the matter in hand. Folin's newer methods of studying the various nitrogen factors of the blood have been wisely included. It is noted that Simon prefers the Noguchi acetone-insoluble lipoid antigen for the Wassermann reaction, although he states that he is about to employ the cholesterinized alcoholic extracts in his work. The latter antigens are, in our opinion, the best at our disposal. No mention is made of Benedict's qualitative test for sugar in the urine, which test is probably the most satisfactory one for routine purposes. Further, we are able to find no reference to the formaldehyd-titration method for ammonia and amino-acids or to Lange's colloidal gold test of the cerebrospinal fluid. Both of these tests would seem to be of sufficient value to warrant inclusion. This work is to be recommended to all who may desire a thoroughly reliable and up-to-date treatise on clinical diagnosis. The discussions are clear and exact. The selections of methods are entirely adequate. The illustrations are good and the color plates especially worthy of mention.

The Principles and Practice of Gynecology. For Students and Practitioners. By E. C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School. Sixth Edition. Cloth. Price, $5 net. Pp. 795, with 463 illustrations. Philadelphia: Lea & Febiger, 1913.

There are few medical text-books in this country that for so many years have been regarded as standard as has this one of Dudley. In 1902 the present reviewer wrote, "Dudley's book has always been held in high esteem both by the specialist and by the general practitioner who is compelled to do a certain amount of gynecologic work, and this edition will, we are sure, make it still more popular." This was written twelve years ago in reviewing the third edition; it was then an old and well-known text-book. The popularity of Dudley's Gynecology rests, primarily, on the fact that the subject-matter is presented in a practical manner with sufficient elementary details to satisfy the general man, but not so much as to offend the specialist; and, secondarily, on the fact that the book is liberally and beautifully illustrated with what surely may be regarded as practical and useful illustrations. The sixth edition has been brought up to date in every particular. There is scarcely a chapter that does not bear evidence of revision. Many large illustrations have been added, making the book better than before in this regard at least. In a word, this book may be regarded as a standard text-book representing modern gynecology.

Development and Anatomy of the Nasal Accessory Sinuses in Man. Observations based on Two Hundred and Ninety Lateral Nasal Walls, Showing the Various Stages and Types of Development of the Accessory Sinus Areas from the Sixtieth Day of Fetal Life to Advanced Maturity. By Warren B. Davis, M.D., Assistant Demonstrator of Anatomy in the Daniel Baugh Institute of Anatomy, Philadelphia. Cloth. Price, $3.50 net. Pp. 172, with 57 illustrations. Philadelphia: W. B. Saunders Company, 1914.

This book is mechanically excellent. It contains fifty-seven slightly tinted accurate and very clear cuts illustrating the nasal accessory sinuses at all stages from embryonic to adult life. The legends explaining the various figures are satisfactory, so that anatomic features may be taken in quickly. The text is clear and concise, yet comprehensive, and all in all it is a valuable addition to the literature of the development and anatomy of the region specially interesting to the rhinologist.

Plain Rules for the Use of Tuberculin. By R. Allan Bennett, M.B., Physician in Charge of Devon County Council Tuberculosis Dispensary. Cloth. Price, $1 net. Pp. 48. New York: William Wood & Co., 1914.

This small book containing twenty pages of useful text gives plain and conservative directions as to the technic and indications for tuberculin treatment. It is by no means exhaustive, but it may be said to be reliable. The author opposes the system by which general reactions are allowed to occur, but thinks that for working people the plan of procedure that avoids all reactions consumes too much time. Hence he aims to graduate the doses so that while focal reactions may occur, the general reactions are avoided. In his estimate of the relative value of the methods, he puts the combination of sanatorium and tuberculin first, sanatorium alone second, and tuberculin third.

Black's Medical Dictionary. By John D. Comrie, M.A., B.Sc., M.D., Lecturer on History of Medicine, University of Edinburgh. Fifth Edition. Cloth. Price, $2.50. Pp. 858, with 353 illustrations. New York: The Macmillan Company, 1914.

This is an encyclopedic, one-volume dictionary intended for the use of lay persons who wish an explanation of medical terms and conditions in non-technical language. The text has been thoroughly revised and is well up-to-date. So far as a brief examination indicates, the work fulfils its purposes satisfactorily.

Miscellany

One Standard of Entry to the Practice of the Healing Art

The following statements, made by Dr. F. M. Crandall of New York a few years ago in regard to the various systems of drugless therapy, apply with equal force to-day. The followers of some of these "symptoms" are persistent in their efforts to lower educational standards or break down the requirements of medical practice acts in order that they can enter on the practice of the healing art without having to comply with the educational requirements or to present the qualifications which are deemed necessary for all other practitioners. There should be no special privileges granted to any "system." The people of every state have a right to insist that only properly qualified persons are given the legal right to treat human ailments.

"The most strenuous work of recent years has consisted of opposition to the demands of various systems of pseudomedicine. These systems are nothing more or less than levers and sledge hammers seized upon as the most effective means of breaking through the medical laws. And here we come upon a subject upon which there is much misapprehension. The medical laws are but a part of the general educational laws of the state. These laws are wide in their application, and cover many professions and diverse conditions. There is nothing exceptional in the laws covering medical practice. They are at the farthest possible remove from class legislation. They are simply a part of the great educational system of the state. The medical profession has upheld the hands of the state educational authorities, whose aim has been to enact a broad and consistent system of just and equitable laws. A state educational system has, therefore, been built up, of which the laws controlling medical practice are an integral part.

"POSITION OF THE MEDICAL PROFESSION

"The position of the medical profession is often misunderstood and their arguments have frequently been misjudged. The opposition of physicians to attempts to destroy the medical laws is often attributed to a spirit of trade unionism. This is controverted by the single fact that no attempt is made by the profession to curtail the practice of medicine by competent men. It is one of the fundamental principles that every man and woman exhibiting proper qualifications should be admitted to practice. Our opposition to pseudomedicine is, and should be, educational, not professional. We do not try to raise barriers against practitioners because they use a special system or adopt certain remedial measures. We do not oppose certain prevalent isms because of their methods of treatment, but because they are new and very clever manifestations of the old, old scheme to get within the medical fold without expending the time and money necessary to make a competent practitioner. The various systems of pseudomedicine are not pushed forward year after year with such determination because men so love this or that particular form of treatment, but because they offer the most promising means of evading the requirements of preliminary education, four expensive years in the medical college, a state examination, and then, perhaps, two years of unpaid service in a hospital. It is the educational question that is at the bottom of every one of these modern isms, and they are the more aggressive as the educational barriers are raised higher. It is upon educational, not professional grounds that we oppose them.

"TREAT ALL ALIKE; NO SPECIAL FAVORS

"The medical profession approves the system which requires the same general professional education of all its members. The specialist upon the eye and the specialist upon the throat, the physician and the surgeon, must each undergo the same training and must pass the same state examination. One may select any specialty he chooses and may adopt any method of treatment which his educated judgment dictates. He may use large doses or small, massage or electricity. What the state requires for one body of practitioners it should not abate in favor of another.

"AN ADEQUATE TRAINING REQUIRED

"We have one sound reason for opposing these systems which permit an abbreviated education, and one argument that no man can gainsay. We may properly demand that every man and woman who enters upon the practice of the healing art should have adequate education. Here we are on ground that cannot be misjudged or misrepresented. We ask no favors or special privileges. We are not the ones who are seeking to bring half-educated practitioners in by the back door. We simply ask equal requirements for all. Our position is, that those who seek to treat disease should go in through the same door, and a few should not be permitted to crawl in through holes and underground passages. We simply ask for an American square deal and equal rights for all."—*New York and Philadelphia Med. Jour.*, reprint *Jour. Med. Soc. New Jersey*, January, 1906, p. 247.

The Supposed Experimental Production of Hemolymph Nodes and Accessory Spleens

Owing to the conflicting evidence at hand concerning the production of accessory spleens and hemolymph glands *de novo* or from lymph-nodes, Arthur William Meyer (*Jour. Exper. Zool.*, 1914, xvi, 241) has made further experimental investigation of this important subject. It has been customary to classify the lymph-glands as hemolymph nodes and ordinary lymph-glands. Both types of glands or nodes have been supposed to occur in man, monkeys, rodents, domestic animals, birds and fishes. Those who attempted this study found that between these two types of lymph-nodes neither gross nor microscopic differentiation was possible. No definite characteristics could be assigned to either class, because the observer thought that all forms of transition existed. In spite of this acknowledged difficulty of differentiation, Levoe and Warthin formulated elaborate classifications, and men such as Tizzoni, Ethernod and others have described splenic nodules, on the peritoneum and on the great omentum, which they regarded as the result of physiologic compensation for the inactivity of the main spleen. On this supposition Tizzoni performed several splenectomies on dogs with the hope of proving his conclusion. He recorded no controls and gave no details regarding these dogs, such as their age, weight, or the size and position of the accessory spleens which he described. Foa and Luschka have already pointed out that the so-called accessory spleens are found also in the presence of a normal spleen. Of the thirty splenectomies which Mosler performed, the great omentum of only one dog was covered with dark-red nodules. Even granting that these were accessory spleens there is no proof that they were found as the result of splenectomy.

Meyer's experiments were carried out on dogs from two litters of five each. He performed splenectomies on eight, keeping one dog from each litter for a control. At the time of the operation they were examined for hemal nodes, and only one node was found with a reddened center in the gastrosplenic omentum. At the time of necropsy, from thirty to 126 days after operation, neither accessory spleen or hemolymph nodes were found, and all of the lymph-glands in the splenectomized dogs were normal, except in two dogs in which the bronchial lymph-nodes were intensely red. These nodes were injected and the afferent trunks were plainly visible up to the lung, which they entered, while the efferent trunks joined the larger mediastinal vessels near the jugulosubclavian junction. Furthermore, he examined seventy dogs and approximately one hundred cats, selected at random. Those nodes which were under suspicion were taken from the animals, examined microscopically and found to be normal lymph-nodes of the ordinary type.

Further experiments were made on five guinea-pigs of known weight. Guinea-Pig 1 was given injections of distilled water; Guinea-Pig 2 of oxalic acid, and Guinea-Pigs 3, 4 and 5 injections of diphtheria toxin. One hemolymph node was found in both 4 and 5; but since Retterer has shown that the reddish lymph-nodes occur in normal guinea-pigs, of all ages and under all conditions, Meyer is forced to conclude that the foregoing results are not necessarily due to his experiments. These reddened nodes were injected and found to maintain their previous connection with the lymphatic system.

It has long been known that changes in the lymph-nodes occur following various pathologic conditions, and that they also remain unchanged and are not converted into another organ with a different function, losing their connection with the lymphatic system.

Investigation of animals subjected to bleeding has brought the same results. From these experiments Meyer concludes that the injection of toxins, bleeding or the removal of the spleen fails to produce any change of lymph-nodes into hemal nodes, thereby disproving Tizzoni's experiments which have been accepted for decades.

Some Mortality Statistics

The present population of the United States is not far from 100,000,000. The number of persons of both sexes, aged 70 and over, in 1910 was 2,270,021. According to the latest English life tables, out of every million born 277,351, or 27.7 per cent., may normally expect to reach the age of three-score and ten. In the United States the annual number of births is about 2,500,000, and the annual number of deaths is about 1,350,000. Of those who died during 1912, approximately 236,500, or 17.6 per cent., had lived less than one year, and 329,400, or 24.4 per cent., had lived less than five years.

The principal causes of death are as follows: first, tuberculosis, which affects every period of life and causes in the aggregate about 154,000 deaths; second, heart diseases, also affecting every period of life, but chiefly persons over 40, causing a mortality of about 150,000; third, nervous diseases, which account for about 138,000 deaths; fourth, pneumonia (all forms), about 132,000; fifth, intestinal diseases, about 123,000; and sixth, genito-urinary diseases, about 111,000. Following these six, in the order of importance, are accidents, causing about 182,000 deaths, and tumors, malignant and benign, about 75,000. These eight groups of cases combined account for about 72 per cent. of the aggregate mortality of the United States, which, as previously stated, is approximately 1,350,000 per annum. Other important causes are typhoid fever, the mortality from which is about 20,000 per annum; suicides, numbering approximately 16,000; deaths from parturition, about 15,000, and homicides, 6,000 to 7,000.

This may be considered the normal mortality of a civilized country not subject to exceptional or uncontrollable mortality conditions, such, for illustration, as continue to affect a great country like India even at the present time. The death-rate of the registration area of the United States during 1912 was only 13.9 per thousand, against a death-rate of 32 for British India. Of the 7,500,000 deaths, in round numbers, during the year 1911, 354,000 were caused by cholera, 58,000 by small-pox, 733,000 by plague, and 4,200,000 by fevers. Most of these causes are no longer an affliction of modern civilized countries, and they are fortunately brought slowly under control in the Indian Empire, where the death-rate has gradually been reduced from extraordinary proportions to a rate not much above the normal for the large cities of this country fifty years ago. The best illustration of India's marvelous sanitary progress is to be found in the reduction of the death-rate of the European army during recent years. Military discipline and conformity to sanitary rules and regulations, no doubt, largely account for this reduction, which has been of immeasurable benefit, not only to the European, but also to the native population.—The Chances of Death and the Ministry of Health, by Frederick S. Hoffman, Yale address.

Hints to Authors

1. Make your articles as short as is compatible with a clear expression of your facts or ideas. Many an article is not read because it is so long; or else its point is smothered in verbosity.
2. Leave Hippocrates and the other ancients undisturbed. They should rest now.
3. Do not spoil your work with a lot of quotations from foreign authors. Refer to them, if you must, in a footnote.
4. Have your paper typewritten and with wide-spaced lines; and,
5. Keep a copy.—*South. Med. Jour.*

Medicolegal

Liability for Operations Performed without Consent in Charitable Hospitals

(Schloendorff vs. Society of New York Hospital (N. Y.), 105 N. E. R. 92)

The Court of Appeals of New York affirms a judgment for the defendant hospital in this action wherein the plaintiff sued for damages alleged to have been sustained from an operation alleged to have been performed on her in the defendant hospital without her consent. The court says that, taking the plaintiff's version of the case, she went to the hospital suffering from some disorder of the stomach, and later consented to an examination under ether in order that the character of a lump which had been discovered might be determined, but that there must be no operation; yet, while she was unconscious, a tumor was removed. Her testimony was that this was done without her consent or knowledge, although that was sharply contradicted. Following the operation, and, according to the testimony of her witnesses, because of it, gangrene developed in her left arm, some of her fingers had to be amputated, and her sufferings were intense.

The Court says that every human being of adult years and sound mind has a right to determine what shall be done with his own body; and a surgeon who performs an operation without his patient's consent commits an assault, for which he is liable in damages. This is true, except in cases of emergency when the patient is unconscious, and when it is necessary to operate before consent can be obtained.

The fact that the wrong complained of here was trespass, rather than negligence, distinguished this case from most of the cases that have preceded it. In such circumstances the hospital's exemption from liability could hardly rest on implied waiver. Relative to this transaction, the plaintiff was a stranger. She had never consented to become a patient for any purpose other than an examination under ether. She had never waived the right to recover damages for any wrong resulting from this operation, for she had forbidden the operation. In this situation, the true ground for the defendant's exemption from liability was that the relation between a hospital and its physicians is not that of master and servant. The hospital does not undertake to act through them, but merely to procure them to act on their own responsibility. The wrong was not that of the hospital; it was that of physicians, who were not the hospital's servants, but were pursuing an independent calling, a profession sanctioned by a solemn oath, and safeguarded by stringent penalties. If, in serving their patient, they violated her commands, the responsibility was not the hospital's; it was theirs. There is no distinction in that respect between the visiting and the resident physicians. Whether the hospital undertakes to procure a physician from afar, or to have one on the spot, its liability remains the same.

It is also true of nurses, as of physicians, that, in treating a patient, they are not acting as the servants of the hospital. The hospital undertakes to procure for the patient the services of a nurse. It does not undertake, through the agency of nurses, to render those services itself. Whatever the nurse does in the preliminary stages is done, not as the servant of the hospital, but in the course of the treatment of the patient, as the delegate of the surgeon to whose orders she is subject. The hospital is not chargeable with her knowledge that the operation is improper, any more than with the surgeon's.

Waivers of Privilege

(State vs. Long (Mo.), 165 S. W. R. 748)

The Supreme Court of Missouri says that it concedes the statute of privilege to be a wise one, but it should never be so construed as to make it both a shield and a dagger at one and the same time. If the patient is suffering from a malady, the physicians should not be allowed first to bring to light that affliction of the patient. The very purpose of the statute is to hide, as with a veil, the malady and trouble for which the physician treated her, and what may have passed between them in the confidential relationship of physician and patient. But when the veil has been lifted by the patient, or with her consent, and the secrets of the sick chamber are given to the world, what logic is there in saying that the patient can clog the wheels of justice itself, by closing the mouth of other physicians, who know the real facts? In other words, if the patient raises, or permits to be raised, the veil of secrecy, with lying lips as to what the conditions were, shou l this waiver of secrecy still leave to her the power of suppressing the truth, by objecting to other physicians who about the same time treated her for the same alleged trouble? The court thinks not. In other words, if a patient is suffering from a given malady, and is treated by several physicians near the same time, for the same trouble or malady, then if she and one of her physicians with her consent make public the character of her trouble, she has waived the right longer to keep the exact character of that trouble secret, and the other physicians are competent to testify as to what this malady or trouble was in reality. Any other rule would be but to permit a patient in a court of justice to play both fast and loose.

So, if a patient is injured in a railway wreck and calls several physicians in the course of a reasonable time to treat him for such injuries, changing at times from one to another, but all treating him for the selfsame trouble, then if the patient breaks the secrecy by permitting one to testify as to the character of his injury, it is broken as to all. Any other construction of the doctrine of waiver (a doctrine thoroughly recognized in this state) would permit the patient to continue to employ physicians until he got one to his choosing, and, when he did so, could make him the sole agent to make public the secret of the sick-room. Such a course would be an abhorrent fraud on the courts, and one for which they should not stand. Justice should not be trifled with in any such manner. And, if privilege is once waived, it remains waived until the determination of the case, it matters not how many trials may be required.

Emergency Requirements for Injured Railway Employees

(Tippecanoe Loan & Trust Co., administrator, vs. Cleveland, Cincinnati, Chicago & St. Louis Railway Co. (Ind.), 104 N. E. R. 866)

The Appellate Court of Indiana, Division No. 1, says that if an employee of a railway company is injured as a result of hazards to which his employment exposes him, and, if his injuries are of such a nature as to render him incapable of caring for himself, it becomes the duty of the company to take such steps as are reasonably necessary and proper, under the circumstances, to prevent an aggravation of the injury through exposure, or for the want of medical or surgical assistance. Under such circumstances, if the servants of the company knowingly leave such injured person to die of exposure, or to bleed to death from his wounds, a legal responsibility for such consequences will be imposed on the company; and, if they take him into their custody, they must exercise reasonable care in the treatment accorded him. Under such circumstances the common instincts of humanity require that the helpless injured person should be taken in charge and removed to a place of safety, and that, if necessary, medical or surgical aid should be provided. This duty has been recognized by the Supreme Court of this state as one which arises in extraordinary cases in which medical or surgical assistance is imperatively required to save life, or to prevent further serious bodily injury. It is said that the duty arises with the emergency, and with it expires. In this case a section-hand in the employ of the defendant had his leg broken and severely cut, and was rendered unconscious and incapable of taking care of himself. There were some averments in the complaint to the effect that the company's physician, who was the first to treat the injured man, was negligent in failing to disinfect the wound, and to remove the gravel, sand, cinders, and other foreign substances from the wound, and that as a result blood poisoning ensued, which resulted finally in death. It is well settled in Indiana, however, that a railway company cannot be held liable for damages resulting to one of its injured employees as the result of the negligence of a surgeon called by the company to render surgical aid to such employee. Therefore, as the complaint did not aver that the defendant or its agents were negligent in selecting and employing an unskilled or incompetent surgeon, the defendant could not be held liable for the negligence or unskilfulness of the surgeon whom it called.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Electro-Therapeutic Association, Battle Creek. Sept. 15-17.
American Roentgen Ray Society, Cleveland, Sept. 9-12.
Colorado State Medical Society, Boulder, Sept. 8-10.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Michigan State Medical Society, Lansing, Sept. 11-12.
Oregon State Medical Association, Portland, Sept. 10-11.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Washington State Medical Association, North Yakima, Sept. 21-23.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

July, LXXI, No. 1, pp. 1-232

1 Relations of Internal Medicine to Psychiatry. L. F. Barker, Baltimore.
2 *What is Paranoia? E. S. Abbot, Waverly, Mass.
3 General Paralysis as Public Health Problem. T. W. Salmon, New York.
4 Differential Diagnosis of General Paresis. A. Meyer.
5 *Is There an Increase Among the Dementing Psychoses? C. P. Bancroft, Concord, N. H.
6 Analysis and Interpretation of Dreams Based on Motive of Self-Preservation. M. Solomon, Chicago.
7 *Brain Atrophy in Relation to Insanity. A. J. Rosanoff, Kings Park, N. Y.
8 *Similar and Dissimilar Psychoses in Relatives. C. Ricksher, Kankakee, Ill.
9 Intoxication Psychosis Associated with Cirrhosis of Liver. G. H. Williams, Columbus, Ohio.
10 Atypical Modes of Onset in Dementia Praecox. S. N. Clark, Kankakee, Ill.

2. **What is Paranoia?**—Unless one uses the word merely in a symptomatic or descriptive sense (in which case it is an unnecessary synonym for the old delusional insanity), Abbot says, paranoia is a psychosis, but not a disease process. It is neither a pure affect-psychosis nor a pure ideation-psychosis, but rather a combined associational affect-ideation-psychosis. It is a continuous self-perpetuating faulty association of ideas and affects without disturbance of the thinking or affective or conative processes of such. It is purely functional, but not related to the manic-depressive or dementia praecox psychoses, which are ordinarily, though to his mind wrongly, called functional. Hence it does not lead to dementia, except in the line of its own evolution and it does not necessarily have any of the symptoms of the other psychoses except delusions, which may occur in all of them. Its mechanism is that of prejudice but the basal complexes involved are very intimate and personal ones with correspondingly strong and durable affects. This conception gives some therapeutic hope, realized by Abbot in at least one case.

5. **Are Dementing Psychoses Increasing?**—Bancroft feels that while it is demonstrably certain that paresis has increased during the last twenty-five years, it is by no means equally certain that an actual increase in the other dementing

psychoses has occurred. Fundamental conditions are much the same now as they were fifty years ago. With the exception of parasyphilitic brain conditions the actual disparity between the functional diseases of the mind and the dementing psychoses is probably not much greater now than formerly, making due allowance for increase in population. Certain prophylactic endeavor is suggested by this cursory survey. Curtailment of the immigration of mental defectives at the source, restriction of alcoholic indulgence, prevention of syphilitic infection, stricter segregation of the feebleminded, greater intelligence in entering on the marriage relation, Bancroft suggests, are some of the steps by which a decrease among the dementing psychoses may be attained.

7. **Brain Atrophy in Relation to Insanity.**—The more important results of Rosanoff's analysis are: The index of atrophy seems to vary somewhat with age, showing increase as age advances. The index to atrophy seems also to vary with the state of nutrition, though not so clearly, showing apparently some increase in cases of emaciation. In cases of insanity the index of atrophy varies with the clinical group; it is greatest in cerebral arteriosclerosis; it is greater in general paresis and in senile dementia than in dementia praecox.

There is close correlation between degree of mental deterioration observed clinically and index of atrophy determined at autopsy: that is to say, mental deterioration, of whatever nature, goes hand in hand with brain atrophy. There is close correlation between duration of the deteriorating psychosis and index of atrophy. Inasmuch as interest will naturally center on dementia praecox, rather than on psychoses occurring on a basis of coarser and better understood brain lesions, a special analysis of the data pertaining to that group has been undertaken with a view to determining the share of the atrophy which is in that connection to be attributed to senility or to emaciation. This analysis has shown Rosanoff that if senile involution plays any part in the production of brain atrophy in dementia praecox, that part is but a slight one; the bulk of the atrophy is not due to it. The analysis has also shown that emaciation, like senile involution, plays but an unimportant part, if any, in the production of brain atrophy in dementia praecox; the bulk of the atrophy is not due to it. The conclusion is therefore drawn by Rosanoff that dementia praecox is associated in some way with changes in the brain which lead to atrophy.

8. **Similar and Dissimilar Psychoses in Relatives.**—Ricksher found that similar psychoses occur in about 50 per cent. of parents and children, and in brothers and sisters occur in about 66 per cent. of the cases. The age of onset of the psychosis as a rule is earlier in the child than in the parent. When the father and daughter or mother and son each suffer from dementia praecox the difference in the age of onset is most marked. Idiot children are not found as often as children with less severe mental disorders. Epilepsy in their cases was transmitted through the fathers to the sons. The transmission from mother to child is only a very little more frequent than from father to child. Similar psychoses occur in brothers and sisters in about 66 per cent. of cases. Dementia praecox is the most frequent psychosis found in brothers and sisters and is the psychoses most frequently found in one child when the brother or sister suffers from some other mental disorder. Mental disease is more apt to appear earlier in sisters than in brothers, except that when dementia praecox is found in one child and manic-depressive insanity in the other the average of onset is less in the brother than in the sister whether the brother suffers from manic-depressive insanity or from dementia praecox. Family histories and the type of psychoses in other insane relatives are not obtainable and definite conclusions regarding the effects of insanity in relatives on the production of dissimilar psychoses in the child cannot be drawn.

American Journal of Roentgenology, Detroit

May, I, No. 7, pp. 287-312

11 Direct Method of Diagnosis of Duodenal Ulcer by Means of Roentgen Ray. A. W. George and I. Gerber, Boston.

12 *Roentgen Examinations for Head Injuries. A. L. Gray, Richmond, Va.

13 Experiments in Standardization of Dosage for Roentgen Therapeutics. G. W. Holmes, Boston.

12. Abstracted in The Journal, Nov. 15, 1913, p. 1842.

Archives of Pediatrics, New York

July, XXXI, No. 7, pp. 481-560

14 *Schick Reaction and Its Practical Applications. W. H. Park, A. Zingher and H. M. Serota, New York.

15 *Treatment of Recurrent Sibilant Bronchitis. B. K. Rachford, Cincinnati.

16 Splenic Enlargement in Infancy and Childhood. C. V. Weller, Ann Arbor, Mich.

17 Cases of Diarrhea Treated with Culture of Bacillus Bulgaricus. C. W. Berry, Brooklyn.

18 Children's Tuberculosis Class at Sanatorium. M. Solis-Cohen, Philadelphia.

14. **Schick Reaction.**—The results of immunizing injections and laboratory experience in testing the blood for antitoxin have shown that only those individuals contract diphtheria who have no antitoxin or only a minute amount in their blood and tissues. The methods previously in use for estimating antitoxin, and thus separating the susceptible from the non-susceptible individuals, have been too troublesome to be of practical value in routine cases. Schick recently published a simple clinical test by which this can be accomplished. The reaction depends on the local irritant action of minute quantities of diphtheria toxin when injected intracutaneously. If antitoxin is absent, or present only in very small amounts, insufficient for protection, a positive reaction will appear in twenty-four to forty-eight hours. This is characterized by a circumscribed area of redness and slight infiltration which measures from 1 to 2 cm. in diameter. It persists for seven to ten days, and on fading shows superficial scaling and a persistent brownish pigmentation. The amount of toxin injected as advised by Schick is 1/50 MLD for the guinea-pig in 0.1 c.c. of normal saline. The authors prefer 1/50 MLD in 0.2 c.c.

The Schick reaction was carried out by them during the past six months on all patients entering the scarlet-fever pavilion of the Willard Parker Hospital. In all, 700 patients were thus tested, and of these, 400, or 57 per cent., gave negative reactions. Only cases giving positive reactions were immunized; those giving a negative reaction received no immunization, but were carefully observed. Although more than a quarter of the negatively reacting patients became bacillus carriers during their stay in the wards, no cases of clinical diphtheria developed among them. The remaining 300 patients who gave positive reactions received in practically all cases some form of toxin-antitoxin mixture. Among those who reacted insufficiently to the attempt at active immunization with toxin-antitoxin mixtures, 42 developed clinical diphtheria; of these, 20 were nasal, 20 tonsillar and 2 laryngeal diphtheria. The great majority of the cases were of a mild type. The percentage of individuals susceptible to diphtheria is greatest between the ages of 1 and 4 years. It is less during the second six months of life and less in older children and in adults.

15. **Treatment of Recurrent Sibilant Bronchitis.**—Rachford calls attention to the clinical fact that (1) recurrent rhinitis and recurrent sibilant bronchitis, which are sometimes associated with rather severe asthmatic attacks, and almost always with a severe paroxysmal cough, are very commonly caused by some kind of food intoxication; (2) that recurrent attacks of rhinitis and whistling bronchitis, which is one of the most common symptom groups the physician is called on to treat, may be in most instances almost or quite relieved by dietetic treatment. He insists that this symptom group occurs not infrequently in children who have a predisposition to migraine, recurrent vomiting and urticaria.

During the attack sweets, butter fats, eggs and raw fruits are especially to be avoided. Strawberries, rhubarb, tomatoes, salads, shell-fish, tea, coffee, pastry, gravies, cream, cod-liver oil and alcohol are excluded from the diet. Saccharin is to be used instead of sugar. Skimmed milk may be allowed. The following foods may be allowed: beef, mutton, fowl and fish in moderation, cereals, bread, all vegetables not above prescribed, cooked fruits, skimmed milk and thick soup.

About two months after the patient has recovered from the attack the above diet may be carefully modified by adding one egg a day to the diet, then perhaps two weeks later, milk containing 4 per cent. fat may be substituted for skimmed milk. Some few weeks later all raw fruits, oranges excepted, may be added to the diet. Some weeks later, small quantities of sugar may be used for sweetening cereals and stewed fruits. After five or six months the child may return to his original diet, with the exception that he must eat sparingly of sweets and must eat nothing between meals. If the symptom-group returns on the addition of any article of diet, that particular food is to be permanently excluded from the diet.

During the attack the patient is to have all the outdoor air he can get with as little exercise as possible. As he recovers from his attack, exercise in the open air is advisable. During the attack, constipation should be relieved by some of the magnesium salts. Milk of magnesia or calcined magnesia are especially suitable for this purpose. Magnesium sulphate may be used in small doses in older children. Alkalies in the form of sodium bicarbonate, potassium bicarbonate or potassium citrate should be given in fair-sized doses, 5-grain capsules three or four times a day. In younger children who object to the taste of sodium bicarbonate direct the mother to distribute through the child's food a teaspoonful of this salt each day. Tincture of belladonna should be given for a short time in 2 to 4 minim doses three times a day. If constipation cannot be controlled by diet some form of cascara or other palatable laxative should be used as indicated. The belladonna is discontinued, but an alkali in some form should be given for six to eight weeks. Sodium bicarbonate is the best alkali for this purpose and may be given in moderate-sized doses once or twice a day.

Boston Medical and Surgical Journal

August 6, CLXXI, No. 6, pp. 217-252

19 Problem of Infection in Tuberculous Families. J. B. Hawes, Boston.
20 Summer Diarrheas. I. D. Steinhardt, New York.
21 Modern Treatment of Inebriety. I. H. Neff, Foxborough, Mass.
22 Occupation Therapy in Organic Diseases. H. J. Hall, Marblehead, Mass.
23 New Method of Treatment of Chronic Dacryocystitis. C. M. Cobb, Lynn, Mass.

Bulletin of Johns Hopkins Hospital, Baltimore

July, XXV, No. 28, pp. 195-222

24 *Involution of Uterus and Its Effect on Nitrogen Output of Urine. J. M. Slemons, San Francisco.
25 *Normal Amount of Diastatic Ferment in Feces and Its Variation in Certain Diseases of Pancreas in Achylia Gastrica. T. R. Brown, Baltimore.
26 *Peripheral Origin of Surgical Shock. F. C. Mann, Indianapolis.
27 Normal Diastase-Content of Urine. T. R. Brown and C. W. Smith, Jr., Baltimore.

24. **Involution of Uterus and Effect on Nitrogen Output of Urine.**—As the results of Slemons' investigations, it is apparent that the process of involution causes a rise in the urinary nitrogen and that the amount of excessive elimination corresponds to the nitrogenous content of the non-involuted uterus. His observations offer confirmatory evidence of this fact from three points of view: First, by the comparison of the puerperal and postpuerperal periods when the uterus has not been removed; second, from the comparison of the aggregate excretion in cases in which the uterus was removed and in which it was not; and third, from the comparison of the actual daily difference in such cases with the theoretical amount of nitrogen which would be expected as a result of the involutionary process. Slemons, therefore, concludes that waste products from the involuting uterus pass into the circulation, are excreted by the kidneys, and in some measure throw additional work on these organs during the early part of the puerperium.

It does not follow, however, that the diet should be restricted in the puerperium. On the contrary, Slemons' observations indicate that the increase in the excretion of nitrogen is not large enough to require such restriction, provided the patient is normal. If any therapeutic inference may be drawn, it is in the nature of a justification of the present-day tendency to allow a generous diet to recently delivered women. On the other hand, in patients suffering from toxemia of pregnancy, the additional work which the kidneys must perform in the puerperium does become a matter of practical importance. In such circumstances these organs should be given the fullest opportunity to recover from the strain to which they have been subjected, and, with this end in view, the diet should be limited. Such precaution is necessary not only because the renal cells have been damaged, but also because an excretory capacity somewhat greater than normal is desirable. The inspection of the urine-chart of a convalescent eclamptic teaches that in the days immediately following delivery the kidneys are eliminating an unusually large amount of waste products, even though the consumption of food is small. Formerly, the large nitrogenous excretion in such cases was attributed to the elimination of waste material which had previously been retained, and whose retention had caused the toxemia. Such a view is evidently incorrect, as Slemons' observations show that the large excretion of nitrogen in these, as well as in normal cases, is due to the involution of the uterus.

25. **Diastatic Ferment in Feces in Certain Diseases of Pancreas.**—From Brown's study on the diastase content of feces in normal and in certain pathologic conditions the following conclusions are drawn: The stool, if a rigorously exact method is carried out as to food, purgative employed, preservation of specimen, estimation of ferment, etc., furnishes a diastase content within definite limits. The effect of waiting too long after the stool has been obtained before making the examination, the influence of variations in temperature in the place in which it is kept, and of different laxatives and different foods, is so great as to render results obtained by methods in which insistence on such a rigorous technic has not been made of much less value.

Extensive carcinoma of the pancreas showed no diastase in the tube of lowest dilution in Brown's method, and this absence of ferment should prove of great help in the diagnosis of this condition. In chronic pancreatitis diastase was present in the stool, but in markedly diminished amounts. In achylia gastrica the diastase content of the stool was practically normal in all the cases examined. This, in the first place, suggests that in the absence of hydrochloric acid some other method of pancreas activation is called into play, and, in the second place, that the diarrhea met with in certain of these cases of achylia gastrica—the so-called gastrogenous diarrhea—is not of pancreatic origin.

26. **Peripheral Origin of Surgical Shock.**—Mann found it impossible to reduce the anesthetized animal to a state of shock by any degree of sensory stimulation, provided all hemorrhage is prevented and its abdomen is not opened. He has been unable to show that acapnia is a primary factor in the production of shock. Shock is not due to disturbance of the respiration, but the respiratory center is more quickly injured than any other vital center by shock. The vasomotor center is not depressed nor fatigued in shock. It is the most resistant of all the vital centers. The peripheral and untraumatized visceral arteries are constricted in shock. Shock is not due to primary failure of the heart nor to involvement of the cardio-inhibitory or cardio-accelerator mechanism. It is possible to produce the signs of shock by the use of excessive heat or cold. The easiest and most certain method of producing shock is by exposure and traumatization of the abdominal viscera. This, judging from the literature, has been the method used by nearly all investigators of shock. Shock produced by exposure and trauma of the abdominal viscera is not due alone to a paralysis of the vasomotor mechanism of the splanchnic area.

The cause of shock, Mann says, is the tremendous loss of red cells and fluid from the blood, due to the reaction of the great delicate vascular splanchnic area to irritation—an acute inflammation of the peritoneum, due to trauma and exposure to the air and changes of temperature. The great amount of this loss is apparent when it is taken into consideration that the peritoneum has an extent as great as the entire cutaneous surface of the body. The factors involved in their reaction to irritation are the same as those involved in any other local inflammatory process, and certainly do not involve the nervous system to any greater extent. The profound general effect is due to the actual loss of red cells and fluid from the circulating blood through stasis, diapedesis, exudate, endothelial changes, etc. In the course of operations in which the abdomen has not been opened, a loss of fluid and cells from the blood occurs. But the loss is, except when great areas of subcutaneous tissue have been exposed, comparatively unimportant.

Certain accessory factors which help to produce the condition of shock are muscular relaxation, decrease in intra-abdominal pressure and impaired respirations, all of which tend to decrease the amount of blood returned to the heart. The effect of chilling and the use of hot applications should be considered. Degenerative changes in the cells of the central nervous system are the result and not the cause of shock. General anesthesia of moderate depth prevents painful impulses from affecting the nerve cells of the central nervous system. Nerve blocking under such conditions is useless, so far as the prevention of shock is concerned. A relatively slight decrease in blood-supply may be sufficient to depress markedly the cells of the cerebral cortex. Care should therefore be taken to exclude this factor before ascribing such depression to inhibition.

Mann is of opinion that the use of word "shock" should be avoided, and instead an accurate and detailed description of the patient's condition should be given. If the term be used at all it should be applied to the condition in which, without any grossly discernable hemorrhage having occurred, the amount of circulatory fluid is greatly diminished on account of stagnation of the blood in the smaller veins and capillaries or by exudation of the fluid and cellular elements of the blood from the same.

Cleveland Medical Journal

July, XIII, No. 7, pp. 447-522

28 Occupational Neuroses—Pathogenesis and Examples of Treatment. T. A. Williams, Washington, D. C.
29 Ancestry of Homo Sapiens. T. W. Todd, Cleveland.
30 Medical Experiences in Korea. A. I. Ludlow, Seoul, Korea.
31 Temporo-Sphenoidal Abscess Secondary to Chronic Suppurative Otitis Media — Operation — Recovery — Radiograph Findings. J. M. Ingersoll, Cleveland.
32 Deaf Child and His Education. G. C. Burton, Cleveland.
33 Mating of Unfit. T. S. McWilliams, Cleveland.

Indiana State Medical Association Journal, Fort Wayne

July, VII, No. 7, pp. 309-356

34 Silent Areas of Brain; Report of Three Cases. B. Holmes, Chicago.
35 Treatment of Heterophoria and Heterotropia. F. A. Morrison, Indianapolis.
36 Symptomatology of Urethral Stricture. H. G. Hamer, Indianapolis.
37 Tuberculosis of Organs of Special Sense. W. C. Dyer, Evansville.

Journal of Medical Research, Boston

July, XXX, No. 3, pp. 261-540

38 *Coccidioides Immitis and Coccidioidal Granuloma. W. J. MacNeal and R. M. Taylor, New York.
39 *Effect of Quinin on Rabbits Inoculated with Rabies. L. Frothingham and J. Halliday, Boston.
40 Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slye, Chicago.
41 *Anaphylaxis. R. Weil, New York.
42 Glomerular and Arterial Lesion Produced in Rabbit's Kidneys by Diphtheria Toxin. C. Frothingham, Jr., Boston.
43 Lipo-amlyoid Degeneration. O. Klotz, Pittsburgh.
44 Serum Cholesterol and Wassermann Reaction. P. G. Weston, Warren, Pa.
45 *Influence of Splenectomy of Certain Organs and Organ Extracts on Hemopsonins of Blood Serum. H. T. Karsner, H. H. Amiral and A. V. Bock, New York.
46 *Experiments in Anaphylaxis with Lipoids of Tubercle Bacillus. B. White, Brooklyn.
47 *Staining of Yeasts by Gram's Method. A. T. Henrici, Minneapolis.
48 Tumors in Lungs of Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.
49 Two "Atoxic" Strains of Diphtheria Bacilli. H. R. Brown and T. Smith, Boston.
50 Cholesterin—Heart Antigen Proposed by Walker and Swift. C. W. McClure, Iowa City, Ia.
51 *Reaction of Guinea-Pig to Virus of Typhus Fever. J. F. Anderson, Washington, D. C.
52 *Attempt to Immunize Guinea-Pig Against Tuberculosis by Use of Graduated, Repeated Doses of Living Tubercle Bacilli. L. Brown, F. H. Heise and S. A. Petroff, Saranac Lake, N. Y.
53 Classification of Streptococci. H. W. Lyall, Brooklyn.
54 *Hemolysin Production by Streptococci. H. W. Lyall, Brooklyn.
55 New Serum and Liver Substances as Levuloses in Trypanosomiasis. K. Schern, Ames, Ia.

38. **Coccidioidal Granuloma.** — Coccidioidal granuloma, according to MacNeal and Taylor, is a very definite specific infectious disease, subacute or chronic, and tending to a fatal issue. Twenty-four cases have been recognized in various parts of the western hemisphere, most of them in California. The disease has been observed almost exclusively in adult males. The histologic changes in the lesions very closely resemble those of tuberculosis. Differential diagnosis depends on finding the specific micro-organisms. *Coccidiodes immitis* (Rixford and Gilchrist, 1896) is a well-characterized species of mold belonging to the Ascomycetes. In the animal body it exists as spheres enclosed in doubly contoured capsules and multiplies by endogenous spore formation. In aerobic cultures a septate mycelium is produced and in old cultures chlamdospores, which resemble somewhat the parasitic form of the organism. In anaerobic cultures in ascitic fluid of gelatinized horse-serum to which sterile tissue has been added, the parasitic forms continue to multiply for a time by endogenous spore formation, much as they do within the animal body.

Coccidioides immitis is distinctly different from the budding fungi found in human diseases variously called blastomycosis, oidiomycosis, Saccharomycosis or blastomycetic dermatitis, of which the budding parasite, *Cryptococcus dermatidis* (Gilchrist and Stokes, 1898), is perhaps the best known.

39. **Effect of Quinin on Rabbits.**—Neither quinin bisulphate nor quinin and urea hydrochlorid—dissolved in water and administered subcutaneously—had any curative effect on rabbits which showed symptoms of rabies after intracerebral subdural and intramuscular inoculation with street virus. Subcutaneous injections of quinin bisulphate and quinin and urea hydrochlorid caused a local reaction with necrosis and, in the control rabbits, subsequent sloughing.

41. **Anaphylaxis.**—When a guinea-pig is sensitized by the intraperitoneal injection of a large amount of the serum of a rabbit immunized against horse-serum, Weil states it becomes possible by Dale's method to determine the persistence of sensitization to horse-serum over a period of fifteen days. The degree of sensitization gradually diminishes. At the same time there is a gradual development of sensitization toward rabbit-serum. Coincidently, the presence of circulating antibodies toward rabbit-serum is demonstrated in the serum by using it passively to sensitize normal guinea-pigs. These data are interpreted to indicate that both antigen (rabbit's serum), and antibody thereto, coexist for some time in the cells of a guinea-pig immunized by large doses of a foreign serum; and that the blood at the same time contains free antibodies. The suggestion is made that the persistence of antigen in the cell is a factor which contributes materially to the resistance of animals sensitized by massive doses of antigen.

45. **Influence of Splenectomy.**—Provided the spleen has been removed for a period of time less than a week and more than two days, the intravenous injection of a specific hemolytic immune serum, in doses large enough to produce hemoglobinuria, is followed by marked phagocytosis of erythrocytes by the endothelial cells of the lymph-nodes and liver. In the lymph-nodes the process starts about three hours after the injection of immune serum, reaches its height about twenty-four hours after the injection and is practically complete in forty-eight hours, when the endothelial cells are found to contain large quantities of pigment, presumably as the results of blood-destruction.

A study of hemopsonins of the blood-serum under the experimental conditions indicated in the text fails to show that the phagocytosis of erythrocytes, so prominent in the lymph-nodes of the splenectomized animal following a fairly large intravenous dose of specific hemolytic immune serum, is dependent on local or general variations in hemopsonin in the splenectomized animal as influenced by organ extracts of normal and of splenectomized animals.

46. **Experiments in Anaphylaxis.**—The cold alcohol soluble and hot alcohol soluble—cold alcohol insoluble constituents of three lots of virulent tubercle bacilli were prepared and tested by White for antigenic properties by the anaphylactic reaction. All the preparations when injected intraperitoneally into guinea-pigs in doses of from 0.025 gm. to 0.100 gm. failed to sensitize the animals to a subsequent intravenous injection of from 0.75 to 2 cubic centimeters of an extract emulsion of the same strain of tubercle bacilli. (The minimum fatal dose of the extract emulsion was 0.3 cubic centimeter for an animal previously injected intraperitoneally with 0.5 cubic centimeter of a watery extract of tubercle bacilli.) None of the preparations when injected intravenously into guinea-pigs previously sensitized with tuberculoprotein produced any anaphylactic symptoms whatever. The intravenous injection of the lipoid preparations in animals sensitized with tuberculoprotein produced no true anti-anaphylaxis to a subsequent intravenous injection of extract emulsion of tubercle bacilli. When the extract emulsion was injected one hour after the intravenous lipoid injection a slight tolerance or refractoriness was noted, but no protection was observed when the second injection was delayed for nineteen to twenty days. None of the preparations sensitized animals to a subsequent injection of the corresponding lipoid.

47. **Staining of Yeasts by Gram's Method.**—It is shown by Henrici that yeast cells retain Gram's stain more firmly than the common Gram-positive bacteria, and unlike the bacteria, the cytoplasm of the yeast cell is not homogeneous with regard to its ability to retain the stain, certain granules appearing in the decolorizing cell which hold the dye longer than others. It is suggested that the ability of these granules to resist decolorization is in direct proportion to their ability to resist antolysis.

51. **Reaction of Guinea-Pig to Typhus Virus.**—There apparently exists a natural immunity in the guinea-pig, similar to that found in the monkey, to typhus fever. In Anderson's experience of 4.7 per cent. of the guinea-pigs failed on first injection to react to an inoculation of proven virulent guinea-pig typhus-fever blood. Fifty-six per cent. of the guinea-pigs tested failed to react to a first injection of blood from human cases of typhus fever.

The passage of the virus of typhus fever through sixty-nine generations in the guinea-pig apparently produced no change in its virulence or infectivity for that animal. After sixty-nine passages through the guinea-pig the typhus-fever virus showed no apparent change in its infectivity for the monkey.

52. **Attempt to Immunize Guinea-Pig against Tuberculosis.**—The authors' experiments show that repeated doses of even virulent tubercle bacilli prolong the life of the animal far beyond that of the controls. They suggest that the explanation lies in the fact that the superinfection may be held for a time in abeyance by the presence of a slight active tuberculosis focus. It is probable from the autopsy findings that all the treated guinea-pigs would have eventually died from chronic tuberculosis.

54. **Hemolysin Production by Streptococci.**—Lyall maintains that the hemolytic titer does not afford any absolute criterion of virulence. The production of a potent hemolysin in both cultures is dependent on the nature and proportions of enriching substances, the reaction of the medium and the time of incubation. The hemolysin appears to be closely associated with the bacterial bodies and not to be in solution. The hemolysin does not appear to be in the nature of an enzyme. The hemolysin is destroyed by a temperature of 56 C. for thirty minutes. It disappears within forty-eight hours at incubator temperature. Normal serums of sheep, guinea-pig, rabbit, cow and man contain appreciable amounts of antistreptolysin. Salvarsanized serums possess a markedly increased inhibitory power on the hemolytic action of streptococci. Hemolysin production is inhibited by the addition of sugar. This occurs most uniformly in the case of dextrose. It does not appear to be definitely associated with the amount of acid produced.

Kentucky Medical Journal, Bowling Green

July, XII, No. 14, pp. 435-452

56 Milk. W. E. Gary, Louisville.
57 Management of Nephrolithiasis. H. H. Grant, Louisville.
58 Hernia. G. P. Grigsby, Louisville.

Laryngoscope, St. Louis

July, XXIV, No. 7, pp. 645-708

59 Technic for Removal of Intrinsic Growths of Larynx. R. C. Lynch, New Orleans.
60 Laryngitis Submucosa Subglottica Acuta. C. W. Richardson, Washington, D. C.
61 Primary Sarcoma of Trachea. J. M. Ingersoll, Cleveland.
62 Use of Bronchoscope in Direct Examination of Larynx, Trachea, Bronchi and Esophagus. P. Schoonmaker, New York.
63 Bacterins in Treatment of Diseases of Nose and Throat. F. O. Lewis, Philadelphia.
64 Bacterins in Treatment of Diseases of Ear. G. M. Coates, Philadelphia.
65 Vaccine Treatment in Accessory Sinus Suppuration. R. H. Skillern, Philadelphia.

Maine Medical Association Journal, Portland

July, IV, No. 12, pp. 1925-1964

66 Medical Charity and Medical Legislation. W. C. Peters, Bangor.
67 Value of Social Service Work in Hospitals as Part of Efficient Diagnosis and Treatment. R. C. Cabot, Boston.
68 Twilight Sleep. H. E. Milliken, Portland.

Medical Record, New York

August 8, LXXXVI, No. 6, pp. 233-278

69 Intestinal Antisepsis Through Biologic Aids. B. Stow, New York.
70 Acute Contagious Conjunctivitis, Originating in a Public Swimming Pool. S. H. Brown, Philadelphia.
71 Aspects of Visual Acuity. H. M. Friedman, New York.
72 Physiology of Worry. E. D. Forrest, Boston.
73 *Medical Aspect of Athletics. R. E. Coughlin, Brooklyn.
74 Acute Suppurative Otitis Media. H. L. Fifield, Syracuse, N. Y.
75 *Rhinologic Aspect of Some Mental Disturbances. J. A. Hagemann, Pittsburgh.

73. **Medical Aspect of Athletics.**—It has been proved beyond question that immoderate college athletics lead to physiologic hypertrophy of the heart. Athletic training leads at first to physiologic hypertrophy, but when prolonged and marked by severer athletic contests, Coughlin says it usually leads to hypertrophy plus dilation of a variable degree, frequently marked by valvular insufficiency. Functionally the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry the man through a severe athletic contest than a normal heart would be. On the other hand, acute cardiac dilation occurs more frequently in athletes and men used to severe muscular strain than in the normal man and the effects are more prolonged and severe. Carefully collected statistics show that deaths of athletes are caused by the following diseases in the order of their frequency: cardiac diseases, tuberculosis, typhoid fever, pneumonia and Bright's disease. The dangerous games indulged in with fatalities in the order of the greatest danger are said to be football, baseball and boxing.

75. **Rhinologic Aspect of Some Mental Disturbances.**—A frequently unrecognized cause of mental depression, and sometimes suicide, in Hagemann's opinion, is empyema of the ethmoidal cells. The absence of a nasal outpouring may mislead one into making a negative diagnosis, although the patient is constantly or intermittently swallowing pus-bearing discharges which perhaps unnoted trickle down the posterior pharyngeal wall. The consequent autointoxication from the biochemical products liberated in the intestinal tract establishes a neurasthenic condition characterized by great despondency. Whether a direct action on the cerebral

association-centers may be exerted by an ethmoidal sinusitis, Hagemann says, is problematic. The lymph currents all tend in the opposite direction. Yet one might picture to oneself the possibility of noxious fluids finding their way into the brain via the sheaths of afferent nerves.

Michigan State Medical Society Journal, Grand Rapids

August, XIII, No. 8, pp. 459-513

76 Treatment of Pernicious Vomiting of Pregnancy. F. W. Lynch, Chicago.
77 Hypo-epinephry. R. G. Leland, East Leroy.
78 Genito-Urinary Infections, More Especially Those Originating in the Kidneys. O. A. Hart, St. Johns.
79 West Indian Impressions. W. J. Stapleton, Jr., Detroit.
80 Fracture of Left Temporal Bone. J. T. Cooper, Muskegon.
81 Case of Appendicitis of Unusual Symptomatology. J. D. Matthews, Detroit.
82 Case of Otitic Streptococcic Bacteremia. R. B. Canfield, Ann Arbor.
83 Diagnosis of Diseases Associated with Enlargement of Spleen. J. J. Moffett, Port Huron.

New York Medical Journal

August 8, C, No. 6, pp. 253-300

84 Lane's Auto-intoxication Complex and the Manifestations of Senility. I. L. Nascher, New York.
85 *Conservatism in Operative Treatment of Simple Fractures. G. Woolsey, New York.
86 Treatment of Diabetes Mellitus with Bacillus Bulgaricus. P. Horowitz, New York (to be continued).
87 Fractures of Upper End of Humerus (Analyses of 393 Cases). J. M. Hitzrot, New York.
88 Autoserum Treatment of Dermatoses. W. S. Gottheil, New York.
89 Gram Negative Streptococcus Pathogenic for Guinea-Pigs. J. G. Drennan, Rosebank, S. I., N. Y.
90 Some Signs of Danger in Labor, and How to Meet Them. J. O. Arnold, Philadelphia.
91 Frederick Forchheimer. O. Juettner, Cincinnati.

85. **Conservatism in Operative Treatment of Simple Fractures.**—For guiding rules in the conservative operative treatment of fractures, Woolsey says: In recent simple fractures, do not operate unnecessarily, only after nonoperative treatment has been tried and failed, as no operative treatment is exempt from danger. Be most careful as to asepsis. Use the simplest thing that meets the indications and avoid large foreign bodies in the tissues when possible. Judge each case by itself. In properly selected cases the operative treatment of fractures greatly improves the results.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

July, XIX, No. 1, pp. 1-38

92 *Abnormal Arrangement of Branches of Aortic Arch. J. W. Brodnax, Richmond.
93 Treatment of Goiter and Hyperthyroidism. A. G. Brenizer, Charlotte, N. C.

92. **Abnormal Arrangement of Branches of Aortic Arch.**—In the subject reported by Brodnax the aortic arch was placed somewhat more to the left and on a higher level in the thorax than normal, reaching not quite to the suprasternal notch. All of its branches arose by separate stems to the left of the median line, and in the following order; right common carotid, left common carotid, left subclavian, right subclavian. The right common carotid crossed obliquely in front of the trachea to gain the right side of the neck, in which it assumed its normal course; the left common carotid and subclavian occupied about their usual place; the right subclavian was the last branch of the arch, and was given off as low down as the body of the fourth thoracic vertebra, it then passed upward and to the right, behind the trachea and esophagus to gain its normal position in the interval between the scaleni muscles. The right vertebral was a product of the right common carotid. The branches of the thyroid axes, on both sides, arose by separate stems from their respective subclavian artery.

Vermont Medical Monthly, Burlington

July, XX, No. 7, pp. 177-198

94 Surgery of Large Intestine. E. M. Pond, Rutland.
95 Nurse in Private Practice Thirty-Three Years Ago and To-Day. J. B. Wheeler, Burlington.
96 Trained Nurse of To-Day. N. R. Bruce.

Tennessee State Medical Association Journal, Nashville

June, VII, No. 2, pp. 57-98

97 *Serum Diagnosis of Gonorrheal Infection. R. L. Jones and I. Simons, Nashville.
98 *Drug Habit in Tennessee. L. P. Brown, Nashville.
99 Chronic Appendicitis. R. A. Barr, Nashville.
100 Etiology and Treatment of Corneal Ulcers. A. C. Lewis, Memphis.
101 Placenta Praevia. J. S. Campbell, Gordonsville.

97. Abstracted in The Journal, May 16, p. 1583.

98. Abstracted in The Journal, May 2, p. 1427.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, London

July, VIII, No. 2, pp. 133-367

1 Entameba of Man in Panama Canal Zone. W. M. James.
2 Dysenteries in Canal Zone, with Special Reference to Amebic Dysentery. W. E. Deeks.
3 Emetine in Amebic Dysentery. W. E. Deeks.
4 Six Day Fever in Panama. W. E. Deeks.

British Medical Journal, London

July 25, II, No. 2795, pp. 161-220

5 Serum Diagnosis of Pregnancy and of Cancer. A. Leitch.
6 Position of Country Doctor in 1879 and To-Morrow. J. L. Thomas.
7 Sprue. P. H. Bahr.
8 *"Controlled" Use of New Tuberculin in Treatment of Pulmonary Tuberculosis. G. V. Stockdale and R. Hodson.
9 Sixty-Three Successive Cases of Enteric Fever Treated with Vaccines. W. P. MacArthur.
10 Hernia of Uterus, Vagina and Fallopian Tubes in a Boy (Hermaphrodite). L. R. Braithwaite and W. Craig.

8. **Tuberculin in Treatment of Tuberculosis.**—As many cases as possible of pulmonary tuberculosis (the criterion for which was the presence of tubercle bacilli in the sputum) were collected by Stockdale and Hodson and paired off in such a way that a febrile patient was paired with another febrile, while an afebrile was paired with an afebrile. Then by lot it was decided which should be given tuberculin, so that there should be no suggestion as to picking cases. Further, as fresh patients were admitted into the hospital, it was decided by lot which should be given tuberculin and which should act as controls.

The tuberculin selected to be used was the new tuberculin residue (T. R.), and it was decided to give minute doses, increasing the doses gradually every second or third day at first and later at longer intervals in the case of the afebrile patients, while the febrile patients received a dose every fifth or seventh day. The initial dose in the former case was 1/100,000 milligram, and was increased to 2, 3, 5, 8 and 12/100,000 milligram, and then again about three-quarters as much again every dose. In the febrile cases the original dose was 1/200,000 milligram tuberculin residue. The object was to work up to the strength of tuberculin residue the patient would take without producing a reaction. When a reaction did occur the patient was kept quiet, and after a few days the same dose was repeated and if no reaction followed the treatment was continued as before. If, however, a reaction occurred a second time, then a further period of rest from tuberculin was given and was followed by a smaller dose than those which produced reaction. The maximum dose reached was 1/10 milligram, and this in the case of one patient only.

With regard to the local lesion, tuberculin seems to have done good in the afebrile cases, and such cases formed less than 30 per cent. of the total. Tuberculin was apparently harmful to the intermittently febrile patients, who formed the bulk of the series. Tuberculin had no apparent influence in increasing the weight or in improving the general condition, and in both these cases the balance of improvement is on the side of the controls.

Indian Journal of Medical Research, Calcutta

April, I, No. 4, pp. 589-794

11 Experimental Leishmaniasis in Monkey and Mouse Induced by Parasites in Culture. R. Row.
12 Production of Localized Lesion by Leishmania Donovani in Macacus Sinicus. V. T. Korke.

13 Kala-Azar in Nowgong (Assam). F. P. Mackie.
14 Halteridium Parasite of Pigeon, Hemoproteus Columba, Celli and San Felice. H. W. Acton and R. Knowles.
15 Treatment of Swamps, Stream Beds, Ponds, Wells and Pools, with Destruction of Mosquito Larva. H. C. Wilson.
16 Malaria in Madras City. E. C. Hodgson.
17 Misleading Reactions Obtained with Precipitating Antisera and How to Avoid Them. W. D. Sutherland and G. C. Mitra.
18 *Standardization of Vaccines. H. C. Brown.
19 *Preparation and Standardization of Typhoid Vaccine. G. H. Blaker.
20 *Agglutination Reaction after Antityphoid Inoculation. A. W. Fyer.
21 Method of Estimating Amount of Gas Produced by Gas-Forming Bacteria. J. Cunningham.
22 Filariasis in Cochin. J. A. Cruickshank and R. E. Wright.

18. **Standardization of Vaccines.**—The weight of bacteria in the dry condition according to Brown is the most satisfactory measure of quantity which we possess. The weight of bacteria in the moist state is much more influenced by extraneous, not always easily controlled, conditions, such as humidity, than is the weight of bacteria dry. Comparison of weights moist is not, therefore, to be recommended as a method of standardization. If a preliminary determination of the relation of weights moist and dry be made, then the weight moist may be taken for the subsequent manipulations required for the preparation of standard suspensions of bacteria such as are used in bacteriologic technic (agglutination, opsonic index, etc.), and for preparation of vaccines. If weight of bacteria is the most satisfactory standard of quantity available it is essential that vaccines should have their dosage expressed in terms of weight. Methods of standardization by enumeration are best carried out with suspensions of moist, young, actively growing bacteria (1) because the enumeration by colony count demands that all the bacteria used should be living, (2) because suspensions in the ordinary media used are most easily made in this way. Brown's experiments indicated that there was no loss of antigenic power during desiccation. As a method of enumeration Braxton Hick's procedure with standardized suspensions of organisms was found to be satisfactory.

Brown's method, in which an acid-fast organism was used, dispensed with the need for two standard suspensions and gave better staining results. It is necessary to ensure the adhesions (as e. g., by use of an albumin solution) of the bacteria in such standard suspensions to the slide surface, otherwise the values obtained will vary very considerably. Determination of quantity by an opacity method is easily carried out by contrasting the test suspension with specially prepared standard suspensions in tubes of equal caliber. A special instrument such as a colorimeter makes the determination still easier.

19. **Preparation of Typhoid Vaccines.**—Blaker found that the growth obtained in broth sterilized in a Koch's sterilizer is more vigorous than that in broth sterilized in an autoclave. After forty-eight hours of incubation there is evidence of commencing death of bacilli, as is evident from the plate culture method of enumeration and microscopic examination. Blaker says that the plate culture method of standardization should not be applied to a broth vaccine grown for longer than forty-eight hours as it would show too low a bacillary content. Although by means of Wright's method of enumeration standardization can be effected, even after forty-eight hours' incubation, the increasing autolysis which takes place after this period renders it doubtful whether growth should be allowed to go on longer. If allowed to do so, the accuracy of the standardization is liable to be affected.

20. **Reaction of Typhoid Inoculation.**—Of 143 patients inoculated more than nine months previously only 21 gave agglutination reactions in a dilution above one in 16, and of these 20 agglutinated in no higher dilution than one in 20. In a patient, previously inoculated against typhoid at an interval of not less than six months, a positive typhoid agglutination reaction in higher dilution than one in 40 indicates the probability of the disease from which the patient suffers being typhoid.

Indian Medical Gazette, Calcutta

July, XLIX, No. 7, pp. 253-296

23 Fatal Case of Ophithoxemia. F. Wall.
24 Cocain Eaters of Bombay. A. W. Tuke.
25 Plague Jottings. F. P. Connor.
26 Osseous New Growths at Elbow Joint Following Injuries to Joint —Not Necessarily Dislocations. J. A. Shorten.
27 Three Cases Illustrating Unusual Sequela of Malarial Fever Due to Plasmodium Falciparum. R. Dowden.
28 Treatment of Uncomplicated Retroversion of Uterus by Sling Operation. T. B. Hance.
29 Nature of Jail Dysentery. L. B. Scott.
30 Treatment of Cholera by Exhibition of Chlorhydrate of Emetine in Hypodermic Injections. Renault.
31 Case of Pulmonary Tuberculosis Treated with Tuberculin. G. C. Chatterjee.
32 Two Cases of Transposition of Viscera. B. P. Daruvala.

Journal of Tropical Medicine and Hygiene, London

July 15, XVII, No. 14, pp. 209-224

33 Ankylostomiasis in North Nyasa District. A. G. Eldred.

Lancet, London

July 25, II, No. 4743, pp. 207-280

34 Localization of Motor and Speech Centers in Definite Areas of Cortex and Brain. E. Dupuy.
35 *Reduction in Virulence of Tubercle Bacilli Stored in Normal Saline. L. S. Dudgeon.
36 Observations of One Hundred and Twenty Cases of Lead Absorption from Drinking-Water. W. W. Stainthorpe.
37 Celluloid Splints in Treatment of Acute Cases of Poliomyelitis. F. E. Batten.
38 Epidemic Catarrhal Jaundice. E. A. Cockayne.
39 *Problems in Cardiac Physiology. A. F. S. Kent.
40 Case of Tuberculous Disease of Vertebra. J. Miller and A. F. Hewat.
41 *Surgical Treatment of Streptococcic Arthritis. J. O'Conor.
42 Technic of Abderhalden's Serum Reaction. W. E. Bullock.
43 *Geographic Distribution of Appendicitis. R. W. Murray.

35. **Tubercle Bacilli in Normal Saline.**—Certain experiments are cited by Dudgeon which show the effect of storage on the pathogenicity of the tubercle bacillus. There was a gradual reduction of the pathogenicity of the bacillus stored in normal saline. No attempts were made, however, to subcultivate the stored bacillus direct from the saline bacillary mixture.

39. Published in the *British Medical Journal,* July 18, and abstracted in The Journal, August 15, p. 609.

41. **Treatment of Streptococcic Arthritis.**—O'Conor makes it a rule to operate on patients who do not promptly yield to medical treatment (sodium salicylate ʒss., sodium bicarbonate ʒj., three-hourly; salines, milk diet, woolen clothing. etc.). All infected joints are opened, flaky turbid lymph is evacuated, free irrigation with warm oxygen water, drainage tubes inserted and retained *in situ* for three days. Multiple incisions are made into areas of periarticular cellulitis and not mercurial fomentations applied. Splints are employed for immobilization purposes for from seven to ten days, at the end of which the patient is requested to commence graduated active moment. When wounds are healed gentle massage is prescribed.

43. **Geographic Distribution of Appendicitis.**—Murray claims that diet is a very important factor, probably the important factor, in the etiology of appendicitis. As this disease prevails among meat-eating nations it is further probable that the view of the late Dr. Williams is the correct one, namely, that the most important constituents in our food predisposing to appendicitis are the saturated fats, such as are contained in beef and mutton. Apart from the question of diet, other contributory causes have to be considered. Irregular meals, the "quick lunch," and imperfect teeth all play their part, and the general want of physical exercise is very noticeable.

Quarterly Journal of Medicine, London

July, VII, No. 28, pp. 325-495

44 *Aggressins in Appendicitis and Other Varieties of Peritonitis. A. D. Gardner.
45 *Leukemias: Analysis of Fifty-Nine Consecutive Cases. P. N. Panton, H. L. Tidy and G. H. Pearson.
46 *Fragility of Red Blood-Corpuscles in Physiologic and Pathologic States. A. D. Bigland.

47 Case of Prolonged Cheyne-Stokes Breathing (Twenty-One Weeks). W. H. White, J. H. Ryffel, E. P. Poulton, W. Johnson and R. A. Chisolm.
48 Importance of Functional Activity in Etiology of Nervous Diseases. W. Johnson.
49 Blood-Pressure Estimations in Disease by Oscillatory and Auditory Methods. G. S. Melvin and J. R. Murray.
50 Formation of *B*-Iminazolylethylamine in Ileum of Certain Constipated Subjects. Urine in Constipation. N. Mutch.
51 Family Cerebral Degeneration with Macular Change (So-Called Juvenile Form of Family Amaurotic Idiocy). F. E. Batten.
52 Diagnosis of Pancreatic Disease. A. F. S. Sladden.

44. **Aggressins in Appendicitis and Peritonitis.**—A considerable number of peritoneal exudates were tested by Gardner for aggressive action (inhibition of phagocytosis *in vitro*). Inasmuch as aggressiveness is the direct consequence of a profuse multiplication of bacteria, the greater the number of bacteria, the more likely is the fluid to act aggressively. Early exudates therefore (first twenty-four hours) are never aggressive. Gardner found that aggressive substances are nearly always present in pus from appendicular abscesses, and they do no harm so long as the abscess wall remains intact. But they may play an important and dangerous part when a channel of communication is formed between the abscess cavity and the general peritoneum. In spreading or already diffuse peritonitis, the formation of aggressive bodies signifying as it does bacterial activity, marks the onset of a graver stage of infection. A consideration of aggressins, their origin and their action, suggests that a discriminating use of bactericidal chemicals may be of great value in the surgical treatment of peritonitis. Ether and colloidal silver are two such bodies which have undergone a successful trial.

Any exudate found in the peritoneal cavity in gangrenous or perforative appendicular peritonitis may be aggressive, unless it is very recent (twenty-four to thirty-six hours), when it is very unlikely to show any aggression, or it is quite clear and transparent, in which case it is never found to be aggressive. Thick, offensive pus is nearly always aggressive, and usually to a high degree. Appendicular abscesses in the vast majority of cases contain markedly aggressive pus. The presence of a strongly aggressive exudate in the general peritoneal cavity is a great danger to the patient. In the treatment of several varieties of peritonitis, Gardner states, closer attention might with advantage be paid to the question of bacterial multiplication, and to the direct means which are open to the surgeon of checking it. Local chemotherapy by means of drugs which kill or paralyze bacteria without damaging to any considerable degree the living body-cells, Gardner says, is not only possible, but has been proved in practice to be at least worthy of a more extensive trial.

45. **Leukemias.**—Of 59 consecutive cases of leukemia studied by Tidy and Panton, 16 were classed as acute myeloid, 29 as chronic myeloid, 8 as acute lymphoid leukemia, and 6 as chronic lymphoid. It was evident that the clinical picture of leukemia varies with the acuteness or chronicity of the disease, and not with the lymphoid or myeloid origin of the cells. Acute lymphoid and acute myeloid leukemia are clinically indistinguishable, and so may be chronic lymphoid and chronic myeloid leukemia. Acute lymphoid leukemia has little resemblance to chronic lymphoid, nor acute myeloid to chronic myeloid, except in so far as chronic myeloid may terminate by a condition similar to the acute disease. One can distinguish by a blood examination between the acute and chronic types of myeloid leukemia, but not between acute and chronic lymphoid leukemia. The latter diseases are readily distinguished on clinical grounds. Acute myeloid and acute lymphoid leukemia can be distinguished by the type of cell present, but the conditions have been frequently confused and the clinical course is the same. The confusion has been due to a failure to distinguish between myeloblasts and lymphocytes. The differentiation is rarely if ever difficult for those accustomed to the use of Leishman's or other similar stains. In this connection the authors have found oxydase reaction to be quite useless. In no case in the authors' experience has the myeloid type of cell been replaced by the lymphoid type, or vice versa.

The effect of treatment in the acute cases has been negligible. In the chronic lymphoid cases changes have been extremely slight. In the chronic myeloid cases, some have changed little, others have changed to a remarkable degree. Those cases which have fluctuated to the greatest extent have been the youngest subjects. The blood of patients over the middle age reacts but little. There has been no instance of purpura in either of the chronic leukemias. In those cases of acute leukemia associated with purpura the spleen was invariably enlarged. Infiltrations of the skin, painful bones, and priapism occurred in no case. Oral sepsis did not appear to have any bearing on any type of the disease. The cases of acute myeloid leukemia include an interesting group of four patients whose predominant blood-cell was a so-called Rieder cell. This cell Tidy and Panton believe to be a large hyaline, partly on morphologic grounds, since the cell may be indistinguishable from the large hyaline of normal blood, and intermediate types between the normal cell and the primitive marrow-cell were numerous; partly on functional grounds, because these cells were actively phagocytic, as are those of the normal blood. They consider that a scrutiny of these cases affords strong evidence of the marrow origin of the large hyaline cell.

46. **Fragility of Red Blood-Corpuscles.**—A method is described by Bigland of accurately and easily determining the fragility of red blood-corpuscles toward the hemolyzing agent saponin. Human red blood-corpuscles show a constant figure of resistance toward saponin hemolysis. The serum is markedly protective against the action of saponin, but this power varies within certain limits. The corpuscles of various animals show marked variation in their fragility. In jaundice the resistance of the washed red blood-corpuscles is markedly diminished, while the protective action of the serum is markedly increased. This latter result is not due only to the antagonistic action of saponin and bile salts. In all the anemias, except pernicious anemia, the corpuscular resistance is increased. In pernicious anemia it is normal or slightly diminished. In splenic anemia there is great increase in corpuscular resistance, and the serum appears to have no protective reaction. In the anemia found in malignant disease, syphilis, tuberculosis, scurvy, amyloid disease and myelogenous leukemia, and in a case of splenectomy, there was an increased corpuscular resistance. In diabetes the corpuscular fragility is normal, while the serum in some cases is abnormally protective. In exophthalmic goiter and paroxysmal hemoglobinuria the corpuscular fragility is normal. In polycythemia the resistance is increased. A high temperature appears to increase corpuscular fragility.

Sei-I-Kwai Medical Journal, Tokyo

July, XXXIII, No. 27, pp. 39-43

53 Chief Symptoms and Signs of Acute Appendicitis. Y. Takaki.

Archives Mens. d'Obst. et de Gynéc., Paris

June, III, No. 6, pp. 513-602

54 The Thorax in the New-Born. E. Maurel.

Journal de Médecine de Bordeaux

LXXXV, Nos. 26-28, pp. 437-482

55 *Meningeal Symptoms in Scarlet Fever and Scarlatinal Uremia. P. Mauriac and P. Philip.
56 Multiple Skin Abscesses Due to Sporothrix; Two Cases. F. Bonnel, Verdelet, Petges and Lasserre.
57 Sunshine and Sea Air in Treatment of Surgical Tuberculosis. J. Doche.
58 *Hemorrhagic Effusion in Pleurisy. Creyx.

55. **Meningeal Symptoms in Scarlet Fever.**—Mauriac and Philip report the case of a child with unsuspected scarlet fever who suddenly developed epileptiform convulsions from severe uremia affecting the central nervous system. Under treatment the condition improved, the child roused and the temperature returned to normal, but the third day it ran up again and the child died in coma. Pneumococci were cultivated from the cerebrospinal fluid and there was a high urea content as also in the blood. In a second case the mild scarlet fever without albuminuria had been properly treated

but during convalescence the girl of 15 got chilled one evening and fulminating subacute nephritis with pulmonary edema followed and soon proved fatal. The extreme gravity of abortive, unrecognized forms of scarlet fever and the complexity of scarlatinal and uremic meningeal conditions are emphasized by these cases and some others cited. There were none of the signs of actual meningitis, no Kernig, no stiff neck, no vomiting; the convulsions dominated the clinical picture. The meninges evidently suffer in scarlet fever and one must be on the lookout for superposed acute infection. The prognosis otherwise depends on the degree of the retention of urea. A high temperature accompanying the convulsions suggests superposed infection.

58. **Hemorrhagic Pleurisy.**—Creyx says that when the effusion is hemorrhagic, clots may form and impede the escape of fluid when the puncture is made at the lowest point, which otherwise is the preferable technic.

Presse Médicale, Paris

July 18, XXII, No. 57, pp. 545-556

59 Technic for Intravenous Injection of Neosalvarsan with Small Amount of Vehicle. P. Le Damany.
60 Renaisance of Scientific Study of Mineral Waters. (Pouvoir catalytique des eaux minérales; leur richesse plurimétallique.) R. Glénard.

Revue de Chirurgie, Paris

July 10, XXXIV, No. 7, pp. 1-136

61 *Correction of Contracture of Fingers. M. H. Morestin.
62 *Retroduodenal Operation for Calculi in the Pancreas. (Lithiase pancreatique.) Lacouture and Charbonnel.
63 *Snapping Joints. (Les articulations à ressort; Subluxations volontaires intermittentes des articulations.) P. Bertein. Commenced in No. 5.

61. **Treatment of Deformed Fingers.**—Morestin refers to fingers permanently contracted as the result of some pathologic process in them or in the vicinity. Treatment is as simple as it is effectual when all the obstacles preventing the use of the finger are cut away in turn, the scar tissue, the debris of tendon sheaths, the muscles and the shriveled ligaments, passing systematically with minute care from one to the other until all that interferes with the straightening of the finger is done away with. The triangular or square flaps cut to alternate and turn back for access to the deeper soft parts, can be brought back to cover the defect, utilizing also the cicatricial tissue that has been binding down the finger, and the result is quite satisfactory, much more than would be anticipated. He has found it possible in this way to restore practically complete function to a thumb, for instance, left absolutely crippled after an abscess or other lesion. He makes no attempt to restore the tendons. The fingers can serve very useful purposes without the tendons; the muscles of the thumb suffice to bend it, and a finger once rendered flexible bends with the others. All his patients had the wage-earning power of the hand restored. He gives an illustrated description of five peculiarly striking cases.

62. **Calculus in the Pancreas.**—Lacouture and Charbonnel report a case in which a calculus was successfully removed from the pancreas, which was opened back of the duodenum. They have found only 133 cases of pancreatic lithiasis on record, including 16 in which operative treatment was applied. In their case roentgenoscopy later showed that the woman of 32 still has five very small calculi left in the pancreas. Although she feels well except for slight pain under the right costal arch, yet she is kept on a diet free from meat and fat in order to spare the pancreas as much as possible. In 5 of the 16 operative cases the stone could not be found and 3 of the patients died, as also 2 others requiring extremely complicated operations. The mortality was thus 34 per cent.; and 1 patient died several years later from pancreatic diabetes. The final outcome otherwise is not known except in 3 cases in which the patients were in good health after from four to fourteen months.

63. **Snapping Joints.**—No cutting is required as a rule to correct this tendency to volitional, intermittent subluxation in a joint. A plaster cast will hold the parts in place and give the stretched capsule a chance to retract and put an end to the abnormal play of the parts. Afterward the joint should be kept from overuse.

Revue Mens. de Gyn., d'Obstét. et de Pédiatrie, Paris

June, IX, No. 6, pp. 367-427

64 Tardy Fistula after Cesarean Section; Two Cases. A. Grosse.
65 Cystic Degeneration of Ovary with Hydatidiform Mole; Author's Fifth Case. G. Calderini.
66 Third Cesarean Section at Term in Three Years; Twins. R. Gilles.

Semaine Médicale, Paris

July 15, XXXIV, No. 28, pp. 325-336

67 Comparative Test Elimination of Iodin and Lactose in Various Types of Nephritis. F. Widal and P. V. Radot.

Archiv für klinische Chirurgie, Berlin

CV, No. 1, pp. 1-276. Last indexed July 25, p. 357

68 *Transplanted Connective Tissue. (Das cutane und subcutane Bindegewebe in veränderter Funktion.) E. Rehn and Miyauchi.
69 *Disturbances and Dangers from Cystic Goiter. (Kropfcysten.) Riedel.
70 *Tying Off the Pylorus. (Ergebnisse der Pylorusausschaltung durch Fadenumschnürung.) N. Guleke.
71 *Resection of Gastric Ulcer. (Resektion des Magens bei Magengeschwür.) G. Perthes.
72 *Cause and Treatment of Postoperative Abdominal Hernia. (Bauchbrüche.) Sprengel.
73 Stab Wounds of the Brain through Base of Skull. (Stichwunden des Gehirns von der Schädelbasis aus.) S. Solieri.
74 *"Total Peripheral Anesthesia" after Intravenous Injection of Local Anesthetics. A. W. Meyer.
75 Primary Resection of Large Intestine. (Dickdarmresektion.) R. von Rauchenbichler.
76 Connection between Disease in the Appendix, the Cecum and the Sigmoid Flexure. (Beziehungen der Erkrankungen des Wurmfortsatzes zu denen des Coecums und S Romanum.) E. Opitz.
77 Operative Reduction of Old Dislocation of the Elbow, with or without Fracture. P. R. von Walzel.
78 *Postoperative Necrosis of the Pancreas. Jenckel.

68. **Transplanted Connective Tissue.**—Rehn and Miyauchi give an account of their experimental research with skin and subcutaneous connective tissue used to substitute tendons, ligaments, etc., and fourteen clinical cases in which the method was successfully applied. Whether used as a twisted cord or flat sheet, it healed always in place without signs of irritation and answered its purpose perfectly either as a tendon, a ring to reenforce a sphincter, or a broad strengthening band. It seemed to answer the purpose fully as well as fascia or tendon flaps.

69. **Cystic Goiters.**—Riedel states that among the 1,075 patients who were operated on for goiter in his service, large cysts were found in the thyroid in 148. He here discusses the disturbances and dangers to which a tendency to such cysts exposes the patient.

70. **Tying off the Pylorus.**—Guleke has recently reexamined nearly all of the thirteen patients who required exclusion of the pylorus; this had been done by ligating it with silk. Two died in a few weeks from preexisting complications. The others were found all in good condition, the pylorus still completely shut off. He does not regard this method of ligating the pylorus as superior to others but his experience indicates that it is feasible and gives good results when special circumstances render it necessary to hasten the operation and bring the patient out from under the anesthetic. The eleven cases are reported in detail.

71. **Resection of the Stomach for Ulcer.**—Perthes reports that among 40 operations of the kind, the 18 patients treated by transverse resection all made a smooth recovery, while 2 died of the 17 with resection of the pylorus for a hard ulcer and one after resection of the middle half of the stomach. He has learned that 2 of the 11 patients with hard ulcer have died since from cancer, and this is probable also in a third fatal case. Even the resection did not save these patients.

All the other patients are in excellent condition and have gained materially in weight. Some complain of an insatiable appetite; they are ready to eat at all hours of the day, but not much at a time. Roentgenoscopy has explained this as due to the abnormally rapid emptying of the stomach after food is taken; the stomach being more of a straight tube, the food passes rapidly along and the lack of gastric digestion has to be made up by more frequent meals. The pylorus gapes all the time in these cases. These findings were obtained only in certain cases; in others the appetite seemed to be normal and roentgenoscopy showed that the food remained the usual time in the stomach. The secretion of gastric juice, however, was materially reduced in both classes of patients. The excellent general condition shows that the bowels are able to compensate for the deficiency in gastric digestion.

72. **Postoperative Ventral Hernia.**—Sprengel's article was the address to open the discussion on this subject at the last German Surgical Congress. It is illustrated and closes with the warning that the danger of postoperative hernia depends on the mode of the incision and its location; the upper abdomen is less liable to it than the lower. The principle of alternating and transverse incisions is unmistakably superior to the single incision. There is still uncertainty as to the best technic further, but there seem to be no reasons for prophylactic plastic operations to ward off ventral hernia. He does not approve of using an autoflap of muscle tissue to correct a postoperative abdominal hernia, preferring an unpedunculated fascia flap for the purpose. Paralysis of the abdominal walls and extensive stretching of the side walls of the abdomen must be regarded at present as beyond hope of a cure.

74. **Total Peripheral Anesthesia from Intravenous Injection of Local Anesthetic.**—Meyer made an intravenous injection of cocain in dogs and cats and gives the details of twelve such experiments. The injection was preceded by a little morphin and scopolamin, and the results confirmed those published by Meltzer, Kast and Ritter in regard to the total peripheral analgesia thus induced. Even the peritoneum seemed to be totally free from sensibility. Contact was evidently felt but no pain. The analgesia seemed to be restricted to the periphery; the peripheral nerve terminals to which the anesthetic is brought by the blood feel the effects while the nerve trunks escape.

78. **Postoperative Necrosis of the Pancreas.**—Jenckel states that he has had 11 cases of acute or subacute necrosis of the pancreas in his service in the last three years, and in two instances the necrosis had followed on an operation. In one of these latter cases the operation had been the removal of a cancer in the sigmoid flexure in a man of 56; in the other case a large ovarian cyst had been removed from a woman of 64. There had been nothing previously to suggest any pancreas trouble, and the acute necrosis developed soon after the operation and proved fatal the sixth and sixteenth days. He is inclined to ascribe the necrotic process to the resection of the omentum which had been required in each of the cases. Retrograde embolism followed, and this injured the pancreas tissue and started the autolysis.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

July, XVIII, No. 4, pp. 319-390

79 *Thorax Surgery and Differential Atmospheric Procedures. (Thoraxchirurgie und Druckdifferenzverfahren.) F. Steinmann.
80 *Iodin and Exophthalmic Goiter. (Basedow und Jodbasedow und deren Zusammenhang mit dem System der Drüsen mit innerer Sekretion.) A. Kempner.
81 *Reflex Epilepsy and Its Operative Treatment. S. Kalischer.

79. **Thorax Surgery and Differential Pressure.**—Steinmann lists 221 articles bearing on this subject and compares the experiences and views of the various writers with his own clinical work. He expatiates on the great value and importance of the differential-pressure procedures not only as an almost indispensable aid in operations on the thorax, but as also of service in revealing a wound in the lung by the air streaming through it, in locating foreign bodies, and in facilitating ligation or gentle clamping to expel the blood from a lobe. Another great advantage is that the suction of air aspirates out blood, mucus and pus in opening an abscess or other cavity in the lung. This is found extremely useful often in changing the dressings. Küttner made an opening into a bronchus in a case of deep stenosis of the trachea, thus permitting retrograde respiration. Differential pressure is also of great service in operating on the heart; in fully 80 per cent. of all wounds of the heart the pleura is injured likewise. Exploratory thoracotomy under differential pressure is now a routine measure, and by alternating positive and negative differential pressure, artificial respiration can easily be kept up indefinitely.

80. **Iodin and Exophthalmic Goiter.**—Kempner concludes from the literature on this subject that there can be no doubt that iodin, even in minute doses, is liable to elicit Basedow symptoms in persons with a goiter. The evidence further shows that true Basedow may develop from an acute thyroiditis. Three authors have published cases in which patients with clinically normal thyroids developed Basedow symptoms while taking iodid for arteriosclerosis, tabes or a false tumor in the brain. Romheld and Pincles have noticed a connection between an iodin-Basedow and an inherited taint such as diabetes, obesity, Basedow or neuropathy. This confirms anew the close connection between the iodin-Basedow and other glands with an internal secretion as well as the thyroid; possibly the Abderhalden reaction might throw light in these cases. Ohlemann does not agree with other writers on this subject; he states that exophthalmic goiter was favorably influenced in his own person by 10 or 20 drops daily of a ⅓ solution of potassium iodid, kept up for six weeks; his pulse-rate dropped by 68 beats. Later, he took 2 to 4 drops of tincture of iodin (P. G.), his pulse going down to 72 in ten days and the improvement persisting for ten months after this treatment. He thinks that too large doses are responsible for the unfavorable effects experienced by others.

Kempner warns that a family predisposition to goiter, Basedow and aneurysm of the aorta is sometimes evident, and calls for special caution in giving iodin. Kienböck found the thyroid slightly enlarged in nearly every case of dilatation or aneurysm of the aorta in men, and noted signs of hyperfunctioning on the part of the thyroid in most of the cases. He explains the tendency to goiter in these cases as the result of venous congestion from the pressure of the enlarged aorta. It is possible however that the thyroid may have become enlarged under the influence of preceding iodin treatment, or that both the thyroid symptoms and the aorta affection can be referred to a common cause, some upset in the ductless-gland system.

81. **Reflex Epilepsy.**—Kalischer applies this term to cases in which the epileptic seizure is a reflex reaction to peripheral irritation. His analysis of eighty-four articles published on the subject shows that in a large number of cases hysteria alone can be incriminated; in others the trauma was merely a contributing factor with a predisposition. At the same time there are cases on record in which lesions of the skin, mucosa, bones and meninges were evidently responsible for the epilepsy, and the latter was cured by appropriate treatment of the peripheral lesion. An interval of five years at least must be required before speaking of an absolute cure.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 4, XLIV, No. 27, pp. 833-864

82 *Pernicious Anemia in Children. M. Kusunoki.
83 Mechanical Treatment of Tuberculous Lung. (Zur intra- u. extrapleuralen Collapstherapie bei Lungenphtise.) W. Knoll.

82. **Pernicious Anemia in Children.**—Kusunoki reports from Basel the case of a girl of 6 with anemia of unknown cause. The color-index was high, the reds dropped from 1,868,000 to 510,000 and the hemoglobin from 40 to 10 per cent. in the course of five weeks. The presence of megaloblasts and megalocytes, absence of leukocytosis, the tendency to hemorrhages and all the histologic findings testified to true pernicious anemia. Several lymph-nodes were swollen but this is of such common occurrence in children that it can be disregarded in the diagnosis. Streptococci were cultivated from the tonsils. He reviews the few cases on record of pernicious anemia in young children, remarking that some of them evidently belong in other categories.

Deutsches Archiv für klinische Medizin, Leipzig

CXV, Nos. 5-6, pp. 399-638. Last indexed Aug. 1, p. 435

84 Composition of the Air in Pneumothorax. F. Tobiesen.
85 Ferments of the Sputum. (Chemie des Sputums. II.) E. Maliwa.
86 Adhesive Pericarditis and Disappearance of the Normal Lateral Vertical Change of Position in the Heart on Changing from a Lying to a Standing Position. W. Achelis.
87 Oxidation of Sugar in Pancreatic Diabetes. M. Landsberg.
88 Carcinomatous Meningitis. (Ueber latenten Meningealkrebs.) H. Eichhorst.
89 Heart Disturbances after Pneumonia. J. Zadek.
90 Analysis of the Mechanical Work of the Heart. (Dynamik des Säugetierherzens.) H. Straub.
91 *The Leukocyte Count in Miliary Tuberculosis and Its Value in Diagnosis. P. Wack.
92 Paradoxical Pulse. M. Semerau.
93 Effect of Human Serum in Scarlet Fever not due to Lipoids. (Scharlachbehandlung mit Humanserum und Serumlipoide.) W. Schultz.

91. **The Leukocyte Count in Miliary Tuberculosis.**—Wack declares that in miliary tuberculosis there is a relative decrease in the lymphocytes. This is found in cases in which there is no secondary affection, showing it to be due to the tubercle bacilli alone. There is a temporary decrease in the total leukocyte count in many cases. This is of value in the differential diagnosis from typhoid, purulent meningitis and pulmonary tuberculosis. A case is described that showed the clinical and hematologic picture of acute myeloid leukemia. Autopsy revealed subacute miliary tuberculosis. Roth believes that the miliary tuberculosis was the cause of the myeloid leukemia. Several similar cases have been described in the literature. The severity of the infection causes an early interference with the function of the bone-marrow, so that immature forms of cells are discharged into the blood.

Medizinische Klinik, Berlin

July 26, X, No. 30, pp. 1255-1298

94 Hygiene of Voice and Speech. (Stimme und Sprache.) E. Fröschels.
95 Serodiagnosis in Nervous and Mental Diseases. H. Neue. Commenced in No. 29.
96 *Treatment of Fresh Gonorrhea. (Eine Behandlungsmethode des frischen Trippers der Männer.) L. Merk.
97 Congenital Myxedema and Thyroid Treatment. (Thyreoaplasie und ihre Therapie.) W. Schemensky.
98 Etiology and Vaccine Therapy of Ozena. J. Safranek.
99 Heat as Factor in Balneology. (Anteil der Badewärme an den therapeutischen Erfolgen der Solbäder.) Jeddeloh.
100 Benefits of Early Treatment Seen in Workings of Workman's Compensation Laws. (Zur Frühübernahme des Heilverfahrens.) P. Zander.
101 Insufficiency of Bladder Sphincter in Women. (Blasenschwäche des Weibes.) B. Hirschfeld.
102 Protective Ferments in Urine. (Nachweis von sogenannten Abwehrfermenten im Urin.) V. Kafka.
103 Action of Carbonated Baths on the Circulation. (Zur Frage der Kreislaufwirkung kohlensäurehaltiger Solbäder.) O. Müller.

96. **Treatment of Recently Acquired Gonorrhea.**—Merk gives the patient a set of vials each containing a mixture of 0.03 gm. silver nitrate and 0.025 gm. potassium permanganate in pulverized form. When ready to use this is stirred into 0.25 liter of freshly boiled tap water. No syringe is used, merely a catheter No. 9, French, with two openings at the tip and flaring outer end. The fluid–still as hot as it can be borne by the urethral mucosa is drawn up into a rubber bulb and then forced out into the funnel opening of the catheter. It thus rinses out the urethra from the rear, and large amounts of fluid can be used. If the tap water contains salts that precipitate the silver nitrate, he varies the amount in the vials to correspond. The procedure is repeated three or four times a day and the whole technic is so extremely simple and easy that the patients apply it systematically and seldom shirk. Merk describes the biologic and chemical factors involved in the action of silver nitrate and shows how none of the would-be substitutes shares its truly potent properties, and how the claims made for some of the proprietary substitutes exalt into alleged advantages what are really drawbacks.

Wiener klinische Wochenschrift, Vienna

July 23, XXVII, No. 30, pp. 1093-1132

104 *Prophylaxis of Cholera in Greece by Preventive Inoculation. (Choleraschutzimpfung.) C. Savas.
105 *Changes in Spinal Fluid after Injection of Neosalvarsan. P. Biach, W. Kerl and H. Kahler.
106 Diastolic Blood-Pressure in Diagnosis of Disease of Aorta. J. S. Schwarzmann.
107 Electric Stimulation of Phrenic Nerve and Roentgenoscopic Findings Therewith. A. Henszelmann.
108 *Deleterious Influence of Nephritis on Procreation. (Einfluss der Nephritis auf die Zeugung.) J. Cecikas

104. **Anticholera Inoculations.**—Savas states that there was no cholera in Greece or its dependencies until Grecian troops invaded Bulgaria last July and entered cholera-infested cities after fighting their way over 250 to 300 kilometers in twenty-six days. Refugees to the number of 150,000 also poured into Greece from various directions, and thus cholera broke out almost at once in many towns. Even Saloniki had 600 cases. As soon as the truce was proclaimed, systematic inoculation of the troops and populace was commenced and the epidemic was arrested. Fully 2,503 soldiers were treated for cholera in the hospitals, with a mortality of 515 (20.6 per cent.), including 27 officers and 9 surgeons, with recovery of 22. The number of cases in old and new Greece was 5,200 and 5,300, with 1,665 and 1,700 deaths. Savas prepared 1,000 liters of cholera vaccine and had twenty flying cholera laboratories at work, and in three months had vaccinated all the troops, a total of 150,000 men, and 350,000 of the populace, a total of 500,000 souls. When possible each person was inoculated twice with an eight-day interval. The vaccination was done by the regiment's surgeons, and never to but a small part of the regiment at one time. It never seemed to interfere with their military duties.

Savas gives tables which show graphically the success of the measure. For instance, in the whole army 19 per thousand developed cholera: 93 per thousand among the unvaccinated; 42 per thousand among those inoculated only once, and 7 per thousand among those who had been twice inoculated. The mortality among the unvaccinated was 27.5 per cent. while it was 12.2 among those inoculated once and 10.2 per cent. among the twice inoculated. Cholera soon disappeared from the infested towns after the dual vaccinations.

105. **Changes in Spinal Fluid after Injection of Neosalvarsan.**—Biach and his coworkers state that in nine of twelve cases sugar appeared in the spinal fluid after injection of salvarsan or neosalvarsan. The findings are tabulated and compared with an equal number not given salvarsan treatment. The stage of the syphilis or the reaction otherwise to the injections did not seem to influence the sugar content. It seems evident that individual conditions are responsible for the appearance of the sugar. Persons with it are, possibly, more liable to react to salvarsan with nervous symptoms.

108. **Nephritis and Child-Bearing.**—Cecikas thinks it is more than a casual coincidence that only eight of his twenty-eight married patients with nephritis have borne healthy children; abortion was common and five of the women never conceived.

Zeitschrift für Kinderheilkunde, Berlin

June, XI, No. 3, pp. 191-266. Last indexed July 25, p. 363

109 Peculiar Form of Diphtheria of the Gums in Two Infants. Z. v. Bokay.
110 The Urine During the First Few Days of Life. T. Franz and A. v. Reuss
111 Metabolism with Congenital Fragility of the Bones. (Osteogenesis imperfecta.) A. Schabad.

Riforma Medica, Naples

July 18, XXX, No. 29, pp. 785-812

112 *Woody Phlegmon and Inflammation of the Thyroid. (Flemmone ligneo del Reclus e tiroidite lignea del Riedel.) U. Cavalli.
113 *Operative Cure of Gastric Cancer. G. De Francisco.

112. **Woody Phlegmon.**—Cavalli reviews the present status of our knowledge in regard to woody phlegmon and woody thyroiditis. Everything tends to show that they are identical processes and that nothing more is required for either than simple incision and draining at most. In a case reported, the large woody phlegmon developed in the abdomen after an operation for hernia which had been followed by an abscess and expulsion of the silk sutures. The patient was kept in bed, ichthyol packs applied with moist heat, and potassium iodid was taken internally. The hard swollen

expanse was not tender and an incision brought merely a little serous fluid, but streptococci were cultivated from a scrap of tissue. By the end of the month all had returned to apparently normal condition.

113. **Operative Cure of Gastric Cancer.**—De Francisco found only 4.44 per cent. operable in his 45 cases of gastric cancer in the last eight years, and one patient is now in the best health sixteen months after resection of part of the stomach and the pylorus by the Billroth I technic. He sutured with silk and the next day began to feed by the mouth. The third day the bowels moved after an injection of glycerin and the patient left the hospital the twelfth day. He was a man of 38 and the first symptoms were noted five months previously, pain in the stomach an hour after meals, most severe with solid food.

Norsk Magazin for Lægevidenskaben, Christiania

July, LXXV, No. 7, pp. 745-872

114 *Tuberculosis or Inherited Syphilis Responsible for Skin Lesions? W. Holland.
115 Mixed Viruses in Tuberculosis in Children. A. De Besche.
116 Nutrition in the New-Born. (Ernæringsforholdene hos nyfødte.) G. Benestad.
117 *Color Test for Uric Acid in the Urine. (Kolorimetrisk urinsyrebestemmelse i urinen.) H. F. Høst.
118 Melanosis of Left Sclera. H. Gjessing.
119 *Deformity of Urinary Apparatus. (Medfødte misdannelser av nyrer og urinveier.) K. Motzfeldt.

114. **Skin Lesions from Tuberculosis or Tardy Inherited Syphilis.**—Holland reports three cases in which an extensive ulcerative skin affection on the thighs, knees or lower leg was supposed to be of tuberculous origin and was treated as such for years, including Roentgen treatment in one case, but all to no avail. The Wassermann test once applied proved negative in one, positive in another, and under specific treatment the whole trouble in all promptly subsided in from two to five weeks, confirming the final assumption of a tardy manifestation of inherited syphilis. Other details that might have suggested this were the comparatively good general health; the absence of any demonstrable primary tuberculous focus; the extent of the area involved in a comparatively short period, and the fact that in one of the families eight children had died soon after birth.

117. **Color Test for Uric Acid in the Urine.**—Høst tabulates his findings with simultaneous application of the various color tests in vogue. They show that the Riegler method is especially simple and reliable when the technic is slightly modified, as he describes, to render the reagent more durable. It is a 1 per thousand solution of uric acid made by dissolving 0.1 gm. uric acid in a little distilled water in a 100 c.c. graduated flask; adding 10 c.c. of a 0.4 per cent. solution of lithium carbonate and heating for ten or fifteen minutes until the uric acid is dissolved. Then the vessel is filled up to the mark. This solution keeps for a week. He precipitates the uric acid as ammonium urate. Otherwise the technic is the same as Riegler's.

119. **Deformity of Urinary Apparatus.**—Motzfeldt found 79 cases of deformity of some kind at 4,500 necropsies, including 9 of horse-shoe kidney; double ureters in 23; hydronephrosis in 21; aplasia in 10, and hypoplasia in 11—a total of deformities of some kind found in the urinary apparatus in 2 per cent. of all the cadavers. One of the kidneys was abnormally small in 22 cases; the other was hypertrophied in only a few instances.

Ugeskrift for Læger, Copenhagen

July 16, LXXVI, No. 29, pp. 1275-1318

120 *Roentgen Treatment of Uterine Benign Growths and Hemorrhage. J. Nordentoft, H. J. Panner and S. Kjærgaard. Commenced in No. 28.
121 *Radium Treatment for Cancer. (Om Prof. Rovsing og Radiumterapien for Kræft.) E. A. Tscherning.

120. **Roentgenotherapy of Uterine Hemorrhage and Benign Growths.**—Nordentoft devotes six pages to tabulation of the details of the fourteen cases of fibromyoma or metrorrhagia in which he has given a systematic course of Roentgen treatment. All were much benefited, with one exception; this patient was a woman of 40 with a very large myoma. The tumor subsided by about a third but the bleeding kept up and the uterus was amputated. Not a trace of follicles could be found in the ovary; this explained, he thinks, the failure of the radiotherapy. The patients came to his office for the exposures about once in three weeks. He does not think the danger of overlooking a cancer very imminent, especially as sarcoma is particularly sensitive to the rays and would probably retrogress under the mere treatment intended for the myoma. He remarks that he has been unable to find on record any instance of malignant degeneration in the relics of a myoma or fibroma that has retrogressed under Roentgen treatment. On the other hand, he warns to be very wary with the curet; he has encountered two cases in which there was suppuration or necrosis in myomas after curetting of the uterus. The most gratifying results are attained in climacteric hemorrhage without growths of any kind in the uterus. The tendency to hemorrhage is usually promptly and permanently arrested by the Roentgen rays. He makes it a rule to carefully refrain from this treatment when the woman is in the child-bearing age.

Panner and Kjærgaard advise a preliminary curetting for an elderly patient and waiting to see whether this alone will not cure. Acute torsion of the myoma or acute disease in tubes or ovaries or cystic or calcified myomas contra-indicate Roentgen-ray treatment, but chronic disease in tubes or ovaries does not. The nearer to the menopause age, the more effectual are the Roentgen rays.

Sarcomatous degeneration of fibromas is said to occur in from 2 to 10 per cent. but they think this is above the reality; it is not always easy to differentiate a sarcoma from certain fibromas. Even if a sarcoma should thus be overlooked, it is possible that it might retrogress under the roentgenotherapy. The possibility of malignant disease must be taken seriously into account not only for the dire consequence of overlooking cancer but also because it is of such comparatively frequent occurrence; Freund found cancer in the uterus or ovary in 6 per cent. of 500 myoma cases; Klein in 7.7 per cent. of 491 cases, and Mackenrodt in 7.7 per cent. of 418 cases. They cite quite a long list of cases in which a dermoid cyst, or uterine or ovarian cancer was given a course of Roentgen treatment on a mistaken diagnosis. Sellheim's case is also quoted in which a preliminary curetting showed the uterus free from cancer and the malignant disease developed during the course of the Roentgen treatment; it was in the body of the uterus in this case, and in the cervix in Pranqué's and Runge's cases. In conclusion they protest against the assumption that the rays have superseded operative treatment of uterine myomas. They do not supersede but supplement each other. The most suitable patients for roentgenotherapy are elderly women with uncomplicated fibromas and menorrhagia. Also patients whose fibromas are accompanied by constitutional or kidney disease, phlebitis or obesity. The patients must be supervised with special care during the course of treatment so that any mistake in diagnosis can be corrected at once.

121. **Radium Promotes Instead of Checking Cancer.**—Tscherning replies to Rovsing's article with the above title recently summarized in these columns August 8, p. 520. Tscherning protests against his conclusions, declaring that all of the ten cases reported were hopeless from the start, as evident from the published details, or else the dosage was inadequate or the technic defective. Tscherning takes up each of the cases in turn and analyzes them, pointing out discrepancies and expatiating on the absolutely opposite results obtained by other workers with radium. In the 201 cases treated at the Copenhagen radium station during the last years there was nothing to suggest in the remotest Rovsing's experiences. Tscherning admits that the first enthusiasm over radium was excessive, and he calls attention to the warning published by Wickham and Degrais in 1912 that small cancers in the mucosa in the mouth had better be excluded from radium treatment; one of Rovsing's cases was of this kind.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 9 Chicago, Illinois August 29, 1914

THE MEDICAL TREATMENT OF CHRONIC INTESTINAL STASIS*

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Constipation has appeared under a new descriptive name, viz., intestinal stasis; but it is the recognition of the fact that poisoning may result therefrom that has made constipation and its treatment the subject of renewed interest. Constipation is not necessarily a condition of infrequent defecation, but may be accompanied by one or more daily stools and even diarrhea. This is seen (1) in the so-called "cumulative constipation," in which in spite of daily defecation there is a gradual feeling of accumulation and great benefit from a weekly cathartic; (2) in fecal impaction or fecal tumor, through or around which material finds a passage, though much retarded, or the irritation of which causes diarrhea; (3) in Boas' "fragmentary constipation," in which there is a constant consciousness of feces in the rectum, but no relief from repeated attempts at defecation, these resulting merely in the passage of one or two fragments now and then, and (4) in the condition in which, in spite of one or more daily stools, occasional hard, foul-smelling masses are passed.

A review of the treatment of chronic constipation might very properly be preceded by a discussion of the causative factors of the condition; but I shall omit this discussion, because I intend to confine my remarks to the treatment of those cases of chronic stasis with no discovered anatomic or pathologic condition to which the stasis may be attributed. These constitute the great majority of stasis cases, and are seen every day by the physician.

Measures for relief in such cases of chronic intestinal stasis include: the formation of good defecation habits, prompt response to the desire to defecate, exercise, massage, support of the abdominopelvic walls, foods, water-drinking, softening agents which increase the bulk of the feces, cathartics, suppositories, enemas and surgical intervention.

1. *Habit Formation.*—This is the establishment of a regular time for the daily stool. The best time would seem to be just after breakfast, because the morning activities and the taking of food both favor colon peristalsis. By the Roentgen ray Hertz noted a perceptible advancement of the colon contents after each meal, and this was most marked after breakfast. Cash noted the increased movement after exercise. Even when there is no desire to defecate, the attempt should be made; for the voluntary effort may force some feces into the rectum and so result in the regular defecation reflexes, and the passage of a stool. Good habits also include proper attention to the act itself, for failure to defecate may result from the concentration of the mind elsewhere, as on some interesting book or newspaper.

2. *Response to Desire.*—In those who do not go to the water-closet when the desire comes, the feeling tends to pass away, and the fecal matter remains in the rectum without arousing further desire to empty the bowels. If this is often repeated the rectum loses its sensitiveness. Hence, rectal insensitiveness is a cause of intestinal stasis in those who habitually suppress the desire to defecate. Such are dentists and other professional people, women in business who have to pass a number of men to reach the water-closet, those who have access to filthy closets only or are subject to inadequate facilities, etc.

3. *Exercise.*—It is generally understood that bodily activity is sufficient to ensure good bowel movements. Yet we have encountered a number of athletes and active persons who were constipated, and some who led very sedentary lives and yet had daily copious stools (the latter are usually large eaters). Other things being equal, however, exercise tends to promote defecation, both by creating rapid changes in intra-abdominal pressure, and by increasing the appetite so that more food is taken and the food residue in the bowel correspondingly increased. Any active exercise may be prescribed, such as brisk walking, running, rowing, horseback-riding, tennis and golf, all of which are done in the open air, or dancing and gymnasium and home exercises, which are taken indoors. Simple daily exercises of benefit may be taken in the lying or standing position. Those to be taken in the lying position might be: lying on the back and raising the legs, one at a time and both together to a right angle with the trunk, raising the trunk to a right angle with the legs, etc. Those taken in the standing position might be: bending forward, knees stiff, till the fingers touch the floor, and then backward as far as possible, the hands being raised above the head; bending far over to one side and then to the other; rotating the body on the hips, the arms being extended; alternately raising the knees till the thigh hits the abdomen, etc. These exercises should be performed in a quick and positive manner, and not in a dilatory way. Troublesome exercises and difficult postures such as the Trendelenburg and knee-chest, are seldom persisted in by the patient for any length of time.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

4. *Massage.*—This may be a helpful measure when the manipulation of the abdomen is done by some one with general anatomic knowledge and special information about the abdominal organs of the patient under treatment. It should not be instituted if there is any suspicion of a duodenal ulcer, a chronic appendicitis or other inflammatory condition. The bladder should always be empty. The massage may be either superficial or deep. It may be performed by kneading, by a rotary motion in which the abdominal wall slips over its contents, by a rapid vibratory motion, or by rapid slapping with the edge or flat side of the hands, always with a general movement in the direction of the colon. It may be given with a mechanical vibrator. Self-massage may be carried on by rolling a cannon ball, or ball of clay covered with chamois skin or leather, or a wooden ball filled with shot, over the abdomen in the direction of the colon.

5. *Support of the Abdominopelvic Walls.*—In defecation, normally the anterior abdominal muscles, the diaphragm and the pelvic floor contract or are set so as to raise intra-abdominal pressure. In most cases with ptosis of the viscera, however, not only do the weak abdominal muscles fail to make pressure, but also, by allowing the viscera to fall away from the diaphragm, they deprive this latter of its usual resistance. It is therefore difficult to raise intra-abdominal pressure. Hence an inelastic support extending around the body and from navel to symphysis should be applied the first thing in the morning and worn till bedtime. In addition, if there is laxity of the pelvic floor, this should be attended to by a pessary or the necessary surgery.

6. *Foods.*—So far as their effect on the bowel movements is concerned, foods might be classed according to the chemical substances they contain, and the amount and character of their residue. They tend to promote peristalsis: (1) by increasing the bulk of the intestinal contents, as by their structural parts such as cellulose, skins, etc., and by unabsorbed oils and fats; (2) by mechanical irritation, as by seeds or husks; (3) by chemical action, as by sugars and fruit acids and their salts, and digestive products, such as soaps, amino-acids, etc.

It goes without saying that those who habitually undereat will be constipated; in fact, simple undereating is a frequent cause of constipation. The same is true of those who habitually eat food that is too readily digested. In either case the residue is insufficient. Therefore, abundant mixed meals usually favor bowel movements. For residue, cellulose, as furnished by fruits, vegetables, and other plant products is of very great importance; in fact, Rubener states that in the absence of cellulose almost everything is absorbed. Substances rich in cellulose pass into the intestines as paste and stimulate peristalsis, while meat, eggs and milk pass along as liquids, and so favor segmentation, but not peristalsis (Cohnheim). The products of the latter type are then rapidly absorbed and leave but little residue. Hertz reports that of the dry substance of meat, eggs, white bread and rice, only 5 per cent. appeared in the feces; while of the dry substance of green vegetables and brown bread 15 per cent., and of the dry substance of carrots and turnips, 20 per cent. was recovered. The feces of a mixed diet gave 100 gm. of water and 35 gm. of dry substance; the feces of a vegetable diet, 260 gm. of water and 75 gm. of dry substance.

Vegetables and salads mostly contain much fibrous tissue and cellulose. Many of them should be quite as much esteemed for the residue they leave for the bowels as for the nutritive matter they furnish for absorption. Such are lettuce, spinach, carrots, parsnips, oyster-plant, turnips, cabbage, cauliflower and squash. The salad dressing may be a means of furnishing abundant oil, which tends to be laxative.

Farinaceous foods include the cereals, the starchy vegetables, such as potatoes, and foods made with flour, such as bread. The cereals contain more or less cellulose. Oatmeal is especially laxative, because of the presence of indigestible husks and excessive cellulose and fat. It is often taken in the form of crackers. White bread leaves very little residue, but bread, biscuits and crackers made of graham flour, or containing bran, leave a large residue and tend to be laxative. It is to be remembered that graham flour is made by grinding the whole of the wheat kernel, bran and all, and is not bolted, so that it contains coarse particles. The so-called whole-wheat or entire-wheat flours have a portion of the bran removed and are bolted, but are coarser than white flour.[1]

Fats tend to be laxative largely because of the soaps which are formed from them in the intestines. They may be given in the form of cream, butter, olive oil, etc. It goes without saying that the greater their nutritive power the less is their laxative effect; for if they are absorbed they do not pass on to the colon.

Fruits contain sugar, cathartic acids or salts, indigestible structural parts (fiber, cellulose, skins, etc.), seeds and non-absorbable colloid pectin bodies. Those most frequently considered laxative are prunes, figs and dates; but an apple, an orange or some grapes at bedtime or before breakfast will often insure the morning stool. Of this latter group, the acids and salts belong to the saline cathartic class. In young children one or two teaspoonfuls of orange-juice may be an effective stimulant to the bowel, its acid changing in the duodenum to the laxative sodium citrate.

Fruits and other coarse foods have the great disadvantage that they tend to promote gastric hyperacidity and flatulence. In obstructive or spastic types of constipation they may impede the action of the bowels, or may even form a food ball in the intestines. In one case, Coerr[2] removed from the ileum a ball which weighed 945 gm. and was composed of cereal husks, fruit seeds and other plant parts. In a number of instances we have found that the bowels acted better when the patient stopped fruit-eating.

7. *Water-Drinking.*—In those who live on a dry diet constipation is the rule; but the converse is not true, for the ingestion of large quantities of water does not make the bowels move. In two normal cases and six cases with chronic nephritis, we observed the effects of the administration of 8 ounces of water each hour for fifteen hours daily for one week. That was 7½ pints of water a day by mouth. In the normal cases the only noticeable effect was increased urination, the bowels not showing any increased activity. In the kidney cases the only observed effect was edema, neither the kidneys nor the bowels being appreciably increased in activity. As a matter of fact any excess of water is normally absorbed from the intestines with rapidity, and in any but kidney cases it serves to activate the kidneys rather than the bowels. Such absorp-

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[1] Bull. 143, U. S. Dept. Agric.

[2] Coerr, F. D. H.: Enteroliths, The Journal A. M. A., Dec. 20, 1913, p. 2238.

tion of water may, however, be greatly retarded by the solution in the water of salts containing poorly absorbable ions, such as the saline cathartics, or by substances in the digestive canal that hold the water, such as agar-agar (See next paragraph). And since, in order to keep the feces of a soft consistency, the food residue must hold a certain amount of water, the drinking of a reasonable amount of fluid should be prescribed for those who habitually underdrink.

8. *Medicinal Agents Which Give Bulk and Soft Consistency to the Feces.*—The more commonly employed ones are: agar-agar, liquid paraffin, and small (not expulsive) doses of the saline cathartics.

1. Agar-agar absorbs water and increases greatly in bulk, so that it softens and enlarges the fecal mass. It is not absorbed unless changed bacterially, but it has the disadvantage that if it is not carried out, it forms a most excellent culture medium for the growth of intestinal bacteria. It is not a very effective laxative and usually requires the addition of a little phenolphthalein or cascara. Used in a similar manner are flaxseed and psyllium seeds, which absorb water, become mucilaginous, and increase the fecal bulk. They serve the purpose of making the bowels move, but they are very subject to fermentation, with the development of gas in the intestines.

2. Liquid paraffin (petrolatum liquidum) is a remedy that has been extensively employed since it was called to the notice of the profession by Sir Arbuthnot Lane. It is a viscous liquid that is not at all changed chemically and not at all absorbed from the alimentary tract, as shown by Bradley, 1911, and by Bloor, 1913, hence it serves to soften and to increase the bulk of the feces. It is also believed to be strictly non-irritant. Whether or not it exerts in the bowel a disinfectant effect on some of the strains of fecal bacteria has not been demonstrated. Finch and others have shown that it lacks disinfectant effect, but that, by virtue of its viscous and oily nature, it acts as an agent which retards the growth of bacteria implanted in it, but this does not serve as a test of its antibacterial value when mixed with food residue in the ileum or colon.

The refined oil is almost tasteless, is readily swallowed without any added flavor, and in doses of from 1 to 3 ounces a day is a mild but often efficient laxative. On account of its oily nature, it should not be taken just after meals, but preferably when the stomach is empty, that is, about an hour before lunch and dinner and at bedtime, for the oil will retard gastric digestion and prolong the emptying time of the stomach. In some cases, especially those in which the stomach-emptying is already retarded, the oil is not well tolerated, causes nausea or regurgitation, and has to be stopped. In others of the chronically constipated, the oil leaks from the anus so that it greases the clothes, yet without giving a proper stool; or it passes down as free oil without admixture with the food residue. In these cases reduction of the dose of oil and persistence in its use may meet with the desired result, but a small dose of another laxative, such as cascara, may be necessary.

On account of its recent extensive use as an internal remedy, a few words in regard to the quality and properties of this oil may be in order. It is quite generally asserted that the Russian oil is superior to the American for two reasons: (1) the absence of the harder paraffins, and (2) the absence of members of the olefin series of unsaturated hydrocarbons. But in the best American oils the paraffins are removed by chilling, and according to Sir Boverton Redwood, in his extensive work on petroleum, there is no sufficient evidence that the unsaturated hydrocarbons of Pennsylvania petroleum are olefins, and that, in any case, if there are any present they are readily removable by strong sulphuric acid. Redwood further states that "comparison of results obtained with American, Galician and Russian petroleum shows that the same classes of hydrocarbons—the paraffins, the polymethylenes or naphthenes, and the aromatic hydrocarbons—are present in the petroleum from all three sources, but that the relative amount of naphthenes and in all probability of aromatic hydrocarbons is greatest in Russian and least in American petroleum." Marcusson[3] claims that, of stable saturated hydrocarbons which react with fuming nitric acid, the Russian oils contain a higher percentage than the American oils. There is obviously some difference between the Russian and American oils, but in the well-refined products the difference is not marked.

As a matter of fact, after a certain fraction of petroleum of the specific gravity desired has been obtained by repeated fractional distillations, the regular process of refining is to subject it to the action of strong sulphuric acid, then caustic alkali, and then water for thorough washing. A stream of dry air carries off the water. In some instances the oil is filtered through diatomaceous earth or bone-black. This refining process must be repeated many times, indeed as often as fifteen or sixteen times, perhaps, and it correspondingly increases the expense of production.

The proposed text for the Ninth Revision of the U. S. Pharmacopeia describes "liquid paraffin" as free from fluorescence, without odor or taste, and not acted on or colored by concentrated sulphuric acid or nitric acid in the cold. The British Pharmacopeia specifies that when the oil is mixed with an equal volume of sulphuric acid in a test-tube and placed in boiling water for ten minutes with frequent agitation, the color of the separated layer of acid should not be of a deeper tint than pale brown.

I have tested a number of oils on the market. Of nine samples which have been mixed with an equal volume of sulphuric acid, a portion not having been heated, and a portion having been heated on a water-bath for ten minutes, nearly all fail to come up to the requirements. Three of these samples are American and are fluorescent. The others are sold as Russian oil. Obviously the oils on the market are of very poor quality.

We do not yet know whether, when used internally, an oil is or is not harmful if it is not fully refined; but till we do know, it is the part of wisdom to demand only the very best.

In regard to the specific gravity of these oils, it would seem that the more viscous oils, those of specific gravity from 0.880 to 0.890, are the ones of choice. I have been of the belief that lighter oils than this were likely to pass through the bowel without satisfactory admixture with the feces; but in a study of this subject, I find that there is no rule about it, and that at times in certain patients, the heavier oils as well as the lighter will give a stool of pure oil or will leak from the anus. The question of the requirement of a high specific gravity must, therefore, remain an open one.

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[3] Marcusson: Chem. Ztschr., 1912.

The more solid paraffin preparations, such as white petrolatum have also been employed in the form of a flavored and usually colored jelly. They are apparently just as active as the liquid preparations.

3. Of the saline cathartics, the softening doses are smaller than the usual expulsive doses; for instance, 1 or 2 drams of magnesium sulphate or milk of magnesia are given at bedtime, or morning and night. They act by retarding the absorption of water and so increasing the amount of water that reaches the colon. This prevents too great concentration of the feces in the colon. The larger expulsive doses of saline cathartics should not be used daily for any length of time, for they bring about a "peristaltic rush" for one or two hours only, and accustom the bowel to an entirely abnormal action.

Of the anthracene cathartics, senna, rhubarb, cascara, aloes, aloin and phenolphthalein, little need be said, for they have been prescribed with great benefit by the profession for many years.

At times the use for a few nights of an injection of one pint of warm olive oil to be retained through the night, together with one of the softening agents by mouth, will have a wonderful effect in starting the bowels on a new line of activity. Indeed, a number of the chronically constipated referred to us for advice as to the need of surgery, have apparently completely overcome their chronic stasis by this treatment. Sometimes it is wise to renew the oil injections for about one week in each month.

Having thus reviewed some of the simpler remedies, we might sum up the treatment of chronic intestinal stasis as follows: Regularity of defecation, measures to improve intra-abdominal pressure, measures to increase peristaltic activity, and measures to increase the bulk and softness of the colon contents. In the average case attention to habits of life and to the amount and kind of food, and the administration of a softening agent or a very mild laxative will be effective in overcoming the stasis, and, therefore, the toxemia. In severe cases, the addition of an oil enema at night may work a marvelous change for the better. In these chronic cases the drastic cathartics should be omitted from use.

If measures such as those spoken of, when carried out thoroughly, do not overcome the stasis and the toxemia, the question of surgery should be seriously considered.

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ABSTRACT OF DISCUSSION

Dr. T. F. Riley, New York: This question of intestinal stasis every practitioner must face. One or two points with regard to constipation may be mentioned. Many people who drink beer at night have free movements in the morning; light beers produce this, also buttermilk. Whether it is due to the liquid or to acid fermentation is a question. Chronic constipation is sometimes due to tightened sphincter. One should always examine the rectal sphincter. Its dilatation in children and infants will often cause the child to have a regular daily movement. In adults the use of dilators is often successful in producing these results. Bran is now popular, but, in its ordinary form, it becomes wormy and filled with vermin during the summer. A number of firms are putting out sterilized bran. I believe the large quantity of sulphur contained in the American mineral oil is distasteful to the patient. Whether a patient is benefited by the use of the oil or by the cathartics of the cascara series is a question. It is more disagreeable to take the oil than the tablets and the results do not warrant the use of the oil in preference to the tablets in many cases.

Dr. George Parker, Peoria, Ill.: Does or does not phenolphthalein produce albuminuria?

Dr. Robert A. Hatcher, New York: How about aloin used alone? We know that belladonna or atropin in small doses stimulates the vagus in the splanchnic area and there is a secretion in the pancreas which is due to this stimulation, and if atropin has this activity then it should have just as great an action on the liver. I would say that a good specimen of aloin is just as good as aloin, belladonna and strychnin. The specimen, however, must be good.

Dr. W. A. Bastedo, New York: I never heard of any special effect of beer on the bowels. I did not include consideration of the tight sphincter, as when there is such an obvious reason for constipation as that we should find it out. In normal people there are no feces in the rectum, or only a few remnants. When there are feces in the rectum and the patient is not cognizant of the fact, then we have a troublesome condition with which to deal. There is usually atony of the walls as well as lack of sensitiveness. Replying to Dr. Hatcher, in a number of instances I have tried aloin pills and aloin, belladonna and strychnin pills on the same patient, and the simple aloin pills did not work so well. It is true there is sulphur in the American oil, but this is not the cause of the excessive darkening with sulphuric acid in these samples. Undoubtedly the American oils are less well refined than they might be, for the samples shown are the best oils available on the American market. Two of them also are fluorescent and according to the pharmacopeia should not be used. Rowntree found that when phenolphthalein was given by the mouth it was not found in the urine, but when given hypodermatically it was excreted by the kidneys. I have noted that, at times, in patients taking only laxative amounts of phenolphthalein by mouth, the urine will at times turn pink on the addition of alkali. This would indicate some absorption with excretion by the kidneys. It does not cause albuminuria.

INTERNATIONAL STANDARD FOR TESTING VISION AND STANDARDIZING OTHER VISUAL TESTS *

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The cards of test-letters in common use are admirably adapted to the subjective determination of errors of refraction; but as a test for visual acuity they probably afford the poorest and most inexact standard on which any scientific observations are now based. As a standard for visual acuity, test-letters belong to the stage of mental and scientific development when the standard for length was "three full grains of barley corn taken from the middle of the ear," or "the distance a man can walk between sunrise and sunset."

As a help in the subjective measuring of refraction they are superior to any substitute that has been proposed and are not likely to be given up. But as a scientific standard they possess two essential defects:

1. The different letters when made as uniform as possible are visible from very different distances. This makes them unsuitable for a scientific standard.

2. They can be readily committed to memory by all who are sufficiently familiar with them to make them a convenient test. This lessens their value as a practical test.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

For these reasons test-letters should be standardized before they are used as a basis for records of visual acuity, and they should not be used when testing visual acuity is the only purpose to be served.

Every one who has attempted to establish a scale of test-letters has been struck by their differences in visibility. When Snellen attempted to make letters uniform by using a block-letter in which the lines and minimum spaces should have a uniform width, subtending a 1-minute angle at the standard distance, each letter to occupy a 5-minute square, he rejected as unsuited to the purpose the letters I, J, M, Q, W and X. Green carried the process farther, rejecting twelve letters and using fourteen. Oliver used only seven, but he still admitted letters that varied as much as 40 per cent. in visibility. The logical conclusion was reached only when a single set figure was adopted as the test, as in Snellen's optotypes for the illiterate published in 1873 (Fig. 1 *A*).

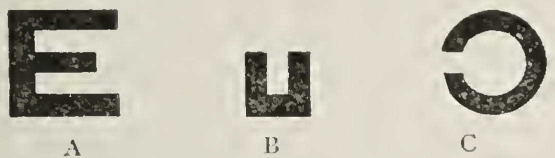

Fig. 1.—*A*, Snellen's optotypes. *B*, Jackson's incomplete square subtending an angle. *C*, Landolt's broken ring.

Before this section at the Nashville meeting in May, 1890, I proposed the simple form of the incomplete square, subtending an angle of 3 minutes (Fig. 1 *B*); in 1889 Landolt had suggested the broken ring (Fig. 1 *C*), and at Naples in 1909 the International Ophthalmological Congress adopted the broken ring as an international standard test for visual acuity, the most important official action that has ever been taken by an international ophthalmological gathering. Either one of these tests furnishes an exact measure for visual acuity, so far as visual acuity is capable of exact measurement, and one enormously superior to any furnished by letters, numerals or any series of conventional figures.

The difficulty of using a series of differing figures for a scientific test has been encountered by every one who has attempted to arrange a series of test-type, but few have appreciated the impossibility of an accurate standard of visual acuity resting on such a basis. In 1885 Dennett[1] read before the American Ophthalmological Society a paper on test-type in which this unsuitability of letters to furnish a standard test was well brought out. More recently it has been illustrated by the work of Gebb and Löhlein.[2] Dennett took the block-letters of the forms used in Monoyer's test-card, and found that letters 25 mm. in height could be recognized at distances that varied from 10.3 meters for the B and S, to 17.7 meters for U. He analyzed the differences of visibility and proposed and arranged test-cards in which the letters of each line should all be visible at nearly the same distance. To show how different such a test is from those we are accustomed to rely on, a line from one of these cards is reproduced in Figure 2.

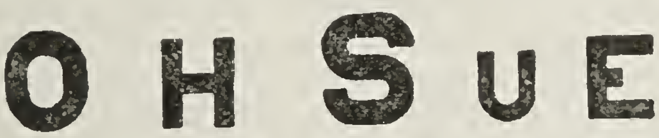

Fig. 2.—One of Dennett's lines of test letters. All about equally visible at 20 feet.

So far as I know Dennett's tests have never been extensively used. While they would be superior to any other published series of test-letters for the scientific testing of visual acuity, they are not quite equal to the international standard for this purpose, and are distinctly inferior for the other purpose for which test letters are employed, the subjective determination of errors of refraction.

It would be absurd to spend time arguing the unfitness of letters as ordinarily printed on our test-cards for making scientific measurements, if they were not almost universally employed for that purpose. To use a tape measure that would spontaneously contract to 20 inches or stretch to 36 inches would be an absurdity of the same order as to use as equivalents letters, some of which can be just recognized at 20 feet and others at 36 feet, calling them all 20-foot letters.

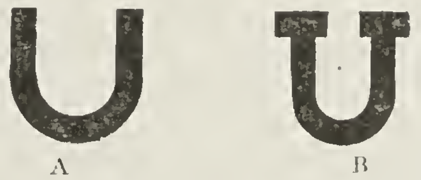

Fig. 3.—Different forms of the same letter inscribed in squares of the same size, subtending an angle of five minutes at about 30 feet.

Such is the variability of letters of a single style used on a single card. The recognized forms of letters, even of capital block-letters, to be found in a well-equipped printing establishment, run into the hundreds. Three or four fairly distinct types of block-letters are in use on our test-cards. The differences of visibility vary with all these different forms. One firm has put out test-cards on the five-minute basis and others on a four-minute basis. The letters on the latter, although only four-fifths the height, can be seen quite as far as those on the former, because they are of simpler form. The block-letter U, if made as at A in Figure 3, can be recognized 50 per cent. farther than if made as at *B* in Figure 3. When to these differences in the letters of the roman alphabet are added the myriad differences of the different alphabets of the world, the *reductio ad absurdum* of testing visual acuity by letters becomes complete.

In contrast with this take the mathematical exactness and constancy of the international standard test. If one always used the same test-card and could have the same letter or letters of equivalent visibility on every line of the card, it would be possible to obtain records of practical accuracy for individual use. As this is not done, when of different visibility, the test-letters fail us even in this practical service. I have a test-card in which the letters are so chosen that the 6-meter line is quite as easy to read, perhaps is more often read correctly at the same distance, than the 7.5-meter line on the same card.

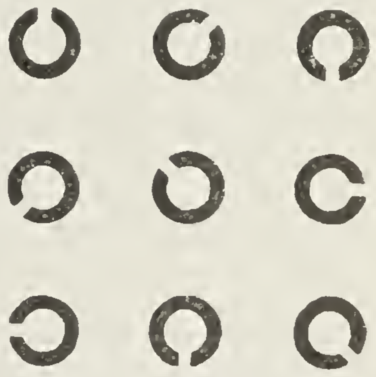

Fig. 4. — International test. With normal vision, the direction of the break in the ring can be recognized at 5 meters.

Our test-cards become brown with age, or worn out, and often are not exactly replaceable. I doubt if I could get now, without having them especially made, samples of any of the test-cards used in my first five years of practice. There are advantages in using different test-cards in testing the two eyes, or in testing the same patient on successive days, and as the different cards have different series of letters to be recognized at the same distance, the practical result is that all records of visual acuity made with test-letters have a very indefinite significance, even in the practice of one surgeon. When it comes to comparing the work of different men, especially in different parts of the world, the practical value of records of such visual acuity is greatly impaired. If the 6-meter line is easier to read than the 7.5-meter line, what do we learn when told that at one visit the patient read most of the 7.5-meter line, and then under treatment he read a week later all of the 6-meter line?

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[1] Dennett: Tr. Am. Ophth. Soc., 1885, iv, 133.
[2] Gebb and Löhlein: Arch. f. Augenh., 1910, lxiii, 69.

So much for the first objection to test-letters. The second objection is of equal practical importance. It has not been very rare for men required to pass visual tests for a government or railroad service to obtain a copy of the test-card used and commit the letters to memory and thus pass the usual examination without possessing the required visual acuity. Many ingenious contrivances have been devised to prevent such evasions of the test. William Thomson arranged radiating lines of test-letters on a circular card, only one of which lines could be exposed at any one time. Yet a person obtaining a card and memorizing the lines could repeat the smallest letter from his recognition of the largest. Grow[3] devised a test-card which he called unlearnable, having sixty letters all of the standard 20-foot size, of which only a single line was exposed in such a way that the observer himself could not know which line was in use except by reading it.

Burch[4] wrote, "It is astonishing how soon the exact description of a test-card becomes known if many people from the same neighborhood are tested." For the confusion color-test of vermilion letters on a green ground, he advises that the examiner keep paints of the right colors, and paint in new letters for any individual case. The late Dr. George C. Harlan used to tell of a schoolboy who, tested one day with an ordinary test-card of Snellen letters, was able next day to repeat the whole card correctly from memory. The caution sent out with cards for testing schoolchildren, to keep the test where the children will not have a chance to see it, is quite necessary. Probably all of us know without looking at the card the succession of letters on any test-card that we have used much, and the element of memory renders a patient's answers unreliable after a letter has once been recognized, so far as that letter is concerned.

So long as the vision has improved by a change of glasses and progressively smaller or more difficult letters can be read, the ordinary letter or numeral test-card serves its purpose most admirably; but when it is used simply to ascertain the maximum visual acuity, the chance of remembering the letter, instead of seeing it, is a serious drawback. This chance is not confined to letters or numerals. It applies to all cards of test-figures that cannot have their directions or relations changed at will.

Here lies the great advantage of the incomplete square or the broken ring. As was pointed out twenty-five years ago by Landolt, and a few months later independently by myself, if the card on which one or more of these tests are symmetrically placed is simply turned, it becomes impossible for the person tested to know, except by sight, in what direction the incomplete side is placed. By using a single broken ring or a symmetrical group of them printed on the center of a symmetrical card, the same card can be used for any number of repetitions of the test, without giving any hint of the correct answer, except by vision sufficient to recognize the figure.

This manner of using such a test makes it impossible to have a single card with a whole series of broken rings of different sizes printed on it. But one size can be placed on each card. The same amount of cardboard cut into the proper pieces can be made to furnish an equally complete series. When a large number of persons are to be tested, the best plan is to use a single test of a certain standard size. This is to be looked at first from or beyond the standard of distance. Then the person to be tested should gradually approach the card, until the direction of the break is recognized.

For instance, in testing a class of schoolchildren, the test should be shown to the whole class and its use explained. Then the children should be sent beyond the standard distance and each one made to approach until the break in the ring is recognized. If we take the standard distance of 5 meters, recommended by the International Ophthalmological Congress, and mark it off on the floor in 0.5-meter spaces, or double this distance and mark it in whole meters we can, at a glance, ascertain the visual acuity in tenths. It is true that theoretically the variable distance introduces a minute inaccuracy through varying divergence of the rays from the test object; but this theoretical inaccuracy has no practical importance, and is so extremely minute in comparison with the inaccuracies that we have every day tolerated in connection with the use of test-letters that it may well be disregarded. What is meant by a symmetrical group of broken rings is illustrated in Figure 4.

The rings may be arranged in squares as 1, 4, 9, 16; or any number may be arranged in circular form. I believe that as its advantages are appreciated, the international standard test will come into universal use for the simple testing of visual acuity.

The international test, however, does not so directly help us in the problems of the consulting-room in practically determining and recording the visual acuity obtained by use of test lenses, a very important part of our daily work. In this work series of test-letters arranged in graduated sizes will hold their own against any other method of testing visual acuity that has yet been suggested.

With our ordinary cards of test-letters the practical accuracy of the international standard can be easily attained by the very simple expedient of numbering each line of letters by its equivalent value as compared with the international standard. For instance, instead of calling the 5-meter line a 5-meter line or a 16½-foot line, if it contains some of the more difficult letters, like B or S, number it 1, as expressing full vision according to the international standard. At the same time if half the letters on it can be read by an eye having vision of only 9/10 by the international standard, also indicate this on the card; half the letters equal 9/10, all the letters equal 1. If one or two letters can be recognized by a person having 8/10 vision, that fact might also be indicated; but practically it will usually be best to give only the two values; one value for a certain portion of the letters, as 1/2, and the other the acuity indicated by reading every letter on the line. In a word, we must standardize our cards of test-letters. When this has been done it is just as easy to read the standard of visual acuity indicated from the card used as to read the old meters or feet printed with each line to indicate the distance at which it was supposed letters of that size should be visible.

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[3] Grow: Ophthalmology, 1911, vii, 195.
[4] Burch: Ophthalmoscope, 1912, x, 320.

With the test-card standardized, we can use any arrangement of letters we choose, and as many different arrangements as we choose. We can employ one card one day and another the next day or the next month, or after twenty years, and still know that the comparisons of visual acuity are accurate. Each nation may test vision by cards suited to its own convenience. Illiterate test-cards of any sort may be employed, and if properly standardized the results will be perfectly comparable.

This matter, simple as it is, is one of great practical and scientific importance. It is entirely worthy of the careful attention of every association of scientific ophthalmologists. To standardize the cards already in use, and to bring the matter properly to the attention of those who publish such cards, it is suggested that this Section appoint a committee, and that every member of this Section should cooperate with that committee to secure the best possible standardization of all test-cards in common use.

Majestic Building.

ABSTRACT OF DISCUSSION

Dr. Nelson M. Black, Milwaukee, Wis.: As stated by Dr. Jackson the test-letters, even when conforming exactly to the five-minute angle of Snellen, afford the poorest and most inexact standard on which any scientific observations are now based. The statement, "As a help in a subjective measuring of refraction they are superior to any substitute that has been proposed," is also true, but is it not the result of the majority of us having been willing to accept the results of Snellen's observations, and our own fatal tendency to let so-called well-enough alone? Some of the reasons why different letters are visible from different distances may be of interest, and are well covered in the conclusions of Miss Roethlein's most interesting paper, "The Relative Legibility of Different Faces of Printing Types" (Publications of the Clark University Library, Jan. 12, 1912.)

There are other reasons in addition to those given by Dr. Jackson why test-letters should be standardized before they are used as a basis for records of visual acuity. The fact that certain letters of say the 6/VI line are more easily recognized than others at 6 m. frequently gives rise to comments from the patient, such as, "Why am I unable to see all the letters on the line with equal clearness?" and in the absence of the knowledge that the visibility of different letters varies with the distance, gives rise to an idea that perhaps they are not receiving the best correction of their refractive errors. This phase of the subject deserves at least some consideration as well as the factor of the non-uniformity of the results obtained at examinations made at different times and those made by different individuals.

That the letters on the standard test-cards can be easily committed to memory by all who are sufficiently familiar with them lessens their value as a practical test, is a defect which would still exist in the event test-letters were standardized to equal visibility at the same distance. This, however, may easily be overcome by having several cards with the letters arranged in different order and with but one line of letters on each card.

In the use of the international tests some questions arise which may or may not be of importance; for instance, the examinee is informed that the test consists always of the same thing, that is, to designate in which direction the break in the ring exists and that the position of the break in each ring differs from all the others. Will such knowledge cut down or increase the possible ratio of correct guesses? We all know how frequently, in refraction, patients will call the letter O, G or C or Q or the letter C, O or G or Q. The frequency of this mistake varies with individuals, also with the kind and degree of refractive error. Another question which suggests itself is, Will the fact that the break in the letters C and G is, and always has been, toward the right be a factor in increasing the visibility of the international test-rings in which the break in the circle is toward the right, either above or below the horizontal, as a result of constant association? A third question which should be determined is, What effect on the visibility of the break in the rings will various degrees of astigmatism at various axes have? The ability of the normal eye to distinguish the form of an object depends on: 1, the size of the image received on the retina; 2, the amount of light reflected from the object and its background; 3, the contact between the object and its background.

Dr. Jackson's paper deals largely with the first factor, but there are two remaining factors to be given serious consideration before we can arrive at uniformity in the test for visual acuity.

Dr. Edward Jackson, Denver: The idea of standardized letters is this: We must have the letters to do our refraction work. When the refraction work is done, when we have the best lens, we want to record the visual acuity. Now the thing is, from the card we have been using to be able to put down the visual acuity. The way in which this may be done is illustrated by the use of the cards I called attention to yesterday. Instead of giving 6 meters for the first line of letters—that is the distance at which they would be placed in the Snellen scale—this card is prepared for use at 5 meters. The reading of that whole 6-meter line represents 8/10 vision; the reading of the easier letters of the line represents 7/10 vision, as compared with the international standard. After such a card has been used you have the vistual acuity according to the international standard, instead of rating V-6/6 or something of that kind. That is the reason for having the standard visual acuity printed on the test-card; it would enable us to standardize our records of visual acuity. With reference to another point of illumination and of background that Dr. Black referred to, the placing of the international broken ring at the end of each line of this card was done with that in view. In comparing the test letters with the international standard we have them on the same card and used by the same light, and if we have taken the proper precautions in standardizing the cards, we will have no difficulty in getting at the true visual acuity.

CONVERGENCE INSUFFICIENCY *

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Convergence insufficiency is a frequent anomaly. Probably 8 per cent. of our eye patients show some degree of it, and this proportion would certainly be increased if every patient that presented himself were carefully tested. This statement by no means implies that in all or even a majority of these cases the convergence insufficiency is responsible for the symptoms. On the contrary, in a great many instances convergence insufficiency — especially the accommodative form — seems to cause no trouble whatever. Still it does cause trouble often enough to make it important for us to consider carefully its causation, varieties and treatment.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In considering a condition like this it is obviously essential that first of all we should have clear ideas of its nature. We may start, therefore, with a definition and say that convergence insufficiency is a condition the distinctive feature of which is that the eyes converge imperfectly or with difficulty, the disability not being due to impairment in power of the internal recti *per se*. It is, in other words, an anomaly of a coordinate movement of the eyes and not of the eye muscles, and as such it is in all ordinary cases a strictly binocular affection, each eye being equally involved.

DIAGNOSIS OF PURE CONVERGENCE INSUFFICIENCY

A pure case of convergence insufficiency presents the following features:

1. Deviation for distance little or none.
2. Prism divergence (abduction) not excessive.
3. Prism convergence (adduction) subnormal and difficult.
4. Exophoria for near points marked and increasing with approximation of test-object.
5. Convergence near-point abnormally remote.
6. Lateral movements of each eye inward and outward normal in extent and comitant.
7. Diplopia, if present, not increasing to right or left.
8. Convergence reaction of pupil deficient or absent.

These signs deserve a brief consideration.

1. *Deviation for Distance.*—In pure convergence insufficiency there is rarely more than a centrad of exophoria for distance. Not infrequently there is orthophoria, and occasionally even a centrad or so of esophoria. Even when the convergence insufficiency is beginning to be complicated by a divergence excess so that there is more or less exophoria for distance, this is moderate in amount and always much less than the exophoria in near vision.

The tests for distance should be made both with and without the patient's distance-glasses in order to determine the effect that the latter have on the deviation.

2. *Prism Divergence.*—The prism divergence (so-called abduction) for 5 or 6 meters ranges in general from 3 to 8 (in most cases from 4 to 6) centrads. It corresponds, therefore, to the normal. In some cases it may even be subnormal. When the prism divergence is 9 centrads or over, the condition is no longer a pure convergence insufficiency, but is complicated with a divergence excess. There is then usually a more or less considerable degree of exophoria for distance.

3. *Prism Convergence.*—The prism convergence (so-called adduction) for 5 or 6 meters is often low (varying from 6 to 12 or 14 centrads). Low prism convergence in itself means nothing abnormal, since many persons with normal convergence are unable at the start to overcome prisms, base out, of more than 10 or 12 centrads. In such persons, however, it is evident that this inability is due to lack of facility rather than lack of power, and when they once learn, which they do after two or three trials, they go steadily and easily upward, so as ultimately to overcome prisms of 30, 40 and 50 centrads. Moreover, when they can overcome a prism at all, they can hold the images together without difficulty. In convergence insufficiency, on the other hand, it often happens, particularly in the serious and troublesome cases, that the patinet who can overcome, say, a 12-centrad prism, can only with difficulty and strain pass from this to a 14-centrad; and even when he unites the images with the higher prism, he cannot hold them together for more than a moment. In extreme cases of this sort the inability to overcome prisms, base out, is very marked. I remember one instance in which the patient after weeks of faithful trial was unable to advance beyond a 6- or 7-centrad prism. So in cases of convergence paresis (see below) the prism convergence is extremely low or absolutely nil; and it also, of course, is abolished in complex cases in which a well-marked divergent squint has developed; but the latter are never pure cases of convergence insufficiency.

In most cases in which the prism convergence is low and difficult to acquire, it can still be brought to the normal by persistent training, and it is just in such cases, I believe, that training of this sort, when ultimately successful, is most beneficial.

4. *Exophoria for Near Vision.*—The exophoria for 25 cm. ranges from 6 to 30 centrads. Measurements made with the screen, parallax and phorometer usually agree and are pretty constant, provided the test-object is sharply defined (a fine dot is best for the purpose) and provided the patient is directed to fix and focus sharply on it. If these precautions are neglected, the amount of exophoria may vary widely even during the same examination. It often also varies from day to day, the amount depending on the patient's condition and the energy he is able to exert at the time. It will also be modified by the visual acuity and by the strength of the glasses used, and the effect of the latter should be particularly studied, in order to determine how far the deviation is accommodative in origin. In presbyopes a test should always be made with the reading-glass, and the strength of the latter should always be noted.

The exophoria regularly increases as the test-object is brought nearer the eyes. In convergence paresis this increase is particularly marked and uniform. In fact, in order to make the diagnosis of paresis, we have to make our near tests both beyond and within the usual 25-cm. distance, for instance, also at 1 meter, 50 cm. and 10 cm. (see below, in the discussion of convergence paresis).

However great the exophoria for near vision, in pure cases of convergence insufficiency it is habitually overcome at the ordinary reading-distance, provided both eyes can see the object of fixation. The patient, that is, has ordinarily at near points an exophoria and not a squint, although he may, and often does have momentary failure of binocular fixation with consequent double vision and confusion. It is only when the insufficiency is complicated with other factors (consecutive divergence excess, secondary weakening of the interni) that a constant squint for near points develops.[1]

5. *Convergence Near-Point.*—The convergence near-point (Pc) is abnormally remote. The normal position of the convergence near-point, as determined by a number of measurements, is in adults from 5 to 9 cm.,[2] and in children 4.5 to 8 cm.[3] from the base-line connecting the centers of the two eyes. It can be quite precisely measured as follows: The patient's glasses, or in lieu of these a trial-frame or spectacle-

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[1] Even when complicated with a marked divergence excess, so that the deviation is as high as 50 centrads, the patient may at times get binocular single vision. But in such cases the original condition is always probably a divergence excess, the convergence insufficiency being secondary and of recent development.

[2] Indicating an actual convergence of from 38 to 62 degrees.

[3] Indicating an actual convergence of from 45 to 65 degrees.

frame, is placed on the patient's nose and is used as a reference plane which is adjusted so as to be just 11.5 mm.[4] in front of the corneal apex when the eyes are directed straight ahead. The apex of a millimeter rule is placed against the point at which the reference plane crosses the nose, and the rule itself is held perpendicular to the plane, so as to lie strictly in the midline. Along this rule the test-object, which consists of a pin with a white head 2 mm. in diameter, or a minute dot on a card, is carried straight toward the patient's nose, the patient all the time being exhorted to converge on it as sharply as he can. The moment the object doubles insuperably, or the moment one of the patient's eyes is seen to diverge, the distance of the object from the reference plane is measured. If to this distance 2.5 cm. be added, the result will be very nearly the true distance of the convergence near-point from the intercentral base-line. If the latter distance (PcB) is beyond 8 cm. it denotes some weakness of convergence, and if beyond 10 cm. a well-marked insufficiency. Or we may say that the patient has a convergence insufficiency if his *convergence index*[5] falls below 30.

It is understood that in making this test the patient should try as hard as he can to converge on the test-object and to fuse the images as soon as the object tends to double.

In simple convergence insufficiency the convergence near-point is *absolute,* that is, the patient brings the eyes together so that both are directed at the test-object. When there is exotropia, only one eye is directed at the object and converges on it as it is approximated. In that case the other eye may make no attempt to converge at all, so that as fast as its fellow eye comes in, it goes out. Or, it also may make at least an attempt to converge and, although never actually directed at the test-object, may follow it in its movement toward the eye down to a certain point (*relative* convergence near-point) and then suddenly give up the effort and diverge.

The closer the relative near-point of convergence is, the greater we judge the patient's converging power to be, and the more we can rely on it in supplementing the effect of exercise or of operation.

When the patient has a considerable vertical deviation, his converging power may appear to be poor, when really it is quite good, for when the test-object is brought toward the eyes, he sees two images which he cannot bring together because they are on different levels. As he cannot unite them he makes no attempt to converge. In that case the dot used as a test-object should be replaced by a vertical line. The patient will converge on this, because when he does so the two images will unite, even if on different levels, since the bottom of one will join with the top of the other. On such an object a patient will be able to converge sharply, even when for the dot he apparently had very little converging power.

6. *Lateral Movements of the Eyes.*—In a pure convergence insufficiency, the inward and outward rotations of each eye, when moving parallel with its fellow, are normal in extent and comitant. This is found both in monocular and in binocular testing. An eye, for example, which, in attempting to converge with its fellow, halts when its corneal margin is 2 or 3 mm. from the caruncle, will, when tested with the perimeter or tropometer, rotate 45 or 50 degrees inward, and then, following the other eye as the latter moves outward, will turn in fully to the caruncle. Moreover, the movements are comitant, one eye moving as fast as the other without wavering or lagging on the one hand, or overshooting, on the other.

7. *Diplopia.*—Diplopia if present does not increase as the eyes are turned to the right or left. Owing to the natural tendency of the eyes to diverge when raised and to converge when lowered, the crossed diplopia caused by a convergence insufficiency tends to increase in looking up and to diminish in looking down. In slight cases of convergence insufficiency it may be present only in the upper field. Owing to the fact that the diplopia is caused by the inability of the eyes to converge properly, it naturally increases as more and more call is made on the converging power, that is, as the test-object is brought nearer the eyes. In a convergence paresis, this increase is particularly striking and takes place with almost mathematical regularity from distance to near, beginning to be observable at 20 feet or more from the eyes.

8. *Pupillary Signs.*—In cases of marked convergence insufficiency with remote convergence near-point, and particularly in cases of convergence paresis, the convergence reaction of the pupil is diminished or absent. In ordinary cases if we bring an object toward the eyes and urge the patient to fix sharply on it, the pupils contract as the eyes converge. The moment he gives up the effort of convergence and the one eye flies out, the pupils dilate. The more remote the convergence near-point, the sooner this will occur and the less marked will be the initial contraction of the pupil. In great weakness or in actual paresis of convergence there may be no initial contraction of the pupils at all. In this case if the reaction to light is present we have the inverse of the Argyll Robertson pupil.

DIFFERENTIATION FROM OTHER FORMS OF EXOPHORIA

The two chief conditions from which a convergence insufficiency is to be differentiated are divergence excess and insufficiency of an adductor.

DIFFERENTIATION OF CONVERGENCE INSUFFICIENCY AND DIVERGENCE EXCESS

CONVERGENCE INSUFFICIENCY	DIVERGENCE EXCESS
Exophoria for distance slight (only one or two centrads).	Exophoria for distance marked (from 5 to 30 or more centrads).
Exophoria for near marked (8 to 30 centrads).	Exophoria for near moderate (much less than for distance)-may be almost nil.
Prism divergence not excessive (4 to 8 centrads).	Prism divergence excessive (10 to 30 centrads).
Prism convergence deficient and difficult to increase by exercise.	Prism convergence normal or readily brought to normal after two or three attempts.
Convergence near-point remote (over 9 cm. from intercentral base line).	Convergence near-point normal.
Crossed diplopia, if present, marked for near points and increasing as object is brought toward eyes.	Crossed diplopia if present, marked for distance. Usually none for near.

In both, rotations of eyes inward and outward in performing parallel movements normal and comitant; crossed diplopia, it present, not increasing to right or left, but increasing somewhat in looking up and decreasing somewhat in looking down

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[4] The distance is 10.5 mm. if the eye is quite myopic, 12.5 mm. if the eye is highly hyperopic.

[5] The convergence index (Ci) $= \dfrac{100 \times \frac{1}{2} \text{ interpupillary distance}}{\text{PcB}}$

Ci ordinarily ranges from 35 to 50, although it sometimes equals 55 and may even (especially in children) run up to 60 or 63. When Ci is between 15 and 59, that is, for all values commonly encountered in both normal and abnormal cases, the relation holds that C=Ci + 3°, where C is the corresponding convergence of the eyes in degrees. For higher values of Ci the following relations obtain:

Ci	C	Ci	C
60-63	Ci + 2°	75-77	Ci — 2°
64-67	Ci + 1°	78-80	Ci — 3°
68-71	Ci	81-83	Ci — 4°
72-74	Ci — 1°	84-85	Ci — 5°

Divergence Excess.—A considerable number of cases of exophoria, probably a third, in fact, of all the cases that we see, are due primarily to what I call divergence excess. This condition is differentiated from a convergence insufficiency by the accompanying signs given in parallel columns.

Insufficiency of an Adductor.—From insufficiency of an adductor (internal rectus, superior and inferior recti), convergence insufficiency is differentiated by the fact that in the former condition either the power of movement of the affected eye inward is obviously impaired, or at all events the exophoria and the crossed diplopia, if present, increase definitely as the eyes are carried to one side or the other.[6]

MIXED AND SPECIAL FORMS

In many cases a convergence insufficiency is combined with other conditions, and sometimes the picture is so complicated as to render the diagnosis difficult. The most common combinations are:

1. *Convergence Insufficiency with Divergence Excess.*—This combination is very frequent. In fact, in the regular development of an ordinary divergent squint, what generally takes place is that either a primary convergence insufficiency has superadded to it a secondary divergence excess, or vice versa. In the former case, we see first an exophoria for near with normal relations for distance, later a squint for near combined with an exophoria for distances, and finally a squint for both distance and near with total absence of converging power. When the divergence excess is the primary condition, we have first an exophoria for distance with normal relations for near. This condition may last indefinitely or at least for many years without change. Then there develops an exophoria for near also, and a squint for distance, and ultimately a squint at all ranges, with, however, often at least partial retention of converging power. The last-mentioned is shown by the presence of a relative near-point of convergence. Whichever condition is the primary one, the final picture presented by the combined conditions is then a squint marked for both distance and near, and great, though by no means always total, loss of converging power.

2. *Convergence Insufficiency with Secondary Weakness of Interni.*—Secondary weakness of the interni often develops in cases of divergent squint of long standing; that is, as a result of a continued insufficiency of convergence combined with a divergence excess. In this case the power of rotation inward in making parallel movements of the eyes to right and left is obviously diminished.

3. *Convergence Insufficiency with Insufficiency of the Elevators or Depressors.*—This condition, which is manifested by a vertical deviation, increasing characteristically in some special quarter of the field of fixation, is not infrequent. In some cases of the sort the convergence insufficiency is more apparent than real (see below in the consideration of etiology).

4. *Convergence Insufficiency with Divergence Insufficiency.*—This rare and troublesome condition is marked by an exophoria for distance with very low prism divergence or actual homonymous diplopia for distance, and by marked exophoria for near with remote near-point of convergence. In some extreme cases there is an actual paresis of both divergence and convergence (see below in the section on convergence paresis).

5. *Anomalous Cases.*—Cases of rather peculiar physiognomy are those in which (*a*) there is a marked exophoria for near (10 or 12 centrads) with normal relations for distance and with normal convergence near-point, and (*b*) those with very slight exophoria for near but with remote convergence near-point. The former are perhaps to be explained as due to a slight weakness of the interni *per se,* and the latter as an ordinary convergence insufficiency, in which the patient by special effort at times overcomes the deviation.

ETIOLOGY

Convergence insufficiency is either primary or secondary.

A. Primary Convergence Insufficiency.—This may be either accommodative or non-accommodative.

1. *Accommodative* convergence insufficiency is the form in which the patient converges insufficiently because he accommodates insufficiently. This form is observed, first, in uncorrected myopes who, as they do not have to accommodate in looking at near-points, so do not converge either; second, in corrected presbyopes and hyperopes who, when they put on convex glasses, find themselves enabled to read without exerting their usual quantum of accommodation and, as they let their accommodation relax, relax their convergence also.

In all these cases of accommodative convergence insufficiency it is evident that the patient really has full power of accommodation, but, owing to refractive conditions of one kind or another, he exerts only part of it. As he puts only a portion of his available force into his accommodative work, he also puts only a portion into the work of converging and hence converges imperfectly. But there is another class of cases, rather frequent, in which the accommodation is really subnormal, and the patient works it to its limit, putting into it all the nerve-power at his command. How he will converge in this case will depend on the cause of the weak accommodation. There are two possibilities. Either the patient's neuromuscular accommodative apparatus is defective and his nerve-power is normal, in which case he makes a tremendous effort and nevertheless accomplishes very little, or his accommodative apparatus is normal but the nerve-power supplied to it is inhibited in some way, in which case he makes but little effort and therefore accomplishes but little. In the former case there is overstimulation, in the latter case understimulation of the accommodative apparatus and hence also of the converging apparatus. If the converging apparatus is normal, the patient should in the first case have a convergence excess, and in the second case a convergence insufficiency as the result of a genuine accommodative weakness. Examples of these two kinds of association do, in fact, occur, but are not very common, so that accommodative convergence insufficiency is apparently not often due to accommodative weakness of central origin. It more frequently happens that the two conditions, instead of being dependent one on the other, occur simultaneously, both being due independently to the same cause. In this case, of course, the convergence insufficiency is non-accommodative in origin.

Akin to accommodative convergence insufficiency is what we may call the *visual* form in which, owing to indistinctness of vision in one or both eyes or to incorrigible vertical diplopia, the patient has little impulse to converge. This is found in uncorrected presbyopia and in hyperopia of high degree; in anisometropia

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[6] Increase from the midpoint to both sides if both interni are weak.

(very common); in poor vision due to opacities in media and also in absolute blindness of one eye, and in hyperphoria or other muscular anomalies which render fusion difficult. In cases of this sort the convergence insufficiency is usually spurious, at least at the outset. The patient, that is, can converge perfectly, but has no inducement to do so because the diplopia produced by the failure to converge is no more confusing than is the patient's vision when he converges well and superposes the two visual images. In other words—and this holds for most of the cases of the accommodative form too—the condition at the beginning is rather a convergence disuse than a convergence insufficiency. Later, however, continued disuse develops an actual insufficiency.

2. The *non-accommodative* form comprises about 60 per cent. of all cases of primary convergence insufficiency. It includes all those cases in which the refraction and accommodation cannot in any way be held accountable for the genesis of the motor anomaly. This is the case in patients who have low degrees of hypermetropia and astigmatism with equal refraction and with good vision in both eyes; also in patients who, though myopic, have been wearing their myopic correction for a long time, so that they are using their accommodation quite like emmetropes. In all these cases it is noted that continuous wearing of the proper refractive correction does not affect the muscular deviation except possibly to increase it. In a true accommodative convergence insufficiency, on the other hand, the deviation is diminished or even abolished altogether by the continuous use of the right glasses.

Non-accommodative convergence insufficiency is due to (*a*) conditions causing general nervous or systemic depression (neurasthenia, hysteria, anemia, convalescence from exhausting illness, and the like); (*b*) nasal obstruction (quite common), and (*c*) some unknown cause acting in persons whose muscular power and coordination otherwise seem normal. The more serious and inveterate cases, and particularly those that approximate to a convergence paresis in character, are perhaps due to a localized lesion, congenital or acquired, of the central nervous system (see below, section on convergence paresis).

As already noted, a convergence insufficiency, even when non-accommodative, may be associated with a weakness of accommodation which, like the insufficiency itself, is of central origin, the two being due independently to the same cause.

3. *Combined Accommodative and Non-Accommodative Forms.*—These mixed forms are not uncommon. Thus a convergence insufficiency, itself non-accommodative, may be increased and its symptoms may be intensified by the introduction of an accommodative element. This happens, for example, when we give a hyperope or a presbyope who already has a convergence insufficiency, too strong a glass for reading.

B. Secondary Convergence Insufficiency.—When a divergence excess has lasted a long time, a secondary convergence insufficiency often develops, producing the combined form of deviation, the characters of which have been noted. (See remarks on "Course," below.)

CONVERGENCE PARESIS

No absolute line of demarcation distinguishes a convergence insufficiency from a convergence paresis. In fact, the extreme form of convergence insufficiency that we see in a well-marked periodic divergent squint is really a convergence paresis more or less obscured by complicating conditions. The term "convergence paresis," however, is usually applied to a condition often sudden in development and evidently due to localized lesion or functional disturbance of the nerve centers, marked by the following features:

1. In far distance (points beyond 20 or sometimes beyond 50 feet), little or no deviation.

2. The moment an attempt at convergence is made, that is, as soon as the patient tries to follow an object brought from the 20-foot distance toward the eyes, exophoria and crossed diplopia set in and increase *pari passu* as the object is approximated. The increase takes place with almost mathematical regularity.

3. The diplopia once evident is almost or quite insuperable. Thus, when even it is so small that it requires only a 2- or 3-centrad prism to correct it, the patient is usually quite unable to correct it by voluntary effort. So, too, at a distance at which he normally sees single, he is quite unable to overcome even a 2- or 3-centrad prism, base out.

4. No attempt is made at convergence. When an object is carried toward the eyes, one turns toward it and the other turns off, *pari passu.* In a pure convergence insufficiency, however great, there is usually at least an attempt at convergence.

5. Just as in ordinary convergence insufficiency, so also in convergence paresis the lateral movements of the eyes are unaffected, each eye as it moves with its fellow to right or left rotating quite normally inward. So also the crossed diplopia, taken at any given distance, does not increase as the eyes are carried to the right or left. In other words, we are not dealing here with any paresis of the interni *per se.*

6. The convergence reaction of the pupil is usually absent.

Convergence paresis is rather rare. Still rarer is its combination with a paresis of divergence. In this condition, there is a single vision only at one definite point. Beyond this there is homonymous diplopia, within this crossed diplopia. Looking at an object situated at the point itself, the patient cannot overcome a prism, however weak, either base out or base in. It seems, in fact, as if his eyes were fixed immovably on a single point. But when it comes to making lateral or up and down movements, each eye moves as freely as usual and always in harmony with the other.

Convergence paresis may also be associated with paralysis of up-and-down movements of the eyes. It is at times, too, accompanied by paresis of accommodation, the lesions in this case being strictly coordinate; that is, they occur simultaneously as the result of the same cause and are in no sense dependent the one on the other. The picture then presented is very striking.

Convergence paresis is doubtless due to some lesion of the central nervous system. It occurs in multiple sclerosis (in 3 per cent. of the cases according to Uhthoff) and occasionally in tabes, and in isolated cases it is the result of traumatism, hysteria, tumor, hemorrhage and developmental disorders arising from affections of the ductless glands. It is also found as a congenital anomaly in most cases of the peculiar syndrome marked by paralysis of the external rectus, restriction of power of the internal rectus and retraction movements of the eyes.

In a case of mine which was associated with a marked paresis of accommodation, the voluntary dissociation of the eyes produced by prolonged work with the microscope seemed to be the starting-point of the trouble. In some cases the etiology is quite obscure.

COURSE

An accommodative convergence insufficiency of the ordinary type is, as I have noted, at the outset simply a convergence disuse. That is, the converging power is normally strong but is not used to its full extent. After a time, owing to this continued disuse, the converging power becomes actually subnormal. When this process is once initiated, there is a tendency, although by no means an invariable tendency, toward increase.

If it increase to a considerable point and is long maintained, it is then regularly followed by a divergence excess. Similarly, a divergence excess which has lasted a long time is likely to be followed by a convergence insufficiency. Thus result the combined forms (see above "Mixed and Special Forms"), which constitute the ordinary form of a fully developed divergent squint. A divergent squint, in other words, usually develops in one of the two following ways:

1. An accommodative or at all events a visual convergence insufficiency develops out of a convergence disuse. This at first is a heterophoria, which is marked for near points only. Gradually this increases by the superadding of a divergence excess, and now there is a heterophoria for a distance with a divergent squint for near (direct periodic squint). The deviation at both distances increases until ultimately there is a squint both for distance and near (continuous squint), but more marked for near.

2. A divergence excess, which produces a heterophoria marked for distance and but slight for near, which may last unchanged for years, ultimately increases by the superadding of a convergence insufficiency. There is now a divergent squint for distance and a heterophoria for near (inverse periodic squint). These increase until ultimately there is a squint for both distance and near (continuous squint), more marked, however, for distance than for near.

In both cases, a further change that takes place after a while is a weakening of the interni (hitherto normal) and a contracture or hypertrophy of the externi. The inward rotations are then no longer normal and the deviation becomes greater still.

The course of a non-accommodative convergence insufficiency—and the same is true of a convergence paresis—depends on its causation. If due to a temporary condition, the insufficiency or the paresis will clear up; otherwise it may remain unchanged for years or in some cases gradually increase. A non-accommodative convergence insufficiency may thus also give rise to a divergent squint.

SYMPTOMS

The symptoms of convergence insufficiency are diplopia (with accompanying confusion and vertigo), asthenopia, eyeache, headache, and sometimes more remote reflex symptoms.

Diplopia, although it can almost always be elicited, is rarely a subject of spontaneous complaint except in convergence paresis, when it is often very distressing. Confusion (especially in reading) and vertigo may occur, but are not common except in extreme cases of insufficiency or cases of actual convergence paresis.

Asthenopia is a common symptom, and often is associated with burning and irritation of the eyes (asthenopia irritans) or with eyeache (asthenopia dolens). The asthenopia is sometimes extreme and incapacitating. It is often aggravated by the use of convex glasses, because with them the patient not only tends to relax his accommodation and hence increases his convergence insufficiency, but also brings objects close and so puts more strain on his convergence. Sometimes, in fact, the asthenopia is so great that the patient cannot wear the proper glasses at all.

Headache is not a very common symptom, nor are reflex symptoms very often encountered—not so often, indeed, as in other muscular anomalies. Of course when squint has developed, the deformity due to it constitutes for the patient a symptom of considerable moment, and in convergence paresis and in convergence insufficiency due to general conditions we have to reckon with the symptoms arising from the causal lesion. So, too, we have to reckon with the asthenopic symptoms due to the associated insufficiency of accommodation when this is present. These may be difficult to distinguish from the symptoms of convergence insufficiency itself.

In a large proportion of cases of convergence insufficiency there are no symptoms whatever that can be referred to the motor anomaly itself, that is, that are not relieved simply by treatment of the attendant conditions (refractive errors, etc.).

TREATMENT

The measures available for treating a case of convergence insufficiency are:

1. Correction of the refraction.
2. Correction of exciting causes other than refractive errors.
3. Practice in converging on an approximating point and with prisms, base out.
4. Practice with the amblyoscope, stereoscope and bar-reading.
5. Practice in the recognition of diplopia with the aid of the red glass, etc.
6. Prisms for constant wear.
7. Operation.

1. In a case of convergence insufficiency the first demand of treatment is to correct the *refraction* with scrupulous care. By so doing we remove any accommodative or visual element which may aid to produce the insufficiency, and thus in a moderate proportion of cases relieve or at least diminish the tendency to deviation. In a much larger proportion of cases, the correction of the refraction, while not producing much effect on the deviation itself, does relieve the symptoms.

A convergence insufficiency associated with hyperopia is sometimes aggravated by the full correction of the refractive error. In such cases we may have to undercorrect the hyperopia by an amount which will vary with the conditions and symptoms present in the given case, but which in general will have to be determined experimentally.

In presbyopia associated with convergence insufficiency it is particularly important not to add too strong a glass for reading, since with such a glass the patient will have to bring objects too close and thus impose too great a strain on the already subnormal convergence. Neglect of this precaution is a frequent cause of trouble in giving glasses to presbyopes, especially in the early stages of presbyopia.

As in other muscular conditions, so also especially in convergence insufficiency, correction of the refraction should be the first means used, and until its efficacy has been tested by long and persistent trial, other treatment should not generally be employed. Otherwise we shall fail to differentiate between the symptoms due to the refractive error and those due to the muscular trouble. By eliminating one set of symptoms at a time, and the one, moreover, that is usually of most significance to the patient, we shall be surer of our diagnosis and more likely to give ultimate relief. It need scarcely be added that the earlier in a case the refractive treatment can be applied the better the result we may expect.

2. In non-accomodative convergence insufficiency and particularly in convergence paresis, the exciting cause (neurasthenia, hysteria, nasal disease, organic disease of the nervous system) must be sought out and treated. In cases the etiology of which is not evident, tonics, open-air exercise and the restriction of near work for a season are often indicated.

3. Exercising the convergence by simply making the patient fix sharply with both eyes a dot brought steadily up toward the eyes or by practice with prisms, base out, is of service both in accommodative and in non-accommodative convergence insufficiency. I have elsewhere[7] laid down precise rules for what I believe to be the best method of making the practice. In general I think it important that in simple convergence insufficiency, exercise with converging prisms should be employed with the test-object at the reading distance only, while if there is an associated divergence excess the exercise should be done with the object both at 20 feet and at near. These exercises seem to me to succeed particularly well when there is an associated weakness of accommodation; the latter is also thereby stimulated.

4. The use of prisms for exercising the convergence presupposes ability to recognize diplopia and to fuse double images. If the patient is deficient in either regard, we shall secure better results with the amblyoscope. The way to use this is, first, to get the patient habituated to seeing with the two eyes together, that is, to set the instrument in such a way that he clearly makes out two distinct images. The second step is to habituate the patient to seeing with both eyes when the images are brought close together, and finally to adjust the tubes so that the two images are superimposed and actually fused. The third step is to make the patient practice convergence after the images are thus fused, that is, to urge him to swing the tubes toward each other while still maintaining fusion. The successful carrying out of these different stages of the practice may take weeks or months.

For the proper carrying out of this practice, the amblyoscope should have a suitably graduated arc, so as to measure the position of the tubes and register the amount gained by exercise, and also a vertical adjustment to correct the hyperphoria that is not infrequently present.

Fusion may also be exercised usefully with the stereoscope and with bar-reading.

5. Another way, besides the amblyoscope, of getting the patient to recognize the fact that he sees double and to pave the way to the use of converging prisms, is to separate the images widely by prisms, or to make the images dissimilar by using a red glass before one eye and a green glass before the other. Systematic exercises at home of this sort may usefully precede exercises with prisms, base out.

6. The use of prisms, base in, to correct the deviation is in my belief a procedure to be condemned. Affording a temporary relief, it has seemed to me that in most cases such prisms ultimately increase the deviation and the symptoms, too. On the other hand, the correction of a coexistent hyperphoria by prisms, base up or down, may afford considerable relief to the symptoms and make the lateral deviation much more manageable by ordinary means.

7. Operation should not be done unless all other means have been thoroughly tried and have failed and unless also the symptoms are severe and likely to be permanent. In a simple convergence insufficiency, advancement or tucking of the internal recti is indicated. It may or may not be combined with tenotomy of the external rectus, but if we are dealing with a simple convergence insufficiency, the tenotomy should not involve the lateral attachments of the tendon and should be done to such an extent only as to relax the strain on the advanced muscle. If there is well-marked divergence excess, free tenotomy of the externus should be combined with the advancement of the internus.

It is best to operate on one eye and from four to six weeks later operate on the other if necessary.

If there is a considerable vertical deviation this should in general be relieved by operation before any attempt is made to operate for the lateral displacement. Otherwise the lateral displacement is liable to recur, and on the other hand, if the vertical deviation is corrected first, it may happen that the lateral deviation may not need correction at all.

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ABSTRACT OF DISCUSSION

Dr. William N. Souter, Portsmouth, N. H.: I would not use the centrad in prism measurement. I have no criticism to make of the centrad in itself, but the prisms in our trial cases and those kept in stock by opticians are not made on the centrad scale; and since I know of no advantage which the centrad has over the prism diopter, I think it is better to use the latter, the generally adopted unit. It is true that the centrad and the prism diopter are so nearly equal in value that no error is ordinarily made by designating in centrads prisms which are manufactured on the diopter scale, but in the very strong prisms an amount of error is ignored, which, though not serious, is yet not in accord with Dr. Duane's usual accuracy. A prism of 50 prism diopters corresponds to 46 centrads. My second point of disagreement with Dr. Duane is as to the amount of convergence which is to be regarded as normal. He makes a diagnosis of convergence insufficiency if the person cannot converge to a point 9 cm. from the intercentral base line, or, on an average, about 2½ inches from the root of the nose. I do not think so great an amount of convergence is required for comfortable use of the eyes in ordinary near work. I should hesitate to ascribe to convergence insufficiency any symptoms which might occur in a person who could converge to a point 12 cm. from the intercentral line, 4 inches from the root of the nose. Thirdly, I do not believe that prism exercises or convergence exercises are a rational procedure. I say this, though I am aware that I am in this respect at variance with the majority of ophthalmologists. I believe that, aside from the psychic effect, nothing whatever is gained by this method. I have reached this conclusion partly from my own early experience, partly from the results which I have seen in patients who have undergone this kind of treatment under the direction of competent advocates of such exercises, and partly from my conviction that it is unreasonable to expect these exercises to accomplish what cannot be accomplished by the normal stimulus afforded by the ordinary use of the eyes in near work. Finally, I believe that prisms, bases in, are of great value for permanent wear in cases of uncomplicated convergence insufficiency. In many of these cases there is some innate peculiarity which renders convergence difficult, and the slight assistance afforded by the prisms is sufficient for comfortable use of the eyes. I have patients who have been wearing such prisms for many years with permanent relief.

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[7] Duane, Alexander: Ophth. Rec., June, 1911.

Dr. Francis Valk, New York: I wish to speak only with reference to when and how to operate in these cases of what I call exophoria or the convergence insufficiency of Dr. Duane. I fully agree with him concerning the treatment of these cases—the only ones, in my opinion, suitable for prism exercise—but when we have passed that stage we must consider an operation. Dr. Duane has placed this as the last procedure; but we see these cases after all other means have failed; then why not operate at once? If we have a low degree of exophoria they may be improved by other means, but if we have an exophoria of more than 3 degrees it seems to me that all these attempts to improve the motive power of the interni will be useless, and that operation must come. If that is correct, and all tests, both subjective and objective, show a high degree, then operate. I plead for early operation because I think the day of tenotomy has passed, and when we can do a simple and effective operation that always gives relief, never gives an overcorrection, and can be performed under cocain, that procedure which is now offered to the profession in more than ten different methods, should be the operation of choice. I refer to the well-known operation of shortening the tendon of the weak muscle. Furthermore, Dr. Duane says, "Operate on one eye and in three or four weeks operate on the other." Which eye, however, shall be operated on first? This is to me a very serious and important question, as I have seen many failures from tenotomy. If you operate on both you may get the right one, but is that correct? Is the fault equally present in each eye? Hence, if we can place our weak muscle in insufficiency or in excess, is it not essential to shorten the weak muscle before any attempts to do a tenotomy? I have followed this rule for many years and seldom do more than one operation, when I follow the readings of the tropometer; and, as Howe says, this instrument is the keynote and indicator of all operations on the muscles of the eye.

Dr. D. W. Wells, Boston: With regard to the treatment of insufficiency, under Head 4 as given by Dr. Duane, I should like to make a plea for the more constant use of the stereoscope. Dr. Duane has said that many cases could not be well trained by prisms, because the patients do not quickly recognize diplopia. It seems to me, therefore, the logical procedure would be to carry on some course of educative treatment which would teach the patient to recognize diplopia, and nothing is better for this than to train the fusion faculty. Simple testing with the stereoscopic charts will show that most of these patients tend to suppress one eye more quickly than the other as soon as the test-letters become small. Now the use of the stereoscope with charts which will increase the patient's fusion faculty is one of the best means of teaching him to overcome this insufficiency. The power of a muscle, it seems to me, depends not alone on its size, but also on the innervation which goes to the muscle, and this depends on the development of the fusion faculty, and varies in different individuals. Therefore my plea is for the development of the fusion faculty by means of the stereoscope and also by constant bar and control reading which Dr. Duane simply mentioned. This can be carried out quite systematically and the patient himself can see the value and advantage of properly using his fusion faculty.

Dr. Edward Jackson, Denver: One or two points have been raised that deserve emphasis. Of treatment, Dr. Duane puts first and emphasizes correction of errors of refraction. Errors of refraction are a more frequent cause of some symptoms of convergence insufficiency than is convergence insufficiency itself; but real convergence insufficiency is probably caused by efforts to overcome errors of refraction. We all understand how myopia, preventing the normal use of accommodation, may lead to convergence insufficiency; but other errors of refraction—astigmatism, and particularly anisometropia—may disturb the coordination of ocular movements; and, as Dr. Duane points out, this is the essential fault in convergence insufficiency. I use prism exercises very little. I see many cases in which, I think, they are used foolishly and uselessly. Yet as this trouble is a disturbance of coordination, we may sometimes bring about better coordination by breaking up the old habits; and I know of no more direct and effective means of doing this and improving the coordination of the ocular movements, than by exercising them with prisms as has been recommended. The centrad departs from the prism diopter, when the prism diopter departs from conforming to the requirements of a scientific unit. As long as ten prism diopters are ten times one, the two go together; but when the 50 prism diopters are only 46 times the one prism diopter, then the prism diopter departs from being a scientific unit and from the centrad. In practical use I never saw a trial case in which the prisms ran above 30 centrads; but when we get up to the higher degrees of deviation, 60, 80 or more centrads, then the prism diopter is a very inferior unit of deviation.

Dr. Mark D. Stevenson, Akron, Ohio: For a number of years I have been examining for insufficiency, in all cases; some of it is frequently found. The practical point is that we should be careful in determining the distance in selecting lenses for close work for such patients. Unless the vocation demands a special near point, we should give lenses with which the patient can see at a fairly good distance. Strong lenses, making him read at a very close distance, especially in people with great pupillary distance, give added work for the adductors. Often the last straw is what counts and if only a little assistance is given the patient is relieved. I found also in a serious of tests, made years ago, in examining in different positions in the field with a small point of light and Maddox rod, which of course is not perfectly exact, that the insufficiency was different in degree straight ahead or to one or the other side. I found I could relieve some of these patients by causing them to hold the reading-matter to one side. They could converge better to one side than to the other, just as we have trained ourselves in school to have the books to one side. Some of these patients are probably slightly paretic from various toxemias, the cure of which will give relief. In anisometropia it is often important that the patient hold the reading-matter in a particular place, to one side, or up or down or with the head held in a particular position. We should all realize the importance of muscle training; it does not matter that before muscle training we have for example 9 degrees of lack of balance and afterward the same. If we have stronger muscles to overcome the insufficiency the patient may be rewarded with relief from symptoms. The muscle exercises may need to be repeated, but if it gives a patient months of ease and relief, that is the purpose of our calling.

Dr. George H. Price, Nashville: The definition of the condition given by Dr. Duane in the second paragraph of his paper reduces it to one ordinarily known as asthenopia, and the question is as to the best method by which we can combat these symptoms of insufficiency. I was struck by the suggestion of Dr. Stevenson that when some of these patients held the book in a certain position they would be relieved in great measure of the discomfort of the insufficiency. This is a point of great significance. When we have insufficiency of the internal recti we are dealing with a muscle not sufficient in strength to overcome the opposing muscle, and this is because in every individual the musculature varies. The innervation of the internus is almost from the same source practically as that of the superior and inferior recti and the inferior oblique and the coordinate muscles of accommodation. Therefore that has a great deal to do with it. If you have bad accommodation then you have the complication of the deficiency of the internal recti, or of the involvement of the ciliary muscle. All these things must be considered in correcting the vision. The amount of accommodation is indicated by the patient. If all the muscles of the eye are low in their muscular strength, then it would be impossible to go ahead and strengthen one pair of muscles. It would not be desirable; but we would exercise all of them. The simplest method of doing that is by the ceiling-to-floor and wall-to-wall method. If the patient has low accommodation and insufficiency of the internal recti, a little exophoria and considerable hypermetropia, I know he will have trouble.

Dr. Oscar Wilkinson, Washington, D. C.: Exophoria for near is a normal condition. I have for the past three years, in all presbyopic cases, examined for near and I would say that at least 90 per cent. will have exophoria for near of at least 3 to 5 degrees. So I do not think we should assert that exophoria of 4 or 5 degrees is abnormal. It does not really demand any attention. I would also like to concur with Dr. Duane with regard to the slight changes that the correction of the refractive error makes on these muscular defects. I thought at one time it probably had a great deal to do with that, but after studying a great many cases after the glasses had been worn I find there is practically no change in the muscular balance due to the correction. He also notes another thing which I have noticed, that right hyperphoria is much more frequent than left. In the cases which Dr. Duane called paresis I have found electricity to have a markedly beneficial effect, and I think we are neglecting a valuable therapeutic agent if we do not use it in recent cases. I also use tincture of nux vomica internally.

Dr. Alexander Duane, New York: Dr. Souter thinks I have placed the convergence near point too close. I should have thought so too, had I not made a series of measurements which seem to show that the distances ordinarily assigned are too remote. A convergence near point beyond 9 or, at any rate, 10 cm. from the base line connecting the centers of the two eyes I consider too remote, and if constantly present indicates a convergence insufficiency. With regard to exercise with prisms, base out, in convergence insufficiency, I think a good deal depends on how they are used. If the exercise is made with the object at 20 feet we may not only do no good but may do harm. I am a little more chary of doing operations than Dr. Valk, and yet I recognize the good results from his tucking operations. He asks how we are to determine which eye to operate on first. I should select the eye which in the act of converging regularly diverges and which also shows, as it is apt to do in cases requiring operation, a demonstrable secondary weakness of the internal rectus. I agree with Dr. Wells as to the value of the stereoscope and bar reading, and I find his stereoscopic cards very valuable. Dr. Stevenson makes a point about convergence insufficiency in presbyopia. He will find on referring to my article that he and I are in substantial agreement—that is, if I understand him aright.

SUMMARY OF RESEARCH STUDIES IN PSORIASIS *

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PHILADELPHIA

During the past two years we have had, through the generosity of a benefactor, the opportunity of prosecuting an inquiry into the cause and nature of psoriasis with the purpose of better enabling us to treat this prevalent and obstinate disease of the skin. This work has been carried out in specially equipped laboratories and with all possible thoroughness. Psoriasis is a disease that has been known since the days of the early Greeks, who characterized it by the name of "lepra." Despite the fact that it constitutes from 4 to 5 per cent. of all skin-diseases, the nature of the disease has remained thus far an enigma. Many theories have been advanced to explain its pathogenicity, but none has been satisfactorily demonstrated to be true. The three most prevailing views with regard to psoriasis are that (1) psoriasis is due to a parasite, (2) psoriasis is a disease resulting from disturbed metabolism, and (3) psoriasis is a disease of neuropathic origin. The last view referred to, while advocated by some men of prominence, has relatively little to commend it.

We have concentrated our activities in investigating psoriasis along two particular lines of inquiry — bacteriologic and metabolic. We have labored assiduously during the period of our investigation to find some micro-organism in the scales, serum, skin and blood of patients suffering from psoriasis, but we have thus far been unable to discover any micro-organism which could be regarded as bearing an etiologic relationship to the disease. Twenty-two different microbes have been isolated by us from psoriasis scales and have been individually studied with a view of determining their special characteristics. Complement-fixation tests have been carried out with groups of these organisms with entirely negative results. We have likewise made up vaccines with the isolated bacteria, but have failed to produce any effect on psoriasis by their use. The ultramicroscope and all sorts of special culture mediums have been employed without materially aiding us in elucidating the cause of psoriasis. We have not abandoned the bacteriologic study of psoriasis, but up to the present time it may be said that no germ has been found which could be regarded as bearing a causative relation to the disease.

METABOLIC INVESTIGATIONS

During the past two years we have investigated the metabolism of about a dozen patients suffering from psoriasis. Obviously, that which first commanded our attention was the protein metabolism. We have carried out investigations of the nitrogen balance in patients for long periods of time under the most rigid conditions. The food received by patients was analyzed and weighed, and the nitrogen in the urine and feces was carefully determined. The scales were collected with as much care as possible and their nitrogen content likewise determined. In one instance the perspiration was collected for certain periods of time and subjected to analysis. The patients were housed in private rooms and were under the care of a special trained nurse. Our patients were studied for periods varying between forty and 168 days.

In all our studies of the protein metabolism, attention was paid to possible qualitative disturbances as well as quantitative. The distribution of the urinary nitrogen was therefore studied in most of the cases. Our patients were kept on diets containing definite quantities of nitrogen and a definite caloric value. The total nitrogen intake was compared with the total nitrogen output and balances established.

Our work was not very far advanced when we began to realize that we were dealing with a disease the subjects of which suffered from a peculiar disturbance in protein metabolism. We learned very soon that these patients possessed the power of retaining rather large quantities of nitrogen on diets on which

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

normal persons would just maintain equilibrium. The giving of a diet containing large quantities of nitrogen (about 20 gm. a day) was followed by an enormous retention of nitrogen. And what is perhaps more important, on a very low-nitrogen diet, that is, a diet containing about 4 gm. of nitrogen a day, on which a normal person can hardly maintain equilibrium or at best do so with great difficulty, the psoriatic patient has the power of so altering his protein catabolism as to maintain equilibrium with perfect ease. The psoriatic patient possesses the power of reducing the urinary nitrogen output to a level lower than has ever been recorded in the studies of protein metabolism.

Clinically, we noted a very definite relationship between the protein metabolism and the course of the eruption. In the active stages of the disease, a high-protein diet brings about a spread of the eruption; conversely, a low-protein diet is followed by improvement even when no local remedies are applied.

Two questions presented themselves as soon as these facts were recognized:

1. What is the nature of the relationship between the protein metabolism and the psoriatic processes of the skin?

2. What is the cause of the nitrogen retention observed in psoriatic patients?

We believe that answers to these questions may be found in the consideration of the following:

One of the most prominent features of the psoriatic lesion is the rapid proliferation of the epithelial cells. These cells become cornified and are thrown off as scales. Repeated analysis has demonstrated that these scales are composed almost entirely of pure protein; in severe forms of psoriasis very large quantities of scales may be exfoliated, entailing the loss of considerable amounts of protein material. The epithelial cells for their life and growth require large quantities of building material in the form of protein, which can come from only one source, the blood and lymph.

It is a well-established fact that the growth and multiplication of cells depends directly on their "growth impulse" or *Wachstumstrieb*, and that the velocity of their growth can be regulated entirely by the amount and character of "building material" placed at the disposal of these cells.

It becomes evident, therefore, that any diet which will tend to increase the concentration of amino-acids in the blood and lymph will tend to accelerate the growth and multiplication of these rapidly growing cells. A high-protein diet strongly favors the spread of the psoriatic lesions, because it causes an increase in the concentration in the blood of the various building materials, and places at the disposal of the psoriatic cells a plentiful supply of nutrient material.

A low diet, on the other hand, appears to influence the psoriatic lesion in just the opposite way. The concentration of amino-acids does not rise above the normal, and what is perhaps more important, the protein catabolism is reduced to the lowest level possible.

No harm whatsoever is caused by keeping a patient on a very low-protein diet for a long period of time, provided the caloric supply is sufficient to maintain the patient's body-weight. Chittenden for a number of years has advocated the advisability of keeping man on a 6-gm. level of nitrogen, and Hindehede has shown that nitrogen equilibrium and mental and physical efficiency can be maintained for long periods of time on diets containing even less nitrogen.

In the accompanying table are given different type diets which we have employed in the treatment of our psoriatic patients. They contain from 4 to 5 gm. of nitrogen and sufficient calories to cover the needs of a man doing a moderate amount of work. In hard-working persons additional butter and cream can be added. Our patients were allowed plenty of sugar, and in some cases candy was given between meals.

TYPE OF REGIMEN FOUND TO BE MOST BENEFICIAL IN PSORIASIS

DIET 1

Food	Amount, gm.	Nitrogen, Per Cent.	Nitrogen, gm.	Calories
Breakfast—				
Bread	20	1.55	0.31	53
Butter	15	0.12	0.02	113
Grape-Nuts	10	1.96	0.20	40
Orange	180	0.128	0.23	83
Apple	135	0.064	0.09	77
Tea	125	0.015	0.02	..
Cream	30	0.336	0.10	57
Total	...	......	0.97	423
Lunch—				
Bread	15	1.55	0.23	39
Butter	15	0.12	0.02	113
Grapes	150	0.208	0.31	129
Lima beans	50	1.21	0.60	37
Turnips	75	0.118	0.09	31
Corn-starch	189	0.065	0.12	297
Potato-cake	300	0.275	0.82	273
Tea	125	0.015	0.02	...
Total	...	.....	2.21	919
Supper—				
Bread	25	1.55	0.39	66
Butter	15	0.12	0.02	113
Prunes	88	0.08	0.07	63
Cauliflower	75	0.338	0.25	22
Corn	100	0.386	0.39	95
Celery	25	0.176	0.06	5
Potatoes	200	0.255	0.51	182
Total	...	.....	1.69	546
Total for day	...	.....	4.87	1,888
DIET 2				
Breakfast—				
Bread	20	1.81	0.36	53
Butter	15	0.12	0.02	113
Grapefruit	146	0.13	0.19	67
Banana	99	0.208	0.21	87
Puffed rice	10	1.17	0.12	36
Cream	30	0.397	0.12	57
Total	..	.....	1.02	413
Lunch—				
Bread	16	1.81	0.29	42
Butter	15	0.12	0.02	113
Corn-starch	150	0.138	0.21	236
Cabbage	75	0.198	0.15	22
Lima beans	75	0.789	0.59	55
Potato-cake	250	0.323	0.81	277
Total	..	.....	2.07	695
Supper—				
Bread	25	1.81	0.45	66
Butter	15	0.12	0.02	113
Lettuce	25	0.192	0.05	5
Beets	100	0.17	0.17	37
Corn-meal	125	0.246	0.31	188
Prunes	86	0.08	0.07	62
Sweet potatoes	100	0.216	0.22	195
Cream	20	0.397	0.08	38
Total	..	.....	1.37	704
Total for day	..	.....	4.46	1,812

These two diets give an idea of the way dietaries of this nature can be arranged, without losing sight of the necessity of a certain amount of variety in the menu. Oysters and ice-cream may be added to the diet, as they contain very little nitrogen. During the spring and summer when berries and fresh vegetables are plentiful, these diets can be made more varied.

For patients who are up and about attending to their business, it would be advisable to have them submit their twenty-four-hour specimen of urine about once a week for analysis. The urine, if the patient adhered rigidly to the dietary prescription, should not contain more than from 3.5 to 4 gm. of nitrogen. If it contains more it is safe to assume that the patient is not living on the prescribed diet. Early recognition of this fact will be of service to both the patient and the physician.

There are many dermatologists who state that they have tried dietary restriction in psoriasis, but have failed to observe the beneficial results claimed for this method of treatment. It should here be stated that the more severe and wide-spread the eruption the more readily will it be influenced by appropriate diet, and on the contrary, the more limited the eruption the more difficult will it be to influence it by diet alone. We have tested the influence of diet under most critical conditions and we feel fully justified in stating that the eruption of psoriasis may be favorably or unfavorably influenced by variations in dietary regimen. We have not failed in a single instance to bring about marked improvement in our research patients by diet alone. We are free to admit that outside of the hospital our results have been much inferior to those obtained with hospital patients, for the latter are supplied with the exact kind of food in measured quantities.

It is necessary, to secure the best results, that the diet should not contain more than 5 gm. of nitrogen a day. Very few private patients who are not given detailed instructions as to the quantity of the various foodstuffs to be taken will reach so low a level. Such a low-protein dietary may be difficult for those with epicurean tastes to content themselves on; our patients, however, lived on a regimen of this character for many weeks without complaint.

We have no doubt that many patients with severe and obstinate psoriasis eruptions would be willing to adhere to such a diet to secure a disappearance of their eruption. How long it is necessary or desirable for a psoriatic patient to continue this rigid diet we are not quite prepared to say. We have found that several weeks of this regimen will usually alter the reactivity of the skin to external medicaments, so that an eruption which is too inflammatory to permit of the use of chrysarobin or other strong applications in the beginning, atferward will yield readily to such local treatment.

One of our patients who had a universal psoriasis has remained practically free for a year by adherence to a diet similar to that on which she subsisted in the hospital. The more nearly the diet approximates the type of diets referred to above, the more quiescent will the psoriatic process remain.

It may, however, be undesirable by reason of the condition of the patient's nutrition and general health to continue on such a diet too long. We have reason to believe that a low-nitrogen intake may favorably influence other wide-spread dermatoses. We have cured a rebellious case of exfoliative dermatitis of two years' duration and have seen striking improvement in a case of chronic generalized eczema and in a case of dermatitis herpetiformis while under this treatment, the two latter patients using no local treatment to speak of.

In psoriasis, dermatitis exfoliativa and allied conditions in which there is a great multiplication and a casting off of the epithelial cells, the low-protein diet seems to quiet down the condition by a process of epithelial cell starvation. Sweet, Corson-White and Saxon have shown that inoculation-tumors of mice and rats may be similarly influenced by a very low-protein diet.

THE GERMICIDAL PROPERTIES OF CHRYSAROBIN AND CERTAIN OTHER REMEDIES

In 1877 an Englishman, Keith, first employed chrysarobin in the treatment of psoriasis. The drug had been previously used by Balmanno Squire of London, in the treatment of ringworm of the scalp. Chrysarobin is a remarkable substance which exerts a powerfully beneficial and rapid influence on the patches of psoriasis. No other drug can be compared with chrysarobin in its rapidity of effect. In many cases it acts almost as a local specific. The drug is derived from the woody fiber of the *Andira araroba* tree, the crude product being known as Goa powder. From almost time immemorial the natives of Brazil have employed this powder in the treatment of skin-diseases.

It was thought profitable to investigate the germicidal activity of chrysarobin and certain other medicaments employed in psoriasis with a view of shedding collateral light on the nature of the disease. It is obvious that if chrysarobin proved to be powerfully germicidal, this fact would aid in interpreting its effect on psoriasis patches. If, on the other hand, chrysarobin possessed only feeble or no germicidal power, such facts would likewise be helpful in offering a solution of its mode of action. In our investigations difficulty was experienced at the outset in determining the germicidal power of chrysarobin because this drug is insoluble in water. The Rideal-Walker and the Hygienic Laboratory methods of determining the germicidal power of drugs apply only to substances which are soluble. We were therefore obliged to devise a method of determining the germ-killing power of insoluble substances. By a stroke of good fortune, we selected calomel as a standard. We have already published[1] a note on the germicidal activity of calomel. We found that calomel, as well as other mercurials, possessed, *in vitro*, the most powerful germ-destroying influence of any known drugs. Weight for weight,

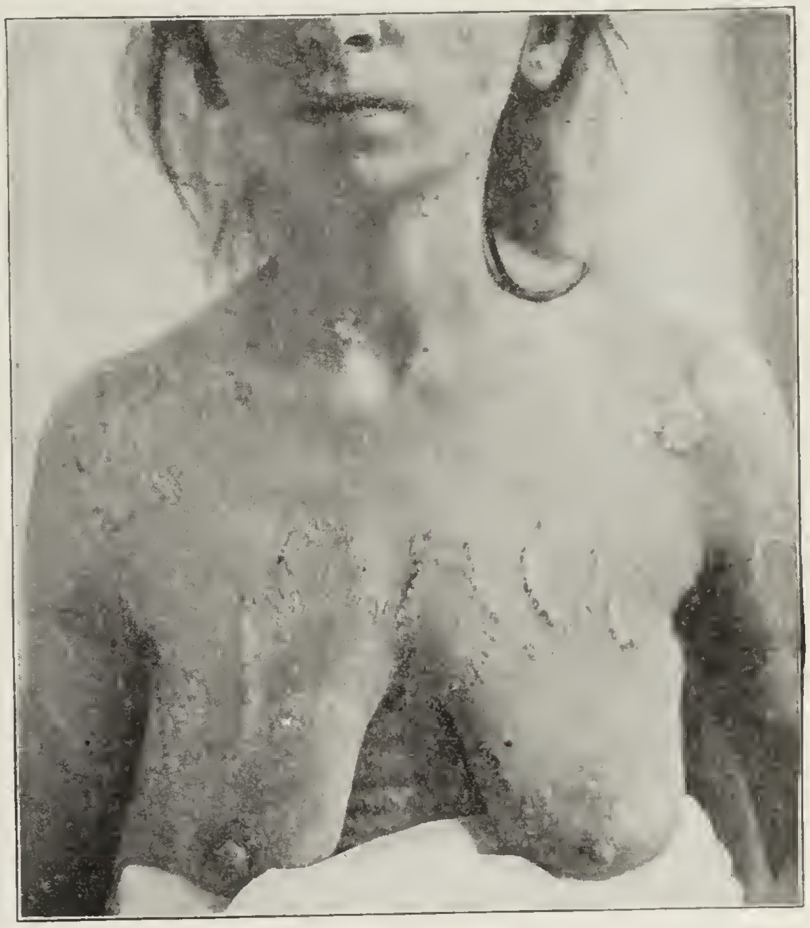

Fig. 1.—Extensive psoriasis eruption.

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[1] Schamberg, J. F., and Kolmer, J. A.: The Germicidal Activity of Calomel, The Journal A. M. A., June 20, 1914, p. 1950.

calomel was found to be just as germicidal as mercuric chlorid. This is all the more remarkable when one considers the insolubility of the former. Having determined that insoluble substances were capable of destroying bacterial life in solid mediums in the Petri dish, we were enabled to test out the activity of chrysarobin and certain allied substances. Chrysarobin in the highest amount used (120 mg. or 2 grains in 10 c.c. of bouillon) failed to restrain bacterial growth. We have furthermore incorporated chrysarobin in various culture-mediums in such excess that the powdered drug floated on the surface of the medium and yet staphylococci and the ringworm fungus were capable of producing a flourishing growth on such mediums. We have supplemented this study by various other investigations, all of which confirm the fact that chysarobin possesses but feeble or no germicidal action.

We do not feel as yet justified in drawing any definite deductions from these facts, but merely desire to state our findings. Chrysarobin, the most powerful and efficacious drug known in psoriasis, has practically no germicidal power. Calomel, on the other hand, which we have found to be highly germicidal and capable of destroying the cocci in the skin, has but a feeble effect on the patches of psoriasis.

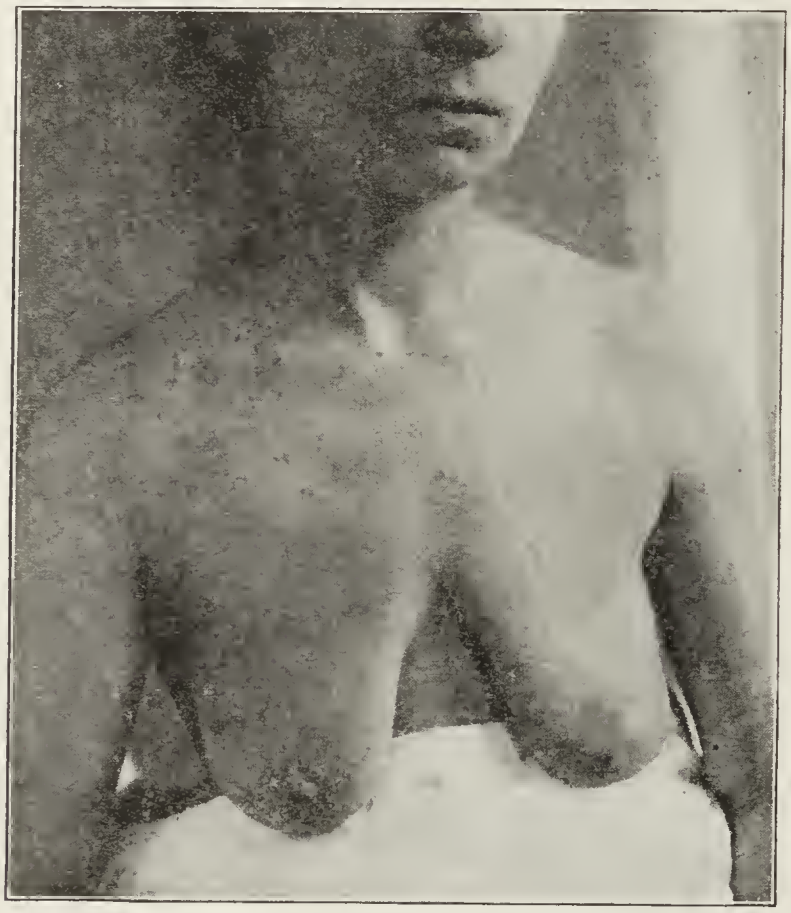

Fig. 2.—Same patient ten weeks later, showing improvement in eruption as a result of low-protein diet. No internal treatment and no external applications whatsoever.

THE BIOCHEMICAL ACTION AND CHEMOTHERAPEUTIC STUDIES OF CHRYSAROBIN AND ALLIED SUBSTANCES

We have endeavored to determine the changes which take place in the skin when chrysarobin and certain allied products are applied. It is a well-known fact that chrysarobin produces a curious mahogany-colored discoloration of the skin which lasts until an exfoliation of the stained horny cells takes place. It would appear that the greater the degree of staining, the more beneficial is the effect of the drug on the disease. We have shown by a series of experiments, which will be detailed at full length elsewhere, that chrysarobin has a powerful affinity for certain elements of protein. Indeed, the staining of the scales by chrysarobin produces a firmer union than the staining of the scales by any known anilin dyes. The staining of the skin appears to be intimately associated with the process of oxidation. Chrysarobin is powerfully reducing, and in undergoing oxidation, abstracts oxygen from the protein of cells, for we have demonstrated that the oxidation can go in the absence of air in a hydrogen atmosphere. We believe from our experiments that the effect of chrysarobin is in large part due to two influences: (1) the firm union with the protein of the epithelial cells and (2) the abstraction of oxygen. It is quite possible that this may explain the favorable influence of the drug in psoriasis, for the action referred to may restrain the great proliferative activity of the epidermal cells which characterizes this disease.

Some investigators, chief among whom was Unna, maintained some years ago that chrysarobin produced its favorable influence in psoriasis by abstraction of oxygen, the drug being oxidized into chrysophanic acid, a reddish-brown substance. The investigations which we have carried out seem to support the view that the reducing power of chrysarobin is of great importance in influencing its therapeutic efficacy. As has been stated, this action and the remarkable chemical affinity of chrysarobin for protein, particularly for the keratins of the skin, appear to us to be in large part responsible for the beneficial influence of this drug. Psoriasis scales which are incubated with a watery suspension of chrysarobin at 37 C. (98.6 F.) are deeply stained by the drug. The chemical combination is so firm that it is impossible to remove its coloration even by prolonged boiling with glacial acetic acid. The chemical combination of chrysarobin with protein is apparently stronger than that of any known anilin dye.

Recent investigations into the chemical constitution of chrysarobin have revealed the fact that it consists of a number of chemically allied substances. Following the work of certain other chemists, we have isolated the two important ingredients of chrysarobin, chrysophanol-anthranol and emodinol. We have tried out these substances clinically and have found that emodinol exerts no therapeutic effect whatsoever, while chrysophanol-anthranol has a favorable influence, but inferior to that of crude chrysarobin. We then tried to isolate by fractional extraction the therapeutically active parts of chrysarobin; the fractions, however, were always inferior to the whole drug. Compounds of chrysarobin in which the hydroxyl group was combined with the acetyl radical, acetyl-chrysarobins, were prepared by us and tested out therapeutically. We found these compounds likewise inferior to chrysarobin. A number of other compounds prepared by us in which the hydroxyl groups of chrysarobin were partially or completely oxidized were therapeutically of little or no value; in general, it can be stated that any change in the chrysarobin molecule affecting the hydroxyl groups diminishes the therapeutic activity on the skin. We have produced a certain derivative of chrysarobin in which the hydroxyl groups appear to remain unaltered which has greatly interested us. This new drug has been tried out by ourselves and other dermatologists to whom it has been supplied, and the general feeling is that it is superior to chrysarobin. It is also preferable to chrysarobin in that it is much cleaner and freer of disagreeable staining properties. The mode of standardizing the preparation of this drug has not been satisfactorily concluded by us, and we shall therefore delay publication on this matter until a later date.

ABSTRACT OF DISCUSSION

Dr. William A. Pusey, Chicago: I confess to the same skepticism concerning the value of a low protein diet in psoriasis that has been shown previously in discussing this subject. I am unable to reconcile the remarkable accumulation of nitrogen in these patients with the law of the indestructibility of matter, nor am I convinced that in eliminating from the diet protein we have solved the problem of the treatment of psoriasis. I admit that a reduction of the protein intake as well as in the quantity of food in general is a factor in the improvement that has been observed in these cases; and I also believe that the decrease in protein is more important than the decrease in the general diet; but a long and unhappy experience with psoriatic patients, who have been dieted most vigorously with food of a low protein content, has convinced me that in the diet we have but one factor in the etiology of this affection of the skin.

Dr. G. W. Raiziss, Philadelphia: As chrysarobin has long been known to give good results in psoriasis, it was interesting for us to learn more about the nature of the chemical processes which are involved in the action of the drug on the skin. Unna maintains that the favorable action of chrysarobin on the skin in this affection is due to the abstraction of oxygen from the cells of the skin, but this theory was never supported by experimental work. Our own experiments rather support the view of Unna that the reducing power of chrysarobin has something to do with its favorable influence on psoriatic lesions, but we found another important property in the drug, namely, that it had a remarkable chemical affinity for protein, especially the keratin elements of the skin. We applied a chrysarobin ointment to the skin of a rabbit, and after several days, when this section of skin was excised, it was found to be deeply stained with a chrysophanic acid-like color, and we could not separate the acid from the skin by any method which we employed. We also found that this staining could be accomplished by mere suspension of the drug in water, and again we could not remove the stain from the skin. This shows that chrysarobin has probably a remarkable chemical affinity for proteins, and that it apparently acts by precipitating the cell and robbing it of its vital properties by absorbing important proteins. Recent studies of chrysarobin show that it is not a single definite chemical compound; it consists of a number of chemically allied substances, and it was our aim to isolate some of these with the object of finding a principle which would be superior to the commercial drug. While none of the constituents of chrysarobin appeared to be of greater therapeutic value than the entire drug, one of many derivatives of chrysarobin, which were prepared by us and tested on the skin, gave good results. This substance is still the object of chemical and clinical studies.

Dr. John A. Kolmer, Philadelphia: Those of you who have done any work along these lines are aware of the fact that many varieties of cocci and diplococci are found in these lesions. We have not been able to identify any one of these as the active agent in psoriasis. The difficulties surrounding the work are increased because psoriasis is apparently not transmissible to the lower animals. Our results along these lines have thus far been negative. During the past year we have been mainly interested in studying the action of chrysarobin on psoriatic lesions and determining whether the drug had a germicidal action on any of these micro-organisms. We have been able to grow cocci from psoriatic lesions in chrysarobin, showing that it has a very weak if any germicidal influence. This fact has been corroborated by control experiments. Calomel is absolutely insoluble in water, yet we found that this drug has a remarkable germicidal activity, equal to mercuric chlorid, and capable of killing organisms directly on the skin. This drug, however, has no recognized value in the treatment of psoriasis, and we have become convinced that chrysarobin does not act by any direct germicidal action on micro-organisms in psoriatic patches. It is probably by gradual deoxidation that chrysarobin destroys a micro-organism in psoriatic patches; what that particular micro-parasite is, is something yet to be discovered.

Dr. William S. Gottheil, New York: How far was Dr. Schamberg able to carry his protein-free diet, and how long could he keep it up? Personally and in private practice I have found that the limit was soon reached; two weeks has been the longest that I have ever been able to keep a patient on it, and not with a very strictly protein-free diet at that.

Dr. S. Pollitzer, New York: My own experience with a relatively low protein diet in psoriasis has not been so fortunate as that of Dr. Schamberg. Within the past year I have tried it in ten cases in private practice, all intelligent patients on whose word I could rely, who were kept on a diet as nearly free from nitrogen as it was possible to enforce, though, of course, they were not under hospital supervision. I am satisfied that they faithfully followed the prescribed diet, which excluded even peas and beans. None of these patients showed anything like the improvement reported by Dr. Schamberg: in fact, three of them developed new lesions in the third week of this diet. My own experience has been duplicated by many others, though that of Dr. Schamberg is by no means unique, and it is rather curious that such radically different results should have been obtained by different observers. I can only repeat my conviction, that there is some error in these findings. To take the most striking case: A girl of 40 kilos (88 pounds) "retained" 400 gm. of nitrogen during the four months of the experiment and actually weighed a little less at the end of the period than when she began. In other words, about 25 pounds of protein which this patient ingested has disappeared; it has not passed out again and, as her weight proves, it has not remained in her. I must insist that such a result is not only a contradiction of the laws of metabolism, but even a violation of the fundamental principle of the indestructibility of matter. The case which Dr. Schamberg presents as an answer to Tidey's criticism, that the authors' error lay in a failure properly to collect scales, proves too much. This psoriatic, who did not desquamate, also "retained" nitrogen. Now, the authors have explained the nitrogen "retention" as due to a specific nitrogen-hunger caused by the loss of protein in the scales. But here is a case that does not scale, cannot therefore have a specific nitrogen-hunger and yet "retains" nitrogen! A large positive nitrogen balance over a prolonged period without a corresponding gain in weight is in itself a proof of error in the observations.

Dr. Jay F. Schamberg, Philadelphia: Replying to Dr. Pollitzer, lack of time forbids me to enter into detail to prove that the figures presented present no inconsistence. Passing to another criticism, physiologic chemists are agreed as to what constitutes a nitrogen retention, and we have employed the term in the manner in which it is universally used by chemists. The chemists associated with me in our research are convinced that the results we have reported are not only possible but also correct. One who is a dermatologist and not a chemist is not warranted in branding the results as impossible and out of accord with physiologic chemical principles. In presenting these results, we have no theory to suggest or prove. We entered into this investigation with entirely open minds. I was at the outset skeptical as to the influence of diet in psoriasis, but I have been convinced practically against my will. Psoriasis may ultimately be proved to be a disease of purely parasitic origin. We are not advancing hypotheses as to the cause of the disease; we are presenting our laboratory and clinical findings and we place them before you for what they are worth, and for your careful consideration.

WHITE-SPOT DISEASE*

GEORGE M. MacKEE, M.D.
AND
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NEW YORK

The designation "white-spot," as applied to a definite clinical entity referable to the skin, was first employed by Westberg in 1901. He used the term "white-spot" merely as a descriptive adjective, qualifying a supposedly unknown dermatosis. In 1903, Johnston and Sherwell published the second paper on the subject, giving it the title of "White-Spot Disease." In this paper reference was made to Westberg's case and to Montgomery's case of white-spot disease which was exhibited before the American Dermatological Association in 1901, a report of which case was later published in full. Sherwell subsequently exhibited another case of this disease before the New York Dermatological Society in 1904. By that time a number of dermatoses, characterized by the presence of white spots of one kind or another, were reported in the dermatologic literature of America and Europe.

During the past ten years a very substantial literary structure has reared itself on the foundations of Westberg's and Johnston and Sherwell's papers. A careful and thorough perusal of the writings on the subject of white-spot disease has given us the impression that the cases deserving to be placed in the same category with those of Westberg and Johnston and Sherwell are by no means numerous. Highly instructive and interesting contributions to the subject have been rendered by some of the master minds of dermatology both here and abroad. Of these dissertations, however, valuable as they are, only a few actually deal with the subject of so-called white-spot disease.

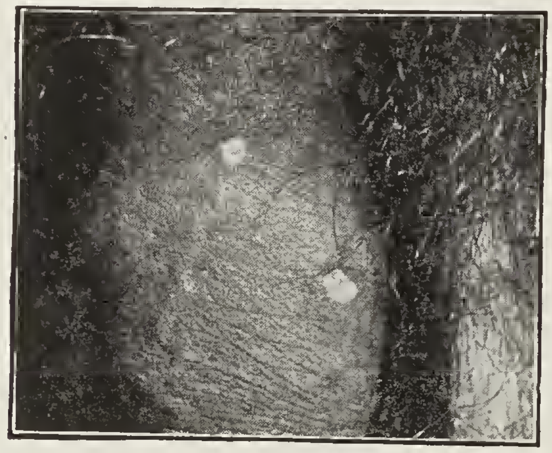

Fig. 1.—The two lesions on the penis. Note the annular appearance, due to the snow-white border and the mother-of-pearl or bluish-white center. Note, also, the crenated border.

As is the case with so many other unclassified dermatoses in which the etiology is purely conjectural, the clinical picture not clearly defined and even the microscopic changes more or less obscure and difficult of interpretation, the study of white-spot disease has led investigators far afield in their attempts to place it into its fitting nosologic position with relation to allied cutaneous changes. Thus, in the excellent contributions of Vignolo-Lutati, Riecke, Hazen, Petges and others, we find that these authors evidently considered it necessary, for a thorough presentation of the subject, to digress considerably from the main theme. For they deal not only with white-spot disease *per se,* but also with morphea guttata and scleroderma circumscriptum, as well as the card-like scleroderma of Unna, the lichen albus of von Zumbusch, the lichen planus atrophicus and sclerosus of Hallopeau, the dermatitis lichenoides chronica atrophicans of Csillag, the neurodermatitis alba of Kreibich, the nevus anemicus of Voerner, the multiple keloids with scar-like atrophies of Jadassohn, the white, atrophic and scar-like perifollicular spots on the trunk of Iwanow, the morphea with maculae atrophicae of Duhring, the circumscribed scleroderma of Zarubin, the white spots found in various chronic diseases such as leprosy, dermatitis herpetiformis and a number of other morbid cutaneous processes of more or less remote relationship to white-spot disease.

We have read and studied the entire literature relating to white-spot disease and have found it necessary to write an article of sixty-five typewritten pages in order to give credit to the various authors, and properly to express and support our contentions. In the fifteen minutes at our disposal it is, of course, impossible to do more than to give the essential clinical and histologic details of the cases under our personal observation and to give the conclusions we arrived at after a careful study of the question. If at this time we do not seem to be fair to other investigators and if we do not appear to prove our contentions, we ask our colleagues to await the publication of the entire article before criticizing our findings.

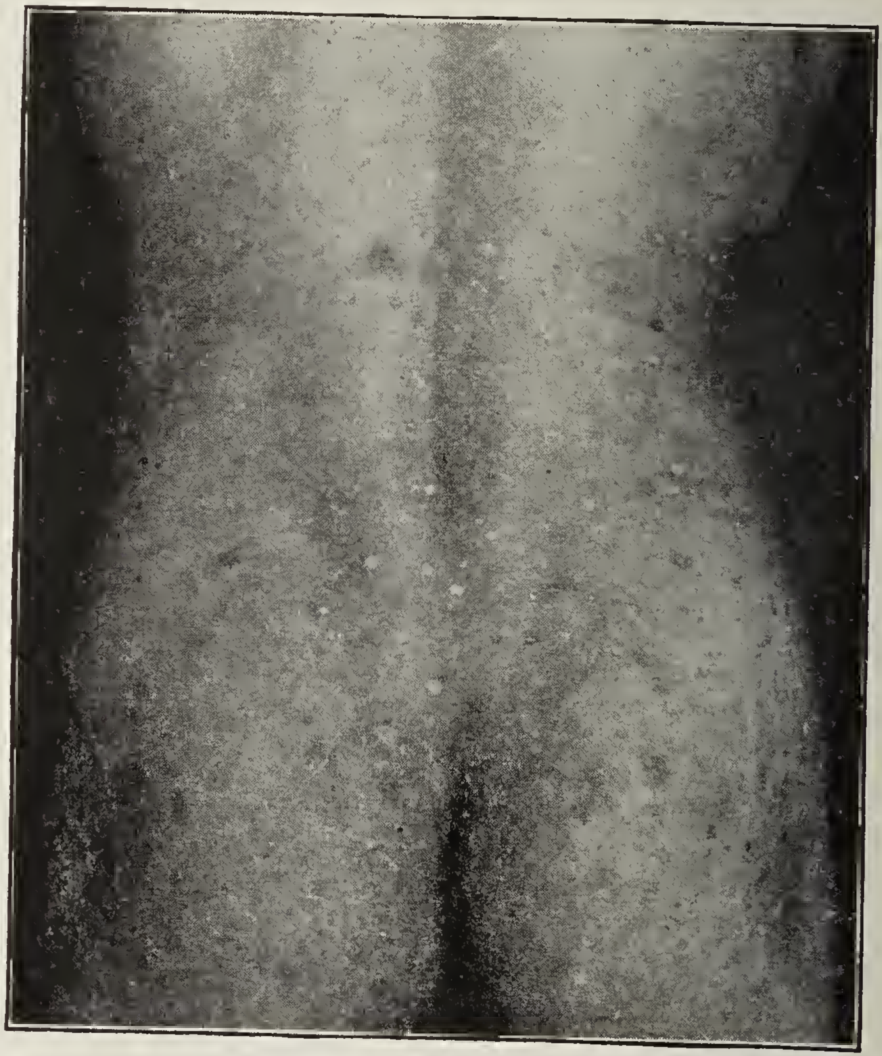

Fig. 2.—White spots occurring in dermatitis herpetiformis. Such lesions are found in pediculosis corporis, acne vulgaris, lepra, etc. They have nothing in common with the lesions of white-spot disease.

Evidently, a judicious scheme of elimination would seem desirable in order to clarify the subject, at least so far as our present-day knowledge will permit. In order to avoid confusion it would appear to be a good plan to omit the polemic discussion of the cutaneous changes which obviously have but little if any bearing on the subject of white-spot disease or morphea guttata or circumscribed scleroderma, in any of their varied clinical and pathologic manifestations. Interesting as these remotely related disease-processes undoubtedly are, it can hardly be said that their inclusion in a discussion dealing with white-spot disease is in any way conducive to a clear understanding of an already involved subject.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Dermatological Department of the College of Physicians and Surgeons, Columbia University.

We shall at once exclude all but three groups of cases. These three groups consist of the unclassified group, consisting mainly of the cases of Westberg, Johnston and Sherwell, Hazen and Riecke; the scleroderma group and the lichen planus sclerosus group. Following the lead of Montgomery and Ormsby, Petges and others, we believe that lichen planus sclerosus, which is the same disease as lichen albus, while having clinical and pathologic features resembling, to a certain extent, localized scleroderma, can be clearly differentiated. We, therefore, exclude the lichen planus group. This leaves for consideration the four or five unidentified cases and the cases that have been clearly shown to belong to scleroderma.

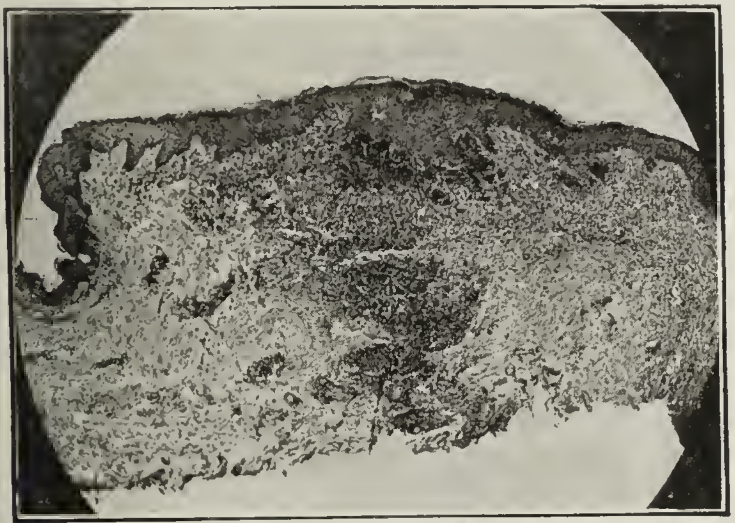
Fig. 3.—Acanthosis over center of lesion (from microphotograph, first biopsy, low power). Under this is a triangular-shaped area of cellular infiltration with its apex at lower part of reticular layer. At base of triangle is a large area of degeneration. This area contains a crystalline deposit (artefact) which shows in the picture.

We will state here that we believe the term "white-spot disease" should be retained, but limited to cases that can be grouped with scleroderma, accepting Unna's card-like scleroderma as the type.

In other words, our conception of scleroderma is a broad one and in a way may be likened to that of syphilis, in which there are a number of different cutaneous eruptions. In this way we would have white-spot disease represent a distinct type of scleroderma just as morphea is a distinct type of scleroderma.

CHARACTERISTICS OF THE DISEASE

The clinical findings in the reported cases have varied to a considerable degree, but we believe that this is merely an expression of the various stages of evolution. We present herewith a composite clinical picture of the affection.

White-spot disease occurs mostly in females, especially in those of a neurotic temperament. It may occur in childhood and in early and late adult life. Most of the reported cases were in the third and fourth decade. The disease is essentially chronic in its course, the lesions making their appearance insidiously and developing slowly. Aside from moderate pruritus at the beginning, subjective symptoms are rare. The sites of predilection are at the base of the neck, in front and behind, the upper portion of the chest and back, but the lesions may appear on the extremities, various portions of the trunk, on the genitals, etc.

The essential lesion is a small white spot. The color may be snow white, ivory white, bluish-white, etc. The lesions may vary in size from a pin-head to a dime. They may be isolated, sparse and widely scattered, or they may be numerous, grouped and confluent. The surface may be smooth or wrinkled, glistening or dull, depressed or slightly elevated or level with the surrounding skin. There may be slight telangiectasia. The center of the lesion may appear depressed. There may be a violaceous areola. They may contain horny plugs and they may be scaly.

To the palpating finger the lesions may be imperceptible, or they may impart a sense of resistance.

It is far more difficult to give a composite picture of the histopathology because most of the cases differ, especially with regard to details. In the majority of instances there was a thickening of the horny layer. In a few cases there were dilated follicles filled with keratin. The granular layer and the rete were thinned, the basal layer irregular and the interpapillary prolongations lost. There were usually a number of spaces directly under the epidermis which were probably dilated lymph-vessels. This fact is rather interesting because Unna considers these spaces partly responsible for the white color.

The chief changes in the derma consist, in the early stages, of a more or less circumscribed area of perivascular round-cell infiltration, edema and other signs of inflammation. Later, there is a marked increase of connective tissue, the infiltrate, except at the periphery, disappears and the blood-vessels and lymph-spaces diminish in number and size. Elastic tissue is usually lost or greatly diminished. In other words the general picture is that of scleroderma.

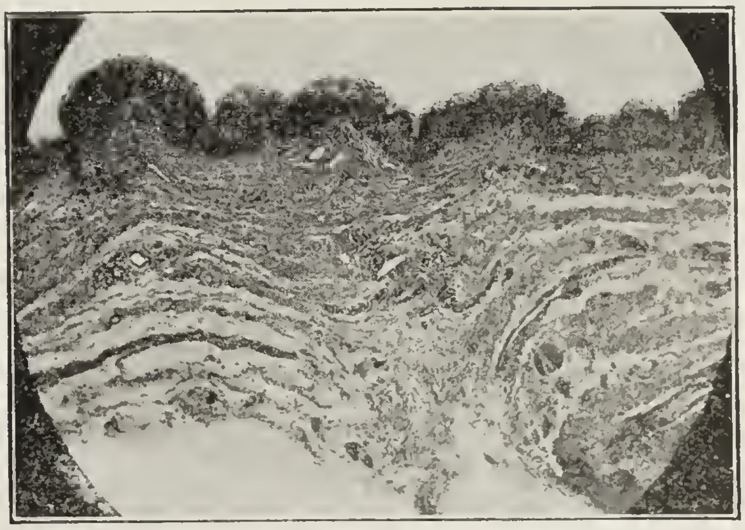
Fig. 4.—Epidermis sinuous (from microphotograph, second biopsy six months later, low power). Loss of interpapillary prolongations. Disappearance of cellular infiltrations. Hypertrophy of collagen.

REPORT OF CASE

Before going any further we desire to place on record a case of white-spot disease that was observed in Dr. Fordyce's clinic.

Patient.—Man, aged 43. The eruption had existed for four months. The patient stated that he noticed the four lesions at the same time and that they had not changed in appearance since he first noticed them. We were unable to decide whether the lesions had developed slowly or suddenly. There were no subjective symptoms. Syphilis and tuberculosis were excluded.

Examination (November, 1913).—The patient is a tall, thin man of distinctly neurotic type. A general physical examination revealed nothing of interest. The entire cutaneous surface, including the visible mucous membranes, was normal, with the exception of the lesions about to be described. There was absolutely no sign of lichen planus. The eruption consisted of four lesions, two of which were on the dorsal surface of the penis and two on the anterior surface of the scrotum. They were all about the same size, roughly speaking, about 0.5 mm. in diameter. The lower penile lesion was a little larger than the others. There was a marked disk-like configuration, with a well-defined, slightly irregular or crenated border. The penile lesions appeared as though they were embedded in the skin, like mosaic; this appearance was less marked in the scrotal lesions. Palpation revealed slightly perceptible infiltration, but there was no distinct sense of resistance. The margin was, perhaps, very slightly elevated, while the center was apparently depressed and from a clinical point of view seemed to be slightly atrophic. The color was the most sriking feature. The border of each lesion was an opaque, glistening white, resembling porcelain. The center was semitranslucent and bluish white, resembling mother-of-pearl. The upper penile lesion was surrounded by a slight violaceous band. The surface of the lesions was smooth.

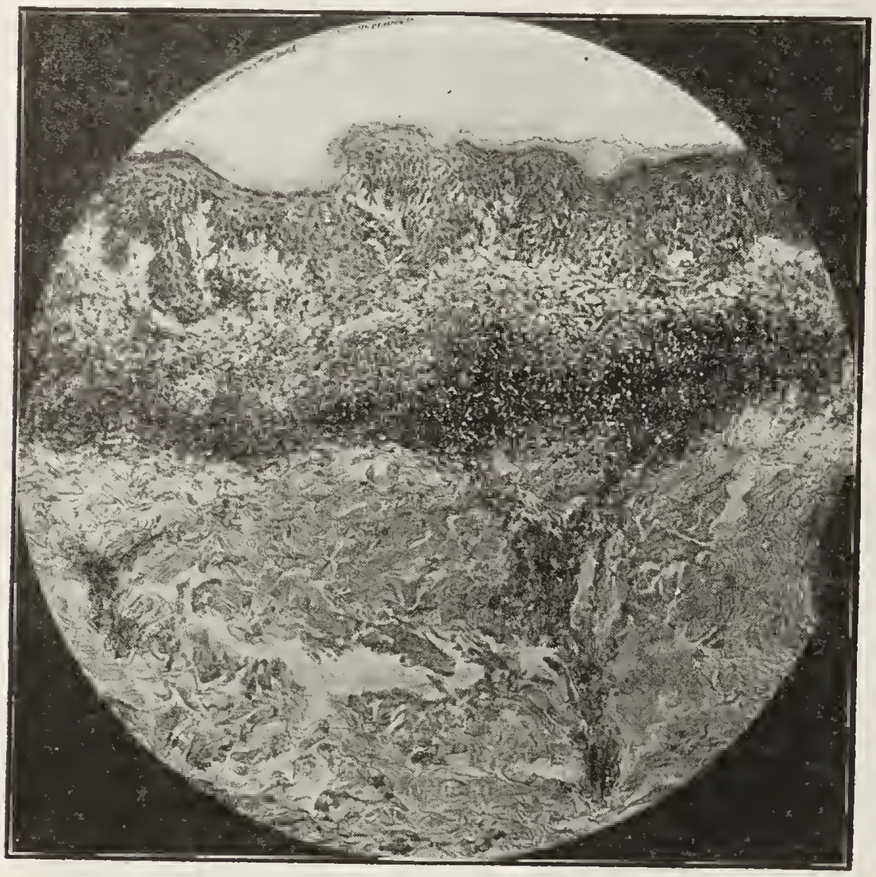

Fig. 5.—Tissue removed from a lesion which closely resembled white-spot disease. The histologic picture is that of lichen planus. Note the extensive subepidermic vacuolization.

The patient was not seen again until the latter part of May, 1914, after an interval of six months. There was no change in the clinical appearance of the lesions.

Histopathology.—Both of the penile lesions were excised in their entirety for the purpose of histopathologic study. The upper lesion was removed in November, 1913, and the lower one in May, 1914.

First Biopsy: The central part of the lesion shows a general hypertrophy of the epidermis with a central depression or dell. The interpapillary pegs have united to form a broad plate. The horny and granular layers are thicker here than in any other portion of the section. The rete is also increased in thickness; the cells stain poorly and the prickles are indistinct; a number of the cells have lost their nuclei. The basal layer is irregular, vacuolated and is not sharply differentiated from the underlying cutis.

Derma: In the center of the lesion the derma is occupied by a somewhat triangular-shaped area of small round-cell infiltration with the base of the triangle close to the epidermis, and its apex situated in the lowermost portion of the reticular layer. This infiltration consists for the most part of lymphocytes, with plasma-cells and fibroblasts scattered throughout the area. Where the infiltration is most dense, collagen is practically absent. There has been an increase in the number of capillaries but most of the vessels have been occluded by endothelial proliferation and by the compression exerted by the cellular infiltration. Just under the epidermis and extending the full width of the diseased area, is a zone of colliquative degeneration or necrosis. Here the tissue elements are no longer discernible. In a few sections a large subepidermic cavity was noted in the degenerated area. This was occupied by a homogeneous mass containing a few cells and reminded us of a similar condition found in Johnston and Sherwell's case.

At the margin of the lesion the interpapillary pegs are flattened out. The papillary layer shows a condensation with subepidermic spaces. Here there are a few scattered lymphocytes, plasma-cells and chromatophores. In the reticular layer the collagenous bundles are composed of very coarse fibers, separated here and there by edema. There are a few circumscribed areas of round-cell infiltration closely limited to degenerated and occluded vessels. The only appendages noted were a few coil-glands which appeared to be dilated and were surrounded by a moderate round-cell infiltration.

Second Biopsy: The epidermic changes consist of an entire flattening out of the interpapillary pegs. The horny and granular layers and the rete appear normal.

Derma: There is a distinct fibrosis, hyperplasia, in the upper two-thirds of the cutis. The tissue is dense and stains deeply with eosin. Here we find large, coarse, wavy fibers. In the upper corium the blood-vessels are reduced in number and size; the endothelium is prominent. There are a few areas of moderate perivascular round-cell infiltration. In the rest of the corium the only cells found are fibroblasts. In the lower third of the cutis the collagenous tissue consists of a fine network of delicate fibers producing the appearance of areolar tissue. Elastic tissue is present directly under the epidermis. Then there is a narrow zone extending through the lesion where the elastic tissue is either absent or badly fragmented. Lower down it again appears and, with the exception of some fragmentation, is practically normal.

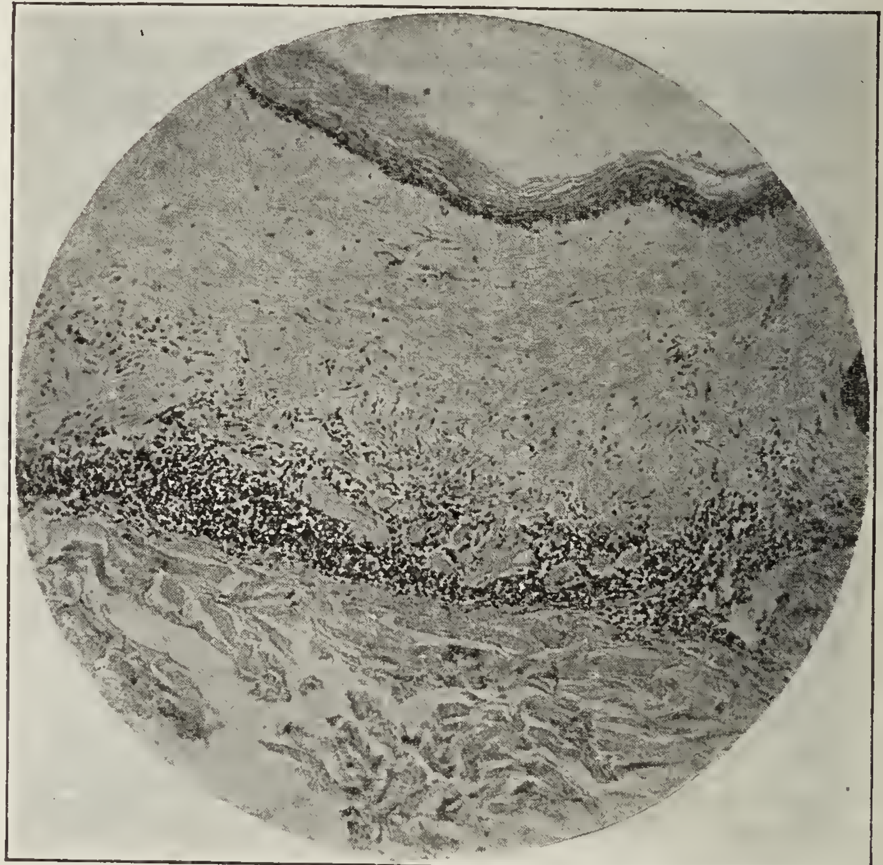

Fig. 6.—Tissue removed from a lesion conforming clinically to white-spot disease. The atrophy of the epidermis, loss of rete pegs, sclerosis of papillary layer and upper reticular layer together with underlying zone of infiltration, points to lichen planus sclerosus. Illustration taken from Fordyce's article on lichen planus (*Jour. Cutan. Dis.*).

Summary.—The disease apparently began as an inflammation with a perivascular infiltration of small round cells. These areas then united to form a diffuse infiltration in the center of the lesion. The inflammation was apparently intense enough to produce degenerative changes in the upper part of the corium. The epidermic changes were probably secondary.

Sections made from tissue obtained six months later show a disappearance of the inflammation with hypertrophy of collagen, loss of vessels, elastic tissue and rete pegs.

We also studied three cases of lichen planus sclerosus, representing three different stages of evolution, but these cases will not be reported here.

It will be recalled that we accept, as examples of white-spot disease, twenty cases that have been definitely identified as scleroderma and that we excluded lichen planus sclerosus and many other conditions.

This leaves for discussion the unclassified cases reported by Westberg, Johnston and Sherwell, Hazen and Riecke. Unfortunately, time will not allow of a discussion of the details of these cases so that we can only give our conclusions concerning them. Our early lesion showed the loss of collagen reported by Johnston and Sherwell and by Hazen. Montgomery and Ormsby and Unna also noted loss of collagen in early lesions. Our late lesion depicted the hypertrophy of collagen and other changes observed by most investigators. If we had been compelled to rely entirely on the histologic findings in our early lesion our case would have been classed in the group containing Johnston and Sherwell's and Hazen's cases. On the other hand, if we had only the later lesion to study, the case would have been added to the scleroderma group. We assume, therefore, that if these investigators had been able to study their cases at different stages of evolution, an entirely different conclusion would have been reached. We believe that our case combines the unclassified cases of white-spot disease with the cases falling under the general heading of scleroderma.

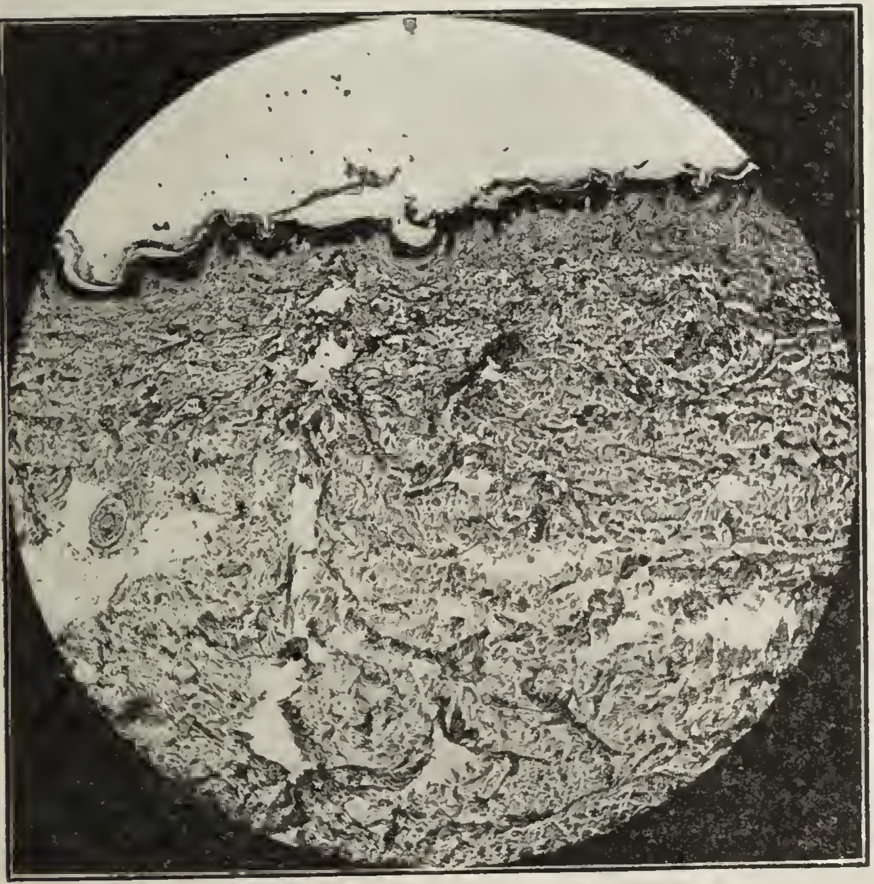

Fig. 7.—Tissue removed from a lesion in a case of lichen planus presentinf lesions simulating white-spot disease. Atrophy of epidermis. Rete pegs almost obliterated. Sclerosis of papillary layer. Hypertrophy of collagen of reticular layer. Blood-vessels markedly reduced in number. No infiltration.

CONCLUSIONS

White-spot disease is a special form or type of scleroderma which can be differentiated, both clinically and histologically, from other affections with white lesions.

Lichen planus sclerosus and atrophicus or lichen albus, although giving rise to white lesions, has nothing in common with white-spot disease.

The unclassified cases of white-spot disease, such as those of Westberg, Johnston and Sherwell and Hazen, belong to the scleroderma group and, therefore, are true examples of white-spot disease.

The discrepancies in histologic and clinical findings are due to the fact that the studies were made at different times with respect to the evolution of the disease.

We desire to thank Dr. John A. Fordyce for his kindness in placing at our disposal the material that forms the basis of this study. We wish to express our gratitude to the staff of the Dermatological Laboratory for the careful technical work. We especially desire to thank Dr. Elizabeth C. Jagle for her aid in the study and interpretation of difficult material.

ABSTRACT OF DISCUSSION

Dr. H. H. Hazen, Washington, D. C.: Drs. MacKee and Wise were most fortunate in being able to perform biopsies at such varying intervals, and to demonstrate that a process originally showing rarefaction of the corium may eventually terminate in morphea. It would seem that they have solved the question of the various unclassified cases, my own among the number, of white-spot disease, and that these cases are true scleroderma. While I have lost sight of my patient I know where she is living and shall try to obtain more tissue from her in the hopes of confirming the observations of Drs. MacKee and Wise.

Dr. F. W. Cregor, Indianapolis: I direct attention to the similarity between the histopathologic picture presented by Dr. MacKee in this case and that given by Dr. M. B. Hartzell in connection with his paper on granuloma annulare. I previously made the statement that I had not heretofore considered granuloma annulare an entity, and now, in comparing these two histopathologic pictures, I must confess that if each were an entity I would have great difficulty in differentiating one from the other microscopically.

RADIUM

ITS USE AND LIMITATIONS IN SKIN-DISEASES *

FRANK E. SIMPSON, M.D.

CHICAGO

The scope of this paper is limited to the use of radium in dermatology.

In radium therapy everything depends on the proper equipment and the technic.

For dermatologic cases I have used varnish applicators of different types.

A useful style of apparatus is the so-called "toile" or flexible linen applicator. One apparatus of this type is rectangular in shape, covers 12 sq. cm. of surface and is of one-twentieth strength.

Other applicators have metal instead of linen backs, are square or round and are of one-fourth, one-half or full strength. As the applicators are constructed so that 10 mg. of the radium salt are spread over 1 sq. cm. of surface, a one-twentieth-strength applicator contains about 0.5 mg.; a one-fourth-strength, 2.5 mg.; a one-half-strength, 5 mg., and a full strength, 10 mg. of radium sulphate to each square centimeter of applied surface. Many authors prefer the use of a nomenclature that will express the amount of radium element instead of radium salt in each square centimeter of the applicator, a terminology that has much in its favor.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

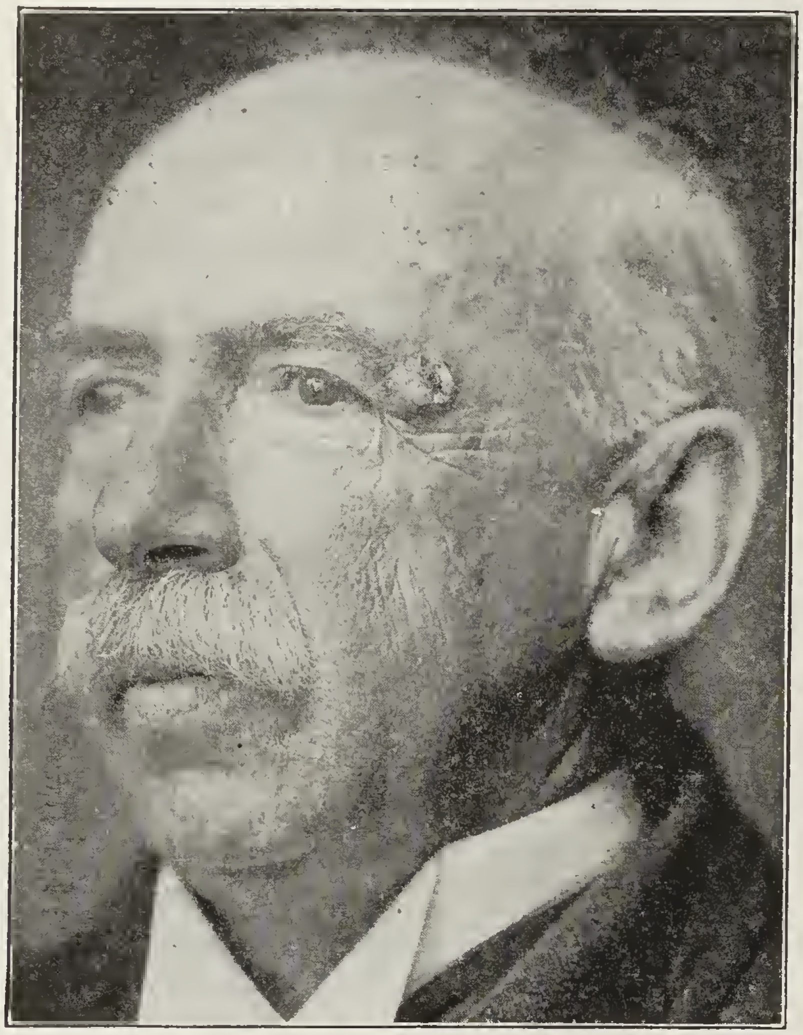

Fig. 1.—Epithelioma of left temple; photograph taken May, 1913.

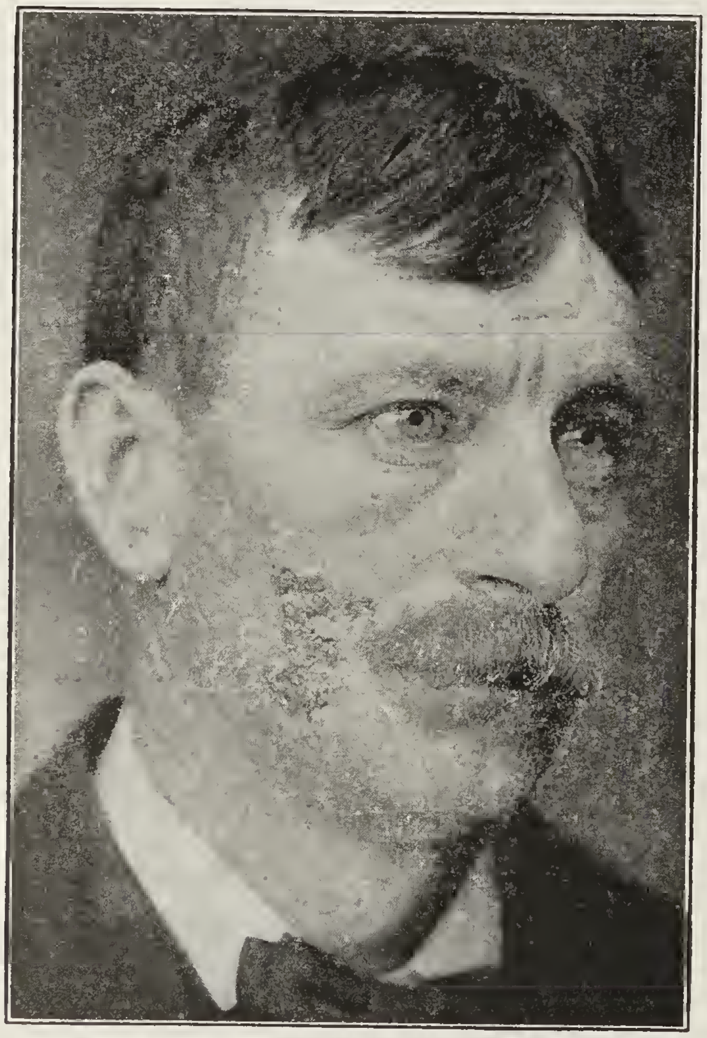

Fig. 3.—Epithelioma of right side of face; photograph taken July, 1913.

The chief advantage of the varnish applicators over other styles of apparatus lies in the uniformity of their action over their entire surface. Certain types of radium applicators produce a more intense reaction at the point of application than at the periphery of a lesion, which is an obvious disadvantage.

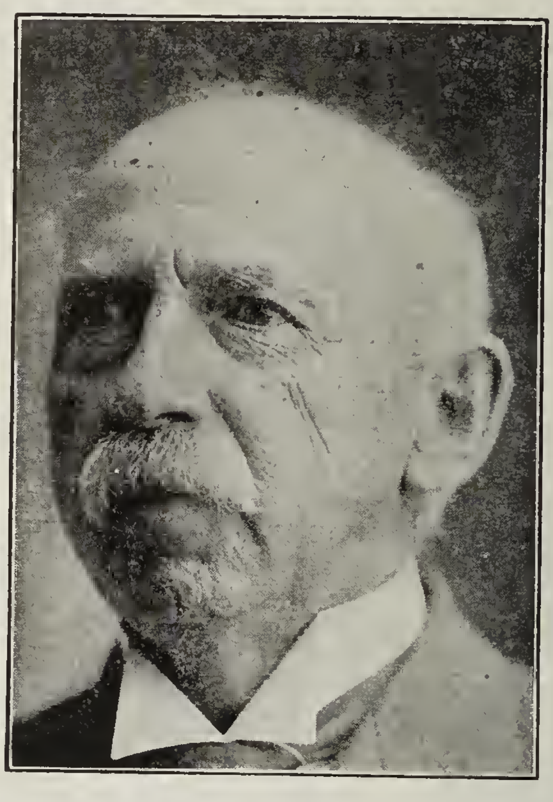

Fig. 2.—Patient in Figure 1, after eight hours' treatment with ¼-strength radium applicator screened with 0.1 mm. silver; photograph taken July, 1913; no recurrence to present time.

The technic of radium treatment is extremely varied and can be learned only by a certain amount of experience with each applicator.

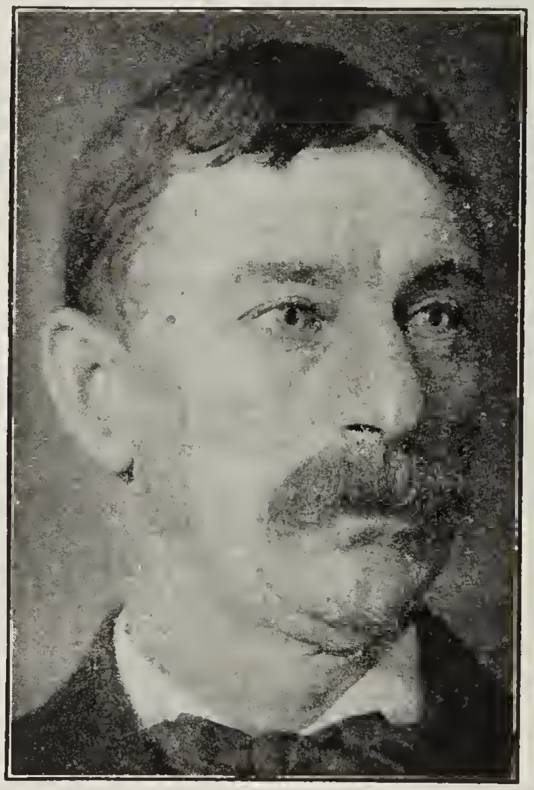

Fig. 4.—Patient in Figure 3, after ten hours' treatment with ¼-strength radium applicator screened with 0.1 mm. silver; photograph taken October, 1913; no recurrence to present time.

In general, one uses the apparatus either naked, that is, wrapped only in rubber tissue, or with screens of metal interposed between the applicator and the skin. Lead, silver, aluminum, brass and platinum have been largely used as screens, but a tendency is now noted toward the discontinuance of lead screens on account of the irritating secondary rays developed when the radium rays pass through lead. I have commonly used screens of aluminum or silver which are covered with from five to ten thicknesses of black paper to absorb the secondary rays, the whole apparatus being then enveloped in rubber tissue and applied to the skin by adhesive or rubber bands.

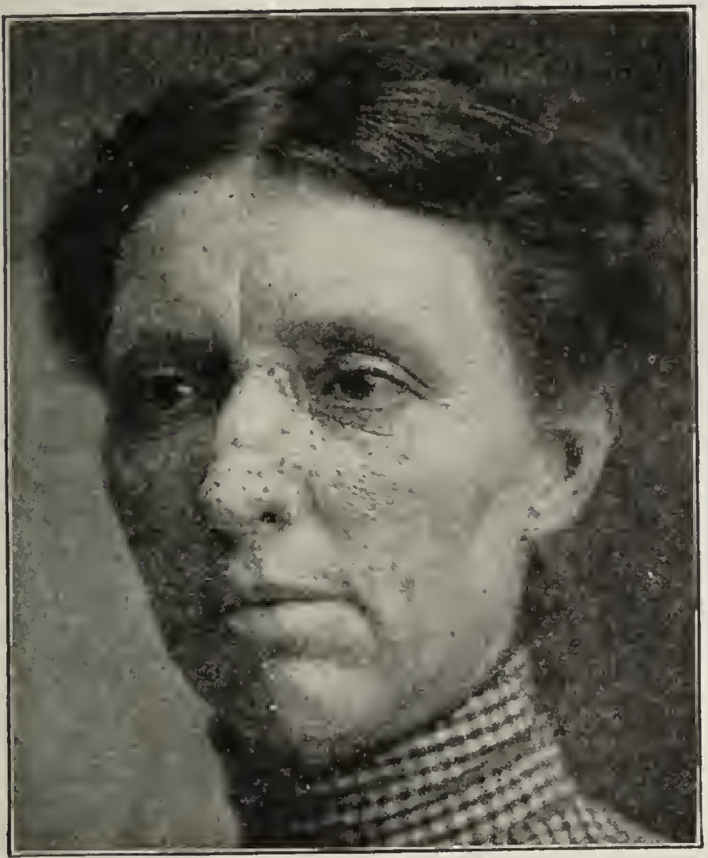
Fig. 5.—Lupus erythematosus of nine years' duration, symmetrically involving nose and both cheeks; photograph taken February, 1913.

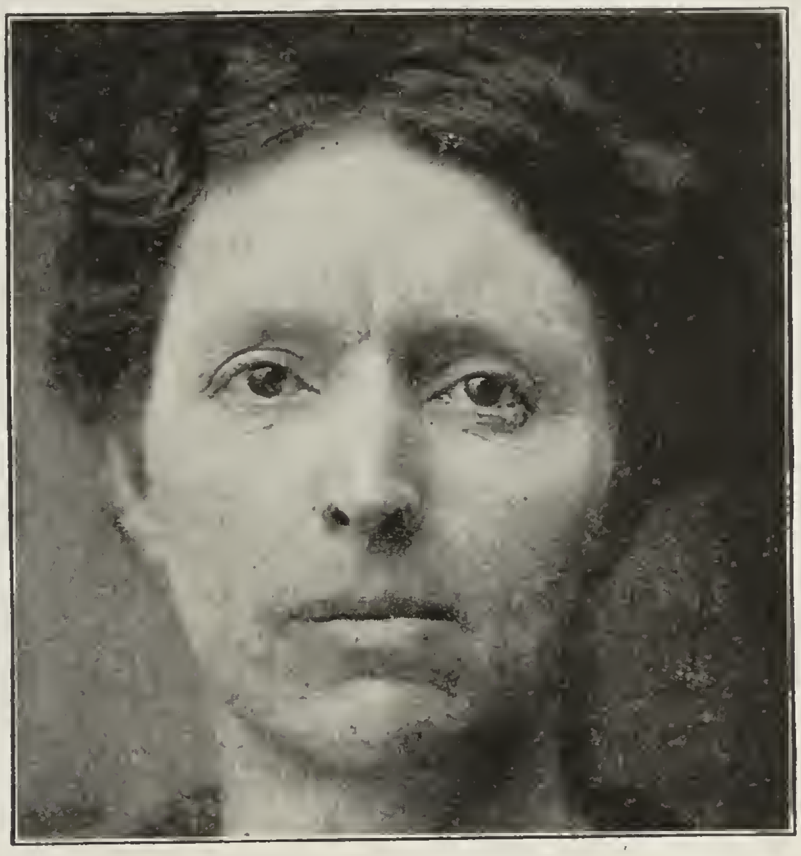
Fig. 6.—Patient in Figure 5 after treatment with ¼- and ½-strength radium applicators unscreened; photograph taken April, 1914.

Radium reactions in the skin have sometimes been compared too closely with Roentgen-ray reactions. In general, radium reactions are much more benign than Roentgen-ray reactions, and when destructive inflammation has been produced, healing is much less slow and uncertain. This is especially true of the reactions in which beta-rays predominate, but even severe gamma-ray reactions are more benign than severe Roentgen-ray reactions.

In order to limit my remarks, only three groups of diseases will be touched on at this time: epithelioma, lupus erythematosus and angioma.

EPITHELIOMA

It has been sufficiently demonstrated that radium is a very efficient agent in epithelioma of the skin. Up to the present time I have treated about forty cases. To a certain extent these were selected cases, being of the type usually treated by the dermatologist. In two of these cases success was only partial; but healing, I believe, might have been brought about had I been able to continue the treatment. The general experience, however, leads to the belief that certain epitheliomas are probably resistant to radium as well as to other forms of actinotherapy, while other cases are too far advanced to be materially benefited. It would be premature to try to draw conclusions at present as to the relative efficiency of radium and the Roentgen ray in epithelioma. Both agents, I believe, have distinct fields of usefulness in this disease.

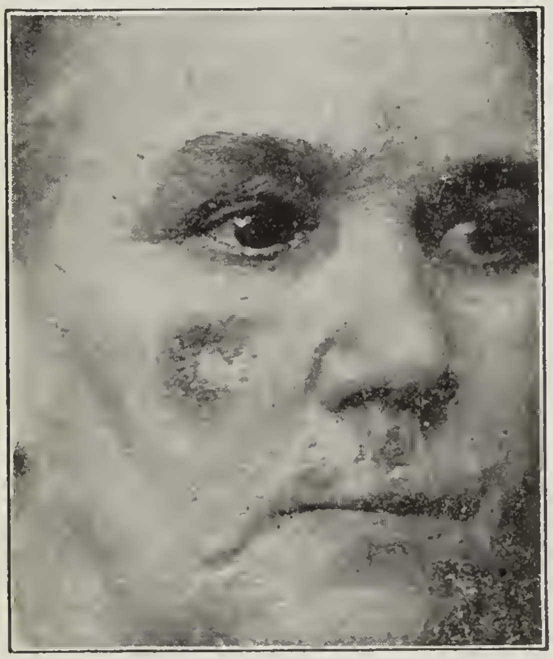
Fig. 7.—Lupus erythematosus of eight years' duration involving right cheek and upper lip; photograph taken February, 1913.

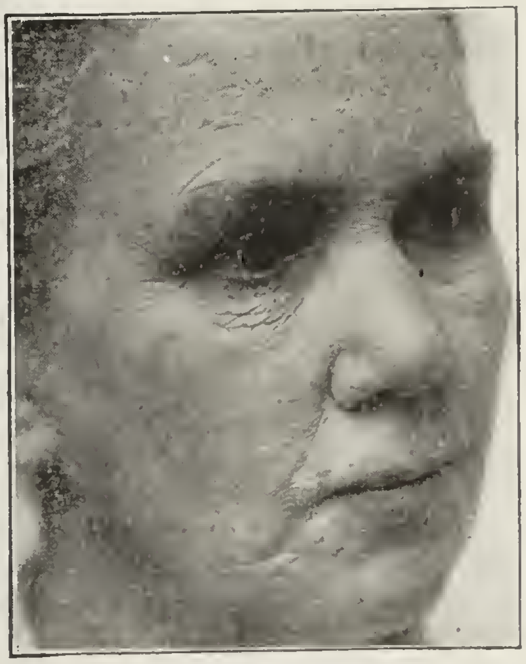
Fig. 8.—Patient in Figure 7 after treatment with ¼- and ½-strength radium applicator unscreened; photograph taken July, 1914.

Epithelioma may be healed with radium, applied without or with a screen. Without a screen, an epithelioma 2 or 3 cm. in diameter and not too deeply situated may be healed with a one-fourth-strength applicator in five or six treatments of an hour each. With a screen of 0.1 mm. of silver, eight hours may be required. Recently I have made more frequent use of screens in order to limit the inflammatory reaction and because experience has shown that the deeper parts of the growth are probably better reached. An epithelioma can also be healed with a single massive dose of heavily screened radium, but I have hitherto preferred to use fractional doses. The method of operation is determined solely by the nature of the growth and the convenience of administering the treatments. The cosmetic results are equal if not superior to those obtained by any other method.

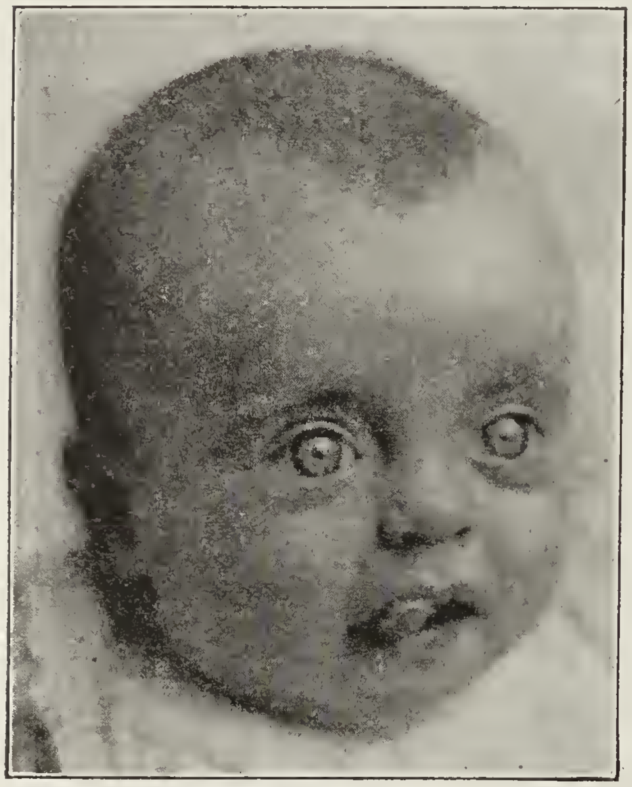

Fig. 9.—Cavernous vascular nevus of upper lip; photograph taken April, 1914.

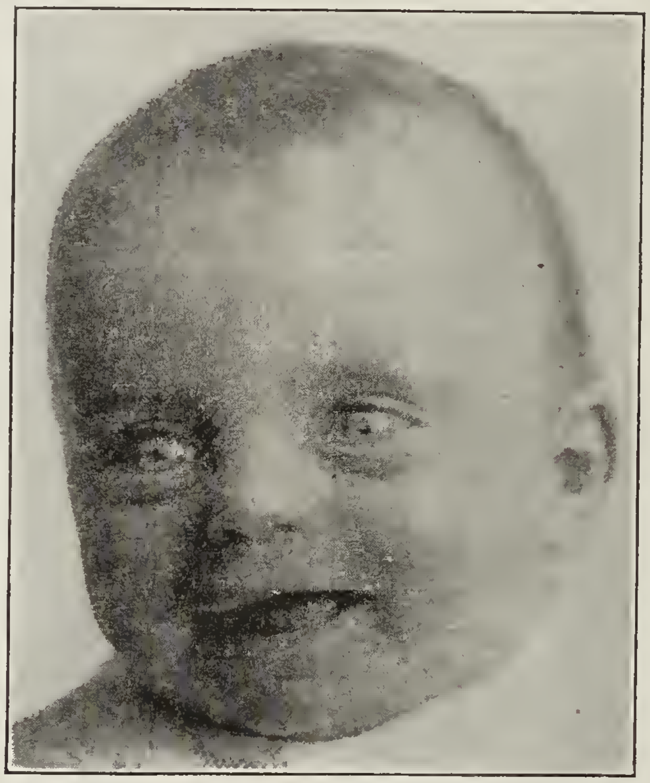

Fig. 10.—Patient in Figure 9 after treatment by "cross-firing" with ¼- and ½-strength radium applicators screened with 0.1 and 0.5 mm. silver; ten exposures of fifteen minutes each; nevus was removed without visible inflammatory reaction; treatment not quite completed; photograph taken May, 1914.

While the treatment of internal cancer with radium is not germane to the present discussion, a few remarks may be made on this important topic. In general the present attitude of most workers with radium in cancer of the deeper structures is one of strict conservatism. Few writers go so far as Bumm,[1] who believes that in the future cancer will be treated by radiotherapy. Most authors agree with Wickham and Degrais,[2] who in a recent article take the position that radium is to be regarded strictly as an adjunct to surgery.

The general opinion seems to be that operable cancers should be operated on. Radium may be of great value prior or subsequent to operation. Inoperable cancers may be treated with radium to minimize suffering and perhaps prolong life. Inoperable cancer in some situations, as in the cervix uteri, may be wonderfully relieved symptomatically. Under radium treatment a few inoperable cancers in various situations have been made operable and a few have apparently recovered.

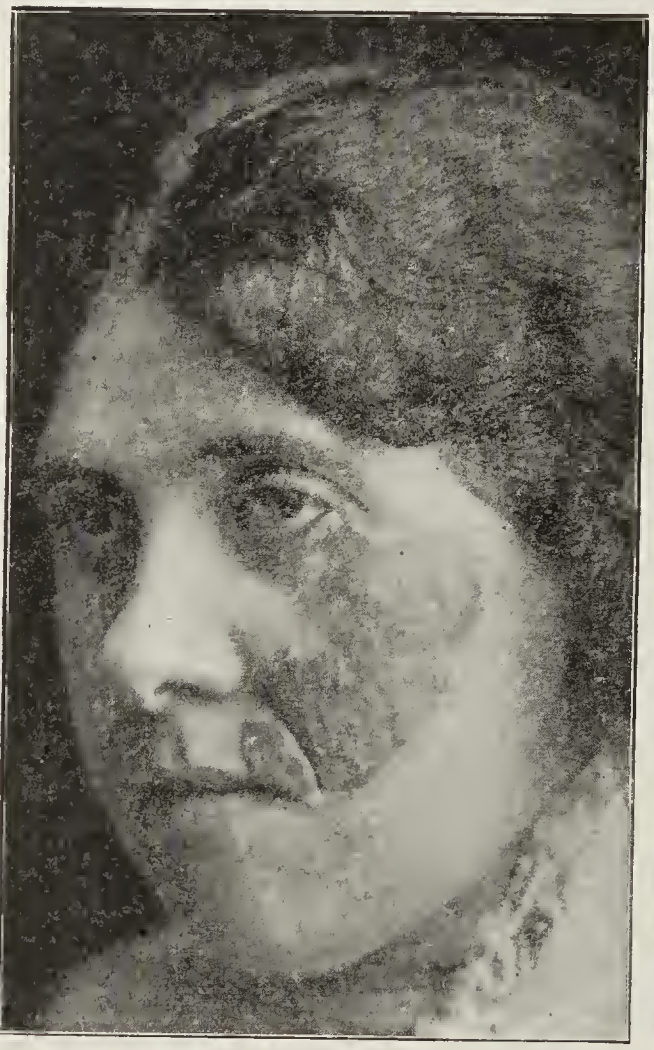

Fig. 11.—Vascular purplish-red nevus, irregularly elevated and deeply infiltrated; photograph taken September, 1913.

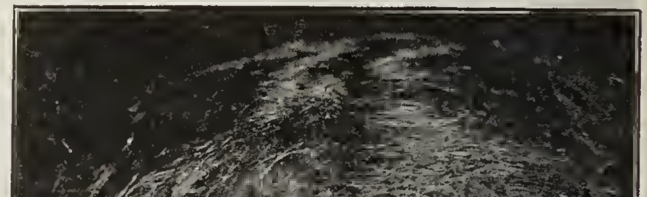

Fig. 12.—Patient in Figure 11 after treatment with ¼- and ½-strength radium applicators unscreened; nevus was removed with three series of exposures of about four hours each; the small patch at corner of mouth has not been treated; photographed May, 1914.

LUPUS ERYTHEMATOSUS

About twenty cases have been treated. In view of the intractable nature of this disease, the results of radium treatment are on the whole very encouraging. In selected cases I have been able to obtain complete involution of the disease. Unfortunately, relapses may occur; but these so far have yielded to persistent treatment. The painless character of the applications enables one to pursue the treatment vigorously. The technic has much to do with success or failure. The chronic "fixed" types are best treated with destructive doses. Experience with this disease has led me recently to prefer screened radium. I now use in the average case a one-fourth- or one-half-strength applicator screened with 0.1 mm. of silver, and treat each patch from about four to six hours in the course of two weeks. The inflammatory reaction is thus rendered less severe than when naked radium is used. Unfortunately, some patients, when they first come under observation, are more or less scarred by the disease or by previous treatment. Even in these cases the cosmetic result is sometimes quite satisfactory. In selected cases of not too long duration or of too large area a very good cosmetic result has been obtained.

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[1] Bumm, E.: Further Results with Radium Therapy in Carcinoma, Berl. klin. Wchnschr., 1914, li, 193.

[2] Wickham and Degrais: Can Radium Be of Value to Surgery in the Treatment of Malignant Tumors? Fortschr. a. d. Geb. d. Roentgenstrahl., 1913, xxi, 333.

ANGIOMA

The results obtained in certain types of nevus vascularis (birth-marks) are superior to those hitherto obtained by any other method. In a certain number of angiomas radium offers the only practical method of treatment. It is particularly successful in the angiomas of children on account of its painlessness.

Large flat angiomas (port wine stains) of deep red color can often be treated with a good cosmetic result. While amenable to several different technics, "port wine stains" are most successfully treated by giving just enough raying to produce a marked erythema with desquamation. With a one-twentieth-strength applicator screened with 0.01 mm. of aluminum the proper amount of reaction can be produced in about four or five hours. Several repetitions of this treatment will often result in a satisfactory decolorization.

Elevated, papillomatous angiomas must be treated with slightly stronger doses in order to level the surface and bring about decolorization. With a one-fourth-strength applicator, unscreened, an exposure of from two to four hours may be given in fractional doses. When the reaction subsides, the series of treatments may be repeated if necessary. Several courses of such treatment will usually bring about the desired result.

With certain types of cavernous angiomas in children, a reduction and leveling of the tumor can sometimes be produced without visible inflammatory reaction. This shows the specific and selective action of radium on the blood-vessels. In these cases I have used either a one-half- or one-fourth-strength applicator screened with 0.1 mm. of silver, and have given exposures of fifteen or twenty minutes' duration.

To attain the best results in angiomas, infinite care and attention to detail are needed. While the cosmetic results are naturally not always absolutely perfect, the enormous improvement is so noteworthy as to be nearly always satisfactory to patients. In selected cases an almost perfect cosmetic result can be obtained.

59 East Madison Street.

THE RELATIVE VALUE OF RADIUM IN DERMATOLOGY[*]

ARTHUR F. HOLDING, M.D.
NEW YORK

On account of the extravagant exploitations of radium by the profession as well as by laymen, a statement as to its actual value as a therapeutic agent (at present) may be enlightening. The majority of physicians are not in a position to judge the merits of this element, because its scarcity and high price place it beyond their reach. Judging from the unusual publicity accorded the discovery of this new chemical, with its marvelous physical properties, it was logical to expect that the therapeutic results would be quite phenomenal; but such results take years to perfect. The premature, hothouse exploitation of radium, hybridized by a cross between its unusual phenomena and the publicity given them, have resulted in disappointment, which was to be expected. After the initial period of exploitation, every new therapeutic agent goes through an evolutionary period in the hands of those who are scientifically inquisitive, and eventually its true value is established. For instance, the Roentgen rays, which were discovered seven years before the discovery of radium, are now just beginning to be employed scientifically, and it will be some years hence before the prejudice and skepticism resulting from premature, unscientific and extravagant exploitation of the Roentgen rays can be dispelled. In the same way the preposterous claims of radium fanatics provoke one to an underestimation of its value.

For two purposes one must acknowledge that radium has greater possibilities than any other similar agent in use at present, namely, (1) in diseases of faulty metabolism, in which the radium emanatorium may be used, and (2) in malignant lesions of cavities, in which the neoplasm is inaccessible or difficult to expose to direct application of Roentgen rays, such as the esophagus, rectum, vagina, urinary bladder, fauces, etc.

The application of radium to benign growths is unnecessary in my opinion, because benign conditions can be controlled more quickly and easily and with less expense by the electric desiccation method of Clark, and by massive doses of Roentgen rays.

One fact that would seem to justify hopes of superior results from radium is that the most penetrating Roentgen rays in use represent the output of a 60,000 to 100,000 volt current, while it is estimated that an electric current of from 600,000 to 1,000,000 volts would be necessary in order to produce Roentgen rays of as great penetration as the most penetrating rays of radium, that is, currents ten times greater than the strongest currents now employed for the Roentgen rays. Previous to the advent of improved Roentgen-ray tubes of the Coolidge type this argument was more convincing than at present; with the penetration of the Roentgen rays completely under one's control, it is reasonable to hope that Roentgen rays can soon be generated, having nearly as high a penetration as the gamma rays of radium, and it is certain that Roentgen rays can be produced from electrical sources in greater quantity and at less expense than the gamma rays of radium can be obtained.

The field of usefulness of radium has been greatly increased since the employment of radium emanations. The bulk of radium is so small that formerly it could be applied only to limited areas. The present method is to draw off the emanations of radium into glass capillary tubes, which retain for about twenty-four hours a radio-activity approximately equal to that of the original radium. A lesion of any size can be covered by these glass tubes, arranged parallel to each other. By the addition of fresh emanation each day to these mats of parallel tubes the radio-activity can be continued indefinitely. In the field of local applications to lesions of the skin and mucous membrane the agents to be compared with radium are electrical desiccation (Clark), ultraviolet rays (as applicable from a Kromayer lamp), massive doses of Roentgen rays of controllable penetration (Coolidge), surgery and destruction by caustics, cautery or cold. In comparing the relative value of these methods eight points should be considered.

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[*] Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Cost: Radium is far more expensive than any of the other methods. Massive Roentgen rays, electric desiccation and ultraviolet rays come next in expense. Surgery and caustics are the cheapest.

2. Ease of Application: As to ease of application, much depends on the training of the person who administers the treatment. Each therapeutist will naturally do the best work with the greatest ease by employing that agent with which he is most familiar. Other things being equal, radium and caustics are easier to apply than the other agents in question.

3. Time Consumed in Treatment: Radium applications are much longer in duration than any of the other methods. They require hours while the other treatments require minutes.

4. Pain: Radium, Roentgen-ray and ultraviolet light treatments in proper dosage cause no pain. Electric desiccation and carbon dioxid snow cause slight pain. Surgery and cauterization are very painful and require a local anesthetic. Chemical caustics are the most painful.

5. Cosmetic Effects: Cosmetic effects are best after radium, Roentgen rays, ultraviolet light, desiccation and carbon dioxid snow, and poorest after surgery or cautery.

6. Dangers: With a proper technic there are no dangers in any of these methods. Poor technic is a *de facto* contraindication for the use of any agent.

7. Superficial Healing and Deep Extension: The well-demonstrated superficial healing powers of radium and the Roentgen rays should not mislead one into attempting to cure too extensive a lesion with these agents alone, lest the lesion make deep inroads while valuable time is wasted on superficial healing.

8. Indications in Dermatology: Non-malignant and skin conditions, such as warts, moles, nevi, acquired blemishes like tattoo marks or keloids, lupus, ureteral caruncles, mycosis fungoides, blastomycosis and acnes can most readily be controlled by electric desiccation (Clark). If one has the equipment, massive doses of Roentgen rays, carbon dioxid snow and ultraviolet rays may be used in these conditions with advantage. Radium will give good results, provided the radium and time necessary are available. For superficial lesions surgery is contra-indicated, because better cosmetic results can be obtained with less danger and less pain by non-surgical methods. Psoriasis, eczemas and skin-diseases due to faulty metabolism should be treated first by systemic measures, including radium emanation, if available. When this does not produce the desired results, electrical methods such as massive Roentgen rays are indicated. In deeper malignant conditions of the skin, the following therapeutic program should be adopted:

1. Massive Roentgen deep therapy or massive radium deep therapy.
2. Complete radical operation, preferably by bloodless methods such as thermopenetration, electrocautery, or massive caustics (Stroebel).
3. Effulguration (de Keating-Hart) into the wound.
4. Postoperative Roentgen deep therapy or massive radium deep therapy.

In hopeless malignant skin conditions the patient's symptoms can frequently be much ameliorated by massive deep roentgenotherapy or radiotherapy.

103 Park Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SIMPSON AND HOLDING

Dr. William Duane, Boston: Radium is continually producing radio-active gas, and when the gas comes in contact with any material substance, that substance in turn becomes radio-active. In a small glass tube, containing the gas, I placed a thin sheet of steel and it also has become radio-active, as can be easily demonstrated by breaking the tube, removing the steel and holding it near a phosphorescent salt. Some years ago I suggested that sheets of metal or other substances, made radio-active in this way, should be used instead of the radium itself in the treatment of cancers. This method has certain advantages over the use of radium itself. It is very flexible. The applicators may be of any size and shape desired, and may have any strength. They will lose their activity after a certain time, and are then of no further value until again exposed to the radium emanations. A number of cases have been treated by the staff of the Harvard Cancer Commission at the Huntington Hospital by this method of deposited activity. The most complete removals of malignant tumors we have observed so far, were treated in this way. Dr. Simpson is correct in his statement concerning the differences between the Roentgen rays and the radium rays. Physical scientists tell us that four kinds of rays come from radium, the alpha-, beta-, gamma- and delta-rays. It is known that the gamma-rays are similar but not exactly the same as the Roentgen rays. During the past two years much important work has been done on these rays, and we have learned that Roentgen rays are very short waves of ultraviolet light. Gamma-rays are still shorter. The alpha- and beta-rays are of a totally different nature. They are corpuscular and not regular waves. We also get two kinds of rays from the Roentgen-ray tube; one depends on the tension of the tube and the other on the antikathode. In answer to Dr. Dyer as to how long a piece of metal will remain active after being exposed to these radium emanations, the activity will last on an average of a little over an hour, gradually dropping to zero. The dosage can be accurately measured, as it always follows the same law. A tube of this kind filled with radium emanation will lose one-half its strength in four days; in four more days it will again be one-half weaker, and so on, losing one-half its strength every four days.

Dr. Isadore Dyer, New Orleans: What method does Dr. Duane employ in obtaining these radium emanations? Is it necessary to use a glass tube? How long does the steel or other substance used remain radio-active?

Dr. Henry C. Baum, Syracuse: How long can the metal remain in the unopened tube before losing its activity?

Dr. Fred Wise, New York: What factors are necessary to produce a lesser or a stronger activity?

Dr. Jay F. Schamberg, Philadelphia: I have had some experience with radium during the past seven years, but have not had a sufficient quantity to produce the effects that Dr. Simpson has achieved, and with the amount at my disposal I have not grown wildly enthusiastic concerning its effects on cancers of the skin, in which I have seen equally good results obtained with the Roentgen ray. Radium has one distinct advantage over the Roentgen ray—the constancy of the dosage. With radium one knows the exact amount of energy that is given forth; we secure a constant effect from a certain quantity in a certain time from a certain distance. Despite the various energy-measuring devices that have been used to secure precision of dosage of the Roentgen ray, there is still latitude for error. Radium also has the advantage of simplicity of application and of applicability to certain cavities of the body which are inaccessible to the Roentgen rays. Another advantage is the kindliness with which radium burns heal. I had an experience with this on my own skin, on which an experimental radium burn, although deep enough to produce necrosis, healed promptly without pain, leaving only a slightly depressed scar. A Roentgen-ray burn of the same depth would have caused more trouble.

Dr. William A. Pusey, Chicago: I have used radium in a glass capsule for many years, and in an applicator for the past year or two, and in spite of all the care and judgment I could exercise, I have been unable to distinguish any difference whatsoever between radium and Roentgen-ray reactions. The radium burns with which I am familiar are produced by an abundance of the beta-rays as well as the gamma-rays, and they are identical with the burns produced by the soft Roentgen-ray tube. They produce the same kind of vesication with a necrotic pellicle, and, contrary to Dr. Schamberg's experience, heal with the same relative benignness. I see no difference whatever in clinical effects, between radium and the Roentgen ray. My standard of radium work has been Wickham's book—confined largely, I must confess, to a study of the pictures—and I can duplicate from my work with the Roentgen ray any of the results of the radium treatment shown in Wickham's book, including his results in the treatment of vascular nevi. The results of the radium and the Roentgen rays are due to the effect of actinic energy on the skin, and the actinic properties of both are identical as far as we can judge by all physical criteria. We are at present going through such a brain storm about radium as we went through with the Roentgen ray about ten years ago. We have gone into ecstacies about radium in cancer but the fact should be clearly fixed in our minds that in radium we are using a form of radiant energy similar to what we have been using for the past ten or fifteen years in malignant and pseudo-malignant growths throughout the body. We are destroying these cells wherever they are accessible but not where they are not accessible, and therefore we are not curing with radium lesions that are beyond the reach of radiant energy. We have not cured malignant growths in the cavities of the body with Roentgen rays; it is not now being done with the new "deep methods" with Roentgen rays or with radium, and the claims which are being made now for radium—as well as for the German "tiefen therapie" with Roentgen rays, are, in view of what we already know, unscientific and unreliable.

Dr. George M. MacKee, New York: I regard the action of radium and the Roentgen ray as practically identical, and I doubt if there is any lesion, not excepting nevi, that can be affected by radium that cannot be equally well treated with the Roentgen ray. While radium can be more easily applied to lesions in cavities, especially the mouth, yet, unfortunately, here the new growths are so malignant that I doubt whether radium is of much value in their treatment, except occasionally. I was much surprised to hear Dr. Schamberg say that the dosage of radium could be so much more readily gauged than that of the Roentgen ray. My view is exactly the opposite. The dose of the Roentgen ray can be gauged with almost absolute accuracy, as for instance in ringworm of the scalp, for which accurate dosage is absolutely essential. One disadvantage of the radium application, as compared to that of the Roentgen ray, is that the former must sometimes be continued for from four to twelve hours to get exactly the same result that could be obtained by one application of the Roentgen ray lasting from one to fifteen minutes. Dr. Duane's point concerning the deposited activity of radium was interesting. We have an analogous form of treatment with different kinds of metals that have been acted on by the Roentgen rays. The difference is that, heretofore, low vacuum tubes have been used, which gave out a different form of radiant energy from that of the gamma-rays. As to radiodermatitis produced by the filtered or the unfiltered rays, there is no difference between them except in degree, depending on the dosage.

Dr. Richard L. Sutton, Kansas City, Mo.: I disagree with Dr. Schamberg concerning the character of radium burns. Recently I had under my care a case of cancer *en cuirasse* which had been treated with radium. While the patient was little if at all benefited, she was severely burned at a dozen or more points where the agent had been applied. The lesions healed slowly, and were very painful. Despite treatment, several of the burns were still present when the patient died, four months after her return from the sanatorium.

Dr. Frank E. Simpson, Chicago: I believe there is no question among physicists that the Roentgen rays and radium rays have certain differences: that the latter contain certain rays that have no analogue in the Roentgen rays. I do not agree at all with Drs. Pusey and MacKee that they both produce the same reaction or result on the skin. The fact that they are all forms of radiant energy does not imply that they are identical. I think there are certain things that can be done with radium that cannot be or at least have not been duplicated with the Roentgen ray. I have seen many cases of angioma successfully treated with radium that could not be duplicated with the Roentgen ray. As to lupus erythematosus, especially in lesions about the nose or eyes, I do not think such patients can be well treated with the Roentgen rays, lest we set up a severe reaction, while with radium I do not hesitate. In this disease radium is really worth while. Certain types of epithelioma I believe can be treated just as well with the Roentgen ray as with radium but there are other cases that do not yield to Roentgen rays. One of my friends, one of the best roentgenologists in Chicago, brought me a case which had absolutely failed to yield to the Roentgen rays, and it yielded very promptly to radium. This is a common experience with others who have used both agents. This may be partially a matter of technic. The form of induced radio-activity described by Dr. Duane, I think would prove very valuable in certain types of epithelioma, but it would be of less value in other dermatologic conditions, such as angioma, the treatment of which requires a certain amount of skilful cosmetic work.

RADIUM AND THE ROENTGEN RAYS IN RADIOTHERAPY

THEIR USES AND LIMITATIONS *

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PHILADELPHIA

Rays generated from a Crookes tube may be considered as being identical with those eliminated from radium, varying somewhat, however, in regard to force; therefore before consideration of their therapeutic value, a comparison between them in regard to a few of the more important points dependent on their physical nature might be of interest, it being assumed that the general properties of these elements and the ordinary Roentgen apparatus are too well known to be rehearsed in this article.

The cathode- and the beta-ray seem to be analogous; the two have the same properties except in regard to speed. While the cathode-ray travels 5,000 miles a second, either from or impinging on the surface of the anode, causing the formation of Roentgen rays, the beta-ray is disrupted or exploded from the atom of one of these radio-active salts and leaves it at a rate of from 45,000 to 100,000 miles a second, generating during this disturbance the gamma-ray.

It is obvious that when we have a force of 5,000 miles a second on one side with another of from 45,000 to 100,000 on the other, the result must necessarily differ. A comparison of this with a large number of bullets being projected from or impinging on a surface, in one instance the force being from nine to twenty times greater than the other, gives us an analogy. It follows, as might be expected, that the gamma-ray has far greater penetrating powers than any Roentgen ray so far known, and while it may be possible to build a Roentgen tube that will give the required speed to the cathode particle, as yet, with our present knowledge of physics, it has not been produced and there is no likelihood of its being accomplished.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Physiologically, the difference between low and high radiation is of the greatest importance; while the low rays are always most active, they lack penetration, and it is well known that the so-called burn is likely to follow their indiscriminate use. Therefore, on account of their activity and lack of penetration they are not so desirable as the higher rays, which possess penetration and are by no means so active in producing tissue change. This point may seem somewhat contradictory, but on analysis it will be found that experience and theory support each other. Let it be taken for granted that as these active low rays pass through tissue, a cell, here and there, feels the full force of the radiation while others are protected. This gives rise to a process in which may be found conditions varying from stimulation on the one hand to necrosis on the other; whereas, under the influence of the high radiation, the effects are more uniform, each cell receiving an equal amount of radiation. If this be true macroscopically, then why not apply the same microscopically? For instance, the important part of the cell is its nucleus, and therefore, if the radiation is obstructed by the cell elements, the nucleus, being protected by them, naturally escapes; this causes an inflammatory reaction, but it is doubtful if it results in the death of the cell. On the other hand, if the radiation is high, all parts of the cell receive about the same amount of radiation and this causes an equal amount of degeneration in all parts and consequent death of the nucleus. Therefore, on this theory the high rays should prove most desirable as a therapeutic agent.

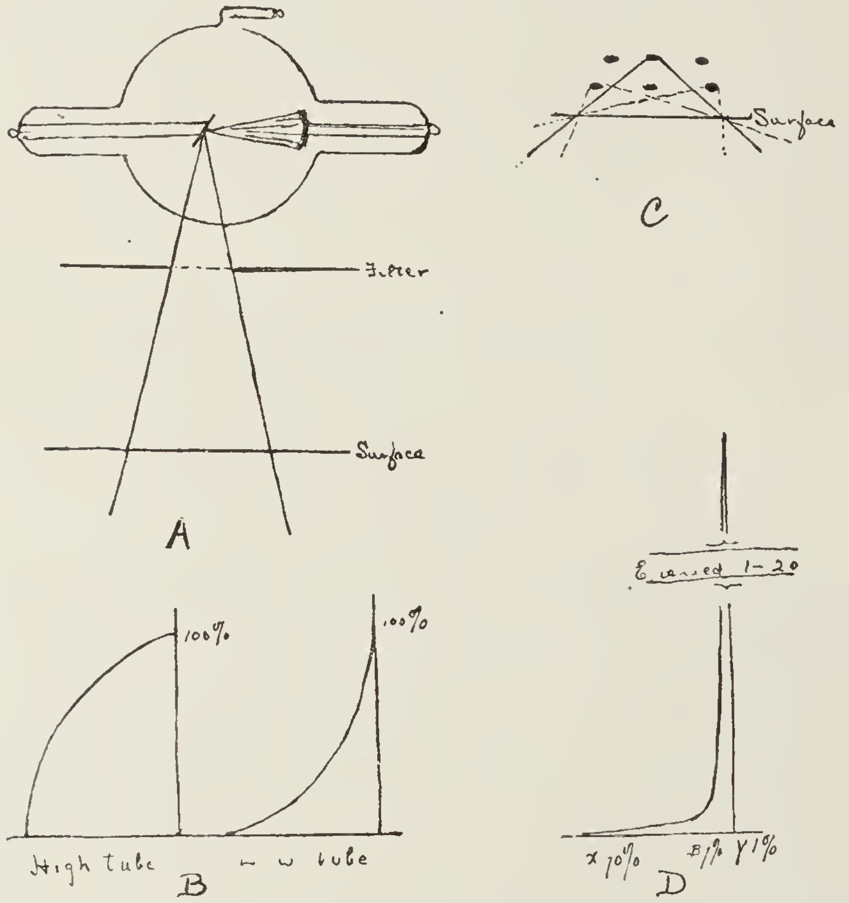

Fig. 1.—Diagram: *A*, showing the relation of radiation to the surface and the penetration of equal proportions; compare with *C*, filter surrounding the radio-active elements and a frequent change of base possible. *B* and *D*, comparative curves showing penetration of the different rays.

A second difference between the Roentgen radiation and that of these radio-active elements is that there is not the least doubt that with the gamma-ray is carried a fairly large proportion of high beta-rays, which, although thought to be useless, have from an experimental point of view a pronounced physiologic significance, and it may be possible that as these gamma-rays are projected through the tissues, the formation of secondary beta-rays may cause the more active change in tissues so commonly seen in reactions from radium.

This may, however, be due to another condition, which is possibly secondary but plays a distinct rôle in the issue between Roentgen and natural radiation; when the former is employed, the point of origin of the rays is usually from 10 to 20 inches from the body, and in this bundle of rays is a wide variation of one variety, a high tube containing a predominance of high rays, while in a low tube the opposite condition prevails. This, however, suffers modiffication between limits.

From radium spring three distinct forms of radiation: the first may be discarded, as it lacks penetration and would prove useful only when the naked salt was employed; unfortunately, by its exclusion, about 90 per cent. of energy is lost. The gamma radiation, which is supposed to be the important form, from a medical point of view, equals only about 1 per cent. There is not, however, the least doubt that when the medium beta-rays are employed it is possible to obtain about 7 per cent. efficiency of the whole mass, although it is on this point that there exists the greatest conflict of opinion concerning the two forms of radiation. The difference between radium, thorium and actinium in regard to the proportion of the different rays depends largely on the elements that go to make up the individual group; but it must be conceded that the gamma-ray of thorium possesses greater penetration than that of the other two groups. Necessarily this is also true of the beta- and alpha-ray. While some authorities assert that this is a distinct advantage, sufficient proof has not been given for its adoption as absolute.

The mode of application of these radio-active elements differs from that of the Roentgen rays; for instance, the radio-active salt is usually applied to the affected part in close proximity to the disease; therefore, we have a given amount of high-penetrating rays springing from a point near to, and not at a distance, as is usual in Roentgen radiation. This point is of more material interest if several sittings are given, for should there be any tissue between the diseased portion and the radio-active salt, it is not likely to receive the activity at more than one sitting.

Therefore, from a physical point of view, the following differences are observed between Roentgen radiation and the radiation from these elements:

First, the rays differ in penetration.

Second, it is possible the high beta-rays also play a very active rôle, and consequently differ in quality.

Third, the relation of the radiation to the surface and the several planes of tissue is materially altered.

Another point which has been brought out in Bayet's publication is that the dosage of these radio-active elements can be measured with an exactness that is absolutely impossible in Roentgen radiation, and while this is true to a great extent, the variation in the amount of radiation from a Crookes tube is not of sufficient importance to cause it to be made an issue; furthermore, the idiosyncrasies that exist to both forms of radiation cause more anxiety and are more important than the slight variation in dosage.

From the physical difference which has just been cited as existing between these two forms of radiaion, it would be expected that the effect on tissue vould also be materially altered; and this view is urther substantiated by observation. It might be aid that the reaction produced by these radio-active alts is decidedly more intense, is usually confined to a limited area and is in turn followed by a fairly rapid estoration of the part; the same degree of reaction produced by the Roentgen ray would be more wide-pread, the damage to the tissue in the affected part more uniform, and healing extremely slow. Even the reaction of a chronic character caused by these radio-active elements, as observed in the laboratory worker, will rapidly disappear if the process has not been allowed to progress too far, while the same amount of damage done by the Roentgen ray would produce results that would possibly last a lifetime.

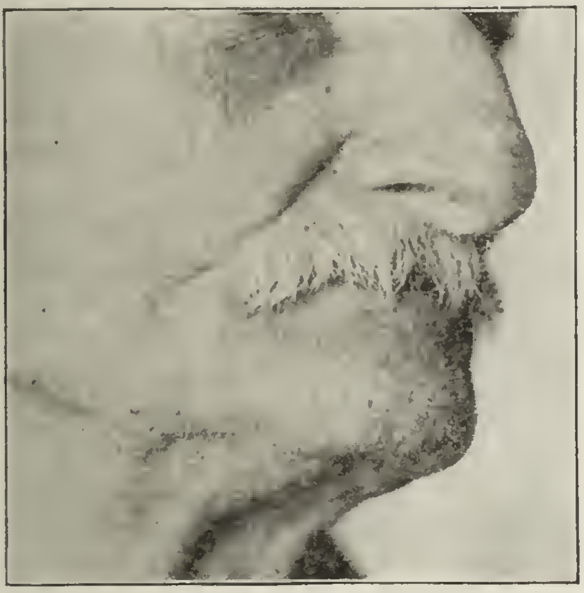

Fig. 2.—Epithelioma of the buccal surface of the mouth; extensive nvolvement, perforating the cheek at the site of the present dimple. Result obtained from 11 mg. specimen radium (records of the American Oncologic Hospital). (A similar case relieved by applications of 1 mg. Referred by Dr. J. B. Deaver.)

It can be easily seen that under these conditions it is possible to use the radio-active elements and do less harm to surrounding structures than by the other form of radiation, and attention has been called to the fact that very few poor results have been seen from radium. This is thought by some authorities to be due to the care taken in making these applications; possibly this assertion may be correct, for the warning was given by its predecessor, and very few care o witness the burns which were contracted in the early days of the Roentgen ray. Too much credit, however, must not be given to those applying radium, for those differences of a physical nature which exist and seem to be material in this issue cannot be overlooked.

Curiously, however, the varying susceptibility to these radio-active elements seems to be in greater proportion than to the Roentgen radiation. Many observers have called attention to the severe reaction that is requently seen; it is most alarming when it occurs, and is very likely to cause considerable anxiety; in he person of good physique it is not likely to result eriously, but in the weak and debilitated it may lead o serious consequences; the intense, rapid inflammation may lead to an extensive cellulitis, with its train of concurring symptoms, and usually follows the course natural to that condition, quite in contrast to he inflammatory reaction that follows the application of the Roentgen ray. On the other hand, cases are often seen in which it appears to be quite impossible to produce the expected reaction, and the tolerance almost borders on an immunity.

Therefore the difference between the reaction caused by these two forms of radiation may be stated as follows:

1. Exact dosage is possible with these radio-active elements.
2. The personal idiosyncrasies are far greater.
3. The reaction is more localized and more intense.
4. Resolution occurs earlier.
5. There is less damage done to surrounding tissues.
6. That Roentgen burns have been treated and healed by radium is sufficient to prove its wide variation.

While the difference between these two forms of radiation is being compared, attention must be called to those reports in medical literature in which these radio-active elements have been employed successfully in the treatment of cases after the Roentgen rays had failed; yet at the same time a few have been reported under the reversed conditions. These reports, however, have usually been made by those interested in one form of radiation alone, and therefore must be considered accordingly; but to substantiate the idea that there is a difference in effect on the tissue elements there is a third series of cases reported by those who have employed both forms of radiation for some of these troublesome cases. It would seem that it should and would be far better to employ the two forms of radiation, thereby obtaining the desired reaction from each. Under certain conditions the ease of application to the surface necessarily elects the employment of one of these radio-active elements; as such may be cited when cancer exists in cavities, as, for instance, in the mouth, rectum or vagina.

In cancer of the uterus, radium seems to possess a control that is not observed from any other form of treatment, and while it is rarely permanent it gives comfort to the patient and materially alters the course of the disease.

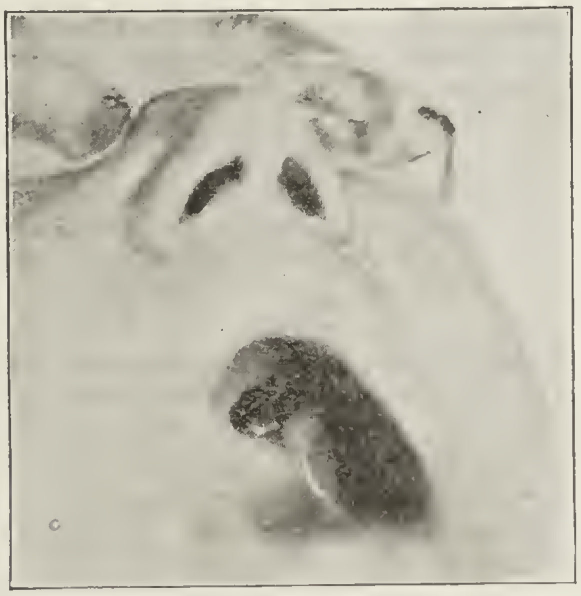

Fig. 3.—E. S. Epithelioma of palate perforating the nasal cavities. Notice the damage. Healed by applications of 4 mg. radium element. (From records of American Oncologic Hospital.) Referred by Dr. H. R. Wharton.

These elements can be applied in cavities in which it is impossible to bring the radiation from the Roentgen tube without penetrating the intervening tissue, and it is in this field that the results from these elements seem to be somewhat better than those from the Roentgen ray. Such conditions as polypi within the larynx can be treated without the injury that leaves the imprint of previous treatment on the overlying skin. In some instances carcinoma of the palate and others of the buccal mucous membrane have been healed. It must not be understood, however, that these radio-active elements are a panacea for cancer; they are far from it; but individual results are often seen that are most gratifying and excite our enthusiasm, though this is not the rule. Here, again, many by their interest in these radio-active elements have in their haste forgotten to look back on the number of patients "cured" by the Roentgen rays. (The word "cured" can certainly be used in its fullest meaning; objection, however, should be made to its employment as a general rule.)

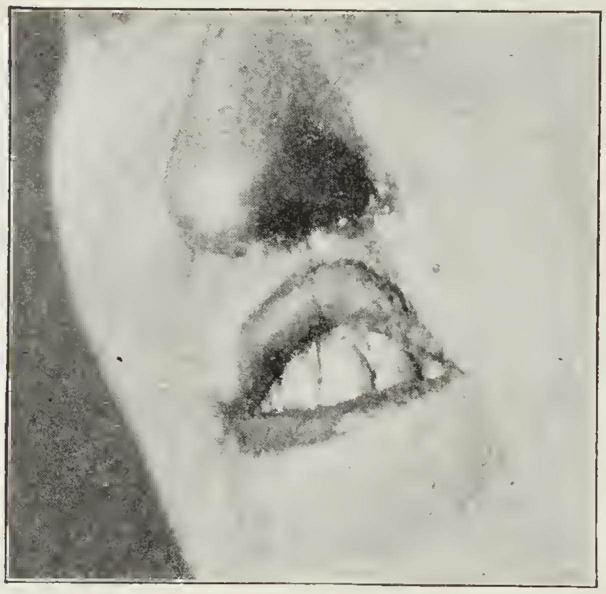

Fig. 4.—Rodent ulcer of ala of nose; ulceration; was treated during the spring of 1909 by 1 mg. of radium element and remained healed until 1913 when it was again healed by applications from a specimen containing 11 mg. radium element. (From records of American Oncologic Hospital.) Referred by Dr. A. Hewson.

To prove these instances it might be well to recall a few cases that have come under observation and treatment.

Case 1 (Case of Dr. H. R. Wharton's).—A man, aged about 60, who suffered from an inoperable carcinoma of the cecum, was treated with the Roentgen rays. Four years have elapsed with no recurrence and he is still in good health.

Case 2 (Case referred by Dr. Chandler).—A woman, aged about 40, suffering from an inoperable carcinoma of the pylorus, irregular in shape and about the size of two fists, was treated. Seven years have elapsed and she is still in good health.

Case 3.—A patient with recurrent carcinoma of the breast, referred by Dr. McClary, treated seven years ago, is still in good health.

Case 4 (Reported by Dr. Shoemaker).—A woman, with an inoperable sarcoma of the pelvis, with extensive involvement, and about the size of a seven months' pregnant uterus, was treated about ten years ago; the whole mass disappeared and pregnancy resulted twice afterward; when last heard from she was living in the West and was in good health.

Certainly the superficial epithelioma is in most instances promptly relieved by both forms of radiation, but here radium has so many rivals that its only recommendation is the popularity of its cost. The cosmetic results are exceptionally good, and possibly in those cases in which the Roentgen rays have failed, radium often promotes the desired result. In many reports the term "rodent ulcer" is used to signify all small epitheliomas occurring on the face; this is unfortunate, as the usual form is the proliferative fungoid type, which is far from being so malignant. The true rodent ulcer with its undercut edges, which has penetrated below the superficial tissues, is rarely cured by any form of treatment. Epitheliomas or recurrent epitheliomas appearing on scar tissue of low vitality are also as a rule unfavorable cases for either form of radiation.

In deep cancer the choice between massive doses of deep radiation and the employment of these radio-active elements must be considered an open question. Its employment in new growths as sarcoma and fibroma is a matter of individual opinion, and results have been reported from advocates of both; the only possible advantage of these radio-active elements is the ease of manipulation. But it should be remembered that the failure of one form of radiation is no criterion of the other.

There is one field, however, in which these radio-active elements displace the Roentgen rays: that is, in the treatment of nevi, either the simple port-wine stain and the deeply pigmented mole, or those with slight vascularity to those of the deep cavernous variety. While these lesions have been treated by the Roentgen rays, the method is extremely dangerous and the results are usually poor. On account of the vascularity, the character of the burns sometimes produced will cause ulcerations that last for years, and when healed give rise to scars with more or less telangiectasis that are as a rule more unsightly than the preexisting nevus.

The amount and quality of the radiation from these radio-active elements are, at present, still an issue to be decided, although some authors have given support to the prevailing idea that beneficial results depend largely on the amount of radio-active element. This, however, is not the fact, and several instances have come under observation in which very small amounts of radium, used merely as a placebo, completely healed one epithelioma perforating the palate between the nasal and buccal cavity, and another between the buccal cavity and the cheek. The first case was referred by Dr. H. R. Wharton and the second by Dr. J. B. Deaver. They were both inoperable. These results are frequently seen in all fields of radiology, and one should never despair until the individual case has been given the benefit of the doubt.

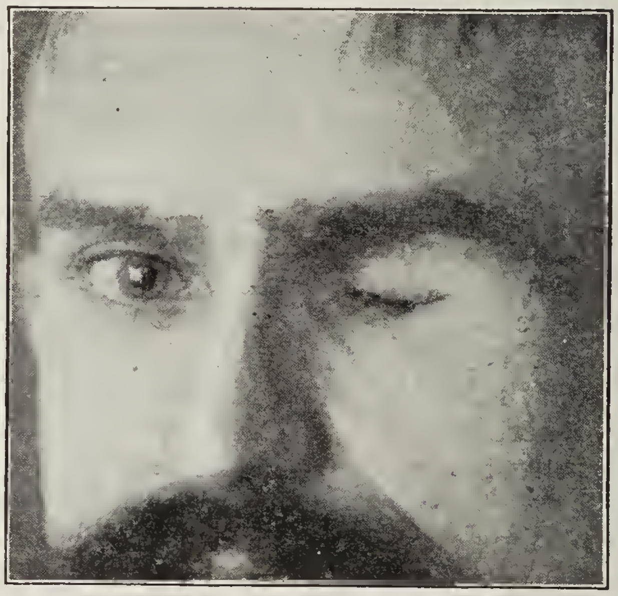

Fig. 5.—Sarcoma of orbit, recurrent, treated by 11 mg. radium element. Growth caused a bulging of the temple about the size of a small split apple. Referred by Dr. Swenck. (Records of American Oncologic Hospital.)

The comparison of dosage between these two forms of radiation is an impossibility; the existing difference in their physical nature, their physiologic action and the mode of application does not permit it. The wide difference of opinion existing between individuals using the same form of radiation makes it difficult to analyze the results, which in all events depend largely on the manner and skill of employment rather than the quality and quantity of apparatus. Therefore at present dosage in all fields of radiation is a variable quantity that must depend entirely on the opinion of the operator.

From this short analysis of the two forms of radiation we may conclude that:

1. Both forms of radiation have wide ranges of usefulness that differ materially under certain conditions of disease, individual idiosyncrasy and adaptability of usefulness to the affected part.
2. There is, however, a wide middle ground in which the two forms of radiation overlap, their employment being a matter of convenience.
3. The use of both forms of radiation will in some instances yield results, when one alone would fail.

Therefore, those employing these radio-active elements should have a knowledge of Roentgen radiation. Experience is also necessary with either form to obtain results, and, furthermore, to guard against untoward effects that are so commonly seen.

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THE PLACE OF THE ROENTGEN RAY IN THERAPEUTICS *

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The purpose of this paper is to present in abstract form certain information concerning Roentgen therapy with the essentials of which physicians in general should be quite familiar. That this is not the case, however, is proved by the questions so frequently propounded to the roentgenologist by his professional brethren, which questions display frequently a profound ignorance both of what may be obtained in the way of results by this method of treatment and the reason why such results may be expected to follow treatment. The deleterious effects of radiation on tissue (thanks to the unfortunate series of accidents occurring in the early history of the use of this agent for diagnostic purposes) are perfectly familiar to the profession; in fact, it was the occurrence of so-called Roentgen-ray burns following exposure for diagnostic purposes that first suggested that an agent capable of such destructive influences on healthy tissue might be possessed of considerable power as an alterative agent on pathologic tissue.

Beginning with the use of the ray as a depilatory and as a stimulant in the hands of the dermatologist in chronic acne, eczema, etc., experience soon taught that profound effects could be produced on superficial lesions. This was followed by experiments in the treatment of goiter, lymphatic leukemia and tuberculous glands as well as the superficial forms of malignancy, until within the last few years a new field has been opened by the employment of heavy doses with decided filtration in the treatment of gynecologic lesions deep in the pelvis.

It is thus seen that a wide range of activity has been shown to be possessed by this agent, and it is small wonder that many physicians are unable to understand how a radiation can so profoundly influence such widely different structures in such varied situations. Therefore a word of explanation of some elementary principles of Roentgen therapy: The Roentgen ray manifests its physiologic action only on those tissues in which it is absorbed. The most striking illustration of this is shown by Pfahler, who in treating a sarcoma of the neck with deeply penetrating rays produced a dermatitis on the opposite side of the neck. It is therefore necessary in attempting to effect tissue changes of a beneficial character in pathologic tissue to employ tubes capable of emitting a radiation having sufficient penetration to reach down to the lowest portions of the affected tissue. In general, this is accomplished by a variation in the vacuum of the tube, the high-vacuum tube emitting high radiation, the low-vacuum radiations of slight penetration. By means of the unique tube invented by Dr. Coolidge, it is possible to handle the tube and apparatus so as to cause emission of large quantities of radiation having a uniform and predetermined penetration; but with all the usual forms of Roentgen tube, a variety of radiations are emitted not in uniform proportion to each other. A high-vacuum tube, for example, will emit rays of high penetration and in addition a variable quantity of rays of much lower penetration depending on the age of the tube and the amount of seasoning to which it has been subjected.

It is possible to handle a tube so as to produce a peculiar condition of stability of vacuum, constituting what is known as a seasoned tube, in which the proportion of rays of high penetration will be quite great and the proportion of rays of lesser penetration emitted relatively small.

It is further possible by interposing filters of leather or aluminum between the tube and the tissue under treatment, to intercept practically all the soft slightly penetrating rays, thus subjecting the tissue to a bombardment of rays consisting almost entirely of those of a predetermined and desired penetration.

The deeper the lesion to be attacked lies beneath the surface, the greater the penetration of the rays necessary to affect it, while the more superficial the lesion, the less the penetration of rays desired. This is highly important, as for example in the treatment of a patch of lupus situated on the forehead, if the operator should use tubes of high penetration, he would probably succeed in producing some results on the lupus due to the rays of lesser penetration emitted by the tube, but prolonged treatment would be necessary, since the majority of rays emitted would pass completely through the lesion and be intercepted in the bone of the skull and the end-result would be a periostitis, necrosis and exfoliation of the bone underlying the lesion. I have seen this produced in several cases in which the enthusiasm of the physician possessed of a piece of new apparatus was greater than his experience in its use.

In the treatment of superficial lesions, tubes of very low penetration without the intervention of filters are required. A few applications of the radiation from such tubes is sufficient to provoke in the skin a violent reaction, which is followed frequently by the disappearance of the lesion and its replacement by healthy scar tissue. Under such circumstances, a large

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

majority of the radiation emitted from the tube is absorbed in the tissue involved by the disease, and the action of this radiation when it is absorbed on diseased tissue is a profound one. This is not the time or place to produce a voluminous condensation of the literature on this subject, interesting as it might be to discuss the histologic changes manifested in tissue that has been exposed; but the whole thing can be summed up in a few words which are sufficiently accurate for our purpose and which may explain why such a treatment is followed by results either good or bad.

Normal human tissues in health are possessed of a certain degree of vitality. They react to various stimuli, electrical, chemical or mechanical, in a uniform degree. Healthy tissue possesses a certain degree of physiologic resistance to irritating or destructive stimuli. It is also possessed of certain well-marked reparative powers when injured.

Diseased tissue, on the contrary, is in an entirely different condition. If malignancy, for example, be present, the tissue is composed of rapidly growing cells with changed structural relations, blood-supply of hasty construction, and tissues showing physiologic variations multiplying rapidly with small powers of resistance and slight reparative power. If such tissue be subjected to quantities of radiation correctly prescribed and administered, it will undergo tissue death either slowly or *en masse* according to the degree of rapidity with which the dose has been administered. Small doses of radiation, or radiation of so high a penetration that but little is absorbed, may on the contrary only stimulate and irritate such a lesion, and instead of producing beneficial results is prone to be followed by exacerbation of the growth. Relatively enormous doses are sometimes necessary, and the physician who desires to employ radiotherapy should have the ability to recognize the necessity of such doses and the necessary skill and apparatus for the prompt administration of them when required. In one case which I shall show in which the result was very satisfactory, it was necessary to administer on several occasions 800 times the customary dose at a single sitting, since the ordinary dose merely stimulated the disease. The treatment of skin carcinoma and epithelioma has undergone a decided change in the last few years. The aim of the successful roentgenotherapist at present is to produce a curative reaction as promptly as possible. He no longer hesitates with tentative doses but boldly proceeds to administer promptly quantities of radiation carefully predetermined that are followed by prompt results.

We frequently see cases of epithelioma about the face near the eyes that have been treated for periods of months by men of slight experience whose timidity has compelled them to attempt small doses perhaps daily instead of a few real treatments. The result is usually a chronic ulceration in a markedly atrophic area, sluggish and almost impossible to treat by any other means than excision. These are the cases in which "the x-rays have been found unsuccessful," but the failure in obtaining results is not to be wondered at. It would, however, be remarkable if favorable results were obtained under such circumstances. The treatment of superficial lesions, therefore, has been accomplished by the rapid administration of a sufficient quantity and quality of radiations to produce a reaction sufficiently intense to be followed by the ordinary healing process, and that this is possible in the hands of any man who is willing to devote sufficient time to become familiar with the necessary technic should not meet discussion or doubt. The results obtained in superficial malignancy, lupus, rodent ulcer, etc., are not excelled by those obtained by radium or any other means of treatment.

In the treatment of deep-seated conditions an entirely different technic is necessary. In the treatment of inoperable or recurrent malignancy, a certain amount of inhibition of the growth, sometimes quite marked, may be expected to follow rational treatment. Rays of penetration sufficient to reach to the uttermost borders of the growth must be employed, tubes giving a large proportion of highly penetrating rays are necessary, and filtration sufficient to absorb all rays of slight penetration is imperative. If the sole-leather filters of Pfahler are employed in conjunction with one or more millimeters of aluminum, large quantities of radiation may be applied with but little deleterious effect on the skin if the tubes are placed at a distance of 8 or 10 inches from the surface. Under such circumstances, large masses of tuberculous glands have been rapidly resolved at the hands of many reporters, interesting results may be obtained in cases of Hodgkin's disease and various forms of leukemia, and pituitary struma may be inhibited to a marked degree. Mediastinal involvement in malignancy has been controlled in my hands as well as in the hands of many other men for periods of one or more years.

The value of postoperative radiation as a measure of insurance against the recurrence of malignancy following operative procedure is a question that is still under discussion; I am convinced that it possesses decided value, although such a statement undoubtedly does not admit of positive proof.

The so-called deep therapy of gynecologic lesions is attracting marked attention abroad. In these conditions in which the induction of an artificial menopause is desired and contra-indications to surgical procedure exist, treatment with highly penetrating radiations through selected portals of entry with measured doses is capable of producing cessation of hemorrhage and even of ovarian function. Such treatment demands the highest degree of roentgenologic skill and technic since the doses necessary are so large as to be capable of the most destructive effects on the skin. Attempts at this technic by those who are unqualified will be certainly followed by such a series of disastrous results as to cast discredit on the whole subject of Roentgen therapy.

The Coolidge tube, an American invention, the product of the genius of Professor Coolidge of the General Electric Company, opens a new field in Roentgen therapy. This tube differs decidedly from the ordinary Roentgen-ray tube. Briefly, the cathode consists of a spiral of tungsten placed about ¾ inch from a heavy tungsten target. Both these tungsten elements are mounted in an ordinary Roentgen-ray bulb which is then exhausted by a special series of processes to an almost perfect vacuum. In this condition the tube permits the passage of no electric current, and in order to render it operative it is necessary to heat the tungsten spiral by the passage through it of an electric current of 12 volts from a storage battery. The storage battery, rheostat, ampere-meter and tungsten spiral form an electric circuit. The incandescence of the spiral is controlled by permitting the passage of more or less current by means of the rheostat. This storage battery circuit is carefully insulated, and on the storage battery circuit there is impressed a potential of from 50,000 to 100,000 volts from a high-tension transformer, whereupon tungsten electrons from the incandescent spiral are hurled across the gap in the vacuum, striking on the tungsten target, and from the points of impact Roentgen-rays are emitted. This tube permits the passage of enormous quantities of current for long periods of time, resulting in the emission of great quantities of Roentgen rays. The penetration of rays depends entirely on the voltage impressed on the tube circuit, and if this be kept constant, the penetration remains constant. There is thus placed in the hands of the roentgenologist an instrument of precision and of extreme power, but it must be remembered that he is dealing with a two-edged sword. It is greatly feared that the introduction of this tube will be followed by a series of grave accidents, both to the roentgenologist employing it and to the patients who may be subjected to its use, unless exceeding care in technic is scrupulously followed. The employment of aluminum filters of at least 3 mm. thickness is advised when this tube is used for deep therapy.

The excitement occasioned by the discovery of large bodies of radium-bearing ores in the United States has been followed by an increase of interest in the use of this element for the emission of radiations of therapeutic value. There is no longer any doubt of the distinct value of radium rays under certain circumstances in the treatment of certain malignant conditions.

In my opinion, the greatest field for radium therapy lies in the treatment of malignant conditions in the otherwise inaccessible portions of the body, carcinoma of the esophagus, of the body of the uterus, of the bladder, of the tonsils and antrum, and in the treatment of giant-cell sarcoma in which it is possible to introduce tubes having a heavy radium content into the body of the growth by surgical means and permit the radium to remain for considerable time. Radium will by no means supplant the Roentgen ray in the treatment of these conditions, but will rather supplement such treatment as the Roentgen ray in its turn so ably supplements scientific surgery to-day. A most interesting corollary is observed in the successful treatment of the malignant keratoses produced on the hands of the roentgenologist by long exposure to the Roentgen ray. In a number of instances which I have observed, fingers which demand amputation on account of multiple malignancies have been saved by the application of radium and are now covered by apparently normal and healthy epithelium. The explanation of this fact is not yet clear.

SUMMARY

1. The Roentgen ray is of distinct value in the treatment of a number of conditions.

2. It can never supplant, but can and does supplement, surgery to a valuable degree.

3. The results to be expected depend on the employment of a correct technic which implies the ability to prescribe correctly and administer the necessary dosage at the necessary time in each individual case.

4. The Coolidge tube has placed in the hands of the profession an instrument capable of great good if carefully and intelligently employed.

5. The value of radium as a therapeutic agent should be no longer disputed.

6. The physician employing these various agents must be thoroughly familiar with the possibilities of present-day surgery as well as expert in his own technic in order that his patient may obtain the benefit of everything that science has to offer.

7. Physicians and the public must never forget that every case of malignancy remains for a certain length of time after its inception a curable disease by proper surgical procedure.

Jenkins Arcade.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. NEWCOMET AND JOHNSTON

Dr. Henry K. Pancoast, Philadelphia: A most important difference between Roentgen rays and the "gamma" rays of radium, is in their manner of production. "Gamma" rays are produced at the time of disruption of the atom, and Roentgen rays at the time of impact of the negative corpuscle, hence the greater and more uniform degree or penetration of the "gamma" rays. All roentgenologists realize that we are again in a developmental stage with roentgenotherapy, and that in the next few years much more will be accomplished, especially in deep treatment. This will be brought about mainly by the combined use of the Coolidge tube, cross-fire radiation and adequate filtration. In the treatment of superficial lesions, everyone now employs massive dosage, one or a very few applications being all that is necessary to control the disease. If this principle is applied to deep lesions, and a massive or erythema dose is directed at the site of the growth by cross-fire methods, similar results should be obtained in many cases. One of the most important applications of deep therapy is in the treatment of uterine fibromas. Results may have been such as to substantiate the claim for this as the preferable method of treatment, but I can hardly accede to such a view at present. I still believe that roentgenotherapy should be reserved for selected cases in which radical operations are undesirable, refused or contra-indicated. Much can now be accomplished even in uterine carcinoma. Finally, while roentgenotherapy will never be a panacea for deep-seated cancer, we feel sure that future results will surpass those of the past.

Dr. Arthur F. Holding, New York: The application of radium as we find it is confined to small areas. The tubes are small and can only be applied to small areas and in order to treat large areas the method of emanations in vacuum tubes is possible. This is an important advance in the use of this radium for malignancy. I think there was no mention made of the use of the emanations for constitutional diseases. The results of radium are usually obtained in the treatment of superficial lesions but Van Noorden and others have used it in many other conditions, using the emanations in a closed chamber. Very little work of this kind is done in this country. We must consider both the local and general reactions of radium. So far as we have gone now we use both of these agents in the same class of patients. As we have more experience with these two agents we can use them according to the case. Those who have had the most experience with the Roentgen ray think most of it and the same holds true of radium. The most important thing to recognize is that there are certain classes of cases that can be adequately handled by any one of these agents: it is not the question whether one is better than the other. You can get a better cosmetic result without opening lymphatics, etc., by these physical methods. The Roentgen rays were discovered in 1895 and we are just beginning to think we know a little about this agent. We do not know as much about radium and in order to find out we must cooperate with the physicist. At present radium is difficult to obtain. The Roentgen ray and desiccation do very well in the same class of cases as the radium. Care must be used in selection of cases for treatment with radium or the Roentgen ray. The

Roentgen ray has a great deal of power for superficial healing and therefore care must be taken in its use. Sometimes there is marked healing and everything pathologic that is visible disappears under the radium, but the patients develop marked cachexia. There is danger in attempting too much.

Dr. William Duane, Boston: It has been discovered that the Roentgen ray from a tube really consists of two different kinds of ray. The penetration of one kind depends on the voltage, and the penetration of the other depends on the substance used as an anticathode. Roentgen rays have been found to be similar to the ultraviolet light, although for seventeen years it was thought that they were quite different from ordinary light. It has recently been discovered that Roentgen rays are light waves of exceedingly short wavelength. The shorter the wave the more penetrating it is. It has been shown that the wave-length of the Roentgen ray depends on the nature of the anticathode in the tube. I want to emphasize the fact that the rays from the tubes are of two kinds, one depending on the voltage and the other on the nature of the anticathode.

Dr. A. L. Gray, Richmond, Va.: I have had no experience with radium except some years ago in treating one or two tumors on which I was using a very small amount and of low radio-activity. I obtained no results with the specimens I used. I have now been actively engaged in Roentgen therapy for some twelve years, and my results are as good as if not better than at first and my enthusiasm has never waned in the slightest. I have not been employing deep therapy except in the treatment of tuberculous adenitis. My results have been almost uniformly good in these cases by the fractional method of treatment. I am now using massive dosage, and have been for a short time, but I can not yet definitely report results. Those who have been for some time employing the massive-dose method report that they are experiencing better results from it than they formerly did by fractional dosage. It is more satisfactory to the patient as well as to the operator, and the end-results, so far as I know, are equally as good as if not decidedly better than by the fractional method.

Dr. James W. Hunter, Norfolk, W. Va.: Has anyone had any experience in deep therapy with the Coolidge tube and if so, does he employ filters? I have tried some work on deep therapy with excellent results but I do not encourage it very much. I should also like to ask about the use of filters of thin sheet lead used in the same manner that radium is employed.

Dr. George E. Pfahler, Philadelphia: I have been interested in the deep therapy and have been using the Coolidge tube a great deal and am enthusiastic in its use and results. It is exact and capable of delivering anything we wish. We can give enormous doses in a short time and it enables us to multiply our fields of entrance so as to give a single dose through any part of the skin and yet multiply the deep effect as many times as we wish according to the time and energy we wish to put on the patient. We have to-day an agent that is, I would estimate, one hundred times more valuable in the treatment of deep-seated diseases than we had at hand a year ago. We cannot report wonderful cures at present, as a sufficient time has not yet elapsed. We have the right to expect results we have not heard of before. We cannot cure all cancers no matter what we do, but I believe we can increase our end-results very much within the coming year. I refer to one case as an illustration of what can be accomplished by the newer technic. Dr. Barton Cook Hirst operated on a woman in May, 1913, and found the entire viscera matted together by carcinoma. The abdomen was closed and the patient developed progressive symptoms of obstruction of the bowel and intense pain requiring morphin. The family physician sent the patient to the dispensary under my care with a note asking me to give her treatment, for a mental effect, and possibly for the relief of pain. I said I was willing to try what could be accomplished and I therefore at once divided the abdomen into thirty-five areas and sent through thirty-five full doses (that is, all the skin could stand). Therefore, the deep part of that disease got thirty-five times as much as we could have given this patient a few years ago. I should add that I repeated this dosage in two weeks and in several areas got rather a severe burn of the skin. I believe we should never repeat it in two weeks and probably not in less than three. This treatment begun in December. I sent her back for examination a week or ten days ago and the only evidence of the former disease was a little resistance in the left iliac region; all the rest is soft and the patient is enjoying good health. This is thirteen months after she was given up as hopeless. This will serve as an example of what we probably can hope for in the future and which we could not do in the past.

Dr. G. B. Massey, Philadelphia: Probably the most useful result of Dr. Johnston's showing and of Dr. Pfahler's case is to offset rather a bad impression prevalent in the medical profession as to the inefficacy of the Roentgen ray in cancer. I hear a great deal of discouraging talk about it. It is my belief that the cause of a great deal of this is the inefficiency of the operator. The Roentgen ray is used too carelessly. It is used by men who do not look after their work properly, delegating it to nurses, and by those who do not know what they are doing themselves. It is also true, as Dr. Pancoast says, that each of us has his own method, in which he is most efficient, though there may be several ways to treat some of these cases. While it is very true that the progress of the future will depend largely on the development of personal efficiency in definite methods, an equally important thing is to realize that there should be a selection of methods that are really best in given varieties and stages. It may be that the method we use is not the best in a particular case. To me, for instance, it is absurd to use the Roentgen ray or radium for a small epithelioma of the skin no larger than a pea, and flood the body to an unknown depth with this force, when in ten minutes it could be destroyed by ionization or desiccation. As far as I know the use of the Roentgen method in the mouth has been ineffectual in growths of the mucous membrane; here we have a vast field for the ionization process. We must cultivate the several varieties of the physical forces as they are developed and applied in this work as well as our own efficiency; the best results are by the combination of both.

Dr. William L. Clark, Philadelphia: I am convinced that the massive-dose, cross-fire method of applying the Roentgen rays is more productive of results than the small divided-dose method, especially in the case of malignancy. I believe that the Coolidge tube offers great possibilities on account of greater penetrating power and refinement of control. It has been declared that on account of shorter wave-lengths, the gamma rays of radium may be approximated or even duplicated. If this is true, the whole range of Roentgen ray and radium effects could be produced at will, and the whole subject revolutionized. Since the "desiccation method" has been mentioned several times in the discussions I may briefly allude to it. I have depended on desiccation entirely in the superficial epitheliomas, but in more advanced cases the efficiency is increased by employing the Roentgen rays in conjunction. I have found that as much can be immediately accomplished by one desiccation application as can be accomplished by the Roentgen rays in a comparatively long period of time, but in combination the efficiency of both is increased, doubtless due to the action of the Roentgen rays on pathologic tissue deeper than can be reached by desiccation.

Dr. George C. Johnston, Pittsburgh: I do not claim that the Roentgen ray is the cure for cancer. Every case of malignancy in its inception and for a certain length of time following is a curable disease by surgical procedure if it is possible to remove the disease completely. Every man who practices roentgenotherapy should associate himself freely with a competent surgeon so that he may know what surgery can do and hence will not deprive his patients of proper surgical procedure. When surgery does not prove successful or in certain locations such as the eyelids, for example, when better results may be obtained by radium or Roentgen ray, we are justified in using these agents. There is no difficulty in obtaining radium if one will pay the price for it. Nine-tenths of the radium reports mean nothing because they do not specify the amount of radium element employed. In this country, at present, a great many men are working with tubes containing what they believe to be radium and for which they have paid a radium price but which really contain little, if any, radium element. I believe that radium has a distinct use, especially in locations which are inaccessible to the Roentgen ray, and there is no doubt in my mind that excellent results can be obtained if proper quantities of radium element are intelligently employed. Radium is a necessity in the treatment of chronic Roentgen dermatitis seen on the hands of roentgenologists. There is no other agent that will produce the results obtained by radium in the treatment of these conditions. The Coolidge tube contains no positive ions. If a Coolidge tube fluoresces green, it is not properly pumped and is not a Coolidge tube at all.

Dr. William S. Newcomet, Philadelphia: I am not interested in the superficial conditions such as epithelioma of the skin because they can be effectively treated by many other methods. While many good results are observed in these deep malignant diseases, these radio-active elements must not be regarded as a "cure all." Formerly 1 mg. of radium salt might be spoken of as having 1,800,000 activity, and another specimen as having 600,000 activity, while the weaker specimen might contain more radium and would actually be a better specimen, as the methods of measurement were very crude. It makes very little difference whether you have 10 or 20 mg. in a given specimen containing the same amount of radium, as the high beta and gamma radiation easily penetrates the debris, and the filtration used is often 3 mm. of lead, which far exceeds the natural filtration under these circumstances. No doubt many of these persons who were supposed to have been deceived a number of years ago, bought the supposed radium at the actual strength, but it contained a mass of thorium products which degenerate rapidly, and made these specimens in a couple of years decidedly weaker. The dealers must not be censured for it, however, as it was a matter of ignorance and not deceit. One condition in which radium far supersedes the Roentgen ray in that of nevi. By means of radium and without leaving a scar I removed a large cavernous nevus from a child who in addition had a greatly enlarged nose. I do not believe this could have been accomplished by the Roentgen ray or by acupuncture of the days gone by. My enthusiasm over radium is partly due to the conditions which yield to it when the Roentgen ray fails. With relation to the position of the Roentgen ray I think that some cases are more easily handled by surgery and the results are better; but in conditions allied to superficial skin epithelioma of slow type the Roentgen ray is to be preferred for the cosmetic result; no tissues are injured and after the lesion is once healed it usually remains permanently healed.

EPITHELIOMA OF THE LIDS *

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Epitheliomas of the lids require some consideration apart from epitheliomas of the skin elsewhere, because of their proximity to the orbit and sinuses and because of the disastrous effects of destruction of the lids on vision and on the appearance of the patient. A good proportion of these patients do not consult the ophthalmologist but are sent to the general surgeon after a long course of salves, pastes and Roentgen-ray treatment.

I have been able to study eighty-eight cases of epithelioma primary in the lids and canthi, or involving them from the skin in the immediate vicinity (nose, cheek, brow), having chiefly in mind the prognosis of operative treatment. The statistical data were collected to serve as a basis of comparison with other methods of treatment, especially radium. It should be added that the diagnosis in all cases was confirmed by microscopic examination.

The epitheliomas of the lid all belonged to the type known as basal-celled, or, to use a rather popular term, rodent ulcer. By this is commonly meant clinically a cancer of the skin of very slow growth, with no tendency to glandular metastases, spreading by continuity, and usually ulcerating as it progresses. Pathologically, it is somewhat more difficult to define, though this is perhaps of no great consequence to our present object. Adami[1] sums up the present view of this class of epithelioma.

> Krompecher, recognizing that all conditions classified as rodent ulcer do not belong to the type, has labeled this form basal-celled carcinoma, on the mistaken ground that, as it shows no prickle cells nor keratinization, it is derived wholly from the basal, undifferentiated cells of the rete Malpighii. But this is so also for all epitheliomas. In the more highly developed forms the prickle cells present do not arise from pre-existing prickle cells, but also from basal mother cells. It is the stage of undifferentiation and anaplasia—the capacity to develop beyond a certain point—that determines the form of the cells.

After the growth has progressed, both basal and squamous cells are to be found in the field, one or the other predominating. Sometimes the appearance may closely simulate sarcoma from the tendency of the epithelial cells to assume spindle forms. I have seen this mistaken diagnosis made several times in epitheliomas of the orbit (Figs. 1 and 2).

In this series the average age of incidence was 53 years. The youngest patient was 24 years old. The average patient waited five years before coming for treatment; many of them from fifteen to twenty-five years; these latter mostly began as keratoses and small wart-like nodules. Some developed rapidly, that is, in one month.

The favorite points of origin were the lower lid (46 per cent.), the inner canthus, over the lacrimal sac (36 per cent.). The next most common point of origin was the upper lid and, least common, the outer canthus.

Of the cancers of the lid, considerably over half originated in the skin of the lid just away from the cilia, the others starting indifferently on the very margin of the lid or the base. There seems to be no obvious reason why the lids should be so favorable a site for the development of epithelioma. The fact that the lower lid and inner canthus are so much more commonly affected might be attributed to the irritation caused by tears and foreign matter. Certainly these regions are usually hyperemic when the upper lid and outer canthus show comparatively little evidence of irritation. In only one case was the pressure from eye-glasses a probable source of the initial irritation, which is so commonly looked for. The type of skin well recognized as a fertile soil for epithelioma—a dry, rubicund skin, seen most often in blond people exposed to the elements—was very often seen, but by no means predominated.

The majority of these cancers progressed by invasion only, the first step being attachment to the peri-

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Mayo Clinic.

[1] Adami: General Pathology, Philadelphia and New York, 1908, p. 735.

osteum of the orbital border, then progression into the orbit and conjunctiva. In several cases the inner orbital walls were destroyed. Occasionally the antrum was involved, and more often the ethmoids, rendering successful operation very difficult.

In five cases, cervical or parotid glandular involvement was present when the patient was first seen. These two groups of glands drain all of the skin and the conjunctiva, while the orbit drains into the internal maxillary group and thence into the deep cervical. Unsuccessful treatment seems to favor glandular involvement, since, of these five patients, only one had escaped pastes or Roentgen rays previous to examination in our clinic, and about the same proportion was found in epitheliomas of the cheek with glandular involvement. The type of tumor did not differ microscopically in these cases from that in cases not showing glandular involvement, so that the failure to involve glands is not a necessary characteristic of rodent ulcer. Our pathologic records, however, do not indicate the character of the metastatic growth. None of the patients developed enlarged glands after coming under our observation, which may have been due to the methods of treatment employed.

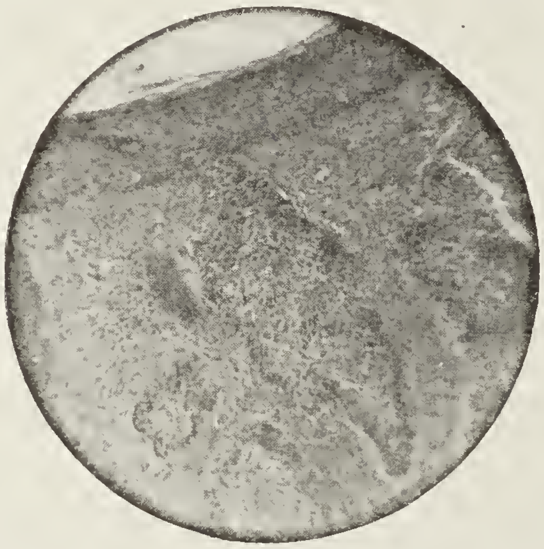

Fig. 1.—Epithelial down-growth showing spindle and oval cells which, when in masses, often look like sarcoma cells.

These patients were treated chiefly in three ways — radical excision, excision with actual cautery of the wound, or simply actual cautery, the method employed depending on the site of the growth and the degree to which it had progressed. Purely cutaneous growths, if small, were cauterized. Growths involving the border of the lid, but not adherent to the periosteum, were excised and a plastic operation done to restore the lid. Where the growth was adherent to periosteum or had involved conjunctiva and orbit, or tear-sac, actual cautery was added to excision. In cases of orbital involvement not readily accessible, an exenteration of the orbit, including the periosteum, was performed and the contents of the apex cauterized. For cauterizing large areas, the soldering iron was found preferable on account of the deep cooking given the tissues — a principle used in Percy's treatment of cancers. Involved sinuses were opened, curetted and cauterized in so far as possible.

The plastic repair of the lower lid is a frequent problem. Many satisfactory results were obtained from the transplantation of a "hammock" flap of skin from the upper lid, a method devised by C. H. Mayo. This flap is soft, of the same color as the normal lid, and grows readily. The operation recently described by Gibbon[2] promises to be the one of choice when the lower lid has been largely destroyed. No conventional method will serve every case. The repair is easy when a fair amount of the lid has been left. When, however, the entire lid and part of the cheek have been removed, as is often necessary, large flaps from the temple (as noted in the text-books) give the best results. The Dieffenbach and similar procedures, beautiful on paper, have not proved so successful on patients.

RECURRENCES

This has no reference to final cures, but refers to any recurrence whatever taking place after operation in our clinic. Most of these were small nodules, easily burned off. Of the thirty-three epitheliomas involving the lids and canthi alone (adherent or not adherent), 17 per cent. recurred at some time. These recurrences were all at the site of the previous growth, and not in glands. When, however, the growth had penetrated the orbit, the percentage of recurrence rose rapidly — eight out of eleven. Of thirteen cases involving the orbit, primarily and secondarily, three have passed the one-year period without recurrence. Four others have not yet recurred, but have not gone a year since operation. The time-limit of one year is somewhat arbitrary, but is based on the average time before recurrence, namely, nine months. This is a rather high average, being brought up by a few unusual cases which were reported as having recurred very late. The majority of cases which recurred at all did so in three to four months.

The chief interest in these cases for the clinician lies in the ultimate prognosis. I have not counted as cures cases of less than one year's standing since the last operation or treatment. Naturally, the percentage would be considerably higher if cases of over four months' standing were cited and if all patients were willing to return at the first sign of recurrence.

Of the thirty-three epitheliomas of the lids and canthi, not including the orbit, in which the records have been completed by recent news of the patients, 94 per cent. were cured by operation. When the orbit was involved, the percentage was turned about; 80 per cent. were not permanently cured. These include cases in which the sinuses also were involved. The factors which mitigate against cure are: inner canthus involvement, penetration of conjunctiva or lacrimal sac, orbital involvement and sinus involvement. The cases of glandular involvement cannot be classified because our records are not completed, owing to the lack of recent information of these patients. The one "completed" case had no recurrence after a radical local removal, and dissection of the cervical glands.

The comparison of these results with those obtained by the use of radium or Roentgen rays or pastes is difficult because of the absence in most papers on the subject of definite data regarding the duration of the cure. Williams and Ellsworth, however, are not remiss in this regard.[3] Of the nineteen cancers of the skin of the lids, two-year cures are reported in thirteen cases, or 68 per cent. These are evidently not intended to include cases with orbital involvement, since one case of orbital involvement is listed separately. The percentage of two-year cures by operation in our series was 84.

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[2] Gibbon: Blepharoplasty by a Pregrafted Flap, read before the American Surgical Association, April 9, 1914.

[3] Williams and Ellsworth: Treatment of Superficial New Growth by Pure Radium Bromid, The Journal A. M. A., May 31, 1913, p. 1694.

Pinch,[4] in a report of the Radium Institute of London, classified his cases of rodent ulcer into apparently cured, thirty-one; "improved," forty-one; not improved, twelve; abandoned treatment, six. Counting improved, not improved and abandoned as failures (as was done in our series), the percentage of cure is far from satisfactory (about 39 per cent.) and this without any minimum time-limit set. It should be said, however, that these were rodent ulcers of various regions and severities, so that the comparison is not altogether fair. Pinch was able to state on this showing that "rodent ulcer is of all cancers the most amenable to radium treatment." Turner[5] cured six out of nine completed cases of rodent ulcer of various parts of face and lips, or 66 per cent., time not stated. The best opinion at present concerning radium versus operative treatment of these cases is well-summed up by Knox.[6]

> "1. In all cases of early cancer, the operative method is undoubtedly best; it is quicker, safer and offers the best prospect of cure. . . . 3. In patients who refuse operation or are otherwise unfit for operation, radium is a useful remedy."

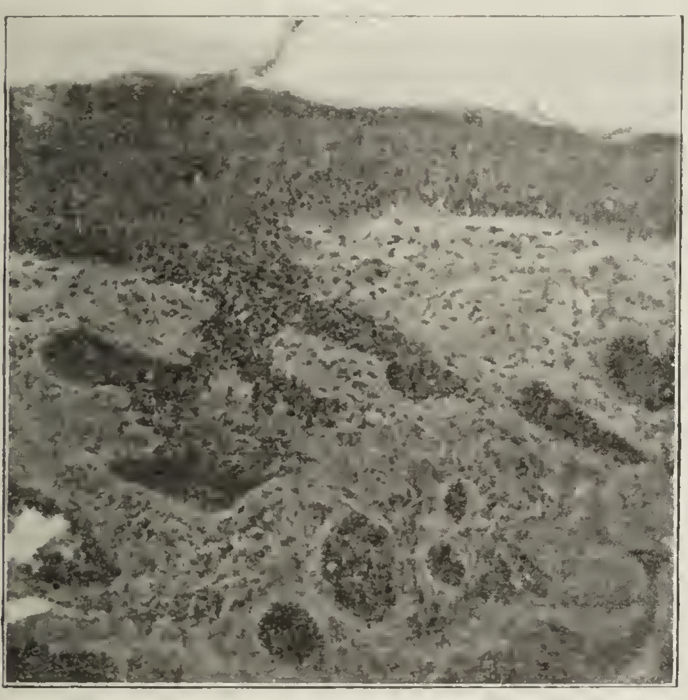

Fig. 2.—The same as Figure 1, except growth is taken from nose.

Comparison of operative treatment with pastes is also difficult. I have found no recent records sufficiently exact to afford a statistical comparison. Perhaps the most revolting, because easily avoidable, pictures of malpractice that one sees are cases of cancer of the skin treated with various pastes, and the inevitable impression received is that the public has suffered unspeakably from the exploitation of the paste treatment. Nevertheless, it must be acknowledged that in the hands of persons practiced in this procedure, many surprising cures are obtained, and these sometimes in apparently inoperable cases. No doubt the continued financial success of certain "cancer institutes" is maintained by a fair number at least of noteworthy cures.

The Roentgen ray is believed to owe what efficiency it possesses to a ray corresponding to the gamma ray of radium, so that there seems to be no reason for preferring it to the latter (save its greater accessibility) since the curative rays are acknowledged to comprise only a small part of the whole Roentgen ray. In point of fact, the Roentgen ray cannot be regarded as a dependable agent in the treatment of epitheliomas, however useful it may be as a palliative or postoperative measure.

The present evidence seems conclusive that operative measures are, in general, the safest means of treatment we possess for epitheliomas of the lids (and for that matter in any other region), and especially when the growth is rapid and adherence to periosteum or involvement of the orbit has taken place or evidently will soon take place. On the other hand, when the patient can be kept under observation until a cure is completed and the growth is proceeding slowly, there seems to be no good reason why radium should not be used. In cases of this kind, however, it has the disadvantage of slowness, and there is also the difficulty, in most places, of obtaining the radium. But many patients prefer any amount of treatment to the use of the knife, a psychological factor that is heavily featured in the advertisements of the clever charlatans. The cosmetic results of successful radium therapy are excellent; I have seen no injury or reports of injury to the eye from its use; it is practically painless. In this as in any therapeutic or surgical measure, the experience and ability of the physician in charge plays an important rôle, especially in pioneer work with comparatively new methods of treatment.

The importance of early and radical operation in epitheliomas with orbital extension is well emphasized in the statistical data given above. Unless the growth is so clearly circumscribed that complete removal without sacrificing the eye is certain, a complete exenteration of the orbit followed by cautery is imperative. Extension to the sinuses renders the prognosis nearly hopeless; in such cases, if operation is decided on, it should be followed by the persistent use of radium or by Roentgen ray if the former is not available. Glandular involvement, without orbital extension, does not necessarily indicate a bad prognosis, granting that a proper resection of the gland-bearing fascia be made.

ABSTRACT OF DISCUSSION

Dr. Edwin E. Jack, Boston: My own experience with epithelioma of the lids, never in any way comparable with Dr. Fisher's, has been smaller in recent years and offers nothing from which statistics of value can be drawn. It has seemed to me that such cases went more and more to the general surgeon or for Roentgen-ray and radium treatment. The public print too has been busy with this, as with other new subjects in medicine, and it is likely that many choose their own method of treatment—and it is not that by the knife. It seems impossible to disagree with Dr. Fisher in any of the statements he has made. If patients with epithelioma involving the sinuses recover under any treatment I do not know of them. Penetration into the orbit, involvement of bone, situation at the inner canthus—all undoubtedly influence the prognosis for the worse. The surgical technic described by Dr. Fisher represents the last word. From the cosmetic point of view, in any advanced case, of course operation leaves much to be desired, for it is often true that space must be filled in as best we can. In the less serious cases, deformity is less, but the results rarely resemble the almost marvelous ones of successful radium therapy. The greatest point of interest in connection with the subject is the relative value of this therapy and of operative treatment. We have all of us undoubtedly seen cases of small epithelioma beautifully cured by the Roentgen ray and radium, and have seen or heard of authentic like results in larger growths, even in some which offered little hope from an operative point of view. We have, in addition to our own experience in this matter, that of surgeons, roentgenoscopists and radiographers to help us, and with this in mind I have been interested in interviewing a number of men working in these different lines. Among surgeons one would expect to find a very decided opinion in favor of operation, seeing, as they must, cases of unsuccessful or inexpert radium and Roentgen-ray treatment, in which the difficulties of operation have been much increased, and the prognosis made poorer thereby. And such is the fact. A few see no good in substituting what they consider an uncertain treatment for the certain method of surgery, even in those growths most amenable to radium treatment. Others favor the latter for the small unattached growths, and the potentially malignant ones. I have been surprised at the conservatism of those who use the Roentgen ray or radium. Dr. Dodd, one of our best workers, will not touch any case with the Roentgen ray, unless already operated on. He feels hopeful, however, that in the future a better knowledge of dosage and the use of new tubes will put the matter of Roentgen-ray treatment on a surer basis, freed from the danger of overstimulation which now attends its use. At the Boston City Hospital, under Drs. Williams and Ellsworth, and at the Huntington Cancer Hospital, under Drs. Ordway and Duane, as a rule, only small and unattached growths are treated primarily with radium, always with a sharp lookout that the growth is not stimulated rather than stunted—a thing which one or two treatments will prove, and always in the cases at the Huntington Cancer Hospital at least, with the cooperation of the oculist or surgeon interested, to share the responsibility of the case. It is the general belief that in the simpler cases, the results are almost uniformly good. As we know, the usual type of growth on the eyelid seems especially amenable to this form of treatment. Radium is applied, too, to inoperable cases, either on account of the condition of the patient, or because of the extent or situation of the growth, as a postoperative measure, and sometimes as a preliminary to operation, to lessen the area to be attacked. It sometimes happens, unfortunately, that the growth becomes active under the low-grade tissue covering after the apparent cure by radium, but the same occurs under the flaps after operation. It is on this account that Dr. R. B. Greenough, at the Huntington Cancer Hospital, has been in the habit of leaving the field of operation open until assured that recurrence is not taking place, before applying the flaps. Recurrences may come after any method of treatment, but in the small, isolated and unattached growths there seems to be reason to believe that the use of radium is as successful as operation. I do not know of any very recent definite statistics bearing on the point. Dr. Williams in a recent interview, however, has told me that he thought that his success in such cases would fully equal the percentage mentioned by Dr. Fisher. He has also said that there were reasons to believe that the recurrences after an apparent radium cure in such cases, might be fewer than after operative treatment, mentioning as one reason, the fact that he had seen cases of several recurrences after operation, apparently permanently healed by radium. One thinks of radium therapy in connection with the eyelids for especial reasons. One, the fact that most of the epitheliomata which occur there are of a mild type, and most amenable to this treatment, and, again, the importance of preserving as far as possible the integrity of the lid for cosmetic and protective purposes. In this way the lure of radium is great. It would seen, then, that if we advise or give the choice of radium in the smaller uncomplicated and unattached growths, in cases which for one cause or another are inoperable, for after-treatment, and in certain cases as preliminary treatment, advising operation to all others, we shall be doing what the best practice of the day suggests. This presupposes that what is done is to be done by experts, and the results carefully watched. There seems to be hope in the future from Roentgen rays, and it is probable that the field for the use of radium will extend.

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[4] Pinch: Brit. Med. Jour., Jan. 25, 1913, p. 149.
[5] Turner: Brit. Med. Jour., March 22, 1913, p. 606.
[6] Knox: Brit. Med. Jour., June 7, 1913, p. 1196.

Dr. Edward Jackson, Denver: Among the few cases that I have referred for Roentgen-ray treatment to competent men, all of the superficial epitheliomas of the lids have been cured for periods extending over a year, and I know of two patients whom I see from time time in whom the cure has been permanent over ten years. The Roentgen ray has probably been more recklessly and more inefficiently used than almost any other therapeutic measure. I believe, however, that for relatively large areas superficially involved, I would prefer the Roentgen ray, of which I know little, or radium, of which I know less, to excision. For others I would agree that excision is to be advised in every case. Circumstances of the case, however, may influence one. If the patient comes from a distance, operation requires but a short absence from home. If the patient lives where applications can be made from time to time, the Roentgen ray or radium need not interfere at all with his occupation. The cosmetic result that can be obtained by radiotherapy is frequently superior to that obtained by operation, even in the most successful hands. One of the last patients I saw had an area perhaps three-fourths or four-fifths inch in diameter extending up nearly to the edge of the lid, covering a large part of the lower lid and extending onto the cheek. I am sure it could not have been effectively excised with any such comestic result as was obtained by Roentgen-ray treatment.

Dr. S. D. Risley, Philadelphia: Excision of epithelioma of the eyelids in my experience has been necessary comparatively rarely and always causes deformity. The procedure I prefer is to scrape away the diseased tissue and cover the denuded area with healthy epithelium from some other portion of the body, preferably from the inner side of the forearm. The technic is important. To apply a thick skin-graft is to invite failure. The graft should include only the superficial living cells and should be applied to the denuded surface directly from the surface of the razor, from which it can be spread over the surface smoothly where it adheres immediately. If the thin graft be placed in chemical solutions, for example, of mercuric chlorid, the epithelial cells are destroyed and cannot be expected to live when applied to the wound. Furthermore it will be found that the edges of the graft roll inward if removed from the razor and placed in any solution. While cutting the graft it is necessary to keep the surface of the razor moist either with sterile water or physiologic salt solution, preferably the latter, otherwise the graft does not spread out on the surface of the razor. A dry protective dressing is all that is required.

Dr. William L. Clark, Philadelphia: During the past six years I have treated forty-nine epitheliomas of the lids and canthi by desiccation surgery, the technic of which I described to another Section of this Association. The percentage of cases free from recurrence compares favorably with those reported by Dr. Fisher. In choosing a method for the treatment of epitheliomas, especially those near the eye, the length of time in which there is freedom from recurrence is not the one important point to be considered, and should not be the deciding factor as to the merit of the method to be employed. After excision of epitheliomas of the lids and canthi, no matter how thoroughly the work appears to have been done, there is a percentage of recurrences. What is to be done in this case? If excision is practiced a second or third time there is usually unsightly deformity, often with exposure of the eyeball, notwithstanding the best plastic work. This is not true of desiccation. Should one or several recurrences appear, desiccation may be employed without the deforming results attendant on excision. The objection to radium and the Roentgen ray as to the time required to produce a result, and the danger to the eyeball, does not apply to the desiccation method. Accessible tissue may be destroyed by one application if desired, and this is always the aim in the case of malignancy, as that is the key note of success. It is a precise method. A pin point surface, as well as a large area may be devitalized to a considerable depth, and there is no contracted cicatricial tissue, as is the case with cauterization or chemical caustics. A thermic effect is produced by means of a specialized high-potential electric current, which devitalizes tissue at a point short of cauterization. The tissue is thereby dehydrated or desiccated. My ideas on this subject are not in accord with those of Dr. Fisher. Experience has led to the conviction that excision is the least desirable method for treating localized epitheliomas. One who has once seen such a growth destroyed by desiccation and observed the results, must be impressed with its merits. Dr. Arthur Holding, representing the Huntington Cancer Commission of

Cornell University, New York City, in a report presented to the Section on Dermatology, classified desiccation surgery as the method of choice for localized epitheliomas. The realm of surgery is a wide one in which desiccation plays only a small part, but in localized epitheliomas and precancerous lesions, such as moles, nevi, etc., especially those of the lids and canthi, there can be but one choice for those who have compared the results of both excision and desiccation.

Dr. Carl Fisher, Rochester, Minn.: I wish to reiterate that no one would attempt to insist on any one treatment for lid cancer. There are so many conditions to be considered—the distance the patient lives, his own particular conditions of living, what method the surgeon has had experience in using, accessibility to radium, etc. I do not think that any one would say that all cases should be operated on or that all should have radium. Since Dr. J. F. Percy began treating large uterine cancers with heat below the point of carbonization he has done some wonderful work, and it strikes me that the use of heat below the point of carbonization would be effective in all these lid or superficial cancers, just as it is effective in the deeper-seated cancers. This I have not done in a large enough series to report.

A STUDY OF THREE HUNDRED CASES OF APPENDICITIS WITH SPECIAL REFERENCE TO PELVIC COMPLICATIONS *

ARCHIBALD MACLAREN, M.D.
ST. PAUL

I have taken for this study 300 cases of acute suppurative appendicitis, excluding all chronic, subacute, relapsing, and acute cases in which no pus was found. This is a consecutive personal list in which I have not included patients operated on by any of my three partners or by any of my assistants at any of the hospitals with which I am connected. Over 12 per cent. of these patients were operated on in farmhouses or country hospitals, and many of these have been my very worst cases, the patients being so sick that the family physician would not dare to move them. I feel sure from my experience that the cases which reached the metropolitan hospital from the country districts are always to a certain extent selected, and the best cases from an operative point of view.

In this study the especial interest to me has centered about pelvic rectal drainage and its influence on the mortality rate. Rectal drainage in these bad cases was original with me when I first used it, although I later discovered that it had been advocated by McNaughton, Stillman and others, whose publications I had never seen until I had operated on my first eight patients, whose cases were reported five years ago before the American Surgical Association.

I first tried to follow the ordinary method of dividing the perforated-appendix cases into two classes, general septic peritonitis and local appendiceal abscess. I soon discovered, however, that I could not make this distinction with certainty in border-line cases, either before or after operation.

It has been a matter of habit with me in keeping my personal records to note the approximate quantity of pus in each case, and this fact gives me an opportunity to make a division of my cases on this basis, which I believe is one of true value in determining the prognosis. The quantity of pus in a certain case is of great importance. The operation for opening a large abscess is much more dangerous, at any stage of the disease, than the same operation on a small accumulation of pus entirely aside from its virulence. I have arbitrarily designated 4 ounces as the dividing line for the reason that it is unusual to see a single localized abscess contain a larger quantity. When the quantity obtained is larger than this, there is usually a secondary abscess or involvement of the free peritoneum so that large abscesses can best be grouped with general peritonitis cases for this study.

I have taken 150 consecutive cases before my first rectal section and 150 consecutive cases since that time for a basis of comparison. In the first 150 cases there were 13 deaths, divided as follows: in 61 general peritonitis and large-abscess cases with four or more ounces of pus, 12 deaths; in 34 abscesses with less than 4 ounces of pus, 1 death; in 55 cases without rupture, either gangrenous, or appendixes, containing pus, no death.

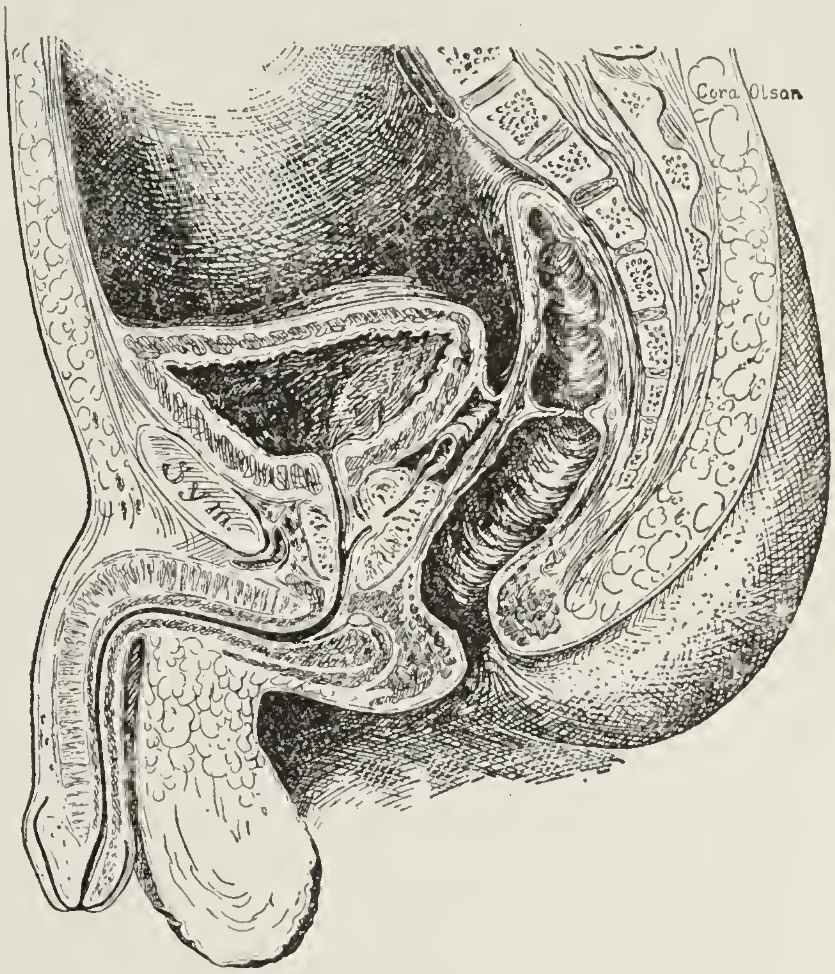

Fig. 1.—Normal midline section left half of pelvis.

In the last division I wish to say that most of these are the acute cases in which the patients are operated on in the first 48 hours of the attack. If the appendix was accidentally ruptured during the removal, the case was included as unruptured. The general mortality, then, is 8.6 per cent. During this same period operation was refused in three fatal cases in the hope that they would safely reach the eighth day (Ochsner). It seems to me that these should be added to the mortality list, which would raise the mortality to 10.6 per cent.

In the second series of 150 cases with operation since the use of rectal drainage, there were 7 deaths, disposed as follows: in 84 general peritonitis and large abscess cases, 7 deaths; in 32 small abscess cases, no deaths; in 34 unruptured, gangrenous and appendixes containing pus, no deaths. This brings the general mortality to 4.7 per cent.

In this second list there were 84 cases classified as general peritonitis as against 61 in the first list,

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

and there seems to be a corresponding fall in the unruptured cases, from 55 to 34. This may be due to the more general use of the Ochsner treatment or to the suspicion of the laity, created by many so-called surgeons who have been rushing to the hospital every kind of case from typhoid to ptosis. The second series includes many more desperately sick patients than the first, yet the mortality rate has been cut in two by what I believe to be a life-saving surgical procedure.

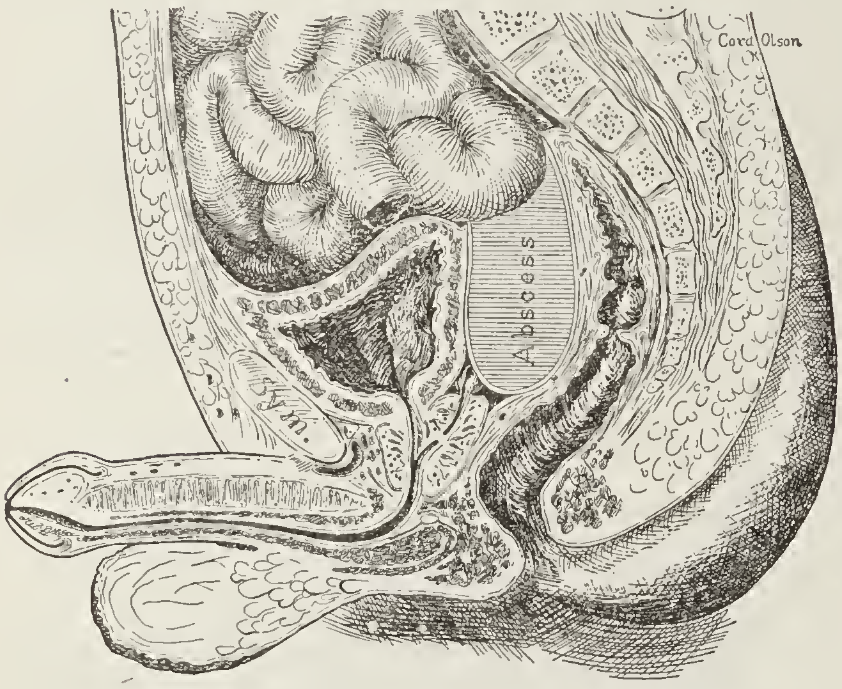

Fig. 2.—Small abscess in culdesac; right half of pelvis.

The question may be asked, What relation has rectal section to these seven deaths? Was any death caused by rectal section?

Case 1.—The first death occurred after a laparotomy in a very sick child aged 6, first seen on the fifth day. This little girl died in stupor, twelve hours after operation, with pin-point pupils and a gradually failing respiration. The nurse had given two hypodermatic injections of morphin, each supposed to be 1/12 grain. The first injection had no effect, and on account of her great restlessness two hours later a second 1/12 was given, which was soon followed by death.

Case 2.—Mr. S., aged 40; sick five days; died the day following the operation, pus having been found all through the abdomen; two abdominal drains, one in the right loin, one through the suprapubic stab.

Case 3.—Child, aged 7, very ill; first seen on the fifth day with marked pelvic abscess bulging through the anterior rectal wall. Rectal section and letting out a half-pint of thin serous pus; this child was so well for the next three or four days that she was considered out of danger. On the seventh day after the operation she was very sick again; a laparotomy disclosed another large accumulation of pus in the right loin. The laparotomy in this case should have been made on the second or third day after the rectal section. This child died two days following the last operation.

Case 4.—S. J., aged 25; operated on forty hours after perforation. Drain through the stab just outside of the cross-muscle incision; died on the seventeenth day from general septicemia associated with an erysipelatous inflammation of the abdominal wall and back starting from the incision. Since this case I never use the cross-muscle incision in pus cases.

Case 5.—Mrs. G., aged 63; operation in farmhouse; sick six days; supposed by her physician to be suffering from renal calculus; vomiting fecal in character for forty-eight hours; laparotomy; general septic peritonitis; two rubber tube-drains, one in the loin and one suprapubic stab into the pelvis; died in a few hours from shock.

Case 6.—J. O., aged 27; sick thirty-six hours; laparotomy; tube-drain into culdesac. On the eleventh day a rectal section was made; quart of pus; death same night: In this case the rectal section was delayed too long. It seems to me that with greater care both this patient and Patient 3 should have been saved.

Case 7.—G. L., aged 45; sick eight days; operation in a farmhouse; laparotomy; drain in right loin and rectal drainage; did not rally from the anesthetic.

In the first 150 cases there were six deaths; these six cases from their histories, seem to me now to have been suitable for rectal puncture. Three of this number were examined post mortem and the pelvis was found full of pus. The one case which particularly stimulated me to the use of this procedure was that of a boy who died, complaining bitterly because the nurse was inattentive to his bowels and would not bring the bed-pan as frequently as he desired. After death the sphincter was found dilated to an inch in diameter by the anterior wall of the rectum, pressed down by a large pelvic abscess. Thereafter I never considered an examination of any inflammatory abdominal condition complete without a rectal examination.

At first the operation of rectal puncture and drainage was confined to cases in which there had previously been operations for acute appendicitis. The accumulation in the culdesac would generally show itself by night pain, rise in temperature and pulse, and commencing septic appearance about six days after operation. Many times the culdesac was found distended with pus, even when a large-sized rubber tube extended from the wound or from an anterior-wall stab into the culdesac.

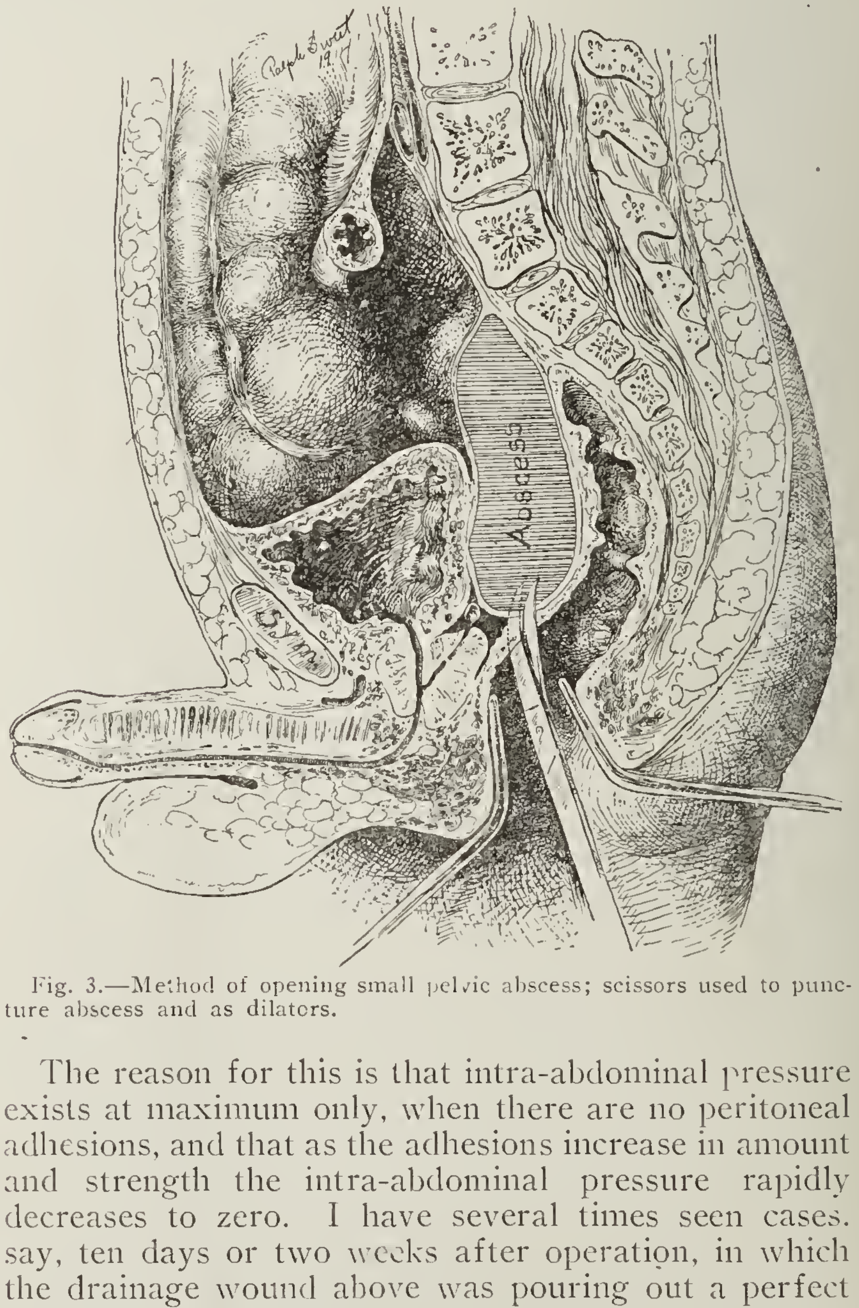

Fig. 3.—Method of opening small pelvic abscess; scissors used to puncture abscess and as dilators.

The reason for this is that intra-abdominal pressure exists at maximum only, when there are no peritoneal adhesions, and that as the adhesions increase in amount and strength the intra-abdominal pressure rapidly decreases to zero. I have several times seen cases, say, ten days or two weeks after operation, in which the drainage wound above was pouring out a perfect stream of pus, while the patient was rapidly losing ground, owing to septic absorption from a large pelvic abscess. Rectal section in these cases has quickly worked marvelous changes. In one case of this type, a boy seen at the University Hospital, who had a temperature of 102 every night, and was vomiting and so sick that he could not eat, was crying for food, after 2 pints of pus were removed, and this in four hours after the pus was evacuated. He rapidly recovered. After we had demonstrated the great value of this method in the postoperative cases, we extended its use to bad cases of patients seen late in the course of a perforative attack, who had not been operated on. Many of these have been young children who were first seen between the third and the sixth day, dangerously sick, with a marked distention of the culdesac. In such patients in whom the danger is of a back-firing of the pelvic abscess, with a fatal general peritonitis, the first thing done has been the making of a rectal section and the putting in of a winged rubber tube-drain. If the patient was entirely relieved, so far as pain and temperature was concerned, nothing else was done at that time, but usually the very next day, an exploratory laparotomy was done and the gangrenous appendix removed.

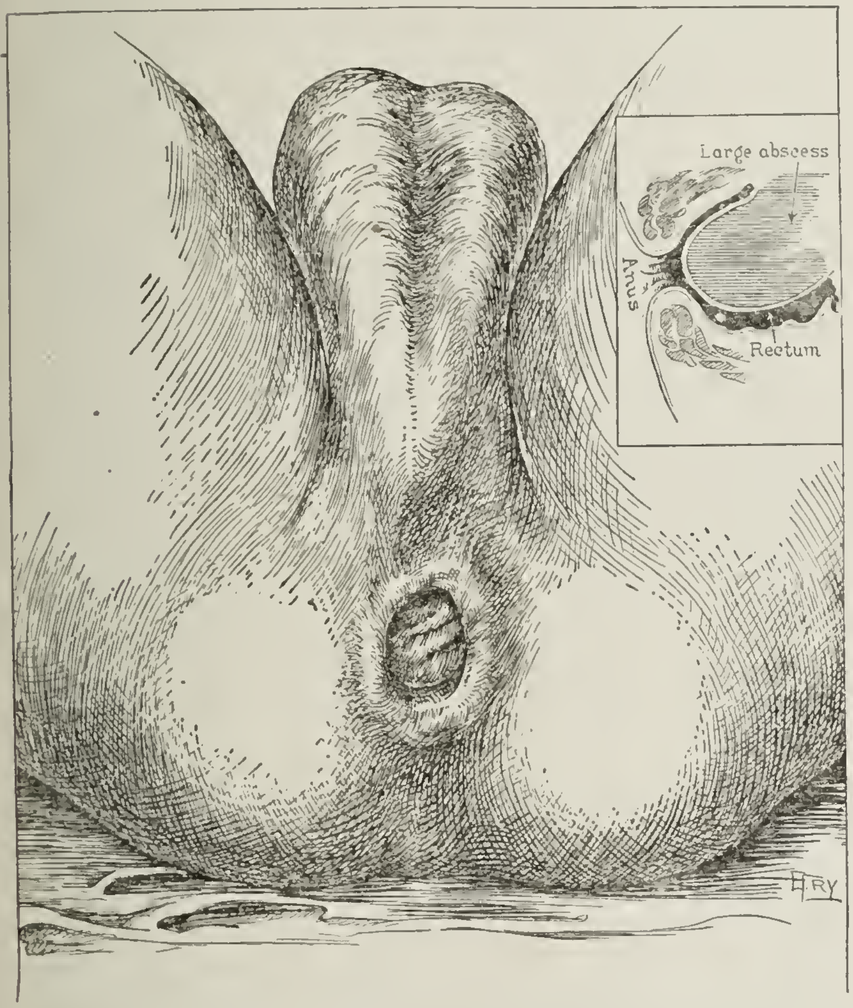

Fig. 4.—Dilatation of sphincter from pressure of large pelvic abscess through anterior wall of rectum.

I believe in removing the appendix only when it can be done without adding any percentage of mortality to the operative risk. It is surprising how much more one can do toward removing appendixes, however, with added experience.

We believe that the rectal drainage is no more dangerous than vaginal section. In little girls we always use rectal section in preference to vaginal section. Up to the present time we have not used rectal section in adult women, but have continued to drain pelvic abscesses through the vagina, as has been done so successfully for so many years for all sorts of pelvic abscess.

I find that in this last 150 cases, I have considered it wise, to make a primary rectal section 11 times Secondary to laparotomy I have opened and drained the rectum 13 times, making a total of 24 rectal sections in 150 cases, or approximately 17 per cent.

With the exception of the two patients mentioned above, all the patients of this class treated with rectal section have rapidly recovered and not one has had a fistula. In one case when a large pelvic abscess had resulted from a perforating ulcer on the anterior wall of the upper rectum, drainage through this perforation promptly cured the abscess; when at the end of eight days the winged rubber tube was pulled out of the rectum the perforation promptly closed. Proctoscopic examination in this case two weeks after the tube was removed showed a small scar where the perforated ulcer had been.

CONCLUSIONS

1. The successful treatment of acute appendicitis depends on the time when the patient can be operated on after perforation, the earlier the better.

2. We should continue to impress this fact on the laity.

3. Drainage must be complete and, for a certain percentage of cases, rectal drainage is a most efficient measure.

4. After operation has been performed we must not forget these patients. The method of attack is not so important as eternal vigilance, constant watching and frequent rectal examinations, which should be made, if in the future we are to save some who would have been lost in the past.

914 Lowry Building.

HAS THE LAST WORD BEEN SPOKEN CONCERNING APPENDICITIS?*

JAMES E. MOORE, M.D.
MINNEAPOLIS

In 1582 Ambrose Paré said in the preface to his surgery that he had striven so successfully for forty years to bring surgery to perfection that posterity would not be able to surpass us save by some additions such as are easily made to things already discovered—and all that we have left of his teaching is the use of the ligature.

In 1882 Samuel D. Gross, founder and first president of the American Surgical Association and the leading surgeon of his generation, said, "Operative surgery challenges the respect and admiration of the world, and if it has not attained its finality it is as nearly perfect as we can hope to make it"—and he had never performed an appendectomy.

If these men, who were the greatest in their day, were so mistaken, it would be absurd for any of us to say that the last word has been spoken concerning any topic in surgery, for it is a live subject and while the present generation can justly claim that it has added more toward its perfection than has been added in all time before, future generations will doubtless improve on it to a point far beyond our fondest dreams.

The last word has not been spoken concerning appendicitis, and possibly never will be, because the last word can not be spoken until the mortality from this affliction has been completely obliterated. A few years ago every program for this meeting contained too many papers on appendicitis, but for the past few years they have been too few. We have doubtless all changed our views since we had our last "battle royal;" is it not time, therefore, to review and see how our present views compare? If in our discussion we find that we are nearer of one mind we shall know that we have advanced. If, on the other hand, we find that we are as far apart as ever, we shall know that there is great need for improvement and that we must renew our efforts as though the topic were a new one.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Little has been added lately to our methods of diagnosis. That syndrome, diffuse abdominal pain which later becomes local in the right lower quadrant, vomiting, local tenderness, and muscular rigidity, is one that can not well be mistaken. The average case of acute appendicitis is the easiest of intra-abdominal conditions to diagnosticate, but there are exceptional cases in which the most skilled diagnosticians may be mistaken. Within one month we have had four patients in the University Hospital who had no pain, rise of temperature or vomiting when they were admitted. The evidence on which a diagnosis of appendicitis was made was the history of pain and vomiting before admission, the presence of muscular rigidity, and leukocytosis. In all four a ruptured gangrenous appendix and an abdomen full of pus were found. All recovered, but without operation would surely have died. The most common mistake is to make a diagnosis of appendicitis when it does not exist. Not every pain in the abdomen is appendicitis. In our northern climate pneumonia is frequently mistaken for appendicitis in children. Intussusception has not infrequently been mistaken for appendicitis. Retrocecal appendicitis is now a well-recognized condition, and a positive diagnosis of this condition can usually be made by a careful observer. Muscular rigidity over the appendix is the most reliable symptom of appendicitis, and when a patient has all of the other cardinal symptoms and this one is lacking retrocecal appendicitis should be suspected; and if tenderness can be elicited by pressure in the loin just back of the cecum a diagnosis of retrocecal appendicitis is quite certain. In some cases of retrocecal appendicitis psoas contraction is a marked symptom. Refinements in diagnosis should not be undertaken before operation, because it is a waste of time and a mistake in classification may lead to disastrous delay. The time to decide whether a case of appendicitis is catarrhal, perforative, or gangrenous is after the surgeon has removed the specimen.

The prognosis in appendicitis has become better each year, but there is still room for improvement. Statistics concerning appendicitis are preeminently unreliable, but it has been quite generally accepted that without operation there is mortality of at least 20 per cent. With operation at the present time the mortality rate is near 5 per cent., and in hospitals under expert surgeons it is less than this.

When shall we operate? Every surgeon has answered this question differently at different stages of his experience. Whether he began as a conservative or an extremist he has changed, because he had a mortality rate which he hoped to lower by changing. I began very conservatively, operating only when a well-defined abscess was present. Under this practice the operative mortality was low, but the mortality from the disease was high. Then came a period in which operations were performed by the calendar, or after careful selection. Under this practice the operative mortality was higher and the actual mortality considerably lower, but still too high. During the past few years the rule has been to operate as soon as possible after the diagnosis was made, and the actual mortality rate has been very much lower than that during either of the other periods. We abandoned the waiting plan because we have learned that while some patients will improve, many will die while we are waiting for a more favorable time for operation, and that no living man can tell what will happen in the next twenty-four hours in a case of acute appendicitis. After long experience with all plans we can conscientiously recommend operation as soon as the diagnosis is made, because it has been accompanied by the minimum mortality rate. We would not recommend this plan, however, for the unskilled operator or in the absence of hospital facilities.

In the Minnesota University Hospital we have had eighty-seven patients with acute appendicitis, all of whom have been operated on as soon as possible, with a mortality of but 3.4 per cent. This excludes all chronic cases and appendectomies made when the patient was being operated on for other conditions. Nineteen of them had extensive suppuration. It is of interest to note that all of our deaths occurred while we occupied the old frame building as a temporary hospital. The last forty-four cases have been operated in the new hospital with no mortality.

H. J. Paterson[1] reports a like experience. During the first period he rarely operated except in the presence of abscess, and never until the acute stage had passed, and the mortality was 16 per cent. During the second period each case was a law unto itself, and the mortality was 13 per cent. During the third period he operated as soon as possible in every case and in 95 cases had a mortality of only 5.2 per cent.

The term "operative mortality" means that the patient died in spite of an operation and not as a result of it. A few years ago a very common newspaper report was that someone had died from an operation for appendicitis. Even the laity have learned that the operation for appendicitis in competent hands is a very safe one, and that people die for want of an operation and not because of it. Christian Science is responsible for many more deaths from appendicitis than operations are. Many lives have been sacrificed and surgery has been brought into disrepute by surgeons who were striving to make a record. The record-maker is an unsafe man in surgery because he is very prone to give his record greater consideration than he does his patients. Every surgeon's actual mortality rate from appendicitis is made up of all deaths occurring among his patients whether he has operated or not.

Shall we always remove the appendix in acute appendicitis? To this question I answer, emphatically, No, because I have known of many instances in which the patient's life has been sacrificed through a determined effort to remove the appendix at all hazards. It should be remembered that the operation is performed to save the patient's life and not to remove the appendix. I have removed the appendix in fully 95 per cent. of cases during the past few years, but there have been a few cases, possibly one in twenty, in which I deemed it safer to leave it. We believe that, at present, every experienced surgeon removes the appendix in the vast majority of cases, but that the best, that is, the safest, surgeons occasionally leave one. When the appendix is in evidence, it should always be removed, but when its removal necessitates the extensive breaking down of Nature's protection and the contamination of the general peritoneal cavity, it should be left for a later operation, when it can be removed with perfect safety. The leaving of the appendix in these exceptional cases with the established drainage is safer than its removal. The fact that leaving the appendix necessitates another operation is of no importance, because this is a matter of life and death and not of expediency. If it were the accepted practice to remove the appendix in every case, many lives would be sacrificed by inexperienced operators.

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[1] Paterson, H. J.: Brit. Med. Jour., Oct. 5, 1912.

Should patients be operated on after an acute attack of appendicitis to avoid future attacks? The construction of the appendix is such that recovery is seldom if ever complete, and the fact that the first attack was a mild one gives no assurance that the next one will be. The interval operation is so free from danger, and later attacks of appendicitis are so often very dangerous, that we do not hesitate to advise the interval operation as a routine practice. In childbearing women the operation should be insisted on.

How shall we treat appendicitis in pregnant women? Appendicitis in a pregnant woman is more than twice as dangerous as it is in a non-pregnant woman, and should be operated on at the earliest possible moment, for admitting that the operation and the accompanying anesthetic are attended with some danger, the disease without operation is infinitely more dangerous. The very great increase in danger during pregnancy is due to the facts, first, that two lives are in jeopardy, and, second, that the mother's condition renders her much more liable to grave complications. Abortion occurs in about 40 per cent. of these cases, which is always a very grave situation, and early operation is the best preventive of abortion. I believe that it is good practice to advise every woman who finds herself pregnant after a severe attack of appendicitis in which the appendix was not removed to have an operation as soon as she knows that she is pregnant.

The exact method of removing the appendix and of treating the stump is immaterial so long as it is skilfully done, for different surgeons employing different methods secure equally good results. In suppurative cases drainage is a very important matter, and is very often improperly carried out. It is a very grave mistake to plug the wound with gauze and depend on this plug for drainage, when it only prevents the escape of pus. My personal practice is never to use gauze for drainage except when it is surrounded by a rubber tube or rubber tissue, for it drains only serum and that for only a few hours, when its meshes are filled and it has lost its capillarity.

It is quite a common practice, at present, to place the patient in a sitting position to cause the pus to drain into the pelvis. I have not followed this practice, because it is based on mistaken theory, and it is an uncomfortable position for a feeble patient; and my patients have done just as well as those who were in a sitting position and have been much more comfortable. A few years hence this will be remembered as only a passing surgical fad. No matter what position a patient has been in before operation, with free pus in the abdomen the pelvis will always be full when it is opened. It is very important to pump out the pelvis in every pus case. Large-sized soft rubber tubes should be passed to the bottom of the pelvis and into the flanks. It is not necessary that they should run down hill, for the intra-abdominal pressure will care for that.

Syndicate Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MACLAREN AND MOORE

Dr. Albert J. Ochsner, Chicago: Some five years ago when Dr. Maclaren brought out the facts contained in the present paper I recalled several instances in which, undoubtedly, judging from the symptoms, patients whom I had observed should have had this additional treatment. Since that time I have encountered four cases in which this condition existed. In one of these there was an additional condition which might have resulted seriously to the patient had it not been discovered by accident. The patient had a greatly distended bladder so that there were two points of bulging, one point a little lower than the other, which made me suspicious that the bladder might be full and that this entire mass might not be due to the abscess. When the bladder was catheterized the abscess remained, but the upper swelling disappeared. In following the histories of these four cases I found that each patient had been carefully treated for some time by the use of cathartics. The shortest time of treatment was four or five days and the longest eleven days. I have never seen this condition present in any case in which the appendicitis had not been treated by cathartics. Many a surgeon with less skill than have the surgeons in this splendid new hospital referred to by Dr. Moore has a mortality in 100 successive cases of less than 3 per cent. by following a method of treatment of which I have spoken so often before this Association that the older members must know it by heart by this time. If in those cases in which the surgeon is doubtful, or feels that he cannot expect recovery, he inhibits peristalsis by washing out the stomach, performing gastric lavage and giving absolutely nothing, not even water by the mouth, feeding by the rectum, he will find that the mortality in this class of cases will be reduced to less than 2 per cent. Dr. Moore's plan of counting mortality is absolutely correct. Every patient with appendicitis who dies must be counted whether operated on or not. I believe in the Fowler position, and agree with what Dr. Moore said about operating during gestation. The reason the diagnosis is frequently not made is because in these cases the surgeon has not the intelligence or does not give the attention necessary to make a physical examination. Usually a patient who comes without having had an early diagnosis is one in whom the doctor took something for granted, not making a physical examination to begin with.

Dr. J. M. T. Finney, Baltimore: Dr. Moore's paper was so sane and founded on such good surgery and pathology that it is difficult to disagree with him in any respect. There are one or two points, however, with which I disagree. He said the last word has not been spoken, nor will it be spoken until we have 100 per cent. recoveries. I agree with this statement. In appendicitis, in my judgment, the mortality is absolutely preventable. When a death occurs from appendicitis it is *prima facie* evidence that somebody has made a mistake. When pus is found in appendicitis, it is also *prima facie* evidence that somebody has blundered. It is not always the physician, nor is it the surgeon. It is not infrequently the patient or some officious member of the patient's family who interferes, and doesn't send for the doctor early enough. No case of appendicitis should progress so far as the formation of pus. I understood Dr. Maclaren to say that he had had no mortality whatever in any patient operated on except when pus was present. That is my experience. I think that it is the experience of a great many surgeons. If that is true, and the well-known and safe paths are followed in operating on these patients, I believe that mortality can be absolutely eliminated in operations for appendicitis. This whole question, then, resolves itself into one of diagnosis. If the patient can be seen early enough, and if no mortality occurs in patients with appendicitis operated on except after the appendix has ruptured, it necessarily follows that 100 per cent. of recoveries will occur in patients operated on. That is a proposition which cannot be gainsaid in view of the facts in the case. If, then, it is a question of diagnosis, the thing we should devote our attention to for the time being is to improve our methods of diagnosis. There are ways in which that can be done. I cannot mention them all. Attention should be called to one or two points, however. If one has conscientiously examined his patient, as Dr. Ochsner says, if he has made use of every means at his disposal to make a diagnosis, and if he has failed to satisfy himself as to the existence or not of an appendicitis, if the condition of his patient is such as to make him believe that there is some more or less serious condition, it is the duty of the surgeon to offer, indeed, to insist on, operation. Make the diagnosis at the time of the operation if necessary, don't wait until the patient is as good as dead, and then attempt to do the impossible. That may seem to be an extremely radical position, but it can be backed up by the facts in the case, by statistics, by results, and that is what we are after. I call attention to the fact that appendicitis in children is a very different proposition from appendicitis in adults. I called attention to this fact in a paper some years ago, and reported a long list of cases coming under my observation in which all sorts of bizarre diagnoses had been made for appendicitis or the reverse. I have operated on a great many patients that I thought had appendicitis which did not so prove. I do not regret one operation. I am sorry to say I can look back on a goodly number of patients on whom I did not operate when I should and I had grave reason to regret it.

Dr. Lincoln Davis, Boston: Much credit is due to Dr. Maclaren for his pioneer work in pointing out the advantages of rectal drainage in cases of appendix abscess. If we could operate on all cases of appendicitis at an early stage, there would be no need of this procedure. Unfortunately, in spite of much missionary work on the subject by surgeons, cases continue to come into our hospitals from the fourth to the tenth day of the disease, with large accumulations of pus. There is no doubt that there has been a great improvement in the mortality after operations for appendicitis in the last few years. This is due, I think, to three factors: (1) more efficient operation; the appendix is removed with less disturbance of the peritoneal cavity; (2) better drainage; the cigarette wick is certainly an advance over the old gauze pack; (3) more intelligent after-care. In the cases in which residual abscesses form after operation in spite of our best efforts to drain from above, there can be no question that rectal puncture is very definitely indicated. It is certainly safer to open such abscesses from below, rather than to poke down through the wound.

Preliminary rectal puncture, as advocated by Dr. Maclaren, has a more limited application, but still a very definite one in a small number of cases. I have not used it in just that way. I have drained two cases of appendix abscess by the rectum, without abdominal operation, with good results The method is risky. The patient must be closely watched. There are nearly always two abscesses, one at the site of the appendix and the other in the pelvis. The drainage of one does not necessarily drain the other; therefore, after having drained the pelvic abscess, watch with the greatest care that there is no septic absorption from the original focus.

One point on which I do not fully agree with Dr. Moore is with regard to the value of Fowler's position; we use it extensively at the Massachusetts General Hospital. Postoperative rectal seepage is a life-saving procedure. Avoidance of violent catharsis is also an important matter I have looked up all of my cases at the Massachusetts General Hospital, 249 in number. These were all acute, including general peritonitis as well. Every patient seen was operated on. Some of the cases were desperate ones. If they are sicker in the country farmhouses, they must be very sick indeed. In all but nine cases drainage was done. The appendix was removed in all but thirteen cases, in which there was merely drainage of the abscess; in two cases by rectal puncture. There were thirteen deaths from all causes; mortality 5 per cent. plus. Secondary operations were done in ten cases; five were for drainage of residual abscesses; two by vaginal puncture, one by rectal puncture and two by incision in the flank.

THROMBOSIS AND EMBOLISM, THEIR SIGNIFICANCE AND CONSEQUENCES IN ABDOMINAL AND PELVIC SURGERY*

ANGUS McLEAN, M.D.
DETROIT

A condition which has been before the medical profession for many years, especially since the inception of modern surgery and modern surgical technic—a condition which is becoming more frequent with the ever-increasing number of abdominal and pelvic operations—a condition about which much has been written but concerning which little is known definitely, is the subject I wish to bring to the attention of this Section to-day. I refer to thrombosis and embolism.

The importance of this subject is at once apparent when we consider the great rôle played by thrombosis and embolism in raising the mortality in our surgical cases. Besides the mortality, the morbidity caused by these conditions is no small matter. Many are the cases of pulmonary, renal, and hepatic abscesses, not infrequent the cases of gangrene of extremities, necessitating amputation, that had their origin in thrombotic or embolic processes. Arteriosclerosis, a disease that in the course of time has been attributed to many different causes, is now looked on by many as originally due to embolic occlusions of many of the smaller vasa-vasorum, is really the beginning of the arteriosclerosis. How does syphilis cause arteriosclerosis? The *Spirochaetae pallidae*, circulating in the blood, become lodged in the smallest branches of the arteries. Their lodgment in the smallest ramifications of the vasa vasorum is really the beginning of the arteriosclerotic process. Likewise the other chronic low-grade infections often result in the same terminal process. These conditions do not, however, concern us now. In this paper I wish to consider, more especially, postoperative venous thrombosis and its probable resulting embolism.

Several etiologic factors are usually given as necessary for the formation of a thrombus: (1) trauma, especially injury to the endothelial lining; (2) stagnation or slowing of the blood-stream; (3) infection, and (4) chemical changes in the blood itself. Regarding these causes it is hardly necessary to say that not one is alone sufficient to produce a thrombus. When a thrombus does occur it is usually due to various combinations of these causes acting together. Again thrombosis often occurs, as, for instance, a femoral thrombosis that follows a surgically clean appendectomy, when, as far as we can ascertain, each one of these factors is wanting. We are therefore forced to look for some other etiologic factor in such cases. With the hope of finding some explanation for the thrombotic process in these cases, we† undertook some experiments on dogs.

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* Read before the Section on Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

† Drs. R. C. Andries, W. D. Barrett and myself.

EXPERIMENTAL WORK

Experimentally, thrombosis is a difficult subject to work with, first, because of the difficulties that confront us in blood-vessel surgery generally and in the post-mortem findings in particular (as for instance locating the point of lodgment of an embolus) and, secondly, because the conditions under which thrombosis and embolus occur in the human being are difficult and practically impossible to imitate. At the outset we will say that we were unable to find any reason for their occurrence. We were, however, much impressed with the tremendous amount of injury a vein can withstand without the production of a thrombus at the site of the injury. Indeed, it is quite a difficult problem to produce a thrombus experimentally. In daily surgical work, all of us avoid injuring blood-vessels as much as possible. We always fear the possibility of causing a thrombus to develop.

In our experiments we noticed several interesting phenomena:

1. When a vein is ligated in continuity the blood in the vein will clot only on one side of the point of ligation, that is, the side from which the blood is coming.

2. In ligating a vein between two ligatures (say 2 inches apart) the blood between the ligatures clots very slowly and then only if the endothelial lining is injured, and if left for a week or more the contents of the ligated vein will have entirely disappeared, a fibrous cord-like structure alone remaining.

3. Simple crushing of a vein will not cause a clot at the point of crushing. The crushing can be repeated in forty-eight hours and a clot will not form at the site. Examination of the repeatedly crushed vein two weeks after the last crushing will show a thickening of all the coats of the vein due to an increased amount of fibrous tissue, the intima remaining as smooth and glistening as before.

4. Crushing of a vein with the subsequent introduction of a twenty-four-hour bouillon culture of staphylococci and again crushing the vein to grind (as it were) the staphylococci into the walls of the vein, will not produce a clot or thrombus at the site of the crushing and injection of the staphylococci.

5. The introduction of a sterile thread into the lumen of a vein, allowing about one half to three quarters of an inch to remain suspended inside of the vein, that is, oscillating in the blood-stream, failed to produce a clot or thrombus either at the point of the introduction of the thread or around the thread itself.

6. The introduction of a thread infected with *Staphylococcus albus* or *aureus* will in three or four days cause the formation of a thrombus at the point of the introduction of the infected thread. The thrombus becomes attached to the vein at the point where the infected thread enters. It will not entirely occlude the lumen of the vein; it will grow or enlarge in the direction of the blood-stream, remaining suspended at a single point. (See illustration.)

On examination of an induced thrombus of this kind it can readily be seen how easily such a thrombus could be torn from its small frail attachment, circulate in the blood-stream and become lodged somewhere in the pulmonary circulation and perhaps produce a fatal termination. In our experiments we were never fortunate enough to encounter such a termination. If such a thrombus did become detached in whole or in part, it lodged in a locality which had an abundance of collateral circulation and therefore passed unnoticed.

It is difficult to conceive a condition in a patient similar to the one in which we were able to produce a thrombus in the dog; but the difficulty found in producing a thrombus experimentally shows that there must be factors other than injury to the vessel, slowing of the blood-stream and infection that bring about a thrombotic process in human beings.

In necrosis, substances are produced which cause coagulation in the blood-serum which comes in contact with the necrotic tissue. Whether these substances first cause a hemolysis, a conglutination of the platelets and red corpuscles—a view usually held in regard to the method of thrombus formation—or whether these are substances akin to fibrinogen, and thus directly cause the coagulation of blood in the vessels, is not known. Is it perhaps possible that, when thrombosis occurs after a surgically clean operation, during the operation certain ligatures have been placed in such a way as entirely to cut off the blood-supply to certain areas, which subsequently become necrotic and liberate the substances necessary to complete the coagulation of blood in the surrounding vessels?

RELATION OF THROMBOSIS AND EMBOLISM TO OPERATION

In looking up the statistics we find that thrombosis and embolism follow operations for large pelvic tumors more frequently than any other operations. Of forty-eight reports of cases collected by Schenck[1] 58 per cent. followed operations for the removal of large pelvic tumors. Schenck[2] also shows that in 3,204 myoma operations from twelve different clinics namely, those of Goldman, Burnham, Wenczel, Duvergey, Hofmeir, Klein, Zurhelle, and Kelly, ninety-six, or 3 per cent., were followed by thrombosis. My own records of the last two years show that in 1310 laparotomies there were twenty-six cases, or about 1.9 per cent., that were followed by thrombosis or embolism. There were eight cases of fatal embolism, three cases of pulmonary embolus in which the patients recovered without further trouble, two cases of pulmonary embolus followed by lung abscess with recovery and one case of embolus of the liver followed by an hepatic abscess with recovery. Besides these cases of embolism there were twelve cases of femoral thrombosis all of which followed pelvic operations. Of the fourteen cases of embolism, eight, or 57 per cent., followed prostatectomies and hysterectomies. The striking thing in all cases of embolism and thrombosis in our series is that there was only one case of embolism with recovery and no cases at all of thrombosis that followed operations in the upper abdomen. This one case followed an operation for suppurative gall-bladder disease. In the cases that are most frequently followed by thrombosis and embolism there is always a certain amount of pressure exerted on surrounding structures. The circulation, especially the venous circulation, is retarded and extensive varicosities are quite common. There is also ample opportunity in these cases for remnants of tissue remaining, either in the form of devitalized pedicles or, as in the case of prostatectomy, shreds of connective tissue, which subsequently become necrotic and give off the substances necessary for the development of a thrombus.

Perhaps the most striking proof of the theory that necrotic tissue does cause thrombosis is presented in those cases of pyosalpinx in which the whole fallopian tube is adherent and necrotic and can be removed entirely without ligating a single vessel. Similarly a necrotic appendix can be removed without ligating the appendiceal artery. Here ligation is not necessary because all the veins and arteries are already thrombosed from being in proximity to the necrotic tissue. The bleeding that does occur in these cases is simply an oozing from the newly formed capillaries that have developed in the adhesions.

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[1] Schenck: New York Med. Jour., Sept. 6, 1902.
[2] Schenck: Tr. Am. Gynec. Soc., 1913.

We know that thrombosis is more apt to follow septic cases than aseptic ones. This can be readily explained. If the necrotic area is large it is difficult to imagine how it could remain free from infection even if it is an infection of such low virulence as to escape clinical detection. If therefore to the process of simple necrosis we add an infectious one, then we really have another factor for the production of a thrombus. We have an infectious condition, coincident with which there is always an inflammation and in the first stages of inflammation a slowing of the blood-stream is noticeable. If slowing of the blood-stream, inflammation and infection are at all contributory to the formation of a thrombus—and I believe they are—then the presence of all these factors, acting together with necrosis, ought to give us the greatest percentage of cases that are followed by thrombosis. This is exactly what happens clinically.

Thrombosis and its consequent embolism rarely occurs before the eighth day. The usual time is from the eighth to the twenty-first day. Recently a case came to my notice in which a fatal embolism occurred as late as two months after an operation for a uterine myoma. This is a rather slow process, but complete necrosis of the tissue, on which thrombosis to a great extent depends, is not a rapid process. It usually takes a week or ten days, about the length of time in which thrombosis usually appears. The thrombus that forms during this time may remain undisturbed almost indefinitely and again, at almost any time it may become dislodged wholly or in part, and give rise to an embolus. This explains why the time of appearance of a thrombus is earlier and more constant as compared to the late and quite inconstant appearance of an embolus.

The great majority of postoperative thromboses, except perhaps those which occur after mastoid or sinus disease—and these occur in the internal jugular vein—are found in the femoral or external iliac veins. In discussing the cause for the comparative frequency of femoral and iliac thrombosis, Clark[3] came to the conclusion that it is due to the effect of traumatism exerted on the deep epigastric vein. The primary thrombosis originates in the deep epigastric vein and is slowly propagated along the line of that vessel until it reaches the external iliac vein, where it gives rise to a retrogressive thrombosis in the femoral vein. The long interval between the operation and the appearance of the femoral thrombosis suggests a slow process starting some distance away. It can be seen how a thrombus, once established in the deep epigastric vein, can be propagated to the femoral vein; but that simple trauma by retractors or the like should start a thrombotic process in the deep epigastric veins seems rather improbable, on the grounds that the most severe injury can be inflicted on veins without causing a thrombosis.

Can the formation of thrombosis and subsequent embolism be prevented? As long as we are unable to say exactly on what factors thrombosis depends, so long shall we be unable to say definitely, whether or not we can prevent their formation. The probable causes as they present themselves to-day should of course be avoided. It is not possible to do this at all times. We cannot always avoid necrosis of tissue nor can we always avoid infections, for infections are often present before the case comes to the surgeon. In fact, they are very often the condition for which the patient seeks relief. Once a thrombus has formed, however, we can to a large extent avoid the occurrence of an embolus. The limb should be elevated to encourage the venous circulation, and kept warm, wrapped in cotton and surrounded with hot-water bags. Some advocate ligation of the vein proximal to the thrombus, but this we believe impractical in most cases and of doubtful benefit. Absolute rest must, however, be insisted on as a precaution against secondary embolism. This rest must be kept up until the clot has had a chance to become thoroughly organized, a process which will usually take from three to four weeks. If after the lapse of this time the patient is fortunate enough to have escaped the formation of a fatal pulmonary embolus from his thrombus, if he has escaped the long and tedious invalidism consequent on the lodgment of an embolus, either septic or aseptic, in his liver or elsewhere, his subjective suffering and discomfort is not at an end. Thayer[4] examined a number of cases of postoperative venous thrombosis several years after their occurrence and found that, when the femoral and iliac veins were involved, the afflicted extremity was usually considerably and permanently enlarged. It presented varices often terminating in ulceration; in addition, there was marked weakness and cramps especially at night and on overexertion. Schenck[2] was able to gather the late histories (that is, four years old) of twenty-nine patients in the forty-eight cases in the Johns Hopkins series. Eight of them had symptoms for about four months and subsequently no trouble. Two had some difficulty in walking for about twelve months. Nineteen never fully recovered, being troubled with swelling and with more or less pain. On this basis he concludes that "it is fair to assume that about 65 per cent. of the patients never fully recover and that if complete restoration is to follow it will come before the end of the first year, by which time the collateral circulation is as completely established as it ever will be."

Some one has said that surgical morbidity does more to bring surgery into disrepute among the laity than surgical fatality. It is more lasting and it is continually and prominently before the people; whereas fatality is soon forgotten. If this is so, thrombosis and embolism more than any other condition should ever be in our minds as one of the possibilities that may put a practically indelible blot on even the most skilful surgery.

CONCLUSIONS

Endothelial damage, on which so much stress is usually laid, is not, *per se*, a cause of thrombosis.

Necrosis of tissue plays an important part in the production of thrombosis.

The main contributory causes are, probably, a low-grade infection, not of sufficient virulence to be noticed clinically, and slowing of the blood-stream.

308 Washington Arcade.

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[3] Clark: Univ. Penn. Med. Bull., July, 1902.

[4] Thayer: Med. News, 1904, No. 2.

STANDARDIZATION OF SURGERY

AN ATTACK ON THE PROBLEM *

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At one time the surgeon was almost the only skilled mechanical worker with a craft knowledge analyzed, recorded and disseminated. Now the man with the shovel and the apprentice bricklayer have outstripped him in technic, for in their activities essential motions, tools, and economy of effort have been studied and standardized and taught, while we who think ourselves open-minded scientists look askance at propositions to apply to ourselves measurements of action and efficiency and fatigue, record of errors, instructions in type, motion-training, submission to discipline and new adjustments of function and cooperation. The high average of equipment, dexterity, information, conscientious care and self-sacrificing humanity in operating-rooms, great and small, here and abroad, are matters which some years of planned travel and laborious note-taking heartily attest; but evidence is not lacking that advance is very irregular where it might be all along the line, and erratic rather than on any studied and unified plan.

Is it unfair to affirm that, on the whole, surgery is unstandardized? For example, what is standard nursing? Does Germany have an idea of American ward practice in this line? What is the standard treatment of chronic non-operative disabilities? Has America shown evidence of acquaintance with the outfit of nearly every large German hospital? What is high-grade care of the well-to-do, of the poor? Has London an inkling of the provision for private patients which is a feature of our hospitals, even in small towns? On the other hand, have we any understanding of their organized insurance relief among the lower classes? In surgical teaching how many countries have copied the one that gives nation-wide promotion for merit? Indeed, to make the point we do not have to select the larger issues; elementary every-day instances will do. For the simple abdominal incision where every factor may be worked out to standard, who has run a long course of tests? In stitching and tying have we settled what are the swiftest motions, as a peasant lace-maker has; or do we ever go into training for correct form? Yet piano-players, pugilists and golfers study these things. The diamond knows every player's batting average, the race-track publishes records, the government office rates men for accomplishment. But there is no hospital governing board which, when a vacancy occurs, or the day of annual reappointment comes round, can ask for the equivalent of a fielding average, or track performance, or rating for character of work done as applied to a visiting surgeon, a house surgeon or a nurse. A consensus of opinion made up of general impressions, of personal preference and prejudice decides. Who determines, anyway, whether a man is fit to operate at all? A doctor without surgical qualification may engage bed-room and operating room in one of the dozen private sanatoriums in any large city, or in the hospital of the little community, and proceed to do the gravest of operations. Until now the patient has had no way of knowing whether or not the doctor has had surgical training. There is no graded standard at all. That the public does not want to be protected and would hinder standardization and legislate for "medical freedom" hardly lessens the duty to lay bare the facts and to present some plan for betterment. We may first, however, get some notions of what that plan might be and set them down. For we would not like to admit the extent of our ignorance, all the way from the specific requirements as to just what is the best material for a knife-blade, or the best way to sterilize it, up to the number and kind of hospitals needed in a particular type of community.

A beginning has been made. What has been done in Germany is ably recorded in Grober's book. Our hospital superintendents have one of the most practical and effective organizations in the country. A group of independent New York hospitals is working together in several matters, such as purchasing, issuing reports, checking up of the end-results of each surgeon's work, and promotion for merit rather than for seniority. Dr. W. G. Thompson of New York has shown the unnecessary number of miles of walking done by ward nurses because of poor room planning. Philadelphia has a Committee on Hospital Efficiency named by its County Medical Society to study the whole situation there with an efficiency engineer, Mr. Richard Waterman, as its secretary. Each of the fifty-five hospitals of the city has been invited to send to a conference an "efficiency committee" made up of the superintendent, a member of the lay governing board, and a member of the professional staff. There questions of uniform accounting, cooperative social service and studies of end-results are taken up. The reports are to be had from Dr. Edward Martin, 1506 Locust Street. The New York Board of Estimate has published pamphlets covering investigations by Mr. Henry Wright concerning Bellevue and Allied Hospitals, and has recast the organization. A beginning in the coordination and standardization of dispensary work has been made for the clinics of New York (and also of Brooklyn) by the Associated Out-Patient Clinics of the City of New York, with an office at 17 West Forty-Third Street. Groups of picked men of allied interests have found that at a cost of a couple of thousand dollars within the space of five years and by a very moderate alteration or enlargement of ordinary vacations they can see the best clinics of Europe and America at work and thus select the best experience. Surgical literature is abstracted in a way more nearly approaching symmetry and completeness than ever before in the joint American-German-French publication the *International Abstract of Surgery*. Furthermore, the degree of the American College of Surgeons will set a new standard here so that the public will understand what qualifications are fundamental. And, lastly, there is a demand for the standardization of hospitals that cannot fail to bring about far-reaching results.

A GENERAL PLAN

A scheme or proposal for standardization of hospitals and surgical technic and procedure and surgical outfits would be worthy of wide and concerted effort. How should it be attacked? I have tried to find out. Dr. Hornsby answers that the organization of hospital superintendents shows that they are fully awake to the need and have made great advances on the administrative side. The father of the newer studies of efficiency in industry, Dr. Frederick W. Taylor, who has praised operative work as an example of well-planned procedure, writes me as follows:

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

> In applying the principles of scientific management to hospitals I am sure there is an immense field . . . the best progress can be made if the work is done under the guidance of a man who has had practical experience in changing over from the old to the new type of management. . . . Unless the introduction of the new methods is made the special work of a man whose whole success depends on making quite rapid progress, the details are so great and the obstacles so many that even after a year or two of work, almost nothing seems to have been accomplished.

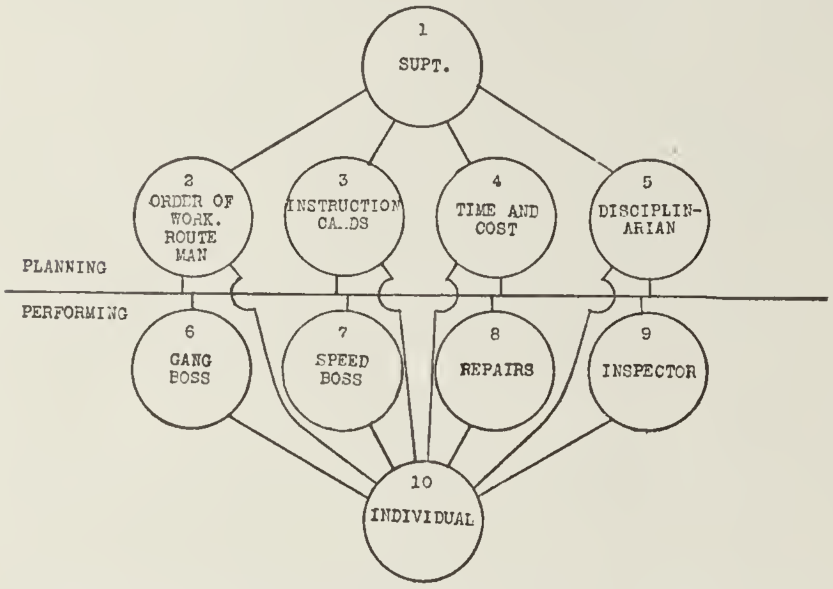

Chart 1.—Functions of scientific management, New England Butt Company, Providence, R. I., 1912.

Then he gives warning that there are a multitude of fakers posing as efficiency engineers.

In Mr. Waterman's activities in Philadelphia, referred to above, an attack was made on the big problems in a basic fashion. That committee has not yet, I understand, reached the consideration of a plan of study of general surgical technic.

Mr. Frank Gilbreth, while condemning our methods rather fluently, has a program to suggest to us. He alone, as far as my questioning goes, has an answer to the query—yours and mine—What can I do—do now—to work out this thing in my own hospital, in my own line? This engineer has seen a considerable amount of operating in the United States and Canada and some in Europe. He has taken moving pictures of operations at New York Hospital, where he is consultant engineer, though he is, unhappily, too busy a man to be able to give much time to the institution. He asserts that hospitals are far behind factories in effective organization; that from 10 to 30 per cent. of precious ether moments could be saved, more especially in the period of preparation. "Surgeons," he says, "think not in terms of elementary motion, but in periods of elapsed time."

He outlined for me last February the way he would go about the study of our problems. He said:

> The ideal way would be a demonstration hospital, but until one is started any institution could do these things: first, lay out a form for making a record; next, record the present practice in minutest detail; third, examine the data thus gained; fourth, organize a planning department, and last, adapt to your special needs the plan of carefully separated functions, with their functional foremen.
>
> With regard to the study of detail, make stereoscopic pictures of everything. No detail is too small to write down. Trace the route of a pill from the manufacturer until it goes down the patient's throat. Make the most painstaking statement of every single item of outfit and action. A doctor should be assigned to the engineer who would do this, taking, if necessary, two years and making Century Dictionary-sized volumes.
>
> As to the examination of the data, it is astonishing how just the laying bare of cold facts will be enough to reform and abolish no small proportion of the things that are wrong. Most institutions boggle at the proposal to make this kind of record. They are afraid of it. Most surgeons resent it, refuse it. But this is the way to better things—to chart every break in technic, stick it up, be public about it. And cure results.
>
> In the matter of the planning department, ask any institution for its chart. It looks foolish. It hasn't any chart. [He showed the chart of a factory organization (Chart 1) and commented on it.] This chart may be modified easily to fit the health factory. The important matter is to divide and define the functions of the various individuals, particularly of the foremen. The questions in a factory or in a hospital are these: Who? When? Where? How? Upon what man does each one of these things depend for advice and control? There would have to be some alteration to fit this class of institution. For instance, there would be no speed boss. In place of a gang boss there would be a teacher. There would be a repair man. There would be an inspector, who would be a very important part of the organization. His work would be not so much investigation as prevention. Investigation is the finding out of the cause of trouble after it happens. Inspection is the keeping of everything up to the mark so that trouble does not happen. One might be said to be post mortem, the work of the pathologist. The other might be said to be preventive medicine. This man need not be a medical man. He is the checker up and is not the man who punishes or disciplines, for when he finds something going wrong, such as a nurse dropping gauze on the floor on her way to do a dressing, or making unsafe contacts, it is he who reports to the disciplinarian. All breaks, all technical errors of whatever kind are entered by him. If a surgeon makes a fault in technic it is entered without malice and without any other idea than that of checking up. Publicity about this list of errors is the great way of stopping trouble.
>
> The disciplinarian is the man who decides all the questions bearing on faults made. His activity is not that of bouncer in general as the word suggests. A workman may commit several faults. Under the old régime it was three times and out. Then he was bounced and a new man put in who was allowed to make four errors and then he was bounced and went off and got another job. Under the new way when the first man has made errors—one, two, three—he is every time gently but persistently corrected and correction continues until he ceases to make that particular error.
>
> As far as possible all activities are charted in a peak and valley drawing. The peaks and valleys give us the clue to the high and low points of all our work and we proceed on these clear indications.

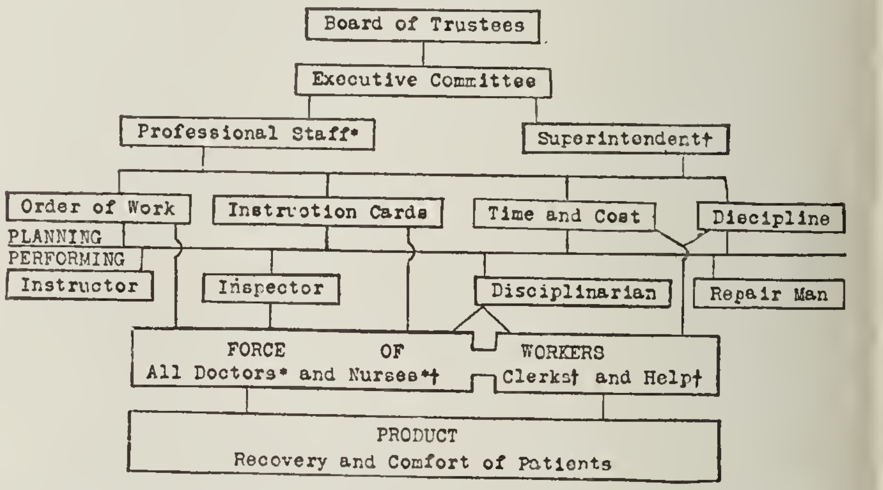

Chart 2.—Functions of scientific management in hospitals (suggested by Gilbreth, drawn by Dickinson); *=professional control; †=executive control. Alternative: Omit "Professional Staff."

Be simple. Use few tools. Imagine yourself operating out under a tree. Hunt out the best experience, measure it, make it standard, write it down on an instruction card. Above all get your people thinking in terms of elementary motions.

The merit of these suggestions by Mr. Gilbreth lies herein, that he gives us something concrete to start on. The medical practitioner is still trying to work on the old one-doctor-one-patient scheme. American practice in surgical services has no clear plan. It works on what might be called a one-surgeon-all-function idea. In large hospitals the usual arrangement is this: The visiting surgeon is responsible, in his wards, while on a three months' tour of duty, for many varying and ill-defined activities. He plans, teaches, inspects, executes. His ideas may vary not inconsiderably from those of his predecessor or the man who follows him, but he has neither chart nor detailed written instructions to show others what these ideas are when his trimester begins. His force is yet to be drilled. By the time it leaves him it has begun to appreciate his needs and the group is working together. Members of the house staff are frequently jealous of and openly rebellious at assistance, however skilled, given at operations by qualified older assistant visiting surgeons. Except for the one in charge, the nurses are furnished to the operating-room to be trained and are removed as soon as effective. Checking up by the visiting surgeon is sporadic, never covering all detail in the whole of his service, never overlooking an entire day's activities. Supervision of a visiting surgeon is unknown. It is not too much to say that he actually accounts in details to no one, and presents no balance sheet.

In hospitals where a surgeon's service is continuous, some system prevails. Even here, however, there is no answer to the question as to how many hours a day or a week he is required to give to this unsalaried service. Nor is tenure of office fixed. Usually it is for life. The juniors serving long years never know what prospect there is of promotion. Nor can able men not connected with the hospital determine whether opportunity or experience may be obtained in service there, as they might should a limit of fifteen years be named for such service or a Codman plan of measuring men by their results be instituted to weed out incompetents.

PLANNING DEPARTMENT

While studies looking to wide changes in organization are under way, parts of the factory scheme might be adopted, such as a planning department, instruction, inspection. As to order of work and instruction cards, rules and regulations exist in every hospital—in the back of some dusty drawer. Wherein are many dead letters and few directions for details of every-day procedure. Ward routine is tradition; a newcomer alters it at will; an enema is given in three or four ways. A house officer starting on service gets directions as to his duties passed along by word of mouth. A head nurse imported to take charge of the operating-room rarely finds these things: a schedule of duties and of outfit; formulas; a list of stock instruments as agreed on by the staff, each article catalogued by its name and picture (in a place where tools are very various); diagrams of the instrument table for each operation or class of operations, and typewritten details of the procedure adopted as the standard average in this particular set of operating-rooms. Yet every employee can be provided with a schedule of duties and belongings. In any hospital, in each of the sections of the planning department—order of work, instruction cards, time and cost, and discipline—the study of precedents and conditions could be taken up to-morrow and in time fairly complete schemes be submitted. This could be done by one man committees or members of the professional staff combined with the executive.

INSTRUCTION

The drill of the house surgeon cannot properly take place when explanation, question and pause are impossible—with blood spurting and seconds precious. The training in aseptic operative technic of the specialist on the eye, ear, nose and throat cannot be worked out by himself, yet there is no one whose duty it is to show him. These are but examples. High or low, every one of us needs better knowledge of standards and new methods. In no rationally planned way can this be brought about save to agree on standard and to delegate the general teaching and leveling up to some qualified individual or individuals. In the training-school we are used to this daily instruction. On the professional side it is haphazard.

INSPECTION

It is not easy to adjust our point of view to the idea that the actions of all of us are to be checked up and compared with certain standards while our breaks are calmly tallied and bulletined and our results are openly scheduled. As it is at present a visiting or associate surgeon may be a striking success in diagnosis or technic but in other points like after-care or progress or humanity be grievously defective. Who may tell how the balance is to be struck under present methods?

SUMMARY

Pending the working out of a comprehensive plan we have outlined the progress already made in the direction of standards and coordination, and pointed out the way an individual surgeon or service may begin to try out certain of the advanced methods adopted in the management of industries. Some of these are new adjustments of "function" (responsibilities and duties) clarified, charted, defined; regular instruction, such as drill in technic and manual dexterity and correct form; practice in team work; the printing on instruction cards of the best standard practice covering all ordinary acts and activities; constant inspection by one delegated to this duty; record of successes and errors like a ball-player's fielding average or a government office tally of character of work done; promotion by rating, and finally, a series of studies, undertaken as in the other mechanical crafts, by measurement of motion, speed, fatigue and efficiency.

168 Clinton Street.

The Habit of Observation and Medical Education.—The one constant characteristic of all those great men who have done so much for our science is their power of accurate observation and logical deduction. . . . This habit of accurate observation is one which it is not easy to acquire. . . . But in acquiring this habit you must not be conscious of doing so, for this "self-training, self-suspicion and self-discipline" consists in absolute concentration on the work which you are doing at the moment, the cultivation of a desire for knowledge for the sake of knowledge alone, and the putting behind you of all desire to generalize or theorize without a thorough sifting of the facts. You must not constantly be looking for the practical application of the knowledge you acquire. Be content to acquire it, resting assured that the practical application will come in some form later. —B. P. Watson, *Canadian Med. Assn. Jour.*, June, 1914.

KRAEPELIN'S CONCEPTION OF PARAPHRENIA *

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INTRODUCTION

The subject of paranoia forms one of the most important chapters in the history and evolution of psychiatry. Esquirol, Laseque, Hoffman, Snell, Westphal, Mendel, Kraepelin and a score of others helped to lay the foundation of the paranoia concept. Esquirol attempted to bring a group of cases of paranoiac conditions under the heading monomania; in 1852 Laseque described a disease picture under the name of *delire de persecution* which was later named after him by his countrymen as *delire de Laseque*. In 1862 and 1865 Hoffman and Snell independently of each other gave careful attention to this subject. It was not until 1878, however, that Westphal made paranoia felt and recognized in Germany; he termed it *Verückheit* and Mendel invented the term "paranoia."

Since then the subject of paranoia has undergone many stages of transformation and variation. At one time the whole subject was in a state of confusion partly because mental diseases were incorrectly classified, partly because of deficient knowledge of the anatomy and psychology of insanity and partly due to the fact that too much stress was laid either on the symptomatologic display or etiologic foundation. It is needless to state that very little attention was paid to the disease process in all its phases, particularly in relation to the constructive development of the symptomatic picture and type of personality.

It should be borne in mind that Kraepelin in 1892 had already emphasized the fact that the paranoia group should not be looked on from the point of view of isolated symptoms, but that the whole clinical picture, including the etiology, course, duration and termination, should be considered. It was through the efforts of Kraepelin's genius and painstaking investigations that the paranoia subject assumed a more lucid scientific turn, and indeed, while the whole solution of the problem has not been completed, nevertheless our conception of paranoiac reaction types has taken a more promising view.

In the present state of our knowledge, we differentiate two large classes of paranoiac reaction types, one a paranoid symptom complex, which occurs in various toxic conditions and which may also form a part but not the dominant symptom of other types of mental disorders, for instance, a paranoid symptom may manifest itself in manic depressive insanity, hysterical psychosis, senile dementia, arteriosclerotic insanity, etc. In the other instance, the disease pictures are dominated by a paranoid symptom complex which presents various clinical manifestations in their course, such as in dementia praecox, paranoid form, paranoia, querulous paranoia and paraphrenia. The last is the subject-matter of this thesis.

GENERAL CONSIDERATIONS OF PARAPHRENIA[1]

Paraphrenia forms a subgroup of endogenous dementia and in the clinical picture delusional ideas are the predominating symptoms. In some respects it may simulate dementia praecox, but there is no characteristic disturbance of emotions and volition to such an extent as to bring about disintegration of personality. Abnormality of emotional activity, however, may be noted, but striking apathy and indifference as seen in dementia praecox are lacking, and furthermore the general conduct is influenced by abnormal thought processes and not by volitional disturbances. The etiology of paraphrenia is not definitely known and there is no specific type of heredity. It occurs in both sexes, except that the expansive form is limited to women only. The characteristic type of personality is not determined. The development is gradual; the course is progressive and the disease usually terminates in a state of psychic enfeeblement but without evidences of disintegration of personality and striking traits of emotional and volitional deterioration. Paraphrenia may be divided into four large forms: (1) systematized, (2)expansive, (3) confabulatory, and (4) fantastic.

THE TYPES OF PARAPHRENIA

1. Paraphrenia systematica is characterized by gradual development of progressive persecutory delusions and grandiose ideas, which appear in the latter part of the disease. As a rule the personality remains intact.

The onset of the disease is usually gradual—a slowly progressive change of disposition is noticed. The patient becomes quiet, reserved and dreamy. He grows secretive, seclusive and suspicious. His general conduct is odd, and occasionally he gives expression to irrational utterances. At times sensitiveness and irritability are observed. Under the least provocation he may manifest violent outbreaks and show animosity toward some persons of his environment, particularly against his relations. Not infrequently ideas of jealousy are in evidence.

In course of years the delusions of persecution become more and more marked. The patient imagines that he is being watched and followed; he expresses ideas of reference and misinterprets occurrences. He feels that people talk about him wherever he goes and thinks that detectives are sent to watch him. In fact, he feels that he is under constant observation of the police. He notices people making funny grimaces and gestures and he is the subject of trickery. In female patients sexual ideas are prominent. Likewise ideas of poisoning and delusions of being tortured are observed.

After years' duration of this painful state of suspiciousness, uncertainty and tension, actual hallucinations, particularly in the auditory field, make their appearance. The content of hallucinations varies, and inspirations and the like may occur. A feeling of influence is noted. The patient imagines he is subject to hypnotism which is employed to determine the working of his thoughts; and he believes that he is under the influence of other people's minds.

Visual, olfactory and haptic hallucinations may become manifest; women particularly experience sensations in the genital region and speak of mental sexual intercourse. Not infrequently ideas of hypnotic, magnetic and electrical influences are associated with these abnormal somatic sensations.

When in the course of many years persecutory delusions gradually and progressively become developed, ideas of grandeur set in. The latter are very rarely noticeable in the early inception of the disease or thereafter. In some instances erotic relations to great personages are maintained. Delusions of a religious coloring with a marked grandiose trend are seen in a small number of patients. The relationship between the delusions of persecution and the ideas of grandeur is the same as in other psychoses.

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Kraepelin: Psychiatrie, Ed. 8, 1913, pp. 973-1022.

The underlying mood is mostly one of depression and apprehensiveness; the patient gradually becomes more and more suspicious, hostile and threatening. Later when delusions of grandeur develop the patient becomes self-conscious, haughty and sneering. He is seclusive and secretive, however; at times he is abrupt and inaccessible and then again he exhibits considerable politeness and is quite approachable.

The patient remains clearly oriented, and the perceptive faculty shows no impairment. Memory and retention are likewise unaffected. Falsification of memory is noted, and the patient maintains that he is persecuted since childhood and indulges in other numerous retrospective misinterpreted reminiscences.

As a rule the patient exhibits no insight into this condition, although in the early beginning of the disease he may appreciate that his situation is due to hallucinations, voices telling him that he is mentally sick, etc.

The conduct is usually influenced by the delusional content, although for some years mental adjustment may not be interrupted. Soon the disease betrays itself, however, and the patient exhibits difficulty of adapting himself to his environment. The capacity for work is retained—in fact some patients may hold responsible positions for years.

The course of this disease is insidious and gradually progressive. The condition may show some variation but to a limited degree. The disease terminates in a state of psychic infirmity with persistent delusional ideas and hallucinations but without disturbance of volition or dulling of emotions. Although the disease may last over twenty or thirty years, yet the personality remains intact.

The underlying etiology is obscure. A specific form of heredity cannot be determined. No known cause can be ascribed. A definite type of personality is not recognized by Kraepelin, though he admits that some of his patients manifested peculiar traits before the development of the psychosis. Some of his patients were sensitive, overreligious, inclined to be despondent and others were of a malicious and sadistic nature.

This form of paraphrenia occurs in both sexes: in Kraepelin's cases 60 per cent. were men and 40 per cent. women. More than 50 per cent. of cases occurred between the ages of 30 and 40; 20 per cent. of the cases developed between 40 and 50, and 25 per cent. below the age of 25 and above 50.

2. Expansive form. In this form of paraphrenia exalted ideas of grandeur with a preponderant elevated mood and mild excitement constitute the characteristic features of the disease picture.

The psychosis usually develops gradually, but at times a subacute onset may be observed. In 50 per cent. of Kraepelin's cases the grandiose ideas were of an erotic content. In another series of cases the delusions take a religious trend. In other instances ideas of wealth are prominent.

Almost always hallucinations make their appearance. The patients have numerous dream-like visions which as a rule are of a religious and erotic coloring and quite often they may be accompanied by auditory hallucinations; the latter, however, may also occur independently. Here illusions may play some rôle.

Hand in hand with the grandiose ideas, delusions of persecution may form a part of the clinical picture, which are not as prominent as in the other forms of paraphrenia.

The memory, orientation and perceptive faculty are not affected. However, falsification of memory not infrequently is observed.

The underlying mood is one of exaltation; the patients are self-conscious, haughty and quite boisterous. They are given to jesting and wit. At times they may become irritable, overbearing, arrogant and suspicious. Occasionally outbreaks of excitement occur.

The conduct is controlled by the morbid ideas and as a rule insight is lacking.

In the further course of the disease, the clinical picture slowly undergoes some changes. In general the patient remains clear and well-behaved; however, they adhere to their delusions which become somewhat absurd and rambling. Aside from faulty judgment there is a certain degree of dissociation, superficiality of emotional activity and weakness of will-power, but no true dementia. The personality is not distorted.

It is interesting to note that Kraepelin's cases were all women. Three-fourths of them developed between the ages of 35 and 50. In one of his cases the psychosis appeared at the age of 64, without, however, showing signs of senile dementia. Marked hereditary taint or external cause could not be determined. While no definite type of personality could be elicited, yet many of his patients manifested some peculiar traits prior to the development of the malady.

This form of paraphrenia may be mistaken for chronic mania and, indeed, some of these cases Kraepelin had previously included in the manic-depressive group. It is important to bear in mind that in the expansive form of paraphrenia, psychic enfeeblement invariably occurs; the excitement is relatively mild and without a history of previous attacks which would aid one in making a differentiation from manic depressive insanity.

3. Confabulatory form. In this form of paraphrenia, falsification of memory is the prominent feature in the clinical picture.

Only a limited number of cases came under Kraepelin's observation.

The development of the disease is characterized by a change in the patient's disposition. He becomes quiet; seclusive, irritable, he indulges in subtle inquiries and gradually commences to relate fantastic experiences which express themselves in delusions of persecution and ideas of reference, hallucinations and delusions of grandeur.

The delusions of persecution go back to their early childhood. For instance, the patient maintains that he was mistreated in school; that he was ridiculed by his relatives; that he was driven to masturbation; that his mother tried to poison him with an apple, and that he met people who wished to kill him; and he expresses other peculiar ideas.

The delusions of grandeur are likewise of fantastic nature and colored by falsification of memory. The patient believes himself to be a descendant from the royal family, or that he is the natural son of the king, and the like. He affirms that in school the teacher regarded him as the prince; that he was selected for the kaiser but he was too young. In such a way the patient may relate numerous fantastic grandiose adventures in the form of personal experiences. Furthermore, he is capable of misinterpreting and distorting past occurrences.

The content of falsification of memory does not always limit itself to the peculiar persecutory and grandiose ideas, but it may take a retrospective trend and also find expression in the experiences the patient encounters in his daily life.

Quite often falsification of memory is associated with his immediate environment—for instance, he maintains that everything is familiar to him; imagines that he was formerly in the hospital; that nurses and patients are his old acquaintances, etc.

Sensorium is not perturbed; the patient is collected and takes cognizance of what transpires about him; gives clear and connected answers and is well-behaved. So long as his delusions do not dominate his entire personality he is clear as to his whereabouts and has good grasp on his environment.

The mood is elevated and exalted. However, transitory states of anxiety and irritability are observed. Most of the patients are loquacious and show tendency to play of words at times.

The course of the disease is progressive. "Mostly the exultant manifestations of the falsifications of memory may form a relatively short stage of the disease although the delusional fabrications continue for a longer period of time, but recurs and may possibly become more elaborated."

As time goes on the delusions become more senseless and rambling; the patient grows irritable, surly or indifferent, and finally a state of psychic enfeeblement is fully developed. As to the ultimate outcome of the clinical picture, Kraepelin cannot definitely state. Some of his cases lasted more than a decade.

This form of paraphrenia is not frequent, and Kraepelin has seen only a dozen such cases for the past thirty-five years. The two sexes may be equally affected. The disease develops between the ages of 20 and 50. No known cause could be assigned. In most cases the patient indulged in gloomy meditations long before the development of the psychosis.

4. Paraphrenia phantastica is dominated by exalted productions of marked fantastic, loosely connected, changeable delusional ideas.

Quite frequently the disease is ushered in with a depression. The patient is low spirited, dejected, anxious and expresses suicidal ideas.

Delusions of persecution gradually make their appearance. The patient imagines that he is the object of persecution, that he is under constant observation and that people talk about him. He expresses other peculiar ideas—thinks that he is to be punished for murder, larceny, etc.; imagines that he finds feces, sputum and human blood in food. Everything is drenched with arsenic, phosphorus and chloroform. Neighbors enter his room in his absence and steal clothes from him and destroy things.

Hallucinations of hearing also constitute a part of the picture. The underlying content may be threatening, persecutory, commanding, erotic or grandiose. Visual hallucinations may also occur.

Ordinary sensibility occupies an important position in the clinical picture, and on this, delusions of personal influence (*wahn der persönlichen Beeinflussung*) are founded. The patient complains of all kinds of pains and other somatic sensations in the limbs, head and chest. He also speaks of perceiving electric shocks and receiving hypodermic injections. He imagines that his scrotum is electrified; that his organs are torn out; that his voice is changed; that his whole body is transformed; that memory and his thoughts are controlled by spiritual devices, witchcraft, etc. Ideas of being hypnotized and sexual delusions are also present. Marked somatopsychic delusions of a fantastic and sexual undercurrent are often encountered—for instance, he feels that he sees men in his body—that the kaiser is in his body for the purpose of being rescued; that his father sits in his right leg; that a princess sits on his penis; that a female genital organ developed on his eye; that he consists of thirteen persons and that eight women are within him; and he expresses numerous other fantastic ideas.

In addition numerous fabrications of a fantastic nature play a rôle in the clinical picture.

Many of these delusions become cloaked in the form of falsification of memory with an underlying fantastic trend. He maintains that as a child he was robbed—that he was killed several times; that he was Christ, Eve, Moses, Alexander the Great, etc.; that he created the first people; that he studied medicine for 200 years and then again he reigned for 200 years; when he was 7 years old he ruled the world. He indulges in numerous other fabrications, etc.

The mood is slightly elevated or one of indifference. At times he may become gloomy and give vent to violent outbreaks of excitement. Irritability may also be observed, especially during longer interviews.

It is interesting to note that the patient is able to give an account of himself and answers questions to the point. His manner, however, is affected and grimaces are frequently observed. He also gives expression to senseless rhyming and play of words.

The course of the disease is progressive and gradually the utterances become confused and absurd. Neologism, very odd conduct and other eccentricities become quite marked. Emotional responses grow duller and transitory periods of violent outbreaks and irritability are of frequent occurrence. Nevertheless, many of the patients are capable of doing their work without interruption.

The rapidity of the dementia varies. In some cases it is noticeable soon after the appearance of the psychosis, within four or five years. Kraepelin knows of cases in which, aside from fantastic delusions of a peculiar confusion, he was able to demonstrate no higher grade of intellectual deterioration.

From 60 to 70 per cent. of his patients were of the male sex; on one-half of his cases the disease developed between the ages of 30 and 40, and in one-fourth below 30 and in the rest above 40. Some of his patients were of good mental endowment and of a vivacious disposition, but were inclined to indulge in subtle fancies. Others were weak-minded, stubborn and wayward. It is also interesting to note that many of his patients showed criminal propensities.

CONCLUSION

It must be admitted that the splitting up of a large heterogeneous group into subgroups with the object of restricting the disease picture to definite clinical types implies a marked advance in objective psychiatric nosology. Hence the paraphrenia group is such a welcome addition to the modern classification of mental disorders. One must bear in mind in many instances a well-defined line of demarcation between dementia praecox and paraphrenia is quite often very difficult to make; especially is this true of the confabulatory and fantastic forms. It is important to emphasize that in the psychopathology of dementia praecox, emotional and volitional deterioration and distortion of personality stand out quite prominently, but they are only objective landmarks to aid one in establishing such differentiations. Kraepelin lays little or no stress on the type of personality in paraphrenia or other forms of psychosis, which is so much emphasized in American psychiatry, chiefly due to the painstaking efforts of Meyer and Hoch. Should it be possible to outline a characteristic type of personality and the underlying psychologic mechanisms of a paraphrenic symptom complex our knowledge of this important group would be greatly enriched.

One cannot dismiss the subject without saying a word or two regarding the differential diagnosis between paraphrenia systematica and true paranoia. It would be recalled that the former is considered a disease process inasmuch as it has a definite onset course and termination. According to Kraepelin's[2] present conception, however, paranoia is not a disease process, but he looks on it as a peculiar psychopathic personality—"psychic malformation." The root of this condition is sought in the peculiar paranoidal anlage of the patient. The development of delusions is very slow and progressive which evolved from the personality, which at no time shows any distortion. In the clinical picture, delusions of grandeur are the foreground which result from inner conflicts and struggles, and evidently represent a fulfilment of an ungratified wish or dream.

ABSTRACT OF DISCUSSION

Dr. H. Douglas Singer, Hospital, Ill.: I have studied this conception of paraphrenia by Kraepelin a good deal. I think it represents merely a way of getting out of a good many difficulties in which the system of Kraepelin's classification lands one. You will find that this particular group is composed of a number of cases which did not fit in very well in his previous classifications. Some of them represent cases which he previously classed as manic-depressive insanity with a paranoic trend. He admitted at that time that he did not know just where to place them. These have now been transferred to this group without much more justification than from that point of view. His paraphrenia phantastica represents what he called dementia paranoides in the older dementia praecox group. And this group, taken all together, really represents mental disease pictures which he has found difficult to class in any other way. He has simply put them in a separate class and attempted thereby to outline more clearly the other groups which have already been so widely accepted. I feel that all the multiplication and names and subtypes which we get in this way is a disadvantage rather than an advantage, especially when it comes to speaking of differential diagnosis between the different types. With the general conception of mental disorders which I have, in common with a good many others, I can but feel that these paraphrenic disorders again are simply individual modes of meeting situations. That in these people, who certainly present a very peculiar way of doing things, one sees a peculiar kind of personality. As Dr. Karpas says, we unquestionably will learn much more when we recognize the peculiar individual make-up which leads to these reactions. I do not feel that this represents a great advance. It is simply shelving the question of what these conditions really are and trying to maintain and define more clearly a dementia praecox disease by putting aside those cases which cannot be so clearly grouped under this conception.

Dr. L. B. Pilsbury, Lincoln, Neb.: I feel as Dr. Singer does, that the newer classification has fallen into some of the faults of the old; that is, it is, as time passes, becoming more complicated, less simple in every way, less clearly defined; in fact it is becoming top-heavy. The attempt to define more clearly is what is really bringing about this complicated situation, to be sure, but the result has been simply to befog the issue rather than to clear it up.

Dr. Morris J. Karpas, New York: It is true that our classification of mental disorders is incomplete and imperfect; nevertheless, an objective nosologic classification is desirable, especially from the point of view of prognostic outlook. By understanding the type of personality and the underlying psychologic mechanisms of the various psychotic manifestations, much can be accomplished toward our knowledge of diagnostic groupings. It is admitted both by the synthetic and analytic psychiatrist that classification of psychoses is indispensable for the progress of psychiatry.

THE RELATION OF PATHOLOGIC CONDITIONS IN THE NOSE AND THROAT TO THE ORIGIN AND TREATMENT OF HYPERTHYROIDISM *

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The thyroid gland prepares an internal secretion which is not limited in its action to a single mechanism, as is the case with secretin. There is much evidence to support the belief that it acts on a wide range of tissues. Prominent among the theories of its function is that of detoxication, but the mechanism of its action in this respect is not well understood. The older theories of Notkin and Blum are no longer acceptable. The metabolic activity of the tissues in a thyroidectomized animal is below *par*. There is a lowered oxygen absorption, greater tolerance for carbohydrate, a lower body temperature and a diminished activity of both physical and mental processes. The whole picture is changed by the administration of thyroid extract. Poisonous substances which might seriously affect an animal in the abnormal condition following thyroidectomy may not be so dangerous to a normal animal or to one receiving thyroid extract; not because of a direct antagonism or neutralization of the toxin by thyroid secretion, but rather because the inactive tissues of the thyroidectomized animal are less able to protect themselves.

The experiments of Perrin and Jeandelize show that a thyroidectomized animal is more susceptible to bichloride poisoning than normal animals. Frugoni and Grixoni assert that animals with experimental tuberculosis are favorably influenced by continued administration of thyroid extract. These results are to some degree confirmed by the experiments of Marbé, who found that the phagocytic function of the leukocytes and the opsonic index of the blood are distinctly lowered by thyroid removal and stimulated by thyroid administration. Numerous clinical reports show the common belief in the diminished resistance of hypothyroid subjects to the common infections, and beneficial action of thyroid administration in such cases. Sajous has advanced the hypothesis that the mechanism of the defense against infections depends to a large degree on thyroid function.

The most complete experiments showing the antitoxic value of thyroid feeding are those of Hunt, who has found that white mice are protected from acetonitril poisoning by thyroid administration and that there is a close quantitative relationship between the amount of thyroid given and the amount of poison to which it affords protection. The protection to toxic substances evidenced by these experiments is not a universal phenomenon, however, for other animals such as rats and guinea-pigs are rendered more susceptible to acetonitril by thyroid administration, and mice which are protected to acetonitril poisoning are rendered more susceptible to morphin. Such observations indicate a marked alteration in the metabolic processes of the animal rather than a mechanism of protection.

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[2] Kraepelin: Ztschr. f. ges. Neurol. u. Psychiat., 1912, xi, 617.

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The relation of thyroid disease to previous infections has been noted clinically by many observers. In this connection it is well to remember that thyroid disturbances occur most frequently in persons of a thymicolymphatic constitution, and it is these individuals who are most susceptible to infections. The terminal event in hyperthyroid patients is not infrequently an infection which has begun in the tonsil, and I have not seen a necropsy in these instances which did not disclose the characteristic pathology of status lymphaticus. Its most common occurrence in women and its relation to the functions of the sex-glands, such as puberty, menstruation, pregnancy and lactation, are worthy of note.

A large percentage of patients with exophthalmic goiter have enlarged tonsils and adenoids. They give a history of repeated attacks of acute tonsillitis. Not infrequently one or more of the accessory sinuses are or have been infected. It is not uncommon to date the beginning of the thyroid enlargement from a particularly severe attack of tonsillar infection.

Infections in the nose and throat are undoubtedly the most common to which the human family is subject, and with that fact in mind one so disposed might build an hypothesis relating many of our ills to that forerunner. And such a conclusion would in many instances be justified for the tonsil is one of the most important ports of entry we have for infections; but in this case the resultant condition is a hyperactivity of a gland of internal secretion and not a continued infection. It is obviously more difficult to explain such a result than to trace the connection between an acute tonsillitis and a septicemia or an infected joint. An observation of much interest in this connection has been made by Halsted. In 1888 he removed a large part of the thyroid gland from normal dogs and found that the portion remaining became hyperplastic. These experiments have been widely accepted and quoted to prove a capacity for compensatory thyroid hypertrophy, but twenty-five years later, in 1913, he repeated the experiments and found that he could no longer get the same results. In the first experiments the animals' wounds were invariably infected, while in 1913 he employed careful aseptic methods and obtained primary union. Halsted does not draw the conclusion that the wound infection causes the hyperplasia, but he recognizes that such may be the case. The relation between infection and thyroid hyperplasia has further support in the experiments of de Quervain, who found that the injection of bacterial toxins caused a marked hyperplasia similar to that produced by Bircher in rats by giving them water from goitrous wells.

The theory of the origin of thyroid hyperplasia from a specific infection has been recently reviewed and developed by Gaylord in his report on carcinoma of the thyroid in salininoid fishes. In the course of this work he studied the effects on the thyroid of rats and dogs produced by mixing with their food sediment obtained from the ponds inhabited by the goitrous fish. Such a diet produced quite remarkable thyroid hyperplasia in some of these animals; more striking, in fact, than that produced by McCarrison, who produced thyroid enlargement in goats by giving them water contaminated with the feces of goitrous men.

Infection does not in a large percentage of cases produce such an enlargement of the thyroid gland that it would be recognized as a goiter, and it may be that the thyroid does not react in this manner except in those who are not quite normal in respect to the balance of their glands of internal secretion. If the thyroid secretion is an important element in the defense against infections, it is not impossible that it is stimulated to overactivity when occasion demands, and if the stimulus be often repeated it may produce changes which we recognize as pathologic. Through the repeated stimulus to over-activity, the gland has become hypertrophied, and its heightened function continues long beyond the stimulus which called it forth. Certain experiments which I have published show beyond reasonable doubt that the discharge of iodin from the thyroid is to some degree under nerve control, but this fact does not argue against other influences working to the same end. The gastric secretion is under two influences, one nervous and the other chemical, and it is by no means unusual to find patients with a hyperactivity of the glands secreting the hydrochloric acid of the gastric juice.

Clinically there is an important relation between the infections in the nose and throat and hyperthyroidism. In patients between the ages of 16 and 24, from 35 to 40 per cent. give a history of repeated attacks of acute tonsillitis, and many of them have a chronic pharyngitis and rhinitis with enlarged tonsils and adenoids. Not infrequently one or more of the accessory sinuses is infected. It is by no means a rare thing to find that a rapid enlargement of the thyroid with characteristic symptoms of overactivity has followed immediately after a particularly severe tonsillar infection. Such patients bear these infections badly. Their convalescence is slow and each attack is accompanied by severe prostrations quite out of proportion to the seeming severity of the infection. It has been my observation that the leukocytosis accompanying these infections is lower than usually found in similar conditions in non-goitrous patients, and, although they may have the local condition characteristic of quinsy, they do not usually form an abscess which gives free pus when opened. Hyperthyroid patients often show a marked leukopenia with a relative lymphocytosis indicating some influence on the blood-picture, and this influence is evidently operative when the organism is subjected to infection.

There is no complicating factor in exophthalmic goiter which is more troublesome or more dangerous to the patient than the tonsil infections to which they are subject. Every effort should be made to prevent them. When the patient's general condition will permit, the tonsils should be enucleated and the adenoids removed. But such an operation should not be done on a patient suffering from an active thyroid intoxication without appreciation that such patients do not stand operation of any sort well, and all precaution should be taken to prevent shock from the ordeal. The methods followed by Crile in stealing the thyroid apply quite as forcibly to operative procedure of every sort on these patients. It has not infrequently happened that the surgeon has been surprised by the unusual reaction following tonsillectomy and has found on closer examination that his patient had an enlarged thyroid with most of the symptoms of hyperthyroidism. Such an observation should precede and not follow the operation. The relief which follows the elimination of infection, whether in the sinuses, the nasopharynx or tonsil, is usually so prompt and effective that one has little doubt as to its causal relation to the overactive thyroid, and it becomes at times more important to attend to the infected areas than to attempt direct action on the thyroid. By so doing many patients will be permitted to retain their glands for a useful function.

Every young patient with an enlarged thyroid should have a careful examination of the nose and throat, and the converse is equally true. Between the ages of 12 and 20 is the beginning point of most thyroid enlargements, and it has been my observation that a combination of enlarged chronically infected tonsils and adenoids, gastro-intestinal disorders accompanied by constipation, and an enlarged thyroid with mild nervous and heart symptoms is the beginning of a condition which usually does not attract much attention unless the patient (and these individuals are nearly always young women) is annoyed by the cosmetic defect in the neck. This is the physical foundation to which such girls bring the exacting demands of school, college and social life, and under its strain a large percentage of them sooner or later fall as victims. Hyperthyroidism can be checked in such patients before any serious damage is done if the beginning is recognized. It is unfortunate that the facility with which the thyroid gland can be removed has led to many needless operations in the type of patient described.

The beginning of thyroid disease should receive more attention. Too frequently it is overlooked, and when discovered is taken lightly except in the face of quite disturbing symptoms. The progress of preventive medicine will ultimately lead to the discovery of most of these beginning cases at a time when they are easily curable with preservation of the integrity of the thyroid. Medical inspection in school and college should accomplish a great deal more in this respect than it now does.

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ABSTRACT OF DISCUSSION

Dr. Charles G. Jennings, Detroit: One word concerning the question of diagnosis; what symptoms will put the examiner on the track of thyroid toxemia? So far as my experience goes, there are two symptoms of the greatest value, which are easily elicited by the usual examination. They are the debility and the tremor. Both may be mild but are almost uniformly present. The question of therapeutics is largely hygienic. Rest is perhaps the most important. Girls in early adolescence, in boarding schools particularly, suffer from a mild type of the trouble and they must be given rest; social, intellectual and physical rest. The wear and tear of social functions often bring about this condition. As to medicinal treatment, my experience is that in these cases, in spite of the fact that they are cases of hyperthyroidism, the patients do well on a thyroid preparation, administered over a long period in small doses. I am in the habit of using the preparation produced by Dr. Beebe in the Cornell Laboratory. Many of these cases respond well to this remedy, combined with rest and symptomatic treatment. Occasionally quinin hydrobromid can be alternated with the thyroid preparation. There is nothing special in the diet so far as I can see, except a diet that will relieve digestive embarrassment, if that be present. Occasionally ferrous iodid seems to be valuable. Some recently published observations by Wilson and Plummer of Rochester show that this type we so frequently see is a distinct pathologic and clinical entity. Wilson calls them toxic non-exophthalmic goiter and the changes in the gland as observed by him are not those of true exophthalmic goiter. They do not develop the eye symptoms. Such cases go for ten or fifteen years with symptoms of hyperthyroidism and yet never develop characteristic exophthalmic goiter. The pathologic changes are hyperplasia, regeneration, and the formation of connective tissue. and of course this gives rise to perverted secretion. The physiologists ought to be able to help us considerably in this study.

Dr. Otto Joachim, New Orleans: Twenty-five years ago Fraenkel called attention in a clinical case to the reduction of goiter on the same side as that on which he reduced a hyperplastic inferior turbinate. This was looked on at that time as a very extraordinary result and not held in any causal relation. The idea was not followed up. We should be very grateful to Dr. Beebe for calling our attention more specifically to the pathologic condition following infections of the nose and throat. More strongly than ever, the theory of disturbed internal secretions advanced yesterday by Dr. Beck appeals to me. We need not look necessarily for a focus of a purulent type to explain these disturbances. A great many will be accounted for on the ground of disturbed defective or overactive internal secretions which in turn affect the thyroid.

In our part of the country we see a great deal of thyroid trouble, especially in young people, and we are often confronted with the necessity of relieving these patients without operation. I am also of the opinion that, in the earlier stages, these cases are amenable to therapeutic measures. Operation is not always indicated and the diagnosis of the beginning of the trouble is of extreme importance. The importance of these relations between abnormal conditions of the nose and throat and hyperthyroidism, however, are such that we need thorough laboratory investigations to clear up the matter. Of course, as laryngologists, we are not necessarily competent and have not always the opportunity to properly study these cases. They come to us and then disappear from our observation. The final light must come from the internist who has a better opportunity for this study.

Dr. George E. Shambaugh, Chicago: Dr. Beebe brings out the importance of the specialist cooperating with the internist. I emphasize this because there has been too great a tendency toward the development of special hospitals, where the eye, ear, nose and throat specialist does his work isolated from close association with other fields of medicine. The few advantages in this arrangement are far outweighed by the much greater disadvantages arising through the lack of cooperation with other branches of medicine. The best arrangement, and the one in which our best work is done, is in a general hospital, where our work is carried out in cooperation with the internist, the neurologist, the general surgeon, the dentist, etc. In the Presbyterian Hospital, in Chicago, we have been interested in this relation between hyperthyroidism and the faucial tonsils. I have several times been requested by the internist to remove the tonsil in these cases, and when asked to operate in such cases, I do so, nor do I attempt to hunt over the tonsil for palpable evidence of foci of infection before consenting to carry out the internist's request. The possibility of abnormal tonsils being the focus for the changes in the thyroid is interesting. I have several times seen the disappearance of the hyperthyroidism in a remarkably short time after the removal of the faucial tonsils. It has been suggested that the relation may be reversed. If so I do not see why the goiter should disappear after the removal of the tonsils.

Dr. John F. Barnhill, Indianapolis: This subject is entirely too new to have data that is worth while. It is only in the past two years that we have been adding to our case records, or at least that I have, the condition of each thyroid at the time of making the throat examination. Dr. Shurly recently, before the American Laryngological Society, expressed the belief that there is a relationship between hyperthyroidism, and tonsil and throat infections. Knowing that we were to have Dr. Beebe's paper, on my return home from this meeting of the Laryngological Society I looked up as many of the cases of hyperthyroidism in which I had operated for removal of the tonsils, as I could find. I found seven cases in which in the last three years I had removed the tonsils when this condition existed. In none of these cases, so far as I was able to judge, was the thyroid condition improved. One of these patients had been operated on in one of the large clinics for hyperthyroidism two years previously. The surgeon who did the operation had stated that the patient had enlarged tonsils which ought to be removed at once. When she had fully recovered from the thyroid operation I removed the tonsils. She was improved for a time. I saw this patient three days ago and the lobe of the thyroid opposite to the one which had been removed is now enlarged and she has very marked exophthalmos. This was interesting to me because one lobe of the thyroid had been removed and the tonsils had been removed, and yet she still has the condition of hyperthyroidism. I believe that there is a connection between tonsillar infection and hyperthyroidism in the same way, perhaps, as an infected toe or antrum or gall-bladder might bring about such conditions; that is, by lowering bodily resistance. It is our duty, therefore, to discover these cases early, because I am convinced from examination of the cases that I have recently made, that whatever benefit we are to get from removal of the tonsils must come from operating in an early stage of the thyroid enlargement.

Dr. Joseph C. Beck, Chicago: The subject of the infections of the upper respiratory tract in connection with thyroid disease has interested me for some time and I am in a position to speak from experience on the subject in its entirety, for I follow these cases whenever hyperthyroidism is present. Dr. Barnhill said exactly what I would say with reference to the curing of any patient with hyperthyroidism by removal of the tonsils and I have had quite an experience in that line. I have seldom seen a case that did not respond by improvement, nor have I seen a single case that was difficult to operate on. One certainly would not attempt to do a tonsillectomy in a patient in a down-grade stage of hyperthyroidism. Tonsillectomy will do this; it will do what a single ligation of the superior thyroid artery will do; it is transitory. It puts the patient in a condition in which a thyroidectomy may be done. My statement concerning the tonsils as causing hyperthyroidism is based on a study of the sympathetic nervous system. It is believed that toxic elements, not necessarily pyogenic, either stimulate or depress the vagus and alternately the sympathetic and produce changes in the internal secretions. The pathologic changes in the thyroid itself, of course, we understand, the colloid changes, which are degenerative, and have nothing to do with an infective process.

Dr. George F. Cott, Buffalo: My experience has been similar to that of Drs. Beck and Barnhill. I have operated on children of 10, 15 and 20 years of age and people as old as 69, and not a single one of these patients, thirty in number, have had any throat complaint or tonsillar or sinus trouble. So that I have reason to believe that the condition was not due to any infection of the upper respiratory tract. Dr. Beck told us what we may expect from disturbances of the internal secretions and, of course, these infections may cause disturbance of the internal secretions, but that may happen in other diseases as well as in goiter. Of all the patients I have operated on for goiter, not one complained of trouble with the throat or nose at any time. I want to make this statement from the point of view of a laryngologist as compared with that of Drs. Beebe and Jennings, and I think we have as much chance of observing these conditions as has the internist.

Dr. Owen Smith, Portland, Maine: For fifteen years I have been interested in this particular line of work. The question of diagnosis in these cases is particularly important to the laryngologist because a great many of them come to him before the symptoms become so pronounced as to attract the attention of the internist. In small cities the laryngologists are supposed to be better qualified to handle these cases than a great many of the so-called general practitioners, and they should not only be able to cooperate with the internist, but should be qualified to handle these cases both from a medical and surgical point of view.

A discouraging feature, from my observation, is that it is difficult to decide from the work of the internist and the surgeon just what is best to do in these cases; whether to treat them medically or to go on to the more radical surgical procedures. The medical treatment, in my experience, has been rather disappointing. I have followed, more or less, the work of Dr. Beebe and Dr. Forscheimer. The latter basing his work, perhaps, on the septic theory, has attained better results than in any other method of medical treatment. On the other hand, the radical surgical treatment at times is very disappointing, although sometimes the results are striking, the patient recovering rapidly.

Dr. Henry Horn, San Francisco: The propaganda of education which Dr. Beebe has presented is at this time very apropos. We, as laryngologists, possess a field of investigation which up to this time, so far as I know, has not been worked up, and inasmuch as the object of these meetings is to draw the general surgeon, the laryngologist and the internist into closer contact with our work, I desire to call attention to a problem which perhaps has not been sufficiently considered: the possibility of the tonsil as an organ of internal secretion. As specialists who remove hundreds of tonsils, we are possibly in a position to draw conclusions better than any one else, but, nevertheless, in the thousands that are removed, the opportunities for observation are seldom carried out in any systematic way. I only wish to call attention to the fact that there is a certain class of cases, especially in young women, in which removal of the tonsils will produce a condition closely related to what we know as the thyroid symptom-complex; tachycardia, intense nervousness, etc. Now, of course, that suggestion is immediately open to the objection that these cases may be cases of hyperthyroidism; I do not think so, and I think we should observe some of these cases and study them more closely with the internist.

Dr. Burt R. Shurly, Detroit: I have been much interested in this subject for five or ten years and I think there are certain points that we are very liable to neglect. Certain essential facts are necessary to be known, for in the equipment of the laryngologist certain facts of diagnosis in internal medicine are particularly valuable to us, if we can have classified knowledge and definite ideas of just exactly how we are to consider some of these problems that really belong to internal medicine and yet in which we have a great interest. In this way our equipment as laryngologists will certainly be very much improved. The great essential, it seems to me, is that we should consider an examination of the thyroid gland as part of our routine procedure in every case. A great many men will overlook the thyroid gland entirely, while if we will examine it anything of particular significance may be immediately followed up with further investigation. Dr. Beebe and Dr. Rogers of New York have certainly been the pioneers in developing this subject, and they have given us the greater part of our knowledge in this regard. Dr. Rogers has a fine history scheme which immediately concentrates one's investigation of the symptoms of thyroid trouble as it may be connected with any condition of the throat or nose. It is not claimed that diseased tonsils are the only cause of goiter. We all know that hyperthyroidism is very frequently associated with nervous shock, overwork, miscarriages and postobstetric conditions. As Dr. Jennings has said, in Michigan we have a considerable number of mild cases, and many of these are overlooked. It seems to me the prophylactic effect of removing the tonsils is quite effective. If you can prevent recurrent tonsillitis you prevent the acute condition again and it is the acute condition that makes the trouble.

Will Dr. Jennings say something of the essentials of medical treatment?

Dr. S. P. Beebe, New York: It was not my purpose to advocate the removal of tonsils and adenoids as a cure for exophthalmic goiter. If any one has so understood my statement, I wish to correct it. What I have said about the frequent occurrence of infected areas in the nose and throat is derived from the history of approximately 3,500 patients who have had this disease. It is quite possible for one to have had a number of patients with thyroid disease who have not at the same time had either sinus or throat infections. Nevertheless such infections are a most common accompaniment of thyroid disease, and, in my judgment, constitute an important factor in maintaining a condition which favors overactivity of the thyroid gland. One cannot see the effect of repeated infections in these patients without being impressed with their importance. I wish, however, to impress the importance of making every effort to discover the beginning of thyroid disease. As specialists you will frequently be consulted by parents who bring their children to you for nose and throat infections. The patient may not have been seen by an internist at any time and, unless the physician who does see them examines the patient with reference to his general condition, as well as to determine the condition of the nose and throat, many diagnoses that might be made will be missed. Routine examinations of the nose and throat should include an examination for any possible enlargement of the thyroid gland. Simple tonsillectomy or removal of adenoids is not all that it is necessary to do in the line of treatment even in these early cases, but the custom of regarding a thyroid enlargement as of little medical importance unless accompanied by marked or severe symptoms is an error too commonly made at present. When the thyroid disease is well developed and the gland itself has undergone a marked pathologic change, there is no reason to suppose that a cure will be obtained simply by attention to the nose and throat infections. A recurrence of thyroid disease after repairing the nose and throat does not controvert the necessity for attention to such a condition. The most important thing in this work is to prevent the serious thyroid disease which has insidious beginnings, and these patients so often come to the nose and throat specialists first that it is of decided importance that the beginnings of thyroid disease should not be overlooked at a time when the patient's recovery is a comparatively simple matter.

THE USE OF CELLULOID SPLINTS IN THE TREATMENT OF DISEASES OF THE NERVOUS SYSTEM *

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In the treatment of diseases of the nervous system as in the treatment of other diseases, the attending physician must measure the success of his treatment by the preservation of the life of the patient and the restoration of function in the anatomic structures diseased.

Of those diseases which endanger life and disable the patient by paralyzing muscles, groups of muscles and entire members, poliomyelitis stands as the most common type. During the acute stage of this disease the patient should rest in bed, the nares should be washed with a 1 per cent. solution of hydrogen peroxid, hexamethylenamin administered, and the pains controlled by the application of heat or by the giving of analgesics, if needed, and lumbar puncture done if there be signs of meningeal irritation.

After the acute stage is passed the physician must interest himself in and direct his treatment toward the restoration of muscular function and the prevention of deformities. The restoration of muscular function can be encouraged and facilitated by massage, electricity and exercise. The paralyzed muscles should be tested with the faradic current and if they respond to faradic stimulation two weeks after the onset of the paralysis, recovery should be expected. If they do not so respond, recovery may take place if the proper treatment be instituted. The electric current which gives the best therapeutic results is the galvanic. It is the characteristic tendency of poliomyelitis to paralyze individual muscles and groups of muscles, and it is for this reason that deformities are so prone to occur.

The prevention of deformities is the most important part of the after-treatment of poliomyelitis. They occur with great frequency, and are to a much greater degree responsible for the permanent disabilities of the patient than are the paralyses. In but a small percentage of patients is the paralysis so extensive and disabling in character as permanently to prevent walking, but the deformities so cripple a large percentage of patients that walking is very difficult or impossible. General acceptance is given to the idea that paralyzed muscles should be placed and fixed in the position of rest, should not be overstretched by the action of nonparalyzed antagonistic muscles, and should be supported in order that they may be used as their condition will permit.

Numerous and various methods have been suggested by which rest, relaxation and protection of the paralyzed muscles can be secured. Simple rest in bed is considered adequate by some, others apply a splint so as to fix the limb in normal position, while others splint the limb so that the paralyzed muscles are completely relaxed and the antagonistic muscles are hyperstretched. I do not presume to say that any of these methods are bad, either absolutely or relatively. Any one of the three methods can perhaps be applied with success to individual cases.

It is my opinion that all limbs paralyzed by poliomyelitis should be fixed in the normal position of rest, so that the paralyzed muscles cannot be overstretched, and held in such position by a splint which gives sufficient support to enable the patient to walk during the stage of repair, thus applying a physiologic stimulus to aid the recovery of the affected muscles.

Contractures begin to develop early in poliomyelitis and protection should be given to the paralyzed muscles from the onset. The most common of the early deformities is toe-drop, occurring as a result of the contraction of the flexors of the toes and of the extensors of the foot, in the absence of the action of the opposing muscles. As this deformity is hastened by the weight of the bedclothes a cradle should be used when it is expected.

As soon as the pain has subsided sufficiently to enable the paralyzed structures to be handled without occasioning too much discomfort, a splint should be applied for the reasons given above.

As a material for the making of such splints I believe celluloid has many advantages. Celluloid splints are simple, effective and cheap, and most successfully meet all requirements. They keep the muscles at rest in a position of relaxation, prevent deformities and enable the patient to walk while repair is progressing. They can be worn both day and night with

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

entire comfort, do not absorb moisture, are sufficiently strong to support an adult, and yet are very light—those for a child weighing from 10 to 14 ounces and those for an adult from 24 to 32 ounces—are readily removed in order that the limb may be washed, massaged or treated with electricity and can be reapplied without difficulty. In more than 85 per cent. of the cases the muscles of one or both legs are affected, but in about 40 per cent. they are affected in combination with the muscles of the trunk, arms and neck. In 15 per cent. of the cases the legs are not affected, but the celluloid splints can be applied to the arms, trunk or neck and perform the same functions as when applied to the legs.

CLASS OF CASES SUITABLE FOR SPLINTING

All cases of paralysis of the legs are suitable for splinting, except those with complete loss of power in the psoas and iliacus group and in the glutei. Those cases in which the back, lumbar and abdominal muscles are much affected are also unsuitable for splinting, but if there be considerable affection of the dorsal and abdominal muscles with little involvement of the legs, a spinal jacket is very helpful. The extent of the splint must vary according to the degree of the paralysis. If the leg be extensively paralyzed, the splint should encompass the entire leg as high as the tuber ischii behind, the trochanter on the outer side and the ramus of the pubes on the inner side. If the paralysis be limited to the muscles below the knee a splint reaching to the knee will suffice.

Celluloid splints have been found most useful in the treatment of the paralyses and in the prevention of the deformities of poliomyelitis, but they have a much wider range of usefulness. They are of benefit in the treatment of the wrist-drop or toe-drop associated with lead or alcoholic neuritis, or that from any other cause. They are also of value in the treatment of hemiplegia, with contraction and inversion of the foot, and in contracted conditions of the hand. They will prevent deformities if applied early in the diplegias of infancy and in myelitis.

The celluloid splint is of much value in the treatment of some conditions occurring in tabes, in hypotonia with hyperextension of the knee, they support the knees and enable the patient to walk. In Charcot's disease of the knee-joint they give support, so that the patient can walk without the danger of the knee suddenly giving way, and the fixation with pressure limits the extension of the disease and the effusion which often takes place within and around the joint. In order that the best results may be obtained the patient with Charcot's disease should rest in bed for several days before the cast for the knee is taken, so that the edema and swelling of the joint may subside, otherwise the splint will shortly be too large.

We are indebted to Calot[1] of Berck-sur-Mer for using and bringing celluloid splints to the attention of the profession. Gauvain[2] introduced them into England and used them in the treatment of tuberculous joints. To him belongs the credit of much of the improved technic in making them. Dr. Frederick Batten[3] of the National Hospital for the Paralyzed and Epileptic, and of the Great Ormond Street Hospital for Sick Children, London, proved their great value in the treatment of poliomyelitis and other diseases of the nervous system. Dr. Batten, relative to his experience with them, says[4]: "I have used them frequently during the past two years in the treatment of cases of poliomyelitis, and they have proved of the greatest service in preventing deformity and hastening recovery."

MAKING THE SPLINTS

The following processes are involved in making the splints:

1. The taking of the negative cast of the part to be splinted.
2. The making of the positive cast from the negative.
3. The building of the splint on the positive cast.

The details of these three processes are to be given, but I desire to emphasize the importance of the first process. The negative cast should be applied by the physician and it is essential that it be made properly, otherwise it will be useless.

THE NEGATIVE CAST

For the purpose of making the negative cast the following articles are required: a strip of lead ¾ inch wide and 2 or 3 feet in length, some oil, a strong knife with a sharp point, and some plaster-of-Paris bandages. For this purpose the ordinary surgical bandages are really not suitable. Batten recommends a bandage made of book-muslin, 4½ inches wide and from 4 to 6 yards in length, loosely wound and not too heavily loaded with plaster.

The part of the body of which the cast is required is first shaved, if hairy, and then oiled. The strip of lead is oiled and adjusted to the point at which the cast is to be opened. The limb is now placed and held in the position in which it is to be fixed by the splint. As stated above, one of the most important functions performed by a splint to a disabled leg is to enable the patient to walk during the process of repair. If the leg be splinted with the knee hyperextended and the foot dorsiflexed on the tibia, walking will not be possible. The knee should be slightly flexed and the foot held exactly at right angle with the tibia. The plaster-of-Paris bandages are placed in warm water and after being squeezed out are wound round the limb, starting at the periphery and working up. The best results will be obtained if each bandage is taken continuously from one extremity of the cast to the other. If this be done the tendency of the cast to crack transversely will be much lessened. It is not necessary that the cast be very thick; four or five bandages for the entire leg of a child from 6 to 8 years old will be ample. The plaster will usually set in from three to five minutes. After it has set sufficiently a cut is made down to the lead. Before manipulating the cast be sure that all threads are divided, or a portion of the cast may be pulled out of place and the cast spoiled. The cut edges of the cast are now separated and the lead removed through the incision; the edges are still further separated and the cast is gently removed from the limb. In the case of the leg, if an assistant will grasp the toes and pull them forward while the cast is pushed backward little difficulty will be experienced.

After the removal of the cast the cut edges are carefully approximated and a single layer of plaster bandage wound round the cast from one end to the other, the lower opening being carefully closed with the bandage. This completes the negative cast and it is laid away to dry.

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[1] Calot: Orthopédie Indispensable, Paris, 1913.

[2] Gauvain: Brit. Med. Jour., 1913, i, 1200.

[3] Batten, Frederick: Lancet, London, 1912, i, 80.

[4] Batten, Frederick: Clin. Jour., 1913, xlii, 5.

THE POSITIVE CAST

The time required for the negative cast to dry is from twelve to twenty-four hours; after it has thoroughly dried the positive cast may be made. The inner side of the negative cast is well oiled; a bamboo cane or small stick of wood of adequate strength to support the positive cast and several inches longer than the negative cast is placed down the center. The plaster-of-Paris is now mixed in the usual manner, poured into the cast and allowed to stand for about twelve hours. An incision is made through the single layer of plaster bandage, the cut edges of the negative cast separated and the positive cast removed. The positive cast is now ready for the molding of the splint.

THE MOLDING OF THE SPLINT ON THE POSITIVE CAST

As previously stated, to build the splint on the positive cast is not a difficult process and may be done equally well by the physician or nurse. The various articles required are as follows: stockinet or thin felt, gauze or book-muslin, solution of celluloid in acetone ("Gauvain's solution"—11 ounces of celluloid to 160 ounces of acetone, to which is added 3 ounces of calcium chlorid dissolved in 2 ounces of hot water, which should be added to the celluloid solution while still hot and well shaken), celluloid varnish (cellulose triacetate one part, acetone five parts), some leather for binding the splint and some boot-hooks.

METHOD

A layer of stockinet or felt is sewn over the positive cast. Over this is placed a layer of gauze or book-muslin, so cut as to conform to the shape of the cast. On this is painted a coat of the celluloid solution; another layer of gauze is applied, on which is painted another coat of celluloid solution; this process is repeated until from twelve to eighteen coats of celluloid solution are painted on as many layers of gauze, the number varying with the age of the patient and the character of the part to be splinted. Sufficient time should be allowed between the application of the successive coats of celluloid for the previous coat to dry. A few extra layers should be applied about the knee and ankle. After the final coat has dried a layer of celluloid varnish is applied. Two incisions are now made about ½ inch apart and a strip of the splint removed at the point at which the opening is to be made. This permits of the removal of the positive cast from the interior of the splint. The splint is now ready to be fitted to the patient. It should fit perfectly, assuming that the cast was well made. It is usually necessary to cut away a small amount of the splint around the knee and ankle in order to facilitate its removal and reapplication.

After the fitting process is completed, the edges of the splint are bound with leather and boot-hooks are inserted. It is now ready for wear. The splint should be worn next to the skin as a stocking inside will force it out of place. It should be applied while the patient is still in bed, laced on and worn day and night, being removed twice a day for massage and passive movements. If it causes discomfort by undue pressure at any point, it should be stretched and manipulated so as to relieve the pressure. If relief cannot be obtained in this manner, some of the splint should be cut away rather than to put wool or leather inside the splint to relieve the pressure.

It is desirable that the patient be up and walking as soon as possible after the onset of the disease. Aided by the splints the average patient can walk at the end of the first month, without liability to deformity. A walking apparatus is usually necessary at first but many patients regain strength so rapidly that they are soon able to walk alone. A slipper or shoe should be fitted and worn over the splint, as walking is thereby made easier. Some patients with poliomyelitis recover so rapidly that the splints are no longer needed after a few months, while others may need to wear them even up to two years. If walking is not possible without support at the end of this time, a metal brace should be applied when the splints are discarded. In some cases of this disease there is never sufficient restoration to enable the patient to walk without some support. In those cases a metal brace will answer better after the splints have served their purpose.

CONCLUSIONS

Many patients with poliomyelitis are permanently disabled because of deformities. Celluloid splints prevent the deformities and aid in the recovery of the paralyzed muscles. They render the same aid in many other forms of paralysis and by affording support they give much comfort and greatly increase the efficiency of the patient with a Charcot joint and in extreme cases of hypotonia of tabes.

937 Rialto Building.

ANAPHYLAXIS FOLLOWING SKIN-GRAFTING FOR BURNS

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LA GRANDE, ORE.

The case herewith reported is of interest, partly because perfect recovery followed, notwithstanding the extent of the burn and its systemic effects, and partly for the occurrence of certain phenomena analogous to if not identical with anaphylaxis. To quote Auer,[1] "While the investigator should be alert to note resemblances of reaction in the different species, he should be still more alert to discover new types of reaction." So far as I am aware there has been no effort to identify the reaction accompanying repeated skin-grafting over large areas with that of anaphylaxis, yet it seems clear that they are closely related if not identical, as the following case indicates:

History.—G. H., man, aged 25, driver, gave no evidence or history of constitutional disease of any kind. On the night of Nov. 14, 1910, he was burned by the explosion of a kerosene lamp. When seen by me shortly after the accident he was suffering acutely and presented burns from head to the knees with the charred night-clothes adherent to the flesh. The areas burned were: face, scorched but not blistered; neck, blistered and skin above right clavicle destroyed over an area of several square inches; right shoulder burned to third degree; right arm burned to third degree over two thirds its surface; right forearm burned to a blister; both hands badly blistered; all the right side and nearly half of the left side of the thorax burned badly, nearly all to third degree; about one-third of the entire back blistered, about one-third to the third degree; abdomen and groin on the right side burned to third degree, on left side, scorched; right hip blistered; right thigh, third degree burn over its inner aspect; external genitals completely blistered; left thigh, third degree burn over one-fourth inner surface; extensive areas burned to large blisters over both thighs; knees, legs and feet free. I estimated that fully half of the surface of the body was affected.

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[1] Auer, J., in Forchheimer's Therapeusis, v.

Treatment.—Temporary dressings with moist compresses of sodium bicarbonate were applied and an opiate given. Next day Nietsche's oil varnish was applied: lead oxid 1 part, linseed oil (boiled) 25 parts, salicylic acid 5 parts. The diet, for one month, was restricted to fluids. High rectal enemas were given once or twice daily. Digitalis and strychnin were given when the pulse indicated it. Skin-grafting was begun as early as the local condition warranted, skin being employed from the patient's brother, and later from friends and neighbors. In all grafting was done at twenty-two sittings and skin was furnished by seventeen different persons. The dates of the earlier grafts are as follows: November 26, 30, December 5, 9, 10, 11, 12, 13, 14, 15, 17. These earlier grafts took readily and throve but just about the last date mentioned trouble began. An area about 6 inches square was grafted and did not take; then some of the old grafts began to "melt." Succeeding grafts also failed. Over a large area of the left thigh and back where no grafting had been done but autogenous epitheliation had progressed well, the tissue "mushed" and oozed blood badly. Hematuria appeared and lasted two days, and the heart impulse became irregular and weak. An examination of the blood, stained with eosin and methylene blue, showed distinct purplish granules in the red cells in enormous numbers. No blood-count was made, but there appeared to be a diminution per field in the white cells.

Having in mind some previous experiences with surgical wounds reopening coincidently with malarial attacks, I administered quinin for a few days although I could elicit no history of malaria. The patient's temperature rose irregularly in spite of rectal irrigations and laxatives till it reached 102, and 103 F. Pulse was 100 and regular.

Urine examination was negative for pus and albumin. Once or twice soon after the blood disappeared from the urine, the cold nitric acid test elicited the secondary ring, which disappeared on warming.

Egg grafts were next tried (December 24), and at first took well. The first was applied to the groin, and scarlet red used to stimulate a take. This I used in 8 per cent. ointment with boric acid or dusted in pure powder on the grafts and wound margins with the best results throughout the remainder of the case, and I attribute the good result attained partly to its use.

Egg grafts were repeated December 27, 28 and 31, January 2 (when the temperature rose to 100.3) and also January 7, 9 and 15. January 23 I ventured again to use a human graft, this from the patient's sister. A temporary take occurred but did not thrive well enough to offer much encouragement. The only human graft which throve thereafter was a very small one from the patient's mother. The egg-grafts failed after the first few times and thenceforth I relied mainly on scarlet red and the patient's own powers of epithelization. It was remarked both by the patient and myself that the application of the later egg-grafts caused very profuse secretion which fairly floated them off at the end of forty-eight hours, however carefully applied, and simultaneously the patient's own epithelium appeared to be stimulated to unusual proliferation.

It might be inquired why I made the attempt to skin-graft a score of small areas rather than a few large ones. I did so partly because not all the areas were in suitable condition at once and also because none of the patient's friends could afford to be laid up, but there were many who would give a little skin under local anesthesia with ethyl chlorid. Further, when the early successful grafting was interrupted by sudden and prolonged failure and disaster described above, I feared to continue except tentatively and on a small scale. In the light of present knowledge of anaphylaxis it is probably advisable to do the grafting in as few operations as possible and conclude the work within a few days. This, too, in the case of extensive burns may be dangerous to the patient. The problem, in fact, is one of great difficulty. Desensitization seems to be possible experimentally and may become so practically. There is still much to be learned in the realm of anaphylactic reaction before we can solve the problems that face us.

One important feature of sensitization is that it may be inherited, Rosenau and Anderson having shown in 1906 that the female guinea-pig may transmit her acquired susceptibility to her young. I know of no evidence that this holds in case of the male parent.

The anaphylactic reaction is more accentuated in proportion as the species concerned are widely separated biologically. Thus Rosenau and Anderson report that guinea-pigs sensitized with egg-white from the hen react to a later injection of the white from a duck's egg, but the reaction is less marked than when horse-serum is used. Further, the discovery of organ specificity by Wolff-Eisner in 1904 opens new difficulties. He found that the guinea-pig may be sensitized by an extract of the lens of its own eye and will react later to an injection of extract of the lens of the other eye, while organ-extracts from other animals easily sensitize.

In the case here reported it is to be noted that not only did two sets of foreign tissue successively lose their power to be transplanted, but also in each case caused distinct reaction in the patient. Yet at the same time, grafts from the patient's sister took to a degree and one from the mother perfectly. One may infer that consanguinity has a favorable influence.

The active immunity acquired in the course of an infectious disease or through the administration of specific vaccines possibly affect the blood so as to permanently influence the reaction of the body toward foreign proteins. Purpura hemorrhagica following an acute infective fever may perhaps be a manifestation of anaphylaxis. In 1901 I reported[2] such a case of purpura of severe type following an attack of lobar pneumonia in a child aged 4. In that case the pneumonia began February 6 with a definite crisis on the tenth day followed by convalescence. The purpura began March 2 without fever or any symptom of a new infection or recrudescence of the old one. The temperature by March 12 had risen to 101 F., and the blood showed marked evidence of hemolysis. The hemorrhages were profuse and prolonged, involving both the skin and mucous membranes. Was the purpura a secondary infection, or a slowly developing lack of prothrombin or other essential blood-clotting element of the blood, or was it some sort of anaphylactic reaction? My experience thus far leaves me in doubt. One practical lesson from the burn case herewith reported would seem to be that scarlet red and stimulation of the epithelium of the individual are of prime importance.

The patient was under constant care for nine months, but to my gratitude and somewhat to my surprise made a perfect recovery without contractions or impaired motion and no appreciable scars.

Necessity for Vital Statistics.—Sound vital statistics are the fundamental basis of all public health work, and should be the fundamental basis of public health laws. A nation that does not provide for accurately registering the births of its children and the deaths of its citizens, places a low value on human life, and could hardly be supposed to attach much importance to the conservation of human life.—W. F. King, M.D., in *Jour. Indiana State Med. Assn.*

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[2] Underwood, H. L.: Am. Med., Oct. 19, 1901.

Special Article

TWELFTH ANNUAL SUMMARY OF FOURTH OF JULY INJURIES

This week, for the twelfth consecutive year, The Journal presents statistics of deaths and injuries resulting from the celebration of the Fourth of July, with particular reference to tetanus, or lockjaw resulting from these injuries. With the rapid decline in the number of casualties in the last few years, instead or relaxing its vigilance, The Journal has made extra effort to secure complete and accurate data. As usual during the last few years, a large majority of the blanks were returned from the hospitals with the statement that no cases were treated. From others only a few names were reported, whereas in previous years several pages were required to contain the lists.

TABLE 1.—CASES OF TETANUS

Name	Sex	Age	Cause of Wound	Site of Wound	Duration in Days*	Day Antitoxin was used	Termination
			KENTUCKY				
Wollborn........	M	13	Bl. ctg.	Hand	(7) 10	9	Death
			MINNESOTA				
Peck.............	M	14	Firearms	Knee	....	....	Death
			NEW JERSEY				
Jarvis...........	M	10	Bl. ctg.	Hand	(6) 8	....	Death

* Figures in parentheses show incubation period.

TABLE 2.—TETANUS CASES BY STATES
Comparison with Previous Years

	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Alabama..............	..	..	1	..	..	..	..	..	..	..	..	..
Arizona..............	..	..	..	..	1	..	..	..	..	..	..	..
California...........	2	4	4	3	1	..	2	1	2	1	..	..
Colorado.............	4	..	1	..	..	..	..	..	..	..	..	..
Connecticut..........	3	..	3	..	4	1	..	..	..	..	..	..
Delaware.............	..	..	1	1	1	..	2	..	..	..	..	..
District of Columbia...	1	..	..	..	..	..	..	..	..	..	..	..
Florida..............	..	..	..	..	..	..	1	..	..	..	..	..
Georgia..............	..	..	..	..	1	..	..	..	..	..	..	..
Idaho................	1	..	..	..	..	..	1	..	..	..	..	..
Illinois.............	49	15	20	16	12	12	20	10	3	..	..	..
Indiana..............	11	6	3	8	2	..	9	6	..	1	1	..
Iowa.................	14	2	3	4	4	1	1	1	1	..	..	..
Kansas...............	11	1	..	..	2	1	6	..	..	..	1	..
Kentucky.............	4	2	..	1	..	1	1	..	..	..	..	1
Louisiana............	..	..	..	..	..	..	..	..	..	..	..	..
Maine................	2	4	1	1	..	1	1	1	..	..	..	..
Maryland.............	1	..	1	1	..	..	2	1	..	..	..	..
Massachusetts........	16	5	7	3	2	5	8	..	1	1	..	..
Michigan.............	29	7	9	4	4	2	11	11	2	1	..	..
Minnesota............	15	2	2	2	2	..	..	..	..	..	..	1
Missouri.............	29	1	3	3	1	5	8	2	..	..	..	..
Montana..............	2	1	1	..	1	..	3	2	..	..	..	..
Nebraska.............	4	3	3	1	..	1	3	1	..	..	..	..
New Hampshire........	2	..	..	1	..	..	1	..	..	..	..	..
New Jersey...........	8	9	3	10	8	10	19	9	2	..	..	1
New York.............	36	9	6	8	4	9	11	7	1	..	2	..
North Dakota.........	..	..	..	..	..	..	..	..	..	..	..	..
Ohio.................	67	9	5	7	6	7	12	3	3	..	..	..
Oklahoma.............	1	..	1	1	..	1	..	1	..	1	..	..
Oregon...............	2	..	..	1	1	1	..	..	..	..	..	..
Pennsylvania.........	82	17	12	5	7	7	10	11	1	..	..	..
Rhode Island.........	3	..	..	1	..	..	..	..	..	..	..	..
South Carolina.......	..	..	..	..	..	..	..	..	..	..	..	..
South Dakota.........	..	..	..	..	..	1	1	..	..	..	..	..
Tennessee............	..	..	..	..	..	..	..	..	..	..	..	..
Texas................	..	..	..	..	2	..	..	..	..	..	..	..
Utah.................	..	1	1	..	..	..	..	1	..	..	..	..
Vermont..............	3	2	..	2	2	..	..	..	..	..	..	..
Washington...........	2	1	..	..	2	4	4	1	..	..	..	..
West Virginia........	3	..	..	2	..	1	4	..	..	2	..	..
Wisconsin............	10	4	13	2	3	5	9	3	2	..	..	..
Wyoming..............	..	..	..	1	..	..	..	..	..	..	..	..
Total................	417	105	104	89	73	76	150	72	18	7	4	3
States having cases...	30	21	23	25	23	20	25	18	10	6	3	3

Our thanks are extended to health officers, hospital superintendents, physicians and others for the careful reports which have made these statistics practically complete and the figures fairly reliable. The data are presented in the same manner as heretofore so that the comparison with the figures of previous years may be made.

FEWER CASES OF LOCKJAW

Only three cases of tetanus were reported this year as compared with four cases last year, seven cases in 1912, eighteen in 1911, seventy-two in 1910 and 150 in 1909. The returns this year are quite encouraging and give hope that deaths from this needless cause will soon cease.

The ages of the three lockjaw patients this year were 14, 13 and 10 years, respectively, and all were boys. In two cases the injury was on the hand and in the other on the knee. The length of time between injury and death was eight days in one and ten days in another. In the third case the dates were not given by which the time could be computed. The figures in parentheses (Table 1) give the number of days between the time of injury and the appearance of the active symptoms of tetanus, this being in six and seven days, respectively. Antitoxin was used in one case but not until the day after the active symptoms had appeared, which is usually too late. The list of tetanus cases is given in Table 1.

TABLE 3.—RATIO OF TETANUS CASES TO BLANK CARTRIDGE INJURIES

Year	Tetanus Cases	Blank Cartridge Injuries	Ratio
1903......................	417	1,672	1 : 4.27
1904......................	105	905	1 : 8.62
1905......................	104	809	1 : 7.78
1906......................	89	979	1 :11.00
1907......................	73	606	1 : 8.16
1908......................	76	942	1 :12.39
1909......................	150	1,225	1 : 8.17
1910......................	72	450	1 : 6.25
1911......................	18	185	1 :10.28
1912......................	7	75	1 :10.71
1913......................	4	97	1 :24.25
1914......................	3	122	1 :40.67
Totals................	1,118	8,067	1 : 7.22

TABLE 4.—CAUSES OF TETANUS CASES

Year	Blank Cartridge	Giant Cracker	Cannon	Firearms	Powder, etc.	Total
1903..............	363	17	5	3	29	417
1904..............	74	18	5	1	7	105
1905..............	65	17	4	5	13	104
1906..............	54	17	1	7	10	89
1907..............	52	8	6	4	3	73
1908..............	58	5	4	3	6	76
1909..............	130	9	1	4	6	150
1910..............	64	2	..	5	1	72
1911..............	15	1	1	..	1	18
1912..............	7	..	..	..	..	7
1913..............	4	..	..	..	..	4
1914..............	2	..	..	1	..	3

DISTRIBUTION OF TETANUS

The tetanus cases by states are shown in Table 2. Cases occurred in only three states this year, no case being in any of the states which reported cases last year. There were cases in six states in 1912, ten states in 1911, eighteen states in 1910 and twenty-five states in 1909. One case each occurred in Kentucky, Minnesota and New Jersey. The clearing up of deaths from this cause in the last few years as shown by Table 2 is really marvelous.

THE DEADLY BLANK CARTRIDGE

Blank-cartridge wounds, which have always been responsible for a large majority of tetanus cases, this year caused two of the three cases, the other case resulting from a gunshot wound.

TABLE 5.—CASES OF TETANUS FROM OTHER CAUSES

	1908	1909	1910	1911	1912	1913	1914
Alabama	..	..	1	1	..	..	..
Arizona	..	..	..	..	..	1	..
Arkansas	2	..	..	..	..	..	..
California	4	4	1	2	7	10	..
Colorado	3	..	..	1	..	..	..
Connecticut	2	2	..	..	..	..	..
Delaware	2	1	..	..	..	..	..
District of Columbia	..	..	..	..	..	..	..
Florida	2	..	..	..	..	..	..
Georgia	..	1	..	..	..	..	..
Idaho	..	..	..	..	..	..	..
Illinois	17	18	7	6	10	7	..
Indiana	6	4	1	2	1	3	1
Iowa	2	7	3	1	..	2	1
Kansas	4	..	1	..	..	..	..
Kentucky	5	5	..	1	2	..	3
Louisiana	1	..	..	1	3	3	..
Maine	..	..	..	..	..	..	..
Maryland	3	..	2	1	1	..	..
Massachusetts	3	5	..	..	..	..	..
Michigan	4	5	1	..	..	..	1
Minnesota	4	2	..	..	..	..	..
Mississippi	..	..	..	..	..	..	..
Missouri	12	5	1	2	3	..	..
Montana	..	..	..	..	..	..	..
Nebraska	..	3	1	1	1	..	..
Nevada	..	..	..	..	..	..	..
New Hampshire	..	..	..	..	..	..	..
New Jersey	7	8	8	1	..	..	3
New Mexico	..	1	..	..	..	..	..
New York	17	12	4	2	4	..	2
North Carolina	1	..	..	..	..	1	..
North Dakota	1	..	..	..	..	..	..
Ohio	23	13	2	..	2	1	3
Oklahoma	..	..	..	..	..	..	..
Oregon	..	1	3	..	2	..	..
Pennsylvania	21	21	8	6	4	1	2
Rhode Island	..	1	..	..	..	..	..
South Carolina	..	..	..	..	..	..	..
South Dakota	2	2	..	..	..	..	..
Tennessee	3	..	..	..	1	1	..
Texas	4	1	1	..	..	..	..
Utah	..	..	..	..	..	..	..
Vermont	..	..	1	..	..	..	..
Virginia	4	1	..	1	2	1	..
Washington	2	..	..	..	1	..	..
West Virginia	..	1	..	..	..	..	..
Wisconsin	5	4	1	..	..	1	..
Wyoming	..	..	..	..	..	..	..
Totals	166	128	47	29	44	32	16
States reporting cases	29	25	18	15	15	12	8

As may be noted, on comparison of the statistics of this year with those of previous years (Table 3), there is a significant ratio each year between the number of tetanus cases and the number of blank-cartridge wounds. The large increase of injuries from this cause in 1909 resulted in a corresponding increase in the number of cases of tetanus. A reduced number of blank-cartridge wounds almost invariably brings also a smaller number of lockjaw cases. The smaller number of tetanus cases in recent years in proportion to the blank-cartridge injuries is doubtless due to the greater care in treating wounds from this cause and the more common and prompt use of tetanus antitoxin.

TETANUS FROM INJURIES NOT CAUSED BY FIREWORKS

Besides the cases of lockjaw due directly to the use of fireworks, it is interesting to note those occurring during Fourth of July season which were due to penetrating wounds from other causes, such as nails, splinters, crushing injuries, etc. There was a continued reduction in these cases this year, only sixteen cases being reported as compared with thirty-two cases last year. Tetanus germs were perhaps as prevalent as in previous years, the reduced number of cases from these other causes being likewise due doubtless to the more common use of tetanus antitoxin.

OTHER DEATHS AND INJURIES FROM FIREWORKS

Besides the three deaths due to tetanus, thirty-seven persons were killed by various forms of fireworks, making a total of forty deaths, or eight more than last year, one less than in 1912, seventeen less than in 1911 and ninety-one less than in 1910. Although the number is low compared with previous years, still the increase over last year indicates a possible relaxation in the enforcement of the restrictions of last year. This year five persons were killed outright by firearms, six by explosions of powder, bombs or torpedoes, four by cannon and five from blood-poisoning, from rockets, or other forms of fireworks. The most serious fact presented this year is that sixteen persons, mostly little girls or small children, were burned to death by fire from fireworks, three of these being reported as due to supposedly harmless sparklers!

As heretofore, all accidents not due directly to the discharge or handling of fireworks or other means of noise production and display on or about the Fourth of July have been omitted. Table 6 shows a comparison of the causes of death aside from tetanus for the past ten years.

DISTRIBUTION OF INJURIES

In Table 7 a summary of all injuries, including tetanus, and of all causes, is given arranged by states. Beneath the totals at the bottom are given, for comparison, the totals for the eleven previous years and the grand totals for the twelve years. Table 8 permits the comparison by states of the total deaths and injuries for eleven years. The number of casualties this year was 1,506, *an increase* of 343 over last year and *an increase* of 518 of the casualties reported for 1912. This increase is seen in the majority of states. Pennsylvania had 487 casualties this year, a decrease of only 4 cases below last year but an increase of 222 cases over the number reported in 1912. New York had 250 casualties, or almost double the number reported last year. Illinois reported 95 cases this year, which is more than twice as many as last year, although it is still a great reduction below the enormous totals annually reported prior to 1912. Massachusetts and Connecticut reported, respectively, 87

TABLE 6.—CAUSES OF DEATHS NOT DUE TO TETANUS

Year	Gun-shot	Fire from Fire-works	Powder, Tor-pedoes, etc.	Giant Crack-ers	Can-non	Other Causes	Total
1905	37	23	6	5	7	17	95
1906	38	18	18	3	3	3	83
1907	20	31	13	13	3	22	102
1908	30	22	19	23	7	7	108
1909	17	37	16	7	7	6	90
1910	19	26	11	2	3	3	64
1911	11	12	9	2	5	8	47
1912	9	8	7	2	2	7	35
1913	8	13	6	..	1	1	29
1914	5	16	6	1	4	5	37
Totals	194	206	111	58	42	79	690

and 77 cases this year, the largest totals in those states since 1910. The figures for the last three years are very small compared with the previous years for California, Indiana, Iowa, Missouri, New Jersey, Ohio and Wisconsin. Continued reductions are seen this year only in Missouri, Nebraska, Ohio and Washington. Pennsylvania still leads in having by far the largest number of casualties. Meanwhile, of the 487 casualties in Pennsylvania, 241 (about half) were reported from Philadelphia this year as compared with 340 in that city in 1913.

NATURE OF NON-FATAL INJURIES

There were 1,466 non-fatal injuries this year, or 335 more than last year and 519 more than 1912. Three persons were totally blinded this year, thirteen lost one eye each, sixteen lost legs, arms or hands, and sixty-seven lost one or more fingers. As there has been a considerable increase in the total number of non-fatal injuries, so have the totals of these more severe injuries been increased. This year 402 injuries were due to the giant firecracker, which continues to hold the first place as a cause of lacerated wounds and was responsible for most of the losses of eyes, hands, and fingers. A surprisingly increased number of injuries were caused by firearms this year, 231 cases being reported including five deaths. As usual, many of these injuries were caused by stray bullets from the reckless use of firearms by other persons. The use of cannon, including many of the improvised

TABLE 7.—SUMMARY BY STATES OF FOURTH OF JULY CASUALTIES

Marginal Number	States	Deaths			Injuries						Total Persons Dead or Injured	Causes of Tetanus Cases		Causes of all Cases Aside from Tetanus Cases					Marginal Number
		From Tetanus	From Other Causes	Total	Loss of Sight	Loss of One Eye	Loss of Legs, Arms or Hands	Loss of Fingers, One or More	Other Injuries	Total Non-Fatal Injuries		Blank Cartridge	All Other Causes	Blank Cartridge	Firecracker	Cannon	Firearms	Powder and Fireworks	
1	Alabama																		1
2	Arizona		1	1					1	1	2				1			1	2
3	Arkansas					2	1	2	19	24	24			1	10	3	4	6	3
4	California								3	3	3				2			1	4
5	Colorado							4	73	77	77			21	8	13	14	21	5
6	Connecticut								8	8	8				6		1	1	6
7	Delaware						1			1	1							1	7
8	District of Columbia																		8
9	Florida																		9
10	Georgia							1		1	1						1		10
11	Idaho																		11
12	Illinois		6	6		2		7	80	89	95			7	27	10	11	40	12
13	Indiana		2	2				2	58	60	62			1	19	3	11	28	13
14	Iowa		2	2				1	24	25	27				16	2		9	14
15	Kansas				1				6	7	7				1	4	2		15
16	Kentucky	1		1				2	8	10	11	1			4		3	3	16
17	Louisiana								4	4	4				2		1	1	17
18	Maine								6	6	6				2	1		3	18
19	Maryland							1	9	10	10				2	3	4	1	19
20	Massachusetts		2	2			3	2	80	85	87			6	27	4	7	43	20
21	Michigan		1	1	1	2		6	62	71	72				29	9	3	31	21
22	Minnesota	1		1		1		1	9	11	12		1	3	2		1	5	22
23	Mississippi																		23
24	Missouri		1	1			1	4	47	52	53				19	3	14	17	24
25	Montana							1		1	1							1	25
26	Nebraska								10	10	10				5	1	2	2	26
27	Nevada																		27
28	New Hampshire								15	15	15			1	5	3	2	4	28
29	New Jersey	1		1		1	2	2	49	54	55	1		5	4	4	19	22	29
30	New Mexico																		30
31	New York		6	6		3	2	11	228	244	250			39	65	23	63	60	31
32	North Carolina																		32
33	North Dakota																		33
34	Ohio		1	1				4	40	44	45				19	6	6	14	34
35	Oklahoma		1	1					3	3	4				1		2	1	35
36	Oregon								5	5	5				1			4	36
37	Pennsylvania		9	9	1	1	5	15	456	478	487			29	103	44	43	263	37
38	Rhode Island		1	1					24	24	25			6	5	2	5	7	38
39	South Carolina																		39
40	South Dakota								1	1	1							1	40
41	Tennessee								1	1	1						1		41
42	Texas																		42
43	Utah						1			1	1							1	43
44	Vermont								3	3	3			1			2		44
45	Virginia					1		1	3	5	5			1		1	1	2	45
46	Washington		2	2					3	3	5			1	2		1	1	46
47	West Virginia								8	8	8				2	4	1	1	47
48	Wisconsin		2	2					21	21	23				13		1	9	48
49	Wyoming																		49
50	1914 totals	3	37	40	3	13	16	67	1,367	1,466	1,506	2	1	122	402	143	231	605	50
51	1913 totals	3	29	32	2	22	10	46	1,051	1,131	1,163	4	0	97	312	62	169	519	51
52	1912 totals	6	35	41	8	21	13	43	862	947	988	7	0	70	362	75	157	317	52
53	1911 totals	10	47	57	8	26	30	83	1,399	1,546	1,603	15	3	170	484	114	184	633	53
54	1910 totals	67	64	131	7	33	26	114	2,612	2,792	2,923	64	8	386	1,050	212	229	974	54
55	1909 totals	125	90	215	16	36	41	176	4,823	5,092	5,307	130	20	1,095	1,614	427	341	1,680	55
56	1908 totals	55	108	163	11	93	57	184	5,115	5,460	5,623	58	18	816	1,793	399	481	2,058	56
57	1907 totals	62	102	164	12	75	57	237	3,868	4,249	4,413	52	21	554	1,489	267	502	1,528	57
58	1906 totals	75	83	158	22	72	56	227	4,931	5,308	5,466	54	35	925	1,690	408	532	1,822	58
59	1905 totals	87	95	182	25	106	80	221	4,562	4,994	5,176	65	39	744	1,775	474	404	1,675	59
60	1904 totals	91	92	183	19	61	61	208	3,637	3,986	4,169	74	25*	831	1,268	508	406	1,057	60
61	1903 totals	406	60	466	10	75	54	174	3,670	3,983	4,449	363	29†	1,309	1,152	397	236	363	61
	Total for twelve years	990	842	1,832	143	633	501	1,780	37,897	40,954	42,786	888	199	7,119	13,391	3,486	3,872	13,831	

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* Kind of fireworks causing six tetanus cases unknown.

† Kind of fireworks causing 24 cases of tetanus unknown.

variety, resulted in 143 injuries this year, including four killed. In the twelve years, a total of 42,786 persons—the equivalent of over forty regiments—were killed or injured in the celebration of the Fourth of July.

TOTALS IN CHIEF CITIES

Table 9 shows the number reported killed and injured in our largest cities each year and the totals for the past eight years. The cities are arranged according to their population as given by the United States census in 1910. This table is of particular interest, since the results in each city in which prohibitive or restrictive ordinances have been adopted can be seen. Prohibitive ordinances were enforced in Baltimore, Boston, Chicago, Cleveland, Minneapolis, Newark, St. Paul, Toledo, Trenton, Washington and elsewhere. Restrictive measures were used in New York, St. Louis, Pittsburgh, Buffalo and elsewhere. Philadelphia reported four deaths this year, Chicago reported three, Buffalo reported two, and one each was reported for New York, St. Louis, Pittsburgh, Newark, N. J., Scranton, Pa., Springfield, Mass., Tacoma, Wash., Duluth, Minn., and Peoria, Ill., making a total of eighteen deaths in twelve of our eighty-four largest cities, as compared with seven killed last year, twelve in 1912, sixteen in 1911, forty-three in 1910 and eighty in 1909. For the last four years Philadelphia has been the only large city having more than 100 injuries, having reported 237 this year, a decrease of 103 below last year. Altogether 681 non-fatal injuries were reported for these large cities this year, as compared with 854 last year, 522 in 1912, 774 in 1911, 1,457 in 1910 and 2,936 in 1909. A slight increase over last year is seen in the records of some of these cities, although others, notably St. Louis, Boston, Baltimore, Pittsburgh, Buffalo, Milwaukee and others, have brought the returns considerably below last year's record. Of these eighty-four cities, twenty-three have a record of six or more injured, two less than last year, and twenty-four less than 1909. Twenty-four of these cities had a clean record this year, as compared with thirty-one last year, thirty in 1912, twenty-four in 1911, and eighteen in 1910. Probably the most marked reduction in the number of injured in the last few years have been in Chicago, St. Louis, Boston, Pittsburgh, Milwaukee and Newark. From Newark no casualties were reported in 1912 and 1913 and only two this year, a decided contrast to the record of 1909, when 150 were injured and one person was killed. It is noteworthy that nearly half of all casualties this year were in sixty-two of these larger cities.

TABLE 8.—TOTAL DEATHS AND ACCIDENTS BY STATES DURING ELEVEN YEARS

	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Alabama	7	1	2	1	1	1	3	3	...	1	...
Arizona	...	4	5	2	5	3	...	2	2	...	2
Arkansas	...	3	4	...	5	1	4	1	1	...	...
California	138	142	96	121	136	89	63	43	31	23	24
Colorado	44	26	23	25	13	18	19	6	21	1	3
Connecticut	133	132	169	63	105	86	78	15	30	50	77
Delaware	5	14	8	16	12	13	8	3	6	6	8
Dist. of Columbia	10	24	5	12	21	...	...	...	2	1	1
Florida	2	2	...	...	...	1	4	...	...	...	...
Georgia	...	...	4	2	4	...	5	10	28	4	...
Idaho	4	3	3	4	4	2	3	1	2	...	1
Illinois	423	542	598	468	558	546	285	218	39	47	95
Indiana	211	217	250	...	255	164	167	53	43	10	62
Iowa	137	328	255	231	174	91	141	54	24	22	27
Kansas	88	56	61	64	72	86	50	25	8	5	7
Kentucky	72	17	21	18	33	17	26	6	5	2	11
Louisiana	2	3	7	8	4	...	4	2	2	4	4
Maine	32	29	15	11	16	22	7	4	...	6	6
Maryland	22	13	10	23	21	10	8	13	11	15	10
Massachusetts	193	467	329	168	430	430	63	27	45	43	87
Michigan	157	288	193	163	203	177	143	69	50	21	72
Minnesota	102	174	95	95	65	69	64	17	17	6	12
Mississippi	...	...	2	2	1	...	...	1	1	...	...
Missouri	84	218	325	299	375	352	112	60	57	83	53
Montana	17	40	3	6	11	9	10	...	6	...	1
Nebraska	63	43	47	58	46	42	36	17	12	17	10
Nevada	1	2	...	1	4	...	1	...	...	...	...
New Hampshire	23	9	29	13	13	23	10	2	3	3	15
New Jersey	204	350	398	402	472	488	167	43	16	21	55
New Mexico	4	5	1	6	...	1	3	...	...	3	...
New York	549	566	681	752	647	897	327	237	115	144	250
North Carolina	...	1	1	...	...	...	1	5	...	...	...
North Dakota	8	29	11	8	13	4	13	1	2	...	...
Ohio	327	329	490	375	543	323	166	105	55	70	45
Oklahoma	3	7	14	194	9	12	11	9	11	1	4
Oregon	13	9	11	5	9	21	19	3	5	4	5
Pennsylvania	744	721	969	491	987	986	623	442	265	491	487
Rhode Island	30	11	21	39	39	42	19	11	2	21	25
South Carolina	...	...	1	...	...	4	...	1	...	...	...
South Dakota	10	15	5	8	10	9	4	2	...	...	1
Tennessee	1	5	6	4	5	4	10	3	12	3	1
Texas	2	4	11	7	11	4	2	...	3	2	...
Utah	22	25	18	30	12	18	8	2	1	1	1
Vermont	14	10	14	18	19	12	4	4	1	...	3
Virginia	11	5	8	...	5	...	...	3	1	...	5
Washington	25	15	25	23	38	32	37	22	12	13	5
West Virginia	16	34	64	27	29	35	20	2	2	3	8
Wisconsin	215	230	155	150	187	157	171	52	38	16	23
Wyoming	2	8	3	...	1	1	4	4	1	...	...
Totals	4169	5176	5466	4413	5623	5307	2923	1603	988	1163	1506

WHERE THE RESPONSIBILITY RESTS

As has been repeatedly stated in these annual reports, for the great majority of Fourth of July injuries, *the responsibility clearly rests with city governments*, since the employment of death-dealing methods of celebration is subject to their regulation. It is clearly the duty of city authorities, therefore, to decide whether or not the maiming of hundreds, the agonizing deaths from lockjaw and the burning to death of little children by fire from fireworks are to be continued. Rigidly enforced prohibitive ordinances in sixty-two of our largest cities, therefore, would do much toward doing away with this national disgrace. Prohibitive ordinances are most effective and permanent, as shown by the results in Baltimore, Cleveland, Newark, Trenton, Chicago, Washington and elsewhere, and even restrictive ordinances, if they could be rigidly enforced, would have good results. But the enforcement of restrictive measures is difficult and requires constant vigilance on the part of the police. By the sound it is difficult to know whether an explosion is due to a firecracker 3 inches long or to one 5 inches long, or whether it is due to some other forbidden form of fireworks. Again, restrictive ordinances are usually looked on as half-way measures and are not expected to be enforced. Not so prohibitive ordinances, however, under which any explosion is recognized at once as a violation of the law. Again, ordinances which are merely restrictive are ineffectual since the smaller firecracker and sparklers which have been considered so harmless caused the fires this year by which sixteen children, mostly little girls, were burned to death.

CONCLUSIONS

In spite of the slightly reduced number of tetanus cases this year the returns are somewhat discouraging. The increased number of killed and injured indicates a relaxation in the enforcement of the ordinances which were so ably enforced two years ago. Instead of a relaxation of restrictive measures, the use of fireworks in the celebration of the Fourth of July should be strictly prohibited. To kill outright forty persons and to wound and maim 1,466 others is not a very fitting token of our thankfulness for the

Declaration of Independence, signed over a hundred years ago! Is it not rather an acknowledgment that in this country rowdyism cannot be restrained, or that the only way we can show our patriotism is by riot and murder? The results of two years ago show plainly that these evils can be entirely done away with. It is hoped that city officials will continue their prohibitive measures until this desirable end is attained.

TABLE 9.—NUMBER REPORTED KILLED AND INJURED IN THE LARGER CITIES DURING EIGHT YEARS

Marginal Number	City	1907		1908		1909		1910		1911		1912		1913		1914		Totals		Marginal Number
		Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	
1	New York City	22	422	11	316	7	559	6	179	3	91	1	58	..	65	1	94	51	1,784	1
2	Chicago	16	151	12	202	..	118	4	62	2	53	2	12	1	12	3	18	40	628	2
3	Philadelphia	7	248	6	426	9	508	4	405	..	294	2	127	3	340	4	237	35	2,585	3
4	St. Louis	3	189	4	229	4	163	..	44	..	38	..	48	..	72	1	43	12	826	4
5	Boston	3	59	6	190	5	167	..	35	..	3	..	16	1	15	..	13	15	498	5
6	Cleveland	3	63	12	93	..	4	..	1	..	5	..	1	..	4	..	1	15	172	6
7	Baltimore	..	5	1	10	..	5	..	6	..	10	..	10	1	12	..	6	2	64	7
8	Pittsburgh	10	88	..	30	5	48	6	26	1	25	1	14	1	46	1	11	25	288	8
9	Detroit	2	46	..	10	2	46	1	17	..	18	2	20	1	3	..	43	8	203	9
10	Buffalo	..	18	3	11	..	33	1	13	..	16	..	6	..	16	2	9	6	122	10
11	San Francisco	..	...	..	11	..	12	..	9	1	8	..	7	..	9	..	4	1	60	11
12	Milwaukee	2	93	..	70	..	78	3	112	1	19	..	24	..	10	..	8	6	414	12
13	Cincinnati	2	89	1	112	3	86	3	49	1	4	..	21	..	26	1	4	11	391	13
14	Newark, N. J	1	129	2	81	1	150	1	15	..	...	..	...	..	...	..	2	5	377	14
15	New Orleans	..	8	..	4	..	...	..	3	..	2	..	2	..	3	..	4	...	26	15
16	Washington, D. C	..	12	..	21	..	...	..	...	..	...	..	2	..	1	..	1	..	37	16
17	Los Angeles, Cal	..	35	..	40	..	26	..	...	..	4	..	5	..	6	..	1	..	117	17
18	Minneapolis, Minn	..	13	..	10	1	24	..	20	..	...	..	...	..	2	..	1	1	70	18
19	Jersey City, N. J	..	31	5	34	1	14	1	44	..	14	..	3	..	...	..	2	7	142	19
29	Kansas City, Mo	1	46	..	55	4	67	1	25	..	4	..	1	..	...	..	...	6	198	20
21	Seattle, Wash	1	3	..	1	3	10	..	7	..	...	..	2	..	2	..	1	4	26	21
22	Indianapolis, Ind	1	31	1	14	1	35	..	24	..	5	..	6	..	1	..	11	3	127	22
23	Providence, R. I	..	20	1	21	..	13	..	10	1	9	..	...	2	17	..	7	4	97	23
24	Louisville, Ky	..	13	..	10	1	10	1	13	..	3	..	2	..	2	..	8	2	61	24
25	Rochester, N. Y	..	12	..	10	..	5	..	10	..	4	..	2	..	4	..	8	..	55	25
26	St. Paul, Minn	..	20	..	13	..	18	..	12	..	10	..	7	..	2	..	4	..	86	26
27	Denver, Colo	..	8	..	13	..	12	1	6	..	2	..	7	..	1	..	1	1	50	27
28	Portland, Ore	..	2	..	3	..	16	..	13	..	1	..	2	..	...	..	...	..	37	28
29	Columbus, Ohio	5	36	..	5	1	19	..	...	..	1	..	1	..	2	..	...	6	64	29
30	Toledo, Ohio	1	5	..	8	2	3	1	2	..	2	1	1	..	7	..	...	5	28	30
31	Atlanta, Ga	1	4	..	3	..	...	..	5	..	10	..	28	..	4	..	...	1	54	31
32	Oakland, Cal	..	9	..	...	..	8	..	9	..	1	..	2	..	...	..	...	..	29	32
33	Worcester, Mass	1	6	2	20	1	42	..	6	..	1	..	10	..	14	..	3	4	102	33
34	Syracuse, N. Y	..	20	..	14	..	13	..	6	..	1	..	4	..	15	..	6	..	79	34
35	New Haven, Conn	..	2	..	...	..	15	..	...	..	1	..	6	..	10	..	11	..	45	35
36	Birmingham, Ala	..	...	..	...	..	...	..	...	..	3	..	...	..	...	..	...	..	3	36
37	Memphis, Tenn	..	1	..	3	..	4	..	2	..	...	..	2	..	1	..	...	..	13	37
38	Scranton, Pa	..	5	1	17	1	29	..	6	..	10	..	...	..	9	1	15	3	91	38
39	Richmond, Va	..	...	..	...	1	1	..	...	..	...	..	...	..	...	..	4	1	5	39
40	Paterson, N. J	1	29	2	31	1	45	1	14	..	5	..	2	..	4	..	...	5	130	40
41	Omaha, Neb	..	25	..	10	1	17	..	17	..	7	1	2	..	16	..	6	2	100	41
42	Fall River, Mass	..	...	..	12	..	19	..	1	..	...	..	1	..	...	..	2	..	35	42
43	Dayton, Ohio	..	11	..	14	..	4	..	2	..	4	..	1	..	...	..	1	..	37	43
44	Grand Rapids, Mich	..	20	1	30	..	3	..	17	1	6	..	9	..	13	..	2	2	100	44
45	Nashville, Tenn	..	2	..	...	..	...	..	8	..	2	..	10	..	2	..	...	..	24	45
46	Lowell, Mass	..	23	..	...	..	18	..	...	1	3	1	...	..	...	..	...	2	44	46
47	Cambridge, Mass	..	...	..	17	..	...	..	...	..	4	..	...	..	...	..	4	..	25	47
48	Spokane, Wash	..	...	..	...	..	...	..	...	..	7	..	4	..	8	..	2	..	21	48
49	Bridgeport, Conn	..	1	..	27	..	21	..	4	..	4	..	1	..	3	..	23	..	84	49
50	Albany, N. Y	1	24	..	37	..	31	..	11	1	5	..	...	..	4	..	1	2	113	50
51	Hartford, Conn	..	13	..	18	..	11	..	14	..	1	..	9	..	27	..	3	..	101	51
52	Trenton, N. J	..	38	1	17	1	58	..	...	..	1	..	...	..	1	..	1	2	116	52
53	New Bedford, Mass	..	...	..	3	..	...	..	...	..	...	..	...	..	...	..	1	..	4	53
54	Reading, Pa	..	17	..	13	..	17	1	3	..	4	..	3	..	21	..	5	1	83	54
55	San Antonio, Tex	..	...	..	1	..	...	..	...	..	...	..	...	..	...	..	...	..	1	55
56	Camden, N. J	..	16	..	29	4	14	..	6	..	...	1	...	..	...	..	1	5	66	56
57	Salt Lake City	..	15	..	6	2	14	1	4	..	...	..	1	..	1	..	...	3	41	57
58	Lynn, Mass	..	3	..	11	3	16	..	4	..	...	..	2	..	...	..	...	3	36	58
59	Springfield, Mass	..	21	1	36	1	9	1	2	..	4	..	...	1	1	..	...	4	73	59
60	Wilmington, Del	1	14	..	13	3	9	..	6	..	3	..	5	..	6	..	6	4	62	60
61	Des Moines, Iowa	1	31	..	41	..	13	..	23	..	12	..	...	..	6	..	6	1	132	61
62	Lawrence, Mass	..	11	1	...	5	22	..	...	..	...	..	...	..	...	..	...	6	33	62
63	Tacoma, Wash	2	4	1	3	..	3	..	2	..	...	..	1	1	...	..	...	4	13	63
64	Kansas City, Kan	1	10	..	17	..	33	..	14	1	5	..	...	..	...	..	...	2	79	64
65	Yonkers, N. Y	..	32	..	5	..	8	..	...	..	4	..	...	..	...	..	...	..	49	65
66	Houston, Texas	..	...	..	1	..	1	..	...	..	...	..	...	..	...	..	...	..	2	66
67	Duluth, Minn	..	13	..	9	2	10	..	3	..	1	..	...	1	...	..	1	3	37	67
68	St. Joseph, Mo	1	23	1	41	1	24	..	11	..	1	..	...	..	...	..	3	3	103	68
69	Somerville, Mass	..	...	..	...	..	1	..	2	..	...	..	1	..	...	..	1	..	5	69
70	Troy, N. Y	..	...	2	18	..	16	1	8	..	2	..	1	..	1	..	6	3	52	70
71	Utica, N. Y	..	18	..	10	..	5	..	1	..	...	..	...	..	2	..	2	..	38	71
72	Waterbury, Conn	2	8	..	14	..	5	..	15	1	...	..	...	..	1	..	...	3	43	72
73	Schenectady, N. Y	..	4	..	20	..	8	1	13	..	7	..	...	..	1	..	2	1	55	73
74	Hoboken, N. J	..	1	1	24	..	7	..	4	..	...	..	1	..	...	..	...	1	37	74
75	Elizabeth, N. J	..	43	..	72	..	37	..	15	..	1	..	...	..	...	..	...	..	168	75
76	Manchester, N. H	..	3	..	1	1	5	..	...	..	...	..	1	..	1	..	2	1	13	76
77	Evansville, Ind	..	5	..	12	..	6	..	7	..	1	..	...	..	...	..	9	..	40	77
78	Norfolk, Va	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	1	..	1	78
79	Wilkes-Barre, Pa	1	...	3	38	1	15	2	8	..	2	..	5	..	...	..	1	7	69	79
80	Peoria, Ill	..	8	..	27	1	22	1	17	..	...	..	2	..	...	1	3	3	79	80
81	Erie, Pa	..	...	..	1	..	4	..	2	..	3	..	1	..	1	..	3	..	15	81
82	Savannah, Ga	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	...	..	...	82
83	Harrisburg, Pa	..	23	1	71	..	22	..	3	..	1	..	...	..	...	..	1	1	121	83
84	Portland, Me	1	2	..	...	..	2	..	...	1	2	..	...	..	1	..	1	2	8	84
	Totals	94	2,458	83	2,860	80	2,936	43	1,457	16	774	12	522	10	854	18	681	356	12,542	
	Totals elsewhere	70	1,791	80	2,600	135	2,155	88	1,335	41	772	29	423	22	309	22	825	487	10,210	
	Grand totals	164	4,249	163	5,460	215	5,091	131	2,792	57	1,546	41	945	32	1,163	40	1,506	843	22,752	

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter.

SATURDAY, AUGUST 29, 1914

THE FOURTH OF JULY CELEBRATION IN 1914

The Fourth of July has again come and gone. A sufficient time has passed to collect and to verify all reports of deaths and serious injuries. All cases of tetanus developing from injuries received in the celebration have been recorded, and the tabulated statistics of all casualties are printed this week on another page.

DEATHS AND INJURIES THIS YEAR

The returns show a continued increase over the casualties of two years ago, there being 1,506 this year as compared with 1,163 last year and 988—the lowest number—in 1912. There were 40 deaths this year as compared with 32 last year—the lowest number—and 41 in 1912. There were only 3 cases of tetanus—the lowest number—compared with 4 last year and 7 in 1912. These returns are very low, however, when compared with 130 cases of tetanus, 215 deaths and a total of 5,307 casualties, which was the record for 1909, only five years ago. Again, the fact that there were two days for celebration both last year and this (Sunday coming next to the holiday), may have had considerable to do with the comparatively slight increases of the last two years.

EVIDENCES OF PROGRESS

In spite of the slight increase in the numbers of killed and injured there are abundant reasons why those who are laboring for better forms of celebration should feel encouraged. Never has any cause been taken up so effectively by the public press as has this movement for a "safe and sane celebration of the Fourth of July"—an expression which has become so familiar in a few brief years. Never before has public sentiment been so unanimous or positive as in the overwhelming demand for a cessation of the noisy and destructive methods of celebration. And this year these evidences were more marked than ever. Besides the splendid service rendered by the newspapers in the work for reform, societies and associations, municipal, state and national in their scope, have been unusually active.

PROHIBITIVE MEASURES

In at least eight states—Arkansas, Indiana, Kansas, Nebraska, New York, Ohio, Pennsylvania and Texas—just prior to the Fourth, the state fire commissioners sent special communications to the cities and towns throughout their states urging that the use of fireworks be discontinued or carefully safeguarded. In one state, Kansas, a model prohibitive ordinance was circulated which, according to the report, was adopted and enforced in over a hundred cities. This is a plan worthy of being followed elsewhere. It points to the prompt solution of the problem since the control of the use of fireworks clearly rests with city and town governments. Reports of the enforcement of prohibitive measures came from hundreds of cities in all sections of the country. This positive method of stamping out lawlessness, noise and destruction is clearly sweeping the land. That many of our larger cities have greatly improved their records in recent years by such measures may be noted in Table 9 on page 781.

NEWER AND BETTER METHODS SUBSTITUTED

Mere prohibitive measures have been surpassed in effectiveness, perhaps, by the wide adoption of better forms of celebration. Band concerts, picnics, parades and programs of various sorts have never been so generally in evidence as on the Fourth of July this year. This is the strongest indication that the reform is to be permanent. Never before has there been so general a display of flags in both public and private places. From all over the land came reports showing the cessation of noise, the absence of fires, formerly so common, and less need of constant vigilance by the police to restrain the more noisy celebrants. From everywhere came comments regarding the absence of deaths and injuries from the use of fireworks. How different from the awful results reported annually up to only a few brief years ago!

SIGNIFICANCE OF THE CHANGE

The watchword of this country has been personal liberty, which was heralded to the world by the Declaration of Independence, the signing of which is celebrated on the Fourth of July. The manner of observing this day, therefore, may be taken as a fair index of other tendencies in our national life. The individual was at liberty to celebrate the Fourth of July just as he was given the widest freedom in religion, in business and in other walks of life. But as the absence of restrictions led to abuses in the business world, so unlimited freedom gradually led to abuses in celebrating our Independence Day. The nation is learning that the greatest liberty to the greatest number demands that certain restrictions be placed on the liberty of the individual. In order to correct abuses in the business world in recent years much publicity has been given to political and commercial trickery and graft in high places and low, and there is a decided trend toward improvement.

The liberty to use fireworks in the celebration of the Fourth of July gradually degenerated into an annual orgy during which hoodlums held free license to kill, to maim and to destroy. So general and so free had the use of fireworks become that even babes were suffered to handle fireworks, so often deadly even to adults accustomed to handling them. So bad had conditions grown that the celebration was annually demanding a toll of hundreds of children dying in the agonies of lockjaw, burned to death, shot down or otherwise slain, while thousands of others were blinded, maimed for life or otherwise injured.

BEGINNING OF THE CHANGE

So settled was the nation in this annual holocaust that it had come to be looked on almost as essential, and it required that the awful results be given publicity by The Journal time and time again through six years before the public could be induced to shake off its lethargy, and before any check could be placed on the crimes being committed annually in the name of patriotism. For six years The Journal's reports with a few exceptions seemed to fall on deaf ears. A notable exception was the Chicago *Tribune,* which as a news feature for several years immediately following the Fourth had published unverified figures of the deaths and injuries. In spite of reports, however, the total casualties continued to increase until in 1908 there were 5,623 people killed and injured! In that year The Journal in its report published the returns from the forty-two largest cities. The figures revealed the fact that a great majority of the deaths and injuries were clearly due to lawlessness and disorder permitted in those cities. The corollary was also made clear that the governments of these cities were responsible for such casualties, inasmuch as they could be prevented by the enforcement of prohibitive measures. From that time on a wave of public opinion demanding a change of methods has been gathering and has grown with each succeeding year. This year the demand has been so decided as to leave no room for doubt as to the final outcome—the nation is to be freed from this annual holocaust in the name of American freedom.

THE CELLS IN COW'S MILK

The importance of cow's milk in the dietary of the well and the sick alike, and its indispensability as an article of food in the nourishment of a great group in our infant population tend to keep alive a wide-spread interest in the quality and purity of the available supply.

The significance of bacteria in milk, their influence in modifying its keeping properties, their possible danger as sources of infection—all of these facts have become a part of the common store of knowledge. Information concerning them has been spread broadcast, in magazines and daily newspapers. The problem of other structural elements in milk has not reached the public eye to the same extent; indeed, it has scarcely passed beyond the stage of scientific inquiry.

Many of the secretions of the body contain cells discharged from the tissues, and these cells in general are of two kinds: (*a*) epithelial cells discharged either from the secreting portions of the glands or from the lining of ducts or general epithelial surfaces, and (*b*) leukocytes which make their way through the walls of the capillaries and the lymphatics into the epithelial layers which produce the secretion of the gland and, finally, into the secretion itself. Under certain pathologic conditions the discharge of these cells may increase greatly above the normal amount. Milk ordinarily contains such cells. They were first described in connection with colostrum under the name of colostral corpuscles.[1] American investigators[2] long ago called attention to the occurrence of leukocytes in market milk; and by speaking of them as "pus" cells (as is commonly done of leukocytes in urine) an imputation of possible danger was early placed on the fluid containing them. The question of the sanitary significance of the cells in milk has since then assumed considerable importance. A great deal of confusion in the discussion of the nature of these cells and their hygienic significance has been due to the assumption by many investigators that the presence of the cells under any conditions is a pathologic phenomenon and therefore undesirable. As a matter of fact the leukocytes which have passed through the epithelial lining of the alveolus in some part of the mammary gland under normal conditions are not pus cells any more than leukocytes in the lymph and blood, saliva and other secretions are pus cells.

As often happens in the progress of experimental research, imperfect methods of investigation have furnished apparently conflicting answers to the questions here involved. At one time the sediment of milk was depended on to disclose the presence of the cells. Subsequently it was found that many of these may be missed by this method of examination because they may rise with the cream layer and thus fail to appear in the sedimentary deposits. The whole situation, which is evidently in need of revision and supplementary study, has been reviewed by the bacteriologist of the New York Agricultural Experiment Station at Geneva.[3] The evidence thus far obtained indicates that the largest average number of cells occurs in colostral milk, though equally large numbers of cells occasionally occur in milk drawn at any time during the lactation period. Several very high cell-counts have been obtained from the milk of animals nearing the end of the lactation period, and the evidence given indicates that such high counts are more common during the latter part of the period than during its height; but the average cell-counts for the latter part of the period do not seem to be markedly higher than

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1. Donne, A.: Du lait et en particulier de celui des nourrices, Paris, 1837.
2. Stokes, W. R., and Wegefarth, A.: The Microscopic Examination of Milk, Med. News, 1897, lxxi, 45.
3. Breed, R. S.: Cells in Milk Derived from the Udder, New York Agric. Expt. Station, Bull. 380, March, 1914.

the average cell-counts for the earlier part. There are marked daily variations in the number of cells discharged, the cause or causes of which have not yet been discovered. No constant relationship holds between the number of cells discharged in the foremilk and the number discharged later in the milking process. There is a constant increase in the number of cells discharged in the strippings, the cause of which is not yet clear. The four quarters of the udder do not act as a unit in the discharge of the cells, but show as wide variations in number and character of the cells discharged as do separate udders.

The number of cells found in the milk of an ordinary dairy may come as a surprise to many. Out of the 122 cows whose milk has been examined, 59 were found to give cell-counts under 500,000 per cubic centimeter, 36 gave counts between 500,000 and 1,000,000 per cubic centimeter and 27 gave counts of over 1,000,000 per cubic centimeter. The average cell-counts for all of the cows was 868,000 cells per cubic centimeter. The milk of all the cows was normal in appearance and was sold or used by their owners, who had every reason to suppose that the milk was normal milk. Milking-machines, which are being operated more and more extensively in the dairy industry, have been charged with inducing a greater exodus of cells into the milk owing to the vacuum that these mechanical devices create. Dr. Breed states that several things seem to indicate that the number of cells present in milk drawn by a vacuum machine is somewhat less than the number present in hand-drawn milk. The results obtained show that there is no reason for thinking that changes in the vacuum or high vacuums may, in themselves, cause the discharge of excessive numbers of cells, or that high vacuums may draw blood from the interior of the udder.

The leukocytes predominate among the cells. The epithelial cells and fragments are presumably discharged because they are worn out or dislodged in the process of the secretion of the milk. The reason for the presence of the leukocytes is not so clear. By analogy with known leukocytic wanderings in certain pathologic states it has been widely held that the blood-cells are attracted into the milk by the presence of bacteria in the udder, especially by the particular kind of bacteria known as the pus-forming streptococci. This belief has arisen because of a large body of evidence which indicates that the milk of cows suffering from mastitis caused by a streptococcic infection, ordinarily, if not invariably, contains large numbers of cells. Dr. Breed has pointed out, however, that no systematic attempt has yet been made to discover whether there is a relationship between the number and kinds of cells discharged and the bacterial content of the udder which frequently harbors micrococci. He inclines to the belief that there are other reasons for the discharge of leukocytes in the milk than the presence of bacteria in the udder. These other reasons undoubtedly have to do with the physiologic conditions surrounding the process of milk secretion. The chapter dealing with the hygienic significance of the cells cannot yet be regarded as closed.

PLUMBING AND HEALTH

It is not surprising perhaps that old ideas concerning the causes of disease survive in some strata of society a long time after these ideas have been generally outgrown or discredited. All the same it is a little disconcerting to find that typhoid fever can still be complacently attributed to bad plumbing. When we read that "insufficient laws regulating plumbing and sanitation in Virginia, Maryland and the District of Columbia are largely responsible for the high typhoid rate and the prevalence of other diseases in the two states and the district," and again that "much of the fever and other forms of disease with which the health authorities are constantly wrestling is caused by noxious gases and vapors emanating from neglected or defective pipes in the homes of the people," we are inclined to rub our eyes and ask ourselves if the education of the community is really proceeding at the pace we sometimes like to believe. The assertions quoted above, however, were reported as made at the Association of Plumbers, Gasfitters and Steamfitters which recently met in Richmond, Va., and not at a convention of health officers or physicians.

It is hardly necessary to point out that typhoid fever — or any other fever — is not caused by bad smells, and that the small quantity of the gases of decomposition found in well-ventilated sewers has never been proved to exert any injurious effect whatever on health. A connection between plumbing and health has been shown to exist at just one point. Plumbing is of value to public health only so far as it removes human excreta from the immediate neighborhood of dwellings and so does away with the danger of fly-borne typhoid and other infection which arises from allowing infectious material to accumulate in family privy-vaults. Disease germs are not found in sewer air; indeed, it is difficult on physical grounds to see how they could get there. The "noxious gases and vapors," so dear to the plumber's imagination, are conspicuous by their absence in all perfectly constructed sewer systems, as every visitor to the great sewers of Paris and other modern cities well knows. "Defective plumbing" has about as much relation to public health as any other mechanical defect in house construction.

On the financial aspects of modern city plumbing ordinances we prefer not to dwell at this time. It is a well-recognized fact that these ordinances are drawn with no uniformity in our American cities and that what is required in one city may be prohibited in another. High authorities maintain that the system of modern house plumbing which is made legally obligatory on housebuilders in many places entails a large, needless and altogether unjustifiable expense. Conceivably it is to the financial interest of plumbing supply houses—or somebody—to have the required system of plumbing as elaborate and as expensive as possible.

One feature of this situation deserves attention. It is plain that the most serious obstacle to the universal replacement in sewered towns of the dangerous privy-vault by the water-carriage system is the high cost of the plumbing. In this respect every unnecessary refinement and elaboration in plumbing outfits and legal requirements is a harm, not a help, to public health. The greatest possible simplicity and cheapness compatible with efficiency is what is needed in really "sanitary" plumbing, not a labyrinth of traps, vents and back-vents. If the plumbing interests really wish to aid the hygienic welfare of the community they can best do this, not by insisting on still more complicated devices and "inspections," but by simplifying and cheapening the cost of installing and maintaining the pipes and fixtures essential for carrying off the house wastes in a speedy and inoffensive manner. Finally, let us ask this question: To what extent do the plumbing ordinances in our American cities represent the prevailing opinion of public health experts and trained health officials, and to what extent do they represent the efforts of commercially interested individuals or organizations to entrench themselves behind the active if not always well-informed desire of the people to safeguard the public health?

MIXED VACCINE AND PHYLACOGENS

The noted advance in therapeutics shown in the development of vaccine therapy has brought with it grave dangers as well as advantages. We have, on a number of occasions, discussed in special articles and in editorials the dangers which threatened from the rapid commercialization of this new method. The unscientific character of mixed vaccines and of the mixed filtered products of a number of vaccines marketed as "Phylacogens" has been especially emphasized and the danger from their indiscriminate use pointed out. A little over a year ago we published a series of articles dealing with the whole subject in which the nature of mixed vaccines was described[1] as follows:

> The mixed stock vaccine of commerce is a makeshift. It is offered as a substitute for correct diagnosis. Like all such makeshifts in science, it is doomed to failure. . . . A burden is being forced on the profession which will speedily assume the proportions attained by proprietary drug combinations. The menace cannot be counteracted unless physicians will accept the guidance of unselfish, non-commercial interests and refuse to purchase and use mixed commercial vaccines.

This admonition to seek the guidance of unbiased scientific observers is deserving of special emphasis at the present time. Five weeks ago we published the address of the chairman of the Section on Pharmacology and Therapeutics, Dr. John F. Anderson,[2] one of our foremost workers in this branch of biologic science, in which attention was very forcibly drawn to the dangers involved in the use of biologic products of non-specific character. He says:

> Bacterial therapy undoubtedly in some cases is a most valuable method of treatment; but when the claim is made that a combination of the dead bodies or the filtered products of a number of different bacteria are useful for the treatment of certain diseases with a different specific cause, it would seem that the suggestion closely approaches quackery.

Further he says:

> Aside from the doubtful practice of the indiscriminate use of unproved methods of treatment, it has seemed to me that a great injustice is done the patient by their use, since some of the preparations that have been widely exploited have been shown to be harmful in certain instances and even to have caused death. So the first step in attempting to remedy conditions is to awaken the physician to the importance of ignoring the claims of those who are pushing these new methods until their usefulness and harmlessness has been clearly demonstrated by those best in a position to do so.

As a result of scientific methods in teaching therapeutics, physicians have gradually given up almost entirely the use of "shotgun" prescriptions and now prescribe a drug or a combination of one or two drugs, each given for the purpose of exerting a definite action. On the other hand, the purveyors of bacterial vaccines have gradually increased the number of different bacteria in their mixed vaccines until some of those now advertised for sale contain as many as seven different kinds of bacteria, and some of the "Phylacogens" contain the filtered products of at least eleven bacterial species!

Under the present federal law there does not seem to be any way in which the federal government can do more than is being done at present. It is a case in which the physician becomes the sole guardian of the patient committed to his care. He is the one and only responsible individual. He cannot throw the blame for bad results back to the manufacturer. When he subjects his patients to the possibility of harm by the use of these unscientific and dangerous preparations, the physician assumes the responsibility, whether he wants to or not.

If physicians would report their failures when these vaccines are used, and especially report the fatalities consequent on their use, with the name of the manufacturer of the particular product used, we are quite sure there would result a lessening in the enthusiasm of the purveyors of these products.

When tempted by the optimistic statements of the interested manufacturer of these mixtures to give them a trial the physician should remember that the warnings of disinterested scientists are of far more value than uncritical clinical reports put out under commercial auspices.

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[1] Bacterial Vaccine Therapy: Its Indications and Limitations, p. 37, reprinted from The Journal A. M. A., April 26-June 28, 1913, price, 10 cents.

[2] Anderson, John F.: Some Unhealthy Tendencies in Therapeutics, The Journal A. M. A., July 4, 1914, p. 1.

This we quote from a recent book by Victor C. Vaughan,[3] President of the American Medical Association:

> Every time an unbroken protein is introduced into the body it carries with it, and as a part of it, a poison. From the very careless, rash, and unwarranted way in which "vaccines" of most diverse origin and composition are now used in the treatment of disease, this matter certainly cannot be understood or its danger appreciated by those who subject their patients to such risks. It should be clearly understood that all proteins contain a poisonous group—a substance which in a dose of 0.5 mg. injected intravenously kills a guinea-pig. This poison is present in all the so-called "vaccines" now so largely used, and it is not strange that death occasionally follows the use of "Phylacogen" or similar preparations. Not only do these proteins contain a poison, but when introduced parenterally the poison is set free, not in the stomach, from which it may be removed, but in the blood and tissues. It is possible that vaccine therapy may become of great service in the treatment of disease. Even now there are occasional brilliant results which are reported while the failures and disasters are not so widely advertised.

Such a warning as this quotation contains, from a man so eminent as Dr. Vaughan, merits and should receive the careful attention of medical men; at least it should have as much weight as the "clinical evidence" spread broadcast among our profession by commercial houses.

THE OPIUM ALKALOIDS AND DIABETES

Opium preparations have long been used in diabetes, and there is a wide-spread belief that they are frequently efficient in diminishing the excretion of sugar in this disease. Data might readily be cited from the literature of clinical medicine to show apparently advantageous results following opium medication. No satisfactory explanation has yet been furnished of the manner in which excretion of sugar is diminished. It has been suggested that the alleged beneficent influence of the drug is attributable in a general way to its well-known sedative action on the nervous system. This hypothesis contains, at least, something tangible, in view of the fact that more or less ill-defined conditions of nervous irritability have been said to produce certain types of diabetes. Now that the investigation of the sugar-content of the blood has assumed an importance as great as, if not greater than, the quantitative determination of the urinary sugar, the problem of the possible mode by which opium acts in this connection is presented anew. Dr. Kj. Otto af Klercker of the medical-chemical institute of the Swedish University in Lund has accordingly studied the influence of the opium alkaloids on certain forms of experimental hyperglycemia.[1] In the cases in which this condition was elicited by injections of epinephrin or by the well-known piqûre experiment in which an injury to the roof of the fourth ventricle in the brain is promptly followed by glycosuria, no convincing effect attributable to the administration of opium products could be demonstrated. On the other hand, when an alimentary hyperglycemia was brought about by feeding unduly large quantities of glucose the inhibitory effects of opium products were clearly manifest. For example, repeated injections of opium alkaloids in quantities which of themselves had no demonstrable effect on the level of the sugar in the blood, nevertheless prevented the expected rise after the ingestion of sugar.

The newer studies of Magnus[2] and others have made clear certain effects of morphin on the movements of the alimentary tract which may serve to explain the inhibitory phenomena just referred to in connection with alimentary glycosuria. It is now known that this alkaloid greatly retards the discharge of its contents from the stomach into the small intestine, from which they are absorbed. It is apparent, therefore, that the antiglycosuric action of the opiates in diabetes may be due to the fact that the carbohydrates are not absorbed at the usual rate because they are not furnished in sufficient concentration through discharge from the pylorus. That the expected hyperglycemia does not develop in characteristic degree when opium products are administered may be due to the failure of the lower alimentary tract to be overloaded with readily absorbable carbohydrates within comparatively brief periods of time. Whether the facts here adduced will also suffice to explain the reduction in the output of sugar occasionally noted in human practice under similar therapeutic conditions, remains to be ascertained more definitely.

THE DANGER OF INFECTION FROM ICE

The modern practice of using iced food and drinks is so universal in this country that it is important to determine to what degree ice may be relied on as not carrying infection. When in the seventies and eighties of the last century it was shown that pathogenic bacteria might survive freezing, ice fell under suspicion as a possible medium for the transmission of disease; yet few epidemics have been ascribed to it, and the evidence concerning these has been regarded as inconclusive. H. S. Cumming[1] in a recent article makes a study from the point of view of the source of ice, the physical and biologic changes accompanying or consequent on its formation, and the methods employed in its collection or manufacture and handling.

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[3] Vaughan, Victor C.: Protein Split Products in Relation to Immunity and Disease, 1913, p. 236.

[1] Klercker, Kj. Otto af: Untersuchungen über die Einwirkung der Opiumalkaloide auf gewisse Hyperglykämien, Biochem. Ztschr., 1914, lxii, 11.

[2] Morphin and Constipation, editorial, The Journal A. M. A., May 31, 1913, p. 1711. Magnus: Arch. f. d. ges. Physiol., 1908, cxxii, 210.

[1] Cumming, H. S.: Safe Ice, Pub. Health Rep., Aug. 7, 1914, p. 2066.

Ice is either natural or artificial. Until recently, in order to secure clean, transparent artificial ice, it was necessary to distil the water used, thus destroying all disease-germs present. With the newer methods employed, filtration is held to be sufficient. Cumming remarks that the fact, well known to chemists, that during crystallization nearly all extraneous substances are expelled from the crystal, was overlooked by sanitarians until recently. As Whipple says, "qualitatively the early bacteriologists were right; quantitatively they were wrong." In the formation of natural ice, most of the impurities are expelled into the waters of the pond or stream; and the same result is attained by the newer methods of artificial ice-making. By the "can" method, cans of water are immersed in the freezing mixture. As the freezing proceeds, the impurities are forced toward the center. In one of the newer methods, large cans are used, and the cakes of ice are cut into smaller ones, eliminating the dirty core. By another new "can" method, the impurities are expelled into about 6 inches of water kept liquid by agitation. In the "plate" method, the water is contained in large tanks, on one side of which are pipes containing the freezing mixture. The water freezes next the pipes in plates about 11 inches thick, and the impurities are expelled into the water beyond.

Some natural ice is undoubtedly derived from polluted rivers or ponds. Three great factors tend to purify ice from polluted waters: The first, as just mentioned, is crystallization. The second is temperature—the fact that freezing destroys a large percentage of bacteria. The third and most important is time. The longer the time intervening between the infection of water and its use (as water or as ice), the slighter the chance of the survival of the germs. On this score, natural ice, which is collected and stored for several months before shipment, has the advantage over artificial ice, which is usually marketed soon after it is made. Owing to these three factors—crystallization, temperature, time—clear, clean ice is of itself as free from danger as could be wished. Artificial ice made from pure water in clean, sanitary factories may be regarded as safe; so also may natural ice cut from reasonably pure deep ponds or lakes and stored under sanitary conditions. Artificial ice made from polluted water in dirty, insanitary factories is unsafe; natural ice cut from shallow polluted ponds or from grossly polluted rivers is also unsafe. Any dirty-appearing, cloudy ice may be infected as well as polluted; no such ice should be used in contact with food or drinks. Ice which is otherwise safe may become infected by improper handling—by being dragged across dirty streets or sidewalks or distributed by unclean hands. This is the great source of danger. We may practically eliminate danger by avoiding the handling of ice with dirty hands, by washing the ice with pure water, and by using only clear ice.

Current Comment

RADIUM IN CANCER

The papers on radium therapy in this and recent numbers of The Journal,[1] in addition to being instructive in themselves, are indicative of the interest in the subject at the present time. Radium therapy is going through the period of enthusiasm that Roentgen-ray therapy experienced ten years ago. This is perhaps inevitable, and after it the method will doubtless settle into its true place in therapeutics. It is not a new discovery that radium has interesting and useful possibilities. That was shown by Wickham and others several years ago. Indeed, we know enough from our experience now to predict with considerable assurance the extent of these possibilities. Radium is useful in numerous dermatoses; and, passing to the larger subject of cancer, it is indisputable that radium can be used successfully to destroy certain localized malignant growths, that is, growths on the surface whose entire extent can be sufficiently exposed to its energy. Extensive growths involving deep structures and disseminated growths are beyond its control, and there is no reason to believe that they will ever be brought within its control, for all experience with radium and the Roentgen rays has shown that these agents are useful in malignant growths only so far as they can directly destroy the cancerous tissue. In fact, there is every reason to believe that the extent and the limitations of therapeutic usefulness of the two agents are essentially the same, as are, indeed, the actinic energies of each. We have, then, a considerable experience on which to base our estimate of the usefulness of radium therapy, and from this experience there is no justification for the promise of relief in extensive cancer from the use of radium, or for the hope that with large quantities of radium we would be much nearer the solution of the problem of the cure of cancer in general than we are now. Radium has a useful therapeutic field, and it would be unfortunate for its therapeutic reputation to be damaged by exaggeration or injudicious enthusiasm.

A CURIOUS CUSTOM OF THE PARIS MEDICAL FACULTY

The historians of French medicine, Maurice Raynaud and others, have described at length the extraordinary amount of ceremonial (almost ritual) observances and banqueting which attended the graduation of Parisian medical students in the sixteenth and seventeenth centuries. Ernest Wickersheimer, librarian of the French Academy of Medicine, describes a singular custom of the old Paris Faculty

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[1] Tousey, Sinclair: A Case of Disseminated Carcinoma of the Breasts and Axillae Improved by Radium, The Journal A. M. A., April 11, 1914, p. 1167. Clark, A. Schuyler: Radium Treatment of Cutaneous Epitheliomas by Single or Massive Doses, ibid., May 9, 1914, p. 1453. Janeway, H. H.: Results of Radium in Cancer, ibid., May 30, 1914, p. 1707. Kelly, H. A., and Burnam, C. F.: Radium in the Treatment of Uterine Hemorrhage and Fibroid Tumors, ibid, Aug. 22, 1914, p. 622. Simpson, F. E.: Radium, Its Uses and Limitations in Skin Diseases, this issue, p. 737. Holding, A. F.: The Relative Value of Radium in Dermatology, this issue, p. 741. Newcomet, W. S.: Radium and the Roentgen Rays in Radiotherapy, ibid., this issue, p. 743.

STATE [illegible]

in the second half of the fifteenth century.[1] It seems that once a year, toward the end of winter, after the last elective disputation of the scholastic year, that is, at the beginning of Lent, the master regents of the Faculty betook themselves to the public warm baths at the expense of the bachelors in medicine. This observance is first mentioned by the historians of the Faculty, Feb. 27, 1473. It has been passed over by all other historians and was lost sight of in the seventeenth century, Jean Riolan, in his "Curious Researches on the Medical Schools of Paris and Montpellier" (1651), construing the Latin expression for the bath-house charges (*pro stuphis*) as an expense for stoves in the lecture rooms. The object of the custom was to afford a little recreation to the master regents, fatigued by the lengthy winter disputations, and of course, to make the festival complete, the visit to the baths was followed by a supper. In 1493, both bachelors and beadles were permitted to accompany the masters to the baths, and the same thing would have happened in 1499 had a bachelor not withdrawn, "an unbidden guest, because his bath bill had not been discharged." In February, 1496, it was still too cold for the Lenten tubbing; and in 1500, an epidemic of "inguinagra" (syphilitic bubo) was sufficient to scare the masters away from the baths, as happened in the case of the common bath pools of Germany in the same period. Wickersheimer states that this custom did not take root very deeply, and often the Faculty preferred to put the money obtained from the students *pro stuphis* to more practical uses. In 1479, the sum obtained was applied to the construction of schools; later, it was partly distributed among the master regents to liquidate the expenses of the banquets which always followed the disputations. From 1508 on, the amount collected was turned over to two master regents who had been designated as lecturers or readers (*lecteurs*).

AMERICAN VERSUS EUROPEAN POSTGRADUATE WORK

One of the compensations of the present European war is that it may compel Americans to seek out, to appreciate and to encourage a further development of the resources of their own country. Tourists who in other years sought the Swiss Alps will have time to see Colorado, California or Alaska; art patrons, deprived of the opportunity of buying dubious "old masters," will have a chance to do a real service to art by encouraging living native artists; students of music in the habit of studying abroad will be compelled to study at home, thereby bringing into prominence and encouraging better teaching in this country, and, last but not least, the multitude of physicians, compelled to break the habit of going to Paris, Berlin and Vienna for advanced medical instruction, may discover and call attention to the excellent facilities for postgraduate instruction in the United States. This is a good time to repeat what we have said before: that this country offers opportunities for postgraduate medical instruction equal to those afforded abroad, and some that are superior, especially for American students. Foreigners have begun to appreciate the advances made in this country; we have had distinguished foreign visitors who came to learn, for instance, from American scientific work, hospital organization and surgery. It is true that, in the past, postgraduate instruction has not been so well organized in the United States as abroad. It has been said, also, to be rather expensive. Both of these objections are now being removed, with the organization of postgraduate instruction under university auspices in addition to other opportunities for postgraduate work. For instance, the Harvard Graduate School of Medicine offers for its summer term this year nearly two hundred different courses, including courses in all the numerous minor subdivisions of laboratory and clinical instruction. Tulane Unversity, Louisiana, which also offers instruction to postgraduate students, is exceptionally situated in being able to give instruction in tropical diseases. Physicians whose plans for summer work have been deranged by the hostilities in Europe may have no reason to regret the enforced change if they employ their time wisely in America. On the whole, especially when the difference in the cost of travel is taken into consideration, a comparison of expense between American and foreign courses will be favorable to the former. Even before the present war broke out, it was acknowledged by men of high standing abroad that the future of medicine lies in America. It is to be hoped that one result of the interruption of communication between America and Europe may be that exaggerated prestige will no longer attach to one's having "studied abroad."

THE RADIO-ACTIVITY OF THE SARATOGA WATERS

In view of the fact that the sick of this and other countries have been extensively exploited in recent years by venders of so-called radio-active waters, the Bureau of Mines has done a public service by publishing the results of its examinations for radio-activity of the waters of Saratoga Springs, N. Y.[1] The results show that the activity of the different springs varies widely, some being more than twenty times as active as others. It is to be presumed that not even the most enthusiastic believers in the efficacy of radio-active waters would be inclined to attribute much remedial value to the radio-activity of even the strongest of them. Some are, however, much stronger in radio-activity than at least one of the widely exploited "radio-active" springs. Were the Saratoga Springs still in the hands of private individuals it is quite likely that these results would be exploited for commercial purposes. The work is stated to have been undertaken at the request of the commissioners of the state reservation at Saratoga Springs and, we assume, is published with their knowledge and consent. This procedure is far more creditable than that of the Untied States government in connection with the United States Reservation at Hot Springs, Ark.; the government has had the radio-activity of these waters determined on two separate occasions, but only the vaguest and most meager information has been allowed to become public—just enough, in fact, to enable the bath-house owners and the government itself to exploit the results and to deceive the tens of thousands of sick who yearly visit these springs.

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[1] Wickersheimer, E.: Gaz. d. eaux, Paris, 1914, lvii, 751.

[1] Moore, Richard B., and Whittemore, C. F.: The Jour. Indust. and Engin. Chem., July, 1914, p. 552; abstr., Propaganda for Reform Department, this issue.

THE WAR AND THE MEDICAL PRESS

An evidence of one effect of the war is the small size of our British exchanges. This might be expected for no other reason than the lack of material for publication. The *British Medical Journal*, however, in its issue for August 15, gives as another reason the shortage of paper, which it states has become a very serious difficulty for the periodical press. The *British Medical Journal* has omitted entirely its epitome of current medical literature because it has received no German, Austrian or Russian exchanges for the previous two weeks, and very few from France. In addition to the difficulty in securing paper, because of irregular sailing of the ships, the consumption of paper by the newspapers has increased enormously because of the demand for extra editions. The Journal has received practically no German, Austrian or Russian publications, and but few French or Belgian periodicals since the war began. The Berlin Letter—mailed from Charlottenburg, July 31—arrived in Chicago August 25, too late for publication in this week's issue. No Paris and Vienna letters have been received of dates subsequent to the onset of hostilities.

Medical News

ILLINOIS

Still in Europe.—Drs. Frank J. Otis, Moline, and Dr. and Mrs. Karl F. Snyder, Freeport, are detained in Europe.

Personal.—Dr. Herman C. Stevens has been appointed examining alienist at Cook County Institution, Oak Forest. ——Dr. Frederick W. Werner, Joliet, who has been critically ill with septicemia, is reported to be steadily improving.

Return from Abroad.—Drs. William L. Gray, Champaign; Heber Roberts, Belleville; Burdette E. LaDue, Ottawa; Ella Fitch Milligan, Ottawa; Mary L. Rosensfiel, Freeport, and Charles B. Horrell, Galesburg, have returned from abroad.

Bathing Beach Closed.—The State Board of Health through its secretary, Dr. C. St. Clair Drake, has ordered closed the bathing beach for one-half mile on each side of one of the principal hotels at Fox Lake, Lake County. The sewage from the hotel empties into the lake near the beach and a number of cases of typhoid fever are believed to have been due to this cause.

Tuberculosis Notes.—The first clinic in the history of the Oak Forest Tuberculosis Sanatorium was held August 20 by Dr. Ethan Allen Gray in the Fresh Air Hospital.——Dr. Daniel Lichty, president of the Rockford Municipal Sanitarium to be located on a tract of land east of Sinnissippi Park, suggests the name of Oak Park for the institution. The site is about 15 acres in extent and 100 feet above the river with an ample forest area.

New Health Department Plans.—Tentative plans for the consolidation of several overlapping state bodies under the general title of the State Health Department, were considered at Springfield, August 19, at a conference of public health officials and others. The plans provide a state health department with a salaried health commissioner and an unpaid state board of health. The department is to include bureaus of vital statistics, foods, drugs, sanitary inspection, boards for the examination and licensing of physicians, pharmacists, dentists and nurses with power to revoke licenses subject to review by the state board. The department is to be given sanitary control over barbers.

Chicago

Home from Europe.—Drs. Thomas J. Watkins and wife, Dr. Isaac J. Abt, Dr. Charles H. Solomon and Dr. Charles Gilbert Davis have returned from abroad.

Chicagoans Abroad.—Dr. Franklin H. Martin has reached London after an automobile trip from Munich.——Dr. Lloyd B. Crow, who has been studying in the Broussais Hospital, Paris, has gone to Fumay, a town on the French border near Namur and is caring for the wounded.——Dr. Robert J. Rize, with his wife and two children, has reached London after a trip through that portion of Belgium occupied by the German troops.

Personal.—Dr. Otto W. Lewke and daughter have returned from a tour of Alaska and the Canadian Rockies.——Dr. Harry M. Richter, who has just returned from Europe, delivered a lecture, August 21, in the amphitheater of the Maimonides Hospital on "Some Modern Advances of Medicine and Surgery," illustrated by stereopticon views. Similar gatherings are held at the hospital monthly, to which the medical profession is cordially invited.

Safety First Propaganda.—The coroner of Cook County has decided to issue the *Coroners' Safety Bulletin* weekly. The first issue deals with drowning and forecasts that one hundred and fifty-six persons will be drowned in Cook County during the year unless the educational campaign for public safety decreases this record. These figures are exclusive of suicides by drowning, of which twenty-two occurred last year. The greater part of the drownings reported to the coroner's office are during recreation or on picnics and the coroner urges that every child should be taught to swim and encouraged to enjoy it and that the sense of caution, prudence and calculation should be stimulated to the highest point for the maintenance of physical strength and alertness to overcome and escape danger, and the employment of judgment and alertness to avoid situations that are perilous to one's self and to others. This should include also training in first-aid, with special reference to drowning. The second bulletin is to be on accidental poisoning.

INDIANA

Loan to Health Board Authorized.—The city council of Indianapolis on July 28, authorized a temporary loan of $77,000 for the use of the City Board of Health.

Indiana Physicians Abroad.—Dr. and Mrs. Franklin S. Crockett, Lafayette, Dr. Charles Melvin Mix, Muncie, and Dr. Manford M. Clapper, Hartford City, are detained in Europe on account of war conditions.

Home from Abroad.—Dr. and Mrs. G. Frank Holland, Bloomington; Drs. J. Rilus Eastman, William F. Clevenger and Thomas C. Hood, Indianapolis; Dr. Marcus Ravdin, Evansville; Dr. and Mrs. Harvey H. Martin, LaPorte, and Dr. Charles O. Bechtol, Marion, have returned from Europe.

Investigation of Insanity.—At a conference held in the office of the governor, August 7, the rapidly increasing number of insane, epileptics and other defectives in Indiana was discussed and the governor suggested the appointment of a commission to study the question, and stated that he would ask the legislature for authority to appoint such a commission.

State Association Meeting.—The annual meeting of the Indiana State Medical Association will be held at Lafayette, September 23 to 25. The sessions of the association will be held in the Y. M. C. A. Building and the Second Presbyterian Church. The Sunday before the meeting will be observed as "health day" and the pulpits of the city will be filled by members of the association.

Cause of Typhoid in Indianapolis.—The City Board of Health, Indianapolis, in investigating the typhoid situation in that city, found that fourteen cases were due to the careless handling of empty milk bottles. A family in which there was typhoid fever bought milk at the grocery and returned the empty bottles to the grocer, these were again filled by the dairy man and returned to customers, resulting in a large number of new cases.

Disease Prevention Day.—Arrangements are being made for the observance throughout the state of disease prevention day on October 2. Special emphasis is to be placed on the prevention of tuberculosis and representatives of the State Board of Health, Public Health Nurses' Association, State

Nurses' Association, State Medical Association, State Board of Education, State Society for the Prevention of Tuberculosis and State Federation of Clubs have been assigned positions on the initial committee of arrangements.

Society Incorporates.—The Indiana Society for the Prevention of Tuberculosis, filed articles of incorporation, July 28, in order to have legal authority to receive a bequest offered the society by an individual outside the state. The headquarters of the organization will be in Indianapolis and there will be a director for each congressional district of the state. The first board of directors is as follows: Mrs. George P. Decker, Evansville; Dr. Arthur A. Rang, Washington; Dr. Henry B. Shacklett, New Albany; Miss Mary Kennedy, Lawrenceburg; Prof. L. J. Rettger, Terre Haute; Dr. S. Edgar Bond, Richmond; Mrs. Jacquelin S. Holliday, Indianapolis; Miss Luella Anderson, Muncie; Dr. Fred A. Dennis, Crawfordsville; Dr. Otis B. Nesbit, Valparaiso; Mrs. E. W. Shirk, Peru; Dr. Eric A. Crull, Fort Wayne, and Dr. James A. Snapp, Goshen.

Personal.—Dr. Arvine E. Mozingo of the house staff of the Methodist Episcopal Hospital, Indianapolis, has been appointed to a similar position at the Metropolitan Hospital, Blackwell's Island, New York.——Dr. Darmon A. Rhinehart, instructor in anatomy in the Indiana University School of Medicine, Bloomington, has been appointed director of the anatomical department of the University of Arkansas, Little Rock.——Dr. Gilbert R. Finch, Center Point, was seriously injured by the overturning of his automobile, August 14.——Dr. Charles P. Hutchins, director of physical education at the Indiana University, Bloomington, has resigned and will practice in Rochester, N. Y.——Dr. Charles C. Morris, Rockville, has resigned the presidency of the Parke County Society for the Prevention of Tuberculosis.——Dr. Arnold Utterback, New Goshen, was painfully injured in an automobile accident, August 11.——Dr. Cassius E. Van Matre, Newcastle, is reported to be seriously ill with heart disease at his home.——Dr. Andrew W. Smith, Hammond, has been appointed director of athletics in Throop College, Pasadena, Cal.

KENTUCKY

Home from Europe.—Drs. John L. Phythian, Newport and John R. Murnan, Covington, reached home from Europe August 12.

Progress of Hookworm Campaign.—The State Board of Health reports that in the countries in which intensive health campaigns have been conducted under the auspices of the Board the doctors are on the lookout for intestinal parasites. They are certain that hookworm infection makes it practically impossible for the chronic diseases to get well on account of the decreased blood-supply. Of especial interest is the almost universal observation that, if uncinaria is diagnosed within the first few weeks of its first attack, except in the very severe cases, the patient usually recovers if promptly treated with thymol and this treatment is repeated at intervals of ten days until results are secured. Up to Jan. 1, last, the physicians of the state had reported the treatment of 45,470 cases of hookworm disease.

LOUISIANA

Lepers Discovered.—Four lepers were discovered in an isolated part of Arcadia Parish by Dr. Hines C. Webb recently and the unfortunate patients were sent to the State Leprosarium, White Castle.

Home from Europe.—Drs. Samuel M. D. Clark, Felix A. LaRue and Charles A. Borey, New Orleans, have returned from abroad.——Drs. Charles L. Chassaignac, C. Jeff Miller, Gustav Mann and Otto Joachim, New Orleans, are reported to be still abroad.

Personal.—Dr. Andrew G. Friedrichs, for many years dean of the dental department of Tulane University, New Orleans, has resigned and has been succeeded by Dr. Wallace Wood, Jr.——Dr. Marcus J. Magruder, New Orleans, has been appointed a member of the board of administration of the Tulane University.——Dr. Joseph Conn, New Orleans, who was a passenger on the *Kronprinzessen Cecilie* on her memorable voyage, which ended at Bar Harbor, Maine, is sojourning at Clifton Springs, N. Y.——Dr. Isadore Dyer, dean of the Tulane Medical School, is taking a trip to Havana, Cuba.——Dr. Oscar Dowling, New Orleans, has been appointed chairman of the committee on vital resources of the National Conservation Congress.

Results of Hookworm Canvass and Campaign.—Dr. Sidney D. Porter, state director of the hookworm commission, has issued a report of the two weeks' campaign in Tangipahoa Parish and the survey of the parishes of St. Helena, Washington, Livingston and St. Tammany. In the latter four parishes 5,397 microscopic examinations were made, and 52 per cent. found infected. In Tangipahoa 1,128 examinations were made, and 51.3 were found infected. In the preliminary campaign in the parish 1,228 patients were treated. No doubt is felt that insanitary conditions have caused the reinfection of many patients treated in the campaign three years ago. Since the inauguration of work in the state, 49 parishes have been surveyed and free dispensaries operated in 43, which has resulted in the treatment of 47,614 cases.

MASSACHUSETTS

Physicians Abroad.—Drs. Rufus A. Kingman and Calvin B. Faunce, Boston, have been detained in Europe by reason of the war.

Home from Europe.—Dr. and Mrs. Frank C. Granger, Randolph, Dr. George L. Richards, Fall River, and Dr. Fred B. Lund, Boston, have returned from Europe.

Physician Donates House for Hospital.—Dr. Charles S. Holden, Attleboro, has donated a summer home near Norton with the stipulation that it be used for a tuberculosis hospital for Attleboro.

Personal.—Drs. Sarah E. Coppinger, Needham Heights, and Thomas J. Scanlan, Boston, are the medical members of the board named by the governor to take charge of the Foxboro Hospital since its separation from the Norfolk State Hospital. At the first meeting of the board, Dr. Coppinger was elected secretary.——Dr. Charles F. McCaffrey, Somerville, has been appointed medical examiner of Middlesex County.

MINNESOTA

Home from Abroad.—Drs. Edwin Moren, Olaf J. Veline and Arthur E. Benjamin, Minneapolis; Dr. Louis A. Fritsche, New Ulm, Dr. Alfred E. Comstock, St. Paul and Dr. and Mrs. Edward W. Humphrey, Moorehead, have returned from abroad.

Minnesota Physicians Abroad.—Dr. and Mrs. Theodore L. Chapman and Dr. and Mrs. Robert Graham, Duluth; Dr. and Mrs. James L. Lynch, Winona, and Dr. John W. Lee, Minneapolis, are reported to be detained in Europe on account of war conditions.

Personal.—Dr. Thomas C. Clark, Stillwater, has been appointed chief surgeon of the Minnesota Soldiers' Home, Minnehaha Falls.——Dr. Arthur E. Benjamin has been appointed a member of the Minneapolis Board of Charities and Corrections.——Dr. William E. Harwood, Eveleth, has disposed of his hospital and will practice at his former home in Joliet, Ill.

Alleged Neglect in State Hospital.—On the recommendation of Dr. Henry M. Bracken, secretary of the State Board of Health, the governor has ordered an investigation of the State Hospital, Hastings, by the State Board of Visitors. Dr. Bracken's recommendation is said to be due to the failure of the hospital authorities to report cases of tuberculosis in the institution, although there were sixteen deaths from this cause in 1913, and there have been six deaths already this year from the same cause.

Southern Minnesota Physicians hold Summer Meeting.—The third summer meeting of the Southern Minnesota Medical Association was held in Winona, August 20 to 21 under the presidency of Dr. H. F. McGaughey. On the first evening, the association was entertained at dinner by the Winona County Medical Society and the medical profession of Winona. At this function, one hundred and thirty were present. At the first session, held after the banquet, Dr. William J. Mayo, Rochester, delivered an address on the "Influence of European Surgeons on American Practice" and Dr. Henry M. Bracken, Secretary of the State Board of Health, read a paper on preventive medicine. On the second day, a large number of papers were read and after luncheon, the members of the association were the guests of Drs. William J. and Charles H. Mayo, for an excursion on the steamer *Oronoco*. During the river trip, a session of the society was held.

Sanatorium Notes.—Representatives of Lincoln, Lyon, Pipestone, Murray, Cottonwood, Rock and Nobles counties, met in Tracy, August 8 to consider the establishment of a joint county tuberculosis sanatorium. A committee was appointed to examine three proposed sites, one at Lake Shatek, one near Windom and a third near Worthington.

——Plans are being prepared for the Clay-Becker County Tuberculosis Sanatorium at Sand Beach Lake. The building is to cost $25,000 and an additional sum of $10,000 will be appropriated for the equipment of the heating plant, lighting system, etc.——A sanitarium is to be erected by Beltrami, Hubbard and Koochiching counties, to cost $35,000; the building is to be erected at Bass Lake and the governing board is composed of seven members, three from Beltrami and two each from the other two counties.——Dr. Albert J. Chesley, Minneapolis, epidemiologist for the City State Board of Health has commenced a campaign of education and arguments to influence the county commissioners to take advantage of the state law for the erection of city-county tuberculosis sanatoriums.——It is announced that Goodhue County will erect a tuberculosis sanatorium on the shores of Lake Billsby, near Canon Falls.——The work on the sanatorium which was to have been built in Crookston, has been suspended because of the failure of the county commissioners of Polk County to make the one-mill levy, and the withdrawale of Norman County from the agreement.

MISSISSIPPI

Vaccines and Antitoxins.—At a recent meeting of the State Board of Health, it was voted to procure a supply of vaccines, antitoxins and serums to be distributed to the public at cost.

Personal.—Dr. Edward C. Parker, Gulfport, has returned from Europe.——Dr. L. S. Rogers, West, will take charge of the State Charity Hospital, Jackson, about September 1.——Dr. Edward R. Cook, Vicksburg, charged with manslaughter in connection with the death of Miss Rosa Grant, was exonerated July 25.——Dr. Rives A. Manker, Long Beach, has been adjudged insane and committed to the State Hospital.——Dr. Noel C. Womack, Jackson, has been appointed a member of the State Board of Health, vice Dr. Giles S. Bryan, Armory, resigned.

MISSOURI

City Rents Isolation Hospital.—The city of St. Joseph has rented at a cost of $60 a month, the sanatorium of Dr. William L. Wittington at Twenty-Third and Sacramento Sts. The institution is to be used as an emergency hospital for communicable diseases.

From, to, and in Europe.—Dr. Clarence B. Francisco and Dr. Jabez N. Jackson, wife and daughter, Kansas City; Drs. Floyd H. Spencer, Joseph J. Bansbach and Louis J. Dandurant, St. Joseph, have returned from Europe.——Dr. Alex Van Ravenswaay, Boonville, has returned to Holland for war service.——Dr. Evan S. Connell, J. Elliott Royer, Albert J. Welch and Joseph E. Sawtell, Kansas City, are awaiting an opportunity to sail for the United States.

St. Louis

Personal.—Dr. Keating Baudoy is reported to be ill in the State Hospital from an overdose of paraldehyde.——Drs. John F. Gallagher and R. Lee Dorsett have been appointed assistant police surgeons.

In and from Europe.—Drs. James C. Whitley, Harriet H. Stevens and Lionel S. Luton are detained in Europe on account of the war.——Drs. Frank Ring and Joseph L. Emil and Julius Boehm have returned from Europe.

Lung Clinic Open.—A clinic for diseases of the lungs has been established at St. Marys Dispensary, by the St. Louis Society for the Relief and Prevention of Tuberculosis and the St. Louis University. The clinic is in charge of Dr. Andrew C. Henske and is open from 12 to 1 o'clock on Mondays, Wednesdays and Fridays.

NEBRASKA

The State Association Meeting.—Dr. Joseph M. Aiken, Omaha, secretary of the Nebraska State Medical Association, announces that the next annual meeting will be held in Hastings, May 18-20, 1915.

Nebraskans in Europe.—Dr. Oscar S. Hoffman and wife, Omaha, reached London August 4.——Drs. George A. Stevens, Frank M. Conlin, William N. Anderson, Joseph M. Shramek, Omaha, who reached Paris on their way to Vienna, sailed from Liverpool for this country, August 15.——Dr. E. Wiliard Powell, Omaha, has returned from Europe.——Dr. Palmer Findlay, Omaha, sailed for home, August 23.

Personal.—Dr E. Dolphus Haysmer, Washington, D. C., has accepted the position of surgeon and superintendent of the Nebraska Sanitarium, Hastings.——Dr. Frederick A. Sedlacek, Omaha, has been appointed vice-chairman of the State Prison and Parole Boards.——Dr. Joseph F. Borghoff, Omaha, has been appointed a member of the staff of the St. Francis' Hospital, Butte, Mont.——Dr. George Tilden, for forty years head of the Douglas County Commission, has resigned and has been succeeded by Dr. Samuel K. Spalding.——Dr. Adam R. Ray, who has purchased a ranch near Brownlee, and is about to leave Fairfield, was the guest of honor at a dinner given recently by the Clay County Medical Association.

NEW YORK

New York Physicians Abroad.—Dr. and Mrs. Grant C. Madill and daughter, Ogdensburg, and Dr. Jane N. Baldwin, Poughkeepsic, are in London awaiting opportunity for passage to this country.

Personal.—Dr. Howard L. Van Winkle, Syracuse, is first on the list of eligibles to be certified by the State Civil Service Commission for permanent appointment as bacteriologist of Onondaga County.——Dr. C. Grace Carroll, who is temporarily filling the position, also passed the examination for this position.

The Carmody Drug Decision.—In an opinion handed down on August 19, Attorney General Carmody holds that the name of the physical purchaser of a habit-forming drug and not the person for whose use it is intended must be taken at the place of sale. He also states that a physician must not only write out a prescription when administering, but must do so when dispensing a habit-forming drug.

Course in Hygiene and Preventive Medicine.—Albany Medical College announces a special course in hygiene and preventive medicine which shall have special reference to the needs of the general practitioner, and in addition the State Department of Health has consented to deliver a series of twenty lectures on subjects related to hygiene and preventive medicine, especially on the relation of bacteriology to public health and the control of communicable disease. The special lecturers announced are Drs. Hermann M. Biggs, Linsly R. Williams, Augustus B. Wadsworth, Cressy L. Wilbur and C. E. A. Winslow.

New York City

Return from Europe.—Drs. Adolph Rostenberg and George David Stewart, Dr. Morris Manges, Dr. and Mrs. E. J. Bissell, Dr. and Mrs. Charles N. Dowd and Drs. Henry W. Frauenthal and Alfred A. Herzfeld have returned from Europe.

Typhoid on Hart's Island.—On August 12 a case of typhoid fever appeared in the workhouse on Hart's Island and on the 21st it is reported that there are twelve cases in the workhouse and two in the reformatory. The island has been isolated by order of the Board of Health and no prisoners will be permitted to leave for the present.

Physical Tests in the Health Department.—As attesting the good faith of his conviction that regular periodic physical examination of all employes is both practicable and advantageous, Dr. Sigmund S. Goldwater has himself submitted to a physical examination as have also 300 employees of the Health Department. Of this number 95 were found to have physical defects of more or less serious nature. It is believed that about the same proportion will be found to exist in any other body of employees.

OHIO

Home from Abroad.—Dr. John V. Gallagher, wife and four children, Cleveland, and Dr. and Mrs. Birt E. Garver, Loraine, have returned from Europe.

Bureau of Child Hygiene for Cleveland.—Dr. Clyde E. Ford, commissioner of public health, has asked for an appropriation of $11,400 to establish a bureau of child hygiene, and has asked for a total increase of $23,000 in his annual appropriation.

Trachoma.—The eye hospital in East Youngstown, started by Miss Mary Runyan and Mr. J. Clyde Campbell, is continuing to treat a number of trachoma cases which have been occurring in the various industrial plants of the city of Youngstown. The results so far have been good.

Antismall-pox Campaign at East Youngstown.—Vigorous measures are being taken in East Youngstown to combat the spread of small-pox. Every pupil will be vaccinated as soon as school reopens. The health officer, Dr. Amos B. Sherk, declares there is little real opposition to vaccination among the people.

Public Health Nurses.—Miss Bertha Bronson has been appointed public health nurse to the city of Lorain. Funds for this purpose were furnished by the city council.——Akron is to have a public health nurse, who will also act as health inspector. The expense will be borne by the Summit County Health Protective Society.

Public Health League Membership Increases.—A recent campaign and canvass started by the Urbana Public Health League resulted in the enrollment of 350 members. The total membership has now reached 554. Many organizations and lodges have sought membership and Urbana factories and stores are giving the league their moral and financial support.

Condemns City Prison.—The Board of Health of Circleville had declared the city prison unfit for use on many occasions because of unsanitary conditions therein, but nothing had been done to remedy the conditions. Finally, at its last meeting, the board prohibited the use of the prison. There are many other such prisons in Ohio requiring action by boards of health.

State Board Laboratory Moves to University.—In furtherance of Secretary E. F. McCampbells's plan to promote closer cooperation between the various state departments and the state university, the laboratory of the State Board of Health will occupy one of the buildings on the campus, at present being remodeled for its use. The laboratory, now situated in the Hartman Building, is being dismantled and set up in a building formerly used by the botany department at the university.

Personal.—Dr. William C. Mendenhall, Trotwood, who was struck by an electric car at Crown Point, August 13, is reported to be in a serious condition at St. Elizabeth's Hospital, Dayton.——The office of Dr. Eugene C. Beam, Columbus, was destroyed by fire, August 4.——Dr. Millard F. Hussey, Sidney, has been reappointed a member of the board of trustees of the Lima State Hospital.——Dr. Ernest Crockett, Ashtabula, has been elected coroner of Ashtabula County, vice Dr. Robert J. Baxter, Conneaut, resigned to become postmaster of the city.——Dr. Fremont M. Marshall, for three years health officer of Coshocton, has resigned.

PENNSYLVANIA

Personal.—Dr. Henry B. Burns has been appointed head of the department of school hygiene of Pittsburgh.——Dr. Wallace R. Hunter, Erie, has been reappointed trustee of the Warren State Hospital.——Dr. and Mrs. Schaffer, Allentown, have returned from Europe.

Reading Infant Mortality Reduced.—Through the efforts of the Visiting Nurses' Association of Reading, the mortality rate among infants in that city has been greatly lowered. The Fresh Air Home for Babies at Antietam, a few miles below the city and one of the many baby saving stations conducted by the association, has done much toward reducing the number of deaths of infants. Already more babies have been treated than last year when the total number in the care of the association reached 150.

Philadelphia

Hospital Superintendent Dies.—Rev. William Service Steen, for sixteen years superintendent of the Presbyterian Hospital, died August 12.

Care of Babies to Be Part of School Curriculum.—At the last meeting of the Board of Education, a motion was passed which made the teaching of methods to be employed in the care of babies a regular part of the work to be followed in the domestic economy course in the elementary schools. This subject will hereafter be taught in nine of the present housekeeping centers of the public schools and if successful the course will be extended throughout all grades of the elementary schools.

Personal.—Dr. Walter L. Pyle has sailed for South America.——Dr. William L. Rodman has returned from Europe and a number of others are reported to be on their way, among them Dr. E. E. Montgomery, on the *Adriatic,* which left Queenstown, August 21, and Dr. John H. Girvin, on the *Olympic,* which sailed from Liverpool, August 22.——Dr. Constantino N. Ciavarelli, who has just returned from Italy, was the guest of honor at dinner given by his fellow countrymen of this city August 21.——Dr. Karl Schaffle of this city has been appointed deputy medical inspector of tuberculosis dispensaries succeeding Dr. Edward B. Shellenberger, Warren, resigned.——Dr. John E. B. Buckenham has been appointed acting chief resident physician at the Hospital for Contagious Diseases during the absence of Dr. Samuel S. Woody on vacation.

VIRGINIA

Home from Abroad.—Drs. Israel Brown, W. Levi Old and Starke A. Sutton, Norfolk, have returned from Europe.

The Care of Infants.—The State Board of Health has issued 40,000 pamphlets on the care of infants, illustrated by photographs containing detailed directions for the care of infants and the general principles for the modification of milk.

State Health Board Appointments.—The governor has announced the following reappointments to the State Board of Health: first district, Dr. Samuel W. Hobson, Newport News; second district, Dr. Otto C. Wight, Jarratt; eighth district, Dr. William M. Smith, Alexandria.

Personal.—Dr. J. O. Fitzgerald has been elected bacteriologist to the State Board of Health with Dr. Gray as his assistant.——Drs. Charles M. Labenberg, Charles V. Carrington and Ramon D. Carcin have been appointed the new board of pension examining surgeons of Richmond.

Bacteriologist to Resign.—Mr. Aubrey H. Straus, for five years bacteriologist of Richmond, has announced that he will leave the service of the city at the end of the summer to become associate professor of bacteriology and preventive medicine in the University of Virginia, Charlottesville.

WISCONSIN

Sanatorium Plans Approved.—Plans for the Winnebago County Tuberculosis Sanatorium have been approved and advertisements for bids have been made.

New Health Insignia.—The city ambulance of Racine is now decorated by a gold star within a blue circle instead of the red cross which formerly designated the character of its work.

Detained in Europe.—Drs. John M. Dodd, Ashland; Charles W. Giesen, Superior; John Durner, Milwaukee, and Flora A. Read, Fond du Lac, are believed to be detained in Europe on account of war conditions.

Home from Abroad.—Drs. Thomas W. Nuzum and Edmund F. Woods, Janesville, have returned from Europe.——Dr. Albert M. Farrell, Two Rivers, reached New York, August 16.——Dr. Frederick A. Kraft, Milwaukee, returned from Europe, August 10.

Personal.—Dr. John W. Coon, Milwaukee, formerly superintendent of the City Tuberculosis Hospital, Wales, has been appointed superintendent of the new Municipal Tuberculosis Hospital, Chicago. Dr. Glenford L. Bellis, Wales, obtained the highest mark of the Cook County Civil Service examination, July 29, for health physicians at the Cook County Tuberculosis Hospital, Oak Forest.

GENERAL

Eye, Ear and Throat Specialists to Meet.—The annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Boston, October 19 to 21.

Red Cross Offers Services.—The American National Red Cross has decided to offer its services to all nations involved in the European war. The secretary is at present in Europe and the international relief board is considering ways and means of rendering service. Ten hospital units each consisting of three surgeons and twelve nurses with complete equipment are said to be now ready to be sent to the European war zone.

The Plague at New Orleans.—Since the last report, two cases of provisional diagnosis, bacteriologically confirmed, of bubonic plague, have been made in the following cases: Case 18, Ching Sam, Mongolian, male, aged 72, residence, 911 Toulouse St., employed at the Chinese Restaurant, 916 Toulouse St., sick four or five days, found dead Aug. 16, 1914, diagnosis, septicemic plague. Case 19, Mary Hooper, colored, female, aged 40, residence, 1905 Bienville St., sickened August 14, removed to Isolation Hospital August 16, with right femoral bubo. Case 20, Louise Welsh (daughter of Mary Hooper), colored, female, aged 24, residence, 1905 Bienville St., sickened August 16 with left femoral bubo, removed to Isolation Hospital. Cases 55 to 64 of rodent plague have been reported up to August 22. During the week ended August 15, 101 vessels were fumigated; 12,705 pounds of sulphur were burned; 12,304 tons of outgoing freight were inspected; 21 clean bills of health and 7 foul bills of health were issued in the outgoing quarantine department. In the department of overland freight inspection, 6,510 cars were inspected, 1,403 cars were rat-proofed, 5 cars were condemned and one rodent was killed in a car. The field operations for the week included 10,202 rats trapped; 33 premises fumigated; 57,955 poisons placed; 4,366 premises inspected; 1,624 notices served; 1,449 abatements and 117 dead inspected. At the laboratory 10,351 rodents were received and 9,001 examined. Of the rats, 37 were suspicious and in 17, the diagnosis of plague was confirmed. Since July 8, 44,135 rats have been examined.

CANADA

Canadian Surgeons for the Front.—While no official list of the Canadian Medical men attached to the militia has been published, it is understood that amongst others the following will be in the first Canadian contingent: Lt.-Colonel Duff in command; Dr. John L. Chabot, M.P., Ottawa; Hon. Dr. Henri S. Be and, N. Joseph, Que. and Drs. Perry G. Goldsmith and J. Harvey Todd, Toronto.

Infant Mortality in Canada.—With a little less than one-sixth the population of New York, Montreal heads the list in Canada in infant mortality. It has three times the mortality per 1,000 that New York has. Recent statistics places it at 290 per 1,000 births. Brandon comes next with 269; Ottawa, 256; Winnipeg, 169; Hamilton, 173; Halifax, 204; London, 164. By provinces the deaths per 1,000 births are as follows: Manitoba, 149; Ontario, 131; Saskatchewan, 130; Nova Scotia, 111; Prince Edward Island, 104. It is surprising to see the new western cities heading the list.

Hospital News.—The Vancouver General Hospital which has for the past seven years expended at least $5,000 a year in the treatment of Hindus will make an attempt to collect this amount from some Hindu leader in that community, since the Hindus were able to raise $14,000 to pay charter money for the steamer *Komagata Maru.*——The new St. Justine Hospital for Children was recently opened in Montreal. It contains eighty beds, three public wards, one private ward and a dispensary.——An Industrial Home for the Blind is in course of erection at Notre Dame de Grace, Montreal.——The Union National Française, Montreal, is to build a hospital at Maisonneuve.——The Bruchesi Institute at Montreal in 1913-1914 had 3,285 patients attend its clinics, the total number of consultations being 14,042. The number of deaths from tuberculosis registered in Montreal for that fiscal year was 1,083.

Health Items.—The death-rate in Toronto from typhoid fever in 1913 was 10.4 per 100,000 of the population. If the cases contracted outside the city were deducted, the rate would stand at 5.3. This would be the lowest rate of any American city, with a population over 350,000, outside of New York. In 1910 the deathrate stood at 40.8.——The new addition to the Toronto filtration plant on the Island is to have a capacity of 60 million gallons. It is to be of the mechanical type known as the Ver Merh drifting sand filter. Toronto will be the first city of large size to install this system and it is expected to be one of the finest and most modern filtration plants in the world.——The Department of Health, Toronto, has made a thorough survey of all factories and industries in that city—1,294 in all. In 80 per cent. the conditions are fairly good, but in the remaining 20 per cent. the conditions were such as to call for immediate action on the part of the Department.

Nova Scotia Provincial Sanatorium.—The Nova Scotia Government established the Provincial Sanatorium at Kentville in 1904. The ninth annual report of the medical superintendent, Dr. A. F. Miller, states that during the year ended Oct. 31, 1913, there were sixty-four applications for admission and that of these thirty-eight were accepted. At discharge twenty-three of these were apparently cured, eleven arrested, two improved, whilst two only failed to respond to treatment. It has been found that when tuberculin is used patients do better while in the sanatorium, but little ultimate benefit is apparent. Accurate records of all patients have been kept since January, 1910. Since that time ninety-four patients have been received for treatment. Fifty-nine of these are now well and working; nineteen are not working; fifteen are dead; the condition of only one remains unknown. There is great need in the province for hospitals for needy patients. A weekly fee of five dollars is charged and the balance for maintenance is supplied by the Government.

Infant Mortality in Toronto.—In June the Department of Health inaugurated a new branch of its service, known as the Division of Child Hygiene with Drs. Alan Brown and George Campbell in charge. The appointments are in the hands of the professor of pediatrics in the University of Toronto and the Medical Officer of Health. Toronto now has a population of 510,000 of which 10,960 are under one year of age and 21,070 under two years. In 1897 the infant mortality totalled 664 when the population stood at 197,000. During the last five years it has been as follows: commencing with 1909—1,410; 1,420; 1,432; 1,584; 1,877. To care for the children in times of sickness there are the Hospital for Sick Children with 250 beds—baby wards, thirty cots. It has its own pasteurizing plant and supplies seven milk depots. The Infants' Home cared last year for 289, of whom 76 died during the year. St. Vincent's Home has an average of 100 cases in residence. The Haven, 61—nine died; The Sacred Heart Orphanage, inmates, 200. There are forty-two licensed baby farms. There are eight day nurseries, and numerous private organizations working for the infants. A floating sanatorium provides trips for about three hundred mothers and babies. The well-baby clinics number ten which will be increased to twenty-five in 1915.

LONDON LETTER

London, Aug. 7, 1914.

The War: Medical Service

The greatest war which the world has ever seen has broken out suddenly and unexpectedly, yet there is every reason to think that the medical service of this country will be quite adequate for the work. Before the declaration, the navy, including its medical service, was completely mobilized. The medical officers of the reserve were called from their civilian duties. A number of surgeons have also been engaged for temporary service and senior students to act as dressers. Trained nurses have been called from a reserve organized by the matrons of the large hospitals for service in the naval base hospitals. Expert surgeons and anesthetists from the large hospitals are ready for duty as soon as the sick and wounded are landed from the hospital ships.

For the territorial force of the army, physicians have been called from civilian practice. Fourteen mounted brigade field ambulances, forty-two field ambulances and twenty-three general hospitals are available. Civilian physicians have responded to the call for service at home and abroad as temporary surgeons. Many private citizens have offered their residences for use as hospitals or convalescent homes.

THE CLINICAL CONGRESS OF THE SURGEONS OF NORTH AMERICA

(*Concluded from page 697*)

The Selection of Operation in the Treatment of Gastric and Duodenal Ulcers

Dr. A. von Eiselsberg said that symptoms of perforation of the ulcer into the general peritoneal cavity call for immediate operation, irrigation of the peritoneal cavity, closure of the perforation and in bad cases jejunostomy in addition for the purpose of administering nourishment. In the other complications of ulcer, such as hemorrhage, operation is in most cases better not done. In typical stenosis of the pylorus, especially when in the case of a long-standing ulcer no new symptoms have occurred, gastro-enterostomy is the operation to be chosen. Unilateral pylorus exclusion offers the greatest security in ulcer and its complications. For ulcer situated at a distance from the pylorus simple gastro-enterostomy is not so feasible as in cases of ulcer of the pylorus itself.

Hyperthyroidism

Dr. C. H. Mayo, Rochester, Minn., said that exophthalmic goiter is essentially a disease of a chronic character, presenting exacerbations and ameliorations of symptoms extending over a period of months or several years. The operative interference in cases resistant to treatment should be confined to injections of boiling water into the gland after Porter's plan to hasten improvement. In most of the severe cases a ligation is made first of the left upper pole only. Should the reaction following this be severe, the ligation of the right upper pole is indicated a week later, and thyroidectomy reserved until four months have elapsed, by which time these patients have made an average gain of 22 pounds, with great general improvement. However, if the reaction following the left ligation is not unduly severe, a partial thyroidectomy may be made at the second operation, the week following.

Typhoid Perforation

Dr. G. E. Armstrong, Montreal, pointed out the great difficulty in diagnosing. The first indication was usually pain, but it was absent in 25 per cent. of the cases. The symptom next in importance was change of expression, which was quite evident in the majority of the cases; 65 per cent. showed a definite alteration, 28 per cent. showed a gradual one, and 7 per cent. none. Tenderness was present in 88 per cent. and absent in 12. Rigidity was distinct in 85 per cent. and not in 15.

The Non-Operative Treatment of Carcinoma

Krönig of Freiburg was to have read a paper on this subject, but was recalled by the war. Dr. C. Jeff. Miller of New Orleans therefore gave his impressions of a visit to Krönig's clinic. He asked Krönig whether he was in favor of radiation treatment for early operable uterine tumors as well as for advanced cases, and was told that operation had been given up entirely. Roentgen-ray treatment was regarded as superior to hysterectomy for fibroids, though in women under 40 myomectomy was performed when feasible. Contrary to Bumm's statement that deep-seated tumors cannot be influenced by the Roentgen ray, Krönig believes that cancer of the stomach can be made to cicatrize, and even when there are secondary growths in the liver, retrogression can be brought about. Radium and thorium in large doses are also much employed by Krönig. He holds that large doses of radium strongly filtered have great possibilities in malignant disease in deep-seated organs. He uses large quantities of radium and thorium applied at a distance. For carcinoma of the cervix he does not apply radium through the vagina but from outside the abdomen. He does not believe in the implantation of radium into growths. Summing up, Dr. Miller said he was impressed by what he saw, but not convinced.

Dr. T. W. Eden of London admitted that the Roentgen rays were useful, but was less certain about radium. By the former a very beneficial effect may be produced though the disease may be advancing in the deeper tissues. The best promise of improved results is in the Roentgen rays combined with operation.

Mr. W. E. Miles of London never used radiant treatment, but confined himself to operation. It is necessary to remove not only the organ affected but also the tissues through which spread has taken place and through which it will take place. In operating for uterine cancer the interiliac glands should always be removed whether obviously affected or not. If found infiltrated, the iliac glands should also be removed.

Dr. Joseph Bloodgood of Baltimore said that surgeons were so overwhelmed with the details of technic of extensive operations that they had not given sufficient attention to the beginnings of cancer. Cancer always gave warnings to its subjects and therefore a campaign of education should be undertaken. At the stage at which cases should be treated the mortality should be practically nil. Preventive treatment is all important, for cancer never develops in a healthy spot.

Marriages

Lucius P. Beck, M.D., Piedras Negras, Mex., to Miss Minnie E. Stephens of San Antonio, Tex., at Uvalde, Tex., August 3.

Isaiah E. Lawrence, M.D., to Miss Grace Vivian Coyle, both of Columbia City, Ind., at Detroit, Mich., August 11.

George Chauncey Wrigley, Jr., M.D., to Miss Marie A. Timm, both of Dixon, Cal., August 8, in Sacramento, Cal.

Joseph Daniel Heitger, M.D., Bedford, Ind., to Miss Katherine Georgina Everbach of Louisville, Ky., July 15.

Edward Lewis Teed, M.D., Lisle, N. Y., to Miss Nettie Knoeller of Hallstead, Pa., at Syracuse, N. Y., August 6.

William DeHart FitzHugh, M.D., Doe Hill, Va., to Miss Bessie May Wagner of Monterey, Va., June 30.

Ralph Homer Boice, M.D., to Miss Mabel Chatterdon, both of Sistersville, W. Va., August 12.

John Robert White, M.D., Lynn, Mass., to Miss Margaret E. Hale of New Haven, Conn., July 21.

Joseph Harold Friedman, M.D., to Miss Sarah Margulies, both of Brooklyn, N. Y., August 9.

Deaths

Eugene Alfred Smith, M.D. University of Buffalo, N. Y., 1887; a Fellow of the American Medical Association; adjunct professor of clinical surgery in his Alma Mater; attending surgeon at Buffalo Hospital and assistant at Charity Hospital; consulting surgeon to the German Deaconess, Riverside and Woman's hospitals; once major and surgeon of the 65th Infantry, N. G., N. Y.; for many years a practitioner of Buffalo; died at his home in Saranac Lake, N. Y., August 9, from tuberculosis, aged 49.

William G. Ralston, M.D. Medical College of Evansville, Ind., 1873; a practitioner of Indiana since 1845; surgeon of the Eighty-First Indiana Volunteer Infantry and later secretary of the enrollment board of the First Indiana District during the Civil War; later surgeon of the U. S. Marine Hospital at Evansville; a member of the Mississippi Valley Medical Association; said to have been the oldest practitioner of Indiana; died at his home in Evansville, August 11, aged 95.

Wesley Harris Sharp, M.D. University of Pennsylvania, Philadelphia, 1865; a Fellow of the American Medical Association and a charter member of the West Virginia State Medical Society; hospital steward in the Navy during the Civil War; one of the oldest and most respected physicians of West Virginia; died at his home in Parkersburg, August 5, from uremia, aged 71.

Edgar B. Smith, M.D. Detroit College of Medicine, 1887; a Fellow of the American Medical Association; professor of surgery in the Michigan College of Medicine and Surgery, Detroit; surgeon in chief of the Boulevard Sanitarium, Detroit; died at his home, August 11, from septicemia due to an operation wound received three weeks before, aged 52.

Wallace B. Amick, M.D. Hospital College of Medicine, Louisville, Ky., 1898; of Glenalum, W. Va.; a Fellow of the American Medical Association; physician to the Glenalum Coal and Coke Co.; while traveling on a railway velocipede with the paymaster of the company; was shot and killed by robbers, August 14, aged 39.

Edward P. Childe (license, Nebraska, 1891); for fifty-three years, and until 1913 a practitioner of Nebraska; a veteran of the Sioux and Blackfeet campaigns; for one term a member of the Territorial Legislature of Nebraska; died at his home in Seattle, Wash., recently, after a surgical operation, aged 78.

William Andrew Forster, M.D. Homeopathic Medical College of Missouri, St. Louis, 1888; professor of surgery in the Kansas City Hahnemann Medical College; for twenty-five years a resident of Kansas City, Mo.; died in Grace Hospital in that city, August 8, after a surgical operation, aged 58.

Liston Homer Montgomery, M.D. Northwestern University Medical School, Chicago, 1871; a Fellow of the American Medical Association; a veteran of the Civil War; secretary of the Ohio Society of Chicago; died at his home in that city, August 24, from cerebral hemorrhage, aged 66.

John Lazelle Sawyers, M.D. Northwestern University Medical School, Chicago, 1878; of Centerville, Iowa; a Fellow of the American Medical Association; died in Augustana Hospital, Chicago, August 10, ten days after an operation for appendicitis, aged 58.

George G. Graham, M.D. College of Physicians and Surgeons, Baltimore, Md., 1882; formerly an alienist of Pittsburgh, and a member of the staff of Dixmont Hospital for the Insane; died at his home in Santa Barbara, Cal., August 9, from heart disease.

Nathan Cash, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1865; a veteran of the Civil War and for nearly forty years a practitioner of Uhrichsville, Ohio; died at his home in that city, August 12, from cerebral hemorrhage, aged 74.

James P. Cox, M.D. Northwestern University Medical School, Chicago, 1904; of Jefferson, Wis.; a member of the Wisconsin State Medical Society; died at St. Mary's Hospital, Milwaukee, August 12, after an operation for appendicitis, aged 38.

John C. Hallam, M.D. Marion-Sims College of Medicine, St. Louis, 1899; a Fellow of the American Medical Association; for several years a practitioner of St. Louis; died at his old home in Centralia, Ill., August 13, aged 38.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

The Radio-Activity of the Waters of Saratoga Springs

The article by Richard B. Moore and C. F. Wittemore (*Jour. Indust. and Engin. Chem.*, July, 1914, p. 552), quotations from which are given below, is of special interest in view of the general confusion of ideas with regard to radio-active waters. The work described was done by these authors for the Bureau of Mines at the request of the commissioners of the state reservation at Saratoga Springs, New York, in order to determine to what extent the waters and gases evolved from them were radio-active. The Journal comments on the work editorially elsewhere.

"The work done involved the direct testing of the gases evolved from the springs for thorium and radium emanation; the examination of the waters: (*a*) for their total activity; (*b*) of a certain number for the activity due to dissolved radium salts; and the determination of the activity of the residues deposited by the springs, where such residues could be obtained. . . .

"The activity of any water may be due to the presence of (*a*) dissolved thorium or radium emanations, (*b*) dissolved thorium and radium salts. All mineral and deep well waters are more or less radio-active, but the activity is *usually* due to the presence of dissolved radium emanation, *not to dissolved radium salts.* Therefore, the fact that a water is radio-active has of itself little significance. . . . [Italics ours.—Ed.]

"Tests on the activity of the evolved gases were made on the ground in the following manner: A glass funnel to which was attached a rubber tube connecting with a small rubber bulb in turn connected with one of the openings to an electroscope, was inverted over the spring at a point where the evolution of gas was greatest. By pressing the bulb, a continuous and fairly constant supply of the gases from the spring was passed through the electroscope. By stopping the flow of gas and immediately making a series of readings across the scale, each reading being of short duration, it was possible to ascertain whether the activity was entirely due to the presence of radium emanation. If thorium emanation was present, a very sudden drop in activity would be noticed and, after a few minutes, the curve obtained by plotting activity against time would flatten out, due to the decay of the thorium emanation. In no case was thorium emanation found in any of the gases evolved from the springs, the activity being entirely due to the presence of radium emanation. . . ."

In order to get the activity of the waters, samples which previously had been collected at the springs at a point nearest to the source of supply, were boiled in the apparatus designed by Schlundt and Moore[1] and the evolved gases containing the radium emanation were introduced into a standardized electroscope. "On account of the large amount of carbon dioxid contained in some of the waters it was found advisable to add a sufficient amount of C.P. sodium hydroxid before boiling. In order to differentiate between the activity due to radium salts in solution and that due to dissolved emanation, samples of some of the waters were treated with C.P. hydrochloric acid, boiled for fifteen minutes and then sealed in flasks and allowed to stand for a month. At the end of this period they were boiled in the usual way and from activity obtained it was possible to calculate the amount of radium salts in solution.

"Samples of deposits from some of the springs were also collected and fused with sodium carbonate according to the method of Strutt.[2]

"Column 2 in the table of results gives the activity per liter at standard temperature and pressure, of the gases evolved by the springs; Column 3 gives the total activity per liter of the water, and Column 4 the activity per liter of the water due to dissolved radium. Column 5 shows the activity of the material deposited either in or just around the outlet of the spring.

Spring	Temperature °C	Gas Radium per Liter Gram $\times 10^{-11}$	Water Radium per Liter Gram $\times 10^{-11}$		Deposit Radium per gram Gram $\times 10^{-11}$
	1	2	3	4	5
Emperor	9.7	22.1	7.0	6.8	....
Peerless	...	....	6.0	...	....
New red	10.0	8.0	4.3	...	....
Hathorn No. 1	10.2	21.3	14.2	4.2	76.9
Coesa	10.2	8.1	9.7	...	7.9
Hathorn No. 2	10.0	5.1	16.1	9.9	....
Hathorn No. 3	9.5	8.3	6.6	...	12.0
Geyser	9.7	3.4	3.9	...	1.7
Adams	11.0	11.7	12.2	5.1	8.8
Flat No. 2	10.5	3.7	5.0	...	6.5
Pump well No. 4	12.0	67.8	23.1	2.1	6.3
Island	..	....	11.8	...	10.5
Crystal Rock	10.0	84.7	88.0	0.9	....
New Shonts well	...	....	11.3	...	....

". . . The fact that the residues are radio-active shows that the waters contain dissolved radium salts in addition to dissolved emanation, but this fact is more precisely indicated by the results under Column 4. . . .

"The total activity of the waters is rather low, although that of the Crystal Rock spring is considerably above the average. The activity of this spring, however, is not exceptional. . . .

"Since these analyses were made, the hydrostatic level of the waters at Saratoga Springs has distinctly changed, owing to the cessation of the extensive pumping for commercial purposes which formerly took place. Accordingly, the flow of many of the wells has increased. Whether this has also affected the radio-activity of the water cannot be predicted with certainty."

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[1] Schlundt and Moore: Jour. Phys. Chem., 1905, ix, 320.

[2] Strutt: Proc. Roy. Soc., 1906, (A), lxxvii 472.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

WHAT CONSTITUTES FIRST AID?

To the Editor:—We are having a controversy with a liability company as to what constitutes first aid in fracture cases. We maintain that this includes the reposition of the fracture and the x-ray pictures necessary for its successful reduction. The liability company says that radiographs cannot be included in first aid. Our attorney tells us that there has been no ruling on that point in this state. Please tell us the ruling in Illinois or adjoining state or advise us in any other way on this point (What constitutes first aid?), as we are inclined to make a test case of this rather than accept the niggardly offer of the liability company.

T. J. Billion, M.D., Sioux Falls, S. Dak.

Answer.—What constitutes "first aid" is a question of considerable importance owing to the great increase of accident and liability insurance. So far as we are aware no judicial decision has been handed down defining "first aid"; but a brief reference to the manner in which the term came into general use will aid one in arriving at a clear understanding of the scope of its meaning. When a person is accidentally injured or suddenly taken ill it is perfectly natural for those about him to render any aid or assistance within their knowledge and power. The humanitarian principle underlying such service has been long recognized and has inspired the formation of societies of laymen, the members of which receive a certain amount of instruction in order that they may be better able to render such service in an emergency. These societies are usually called first-aid societies, the idea being to give aid pending the arrival of a physician or surgeon.

The importance of doing something to relieve the injured, and particularly in the case of wounds to protect them from infection as much as possible, has caused most industries, railroads, etc., to provide first-aid outfits and to have certain of the men instructed in giving first aid until the patient can be turned over to a physician, or can be removed to a settled place such as his home or a hospital. There can be no question that the service thus rendered by laymen in such emergencies is "first aid"; but now suppose the one nearest at hand to the injured is a physician, or suppose that some one with no other authority than that of trying to do something to aid one in trouble summons a physician. Does the physician give "first aid," and if so, what is included in "first aid"? Should the patient require anything more than a momentary service it is perfectly evident that he must be removed to some suitable place such as his home or a hospital before any definite line of treatment can be undertaken.

Such temporary measures, then, as may be used to enable or to facilitate the removal of the patient to some settled place where a definite line of treatment may be instituted constitute "first aid," whether it be given by a physician or a layman. The fact that the physician's efforts may be more intelligent than the layman's does not change the principle.

When the patient has reached his home or a hospital, or other place, and is turned over to his own physician, or to the hospital surgeon, or wishes to continue the services of the physician first called, then "first aid" ceases, and definite treatment begins. In large cities many patients suffering with injuries are brought to a hospital without ever having received "first aid," unless the mere act of transporting them may be considered "first aid." After such a patient reaches the hospital he does not receive "first aid," but definite treatment is instituted; and by the mere fact that the first thing done for him is done at the hospital, that first thing does not constitute "first aid." "First aid," then, may be defined as the temporary measures carried out in emergencies by any one, layman or physician, preliminary to the institution of a definite line of treatment by the physician in charge.

With this conception of "first aid," it seems clear that the taking of roentgenograms and the permanent setting and dressing of fractures is not "first aid," but definite treatment.

CAUSE OF WHOOPING COUGH — VALUE OF PERTUSSIS VACCINE — SCARLATINA BACTERIN — INFECTIOUS AGENT OF SCARLATINA

To the Editor:—1. Is the *Bacillus pertussis* recognized as the cause of whooping cough?

2. Has the pertussis vaccine proved itself to be of value, prophylactic or curative?

3. Has the so-called scarlatina bacterin any right to carry that name, and is it of prophylactic or therapeutic value?

4. Has the infectious agent of scarlatina been demonstrated?

H. Haerem, M.D. Story City, Iowa.

Answer.—1. Yes; the Bordet-Gengou bacillus is recognized as the cause of pertussis.

2. Yes. Thus E. Mather Sill says: "The most recent and, to my mind, the most effective rational method of treating whooping-cough is by means of a vaccine made from a culture of the Bordet-Gengou bacillus. I have used this method of treatment almost exclusively for several years, and in all treated sixty-one patients with better results than I had previously obtained by means of drugs." It has been the general experience that when a child is already in the stage of incubation, the vaccine will not prevent the development of the disease.

3. The so-called scarlatina bacterin is said to consist of a mixture of killed streptococci from scarlet fever cases. The close association of the streptococcus with scarlet fever has been considered an indication for the use of antistreptococcus serum and the various vaccines and bacterins prepared from this organism.

4. No.

ARTICLES ON INFANT WELFARE

To the Editor:—Please suggest literature that would be of use in preparing an address on child welfare. R. S. I.

Answer.—In The Journal, Feb. 1, 1913, p. 388, a list of literature on the prevention of infant mortality was published. The following is a list of articles on other phases of infant welfare:

Van Ingen, P.: Recent Progress in Infant Welfare Work, *Am. Jour. Dis. Child.*, June, 1914, p. 471.
Favill, H. B.: Child Culture the Function of Organized Medicine, A. M. A. Public Health Series.
New York State Department of Health, *Health News*, April, 1914 (infant welfare number).
Adanie, J. G.: Child Welfare Exhibitions and Their Value, *Pub. Health Jour.*, July, 1912.
New York City Department of Health, Monograph Series, No. 4, September, 1912.
Baker, S. J.: The Division of Child Hygiene of the Department of Health of the City of New York.
Hollopeter, W. C.: The School Child's Breakfast, orig., The Journal Nov. 20, 1909. p. 1727.
Van Derschi, J. W.: An Investigation into the Conditions Surrounding the Child in School, The Journal, Nov. 20, 1909, p. 1725.
The Division of Child Hygiene and the Reduction of Infant Mortality in New York City, abstr., The Journal, Jan. 1, 1910, p. 72.
Physical Culture of Our School Children, Vienna Letter, The Journal, Jan. 15. 1910, p. 218.
Women and Children in Factories, Vienna Letter, The Journal, April 30, 1910, p. 1456.
Probst, C. O.: The Protection of Child Life, abstr., The Journal, July 16, 1910, p. 245.
Emerson, W. R. P.: Hygienic and Dietetic Treatment of Delicate Children by the Class Method, *Arch. Pediat.*, August, 1910; abstr., The Journal, Sept. 10, 1910, p. 968.
Hygiene of Childhood, London Letter, The Journal, Oct. 1, 1910, p. 1211.
Sill, E. Mather: Dietary Studies of Undernourished School Children in New York City, The Journal, Nov. 26, 1910, p. 1886.
Child Welfare Exhibits, Current Comment, The Journal, May 13, 1911, p. 1395.
Child Welfare Exhibit, a Presentation in New York and Chicago of Factors Influencing Childhood, General News, The Journal, May 20, 1911, p. 1490.
Straw, Z. L.: Child Welfare. abstr., The Journal, June 17, 1911, p. 1851.

ABSORPTION OF MEDICINES DILUTED WITH WATER

To the Editor:—1. Have there been experiments made which show whether absorption of medicines by the stomach is hastened or retarded by their dilution with water?

2. Would 1/32 grain pilocarpin taken in a glass of water be more slowly absorbed than if taken in 1 dram of water?

X. Y., Toledo, Ohio.

Answer.—1. According to most experiments, there is no absorption of water from the stomach, and hence medicines dissolved in water are not very likely to be absorbed from the stomach. Their rapidity of absorption depends, therefore, on the readiness with which the stomach empties itself into the duodenum. Liquids which are isotonic with the blood are rapidly discharged from the stomach into the duodenum; hence the dilution of a medicine with sufficient water to lower its osmotic tension and make it isotonic favors its discharge from the stomach and absorption by the intestine.

2. The degree of dilution of 1/32 grain of pilocarpin in a dram of water is already so great that further dilution is not needed to favor absorption. A greater dilution would probably delay absorption somewhat because of the greater length of time before the liquid in which it is dissolved would be expelled into the duodenum.

SEALING OF MUSEUM JARS—PREVENTION OF MOLDS IN KAISERLING SOLUTION

To the Editor:—Referring to the query and answer on these subjects (The Journal, Aug. 15, 1914, p. 597), I should like to add my own practice and experience.

1. A satisfactory sealing mass may be made by adding boiled linseed oil to rosin till the resultant is a plastic mass at the highest atmospheric temperature it is to withstand. It should be warmed up till liquid enough to apply readily to the surfaces to be sealed, to which it should be applied thinly—just enough to secure uniform adhesion. So made and applied it holds well enough and at the same time is plastic enough to permit of easy unsealing for access to specimens, etc.

2. The prevention of mold, a persistent annoyance in warm, humid climates, has been accomplished, in my experience, best by the use of arsenic trioxid—it proving more satisfactory under the climatic conditions of the Gulf Coast than thymol. The water content of the preserving solution of Kaiserling may be made a saturated arsenical solution, apparently without detriment to color preservation.

W. F. R. Phillips, M.D., Mobile, Ala.

PUBLICATIONS ON BACTERIOLOGY

To the Editor:—Please give a list of medical publications (books or magazines) relating to bacteriology.

D. B. Taloon, Du Bois, Pa.

Answer.—

Jordan, E. O.: Text-Book of General Bacteriology, Philadelphia, W. B. Saunders Company, 1914, price $3.
Abbott: Principles of Bacteriology, Philadelphia, Lea & Febiger, price $2.75.
Hewlett: Manual of Bacteriology Philadelphia, P. Blakiston's Son & Co., price $4.
Muir and Ritchie: Manual of Bacteriology, New York, Oxford University Press, price $3.40.
Journal of Pathology and Bacteriology, Cambridge, England, per year $5.50.
Centralblatt für Bakteriologie, Parasitenheilkunde und Infectionskrankheiten, Jena, per year $3.75.

WATER-GLASS—EFFECT OF GASOLINE SMOKE

To the Editor:—1. What is the composition of "water-glass?" Has it any practical value in the preservation of eggs?

2. Have we any experimental evidence to show the deleterious effects of gasoline smoke on the animal organism (as in the concentration in which we find it along a boulevard on a hot, sultry, summer's evening?)

C. W. L., Denver.

Answer.—1. Water-glass is a solution of sodium silicate. Its value in preserving eggs rests on the function of excluding air.

2. No.

Book Notices

The Sensory and Motor Disorders of the Heart. Their Nature and Treatment. By Alexander Morison, M.D., F.R.C.P., Senior Physician to the Great Northern Central Hospital, London. Cloth. Price, $2.50 net. Pp. 261, with 51 illustrations. New York: William Wood & Co., 1914.

This volume is an earnest and dignified effort to set forth the importance of considering the nervous mechanism of the heart when attempting to understand the working of this organ in health or disease. Morison believes that the myogenists have been overenthusiastic in their claims. Not only does the ordinary muscle of the heart show nervous structures, but such specialized areas as the sinu-auricular node, Tawara's node, the bundle of His, and the wall of the coronary arteries are rich in nervous tissue whose function must surely be reckoned with. He is also not convinced that the atrioventricular node and bundle are purely vestigial remains of embryonic tissue; he believes that they have participated in the progressive development of the heart, growing and exercising their own special functions. His study of angina pectoris has led him to the belief that its causes may be various. He refuses to commit himself to any single theory of angina pectoris. The condition of the blood, of the nerves, the vessels, the muscle, may all be contributing factors. In fact, he believes that in many instances there are operating several causes constituting a "compound angina pectoris." So he is able to agree with those who regard the cause of the stenocardiac attacks as due to coronary obstruction, coronary spasm of the heart-muscle and stretching of the muscle from dilatation, and with those also who regard the pain as neuritic, neuralgic, aortitic, etc. His discussion of the prognosis and treatment is clear and sane. He is evidently not inclined to use digitalis in angina so freely as some others, who, it seems to us, are in the right. There is a brief consideration of some of the disturbances of cardiac rhythm. This gives Morison another opportunity to emphasize the importance of the nerve-control of the heart. He also reveals his skeptical attitude toward some of the more recent views in cardiology. For instance, he doubts the usual interpretation of auricular fibrillation. The tachy-arhythmia of the ventricle may be the cause and not the effect of the perverted auricular action (pp. 182, 222, etc.). He discusses heart-block enough to let one know that he thinks there are some things about it that are not yet proved. Altogether the book is an interesting contribution to the literature of heart-disease. The results of Morison's clinical experience are here set forth as well as epitomes of numerous post-mortem examinations in instructive cases that he has studied during life. From each one of these cases the author tries to draw some lesson bearing on the anatomy, physiology or pathology of the heart, and such studies are always of value. Morison is—to use a political expression—a stand-patter, a reactionary. He fights shy of the electrocardiograph and interpretations based on it. The older methods are good enough for him. We enjoy his well-worded thrusts at the progressive cardiologist, and must acknowledge that some of them strike home; but at the same time we feel that the sum total of his criticism, sincere as it is, is rather in the direction of retarding than advancing a knowledge of the truth.

Die Lokalisation im Grosshirn und der Abbau der Funktion durch Kortikale Herde. Von Dr. Med. C. v. Monakow, Professor der Neurologie, Universität in Zürich. Paper. Price, 48 marks. Pp. 1033, with 270 illustrations. Wiesbaden: J. F. Bergmann, 1914.

In this book the author of the well-known classic on *Gehirnpathologie* gathers together his scattered writings on brain localization and functional disturbances caused by lesions of the brain cortex, and molds them into a homogeneous whole. We can safely predict that the book is destined to become a source of inspiration to all who are interested in any branch of neurologic science. The author begins with general remarks on the symptomatology of lesions in the brain cortex, and points out that the initial symptoms of a lesion limited in extent are often entirely out of proportion to the amount of tissue involved, but seem to originate in centers remote from the seat of the lesion. This phenomenon as well as the gradual or rapid subsidence of many of the symptoms he believes to be due to the so-called process of "diaschisis," in support of which theory this book was written. By the term "diaschisis" Monakow means essentially "that shock-like cessation of function in nerve-centers widely separated in location but physiologically related in some manner and usually functioning synchronously with the center in which the lesion has occurred." He thus explains the multiformity of symptoms following a lesion in a known brain area and the gradual recession of many of the symptoms: diaschisis having passed off, there remain only the symptoms actually caused by the anatomic change in the brain. Monakow is thoroughly convinced that his theory will account not only for the many hitherto unexplained phenomena which follow a lesion of the brain, but also for the restitution of certain lost functions. He does not accept the assumption of "vicarious and compensatory action of parts of the brain not disabled for those unable to carry on their work." To him this theory is not supported by facts. Likewise he doubts the existence of strictly circumscribed physiologic brain territories. With the exception of the most elementary processes in the sensory sphere, there is to him a physiologic overlapping of most of the brain functions. In the subsequent chapters the author reviews the experimental and clinical work on the localization of motion, sensation and the special senses, as well as the interesting and yet obscure topics of agnosia, apraxia and aphasia. Everywhere he finds lacunae which only diaschisis is able to fill. Whether diaschisis is the true explanation and will cover the many hiatuses in our knowledge of cerebral localization, or whether some other theory will take its place, it is a pleasure to follow the author through a thousand pages of highly scientific and critically well-digested material. Monakow has again given to the profession a monumental work, the like of which is to be found in no other language; apart from its controversial character, it gives the best summary of cerebral localization with which we are acquainted. The bibliography alone contains 3,174 references.

The Practice of Pediatrics. By Charles Gilmore Kerley, Professor of Diseases of Children in the New York Polyclinic Medical School and Hospital. Cloth. Price, $6 net. Pp. 878, with 139 illustrations. Philadelphia. W. B. Saunders Company, 1914.

This book is not merely a new edition of Dr. Kerley's "Treatment of Diseases of Children"; it is a comprehensive text-book on diseases of children. Dr. Kerley's students will appreciate his book. In addition to being an excellent text-book, it has that direct personal appeal of the clinical teacher of large experience. The book in not simply a compilation, but every page reflects the personal opinion of the author. This makes it peculiarly positive and practical when coming from a clinician of such large and varied experience. The book can be recommended safely to the student, but even more to the practitioner, as a conservative, sane, up-to-date, practical treatise on pediatrics that easily takes its place among the two or three best American text-books on that subject. The chapter on vaccine therapy is up to date but conservative, and those especially interested in gymnastic therapeutics will find forty pages devoted to that subject.

Immunity: Methods of Diagnosis and Therapy and Their Practical Application. By Dr. Julius Citron, Assistant at the University Clinic of Berlin. Translated from the German and Edited by A. L. Garbat, M.D., Assistant Pathologist, German Hospital. New York. Second Edition. Cloth. Price, $3.50 net. Pp. 267, with 40 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This edition of Citron's well-known manual on immunity will undoubtedly prove even more popular than the first. The subject-matter has been brought thoroughly up-to-date through valuable additions made by the editor. In these days the subject of immunity and immunologic reactions has become so extensive that the general worker may hope for little beyond a slight knowledge of this field. Books like this present the material in such a clear-cut and concise manner that the more important phases of the work may be grasped in a short time. Moreover, this book gives such attention to detail of technic that one may become qualified to perform the usual tests applied to such investigations. It is not to be supposed, however, that the mere mastering of technic will make a specialist in such work. Citron, as well as many others, emphasizes the fact that careful study of the variations arising in different tests as well as of the methods of proper control of all tests must be made before one is able to attempt the proper interpretation of his tests. Care and precision in each test made as well as an enormous experience along lines of serum diagnosis are necessary for the worker in this field. The subject-matter embraces both theoretical and practical discussions, the latter being limited to methods used in the clinic for diagnostic, therapeutic or prophylactic purposes. Citron's wide experience enables him to point out the various details of the tests so clearly that little excuse is given for improper technic. This book may be commended to the general and even special worker as, probably, the clearest and most practical exposition of this important field of research at our disposal.

Le Laboratoire du Practicien. Analyse Clinique—Méthodes et Procédés. Guide de Diagnostic et D'Hygiene Prophylactique des Maladies Communes Exotiques et Tropicales. Par Paul Gastou, Chef du Laboratoire Central et de Radiologie de L'Hopital Saint-Louis. Third Edition. Paper. Price, 4 francs. Pp. 140, with 319 illustrations. Paris: A. Poinat, 1914.

With the appearance of the third number, Gastou completes his admirable discussion of the value and limitations of the physician's laboratory. As Gastou has previously pointed out, the general worker should not only be in a position to perform a large portion of his own laboratory work but, especially, must also have sufficient knowledge of theory and technic to enable him properly to interpret the findings of others. The proper fittings and equipment as well as the more important methods to be used have been the points taken up in this little manual. This number deals, in a clear and concise manner, with the chemical and microscopic examination of the urine; study of colloids and crystalloids; investigation of normal and pathologic secretions and excretions; examination of feces; methods of histology and pathology, and serodiagnosis, especially as applied to the study of agglutination and complement fixation. It is not to be supposed that the methods have received extensive elaboration, as this is not the purpose of the work. Enough is given, however, to enable one to become familiar with the best methods of study of a given problem. The illustrations are numerous and, for the most part, adequate. This manual is to be commended to those who may wish a brief work covering the more important phases of the rather extensive and important field of clinical diagnosis.

Pain: Its Origin, Conduction, Perception and Diagnostic Significance. By Richard J. Behan, M.D. Cloth. Price, $6. Pp. 920, with 191 illustrations. New York: D. Appleton & Co., 1914.

The first 140 pages of this book treat of pain in the abstract. Here the author discusses the perception, nature, distribution and intensity of pain and its relation to other sensations. He has made an exhaustive study of the literature on the related subjects from which he often quotes: He is somewhat dogmatic at times, but this makes the subject-matter clearer than if he expressed the conflicting views of the literature. The remainder and greater part of the book discusses the pains which are peculiar to special organs, as the appendix; and to special regions, as pains in the back or head. The author pays particular attention to differential diagnosis of pain and has a number of well-arranged tables on diagnosis. The value of the work is considerably enhanced by many excellent illustrations and diagnostic charts. The book should prove valuable to the general practitioner, both as a reference book for the particular case and for a careful study of the whole subject. There is a well-arranged bibliography whereby those who wish to consult the original literature may be able to do so.

Lectures on Dietetics. By Max Einhorn, Professor of Medicine at the New York Post-Graduate Medical School and Hospital. Cloth. Price, $1 net. Pp. 155, with 4 illustrations. New York: Paul B. Hoeber, 1914.

The author has undertaken to produce his lectures from the stenographer's notes without revision. The result is a certain familiarity of style that makes the topic interesting. The book deals in principles rather than in detailed facts, and is marked by strong common sense and conservatism. The principle is laid down that the strong man when acutely sick does not need food, although the nutritive needs of the aged and of poorly nourished persons should be kept in mind. In chronic diseases, on the other hand, the need of nutriment should be met by sufficient food even if other forms of treatment are interfered with and some symptoms are temporarily made worse. Therefore the author feeds the patient in chronic diarrhea even if some nourishment is lost by the increased number of bowel movements. Some tables and descriptions of special diets supply data for application to individual cases. The book tends to remove the arithmetical aspects of dietetics and place it on the high ground of rational therapeutics. We bespeak for it a cordial reception by the profession at large, for its subject appeals to every practitioner rather than to any specialist.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alberta: Edmonton, September 15. Registrar, Dr. Cecil E. Race, University of Alberta, Edmonton.

Iowa: Des Moines, September 10-12. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

Massachusetts: Boston, September 8-10. Sec., Dr. Walter P. Bowers, State House, Boston.

Missouri: Kansas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

New York: September 22-25. Chief of Examination Division, Mr. Harlan H. Horner, Department of Education, Albany.

West Virginia April Report

Dr. S. L. Jepson, secretary of the West Virginia State Board of Health, reports the oral and written examination held at Charleston, April 21-23, 1914. The number of subjects examined in was 10; total number of questions asked 100; percentage required to pass was 80. The total number of candidates examined was 16, including one osteopath, of whom 14 passed, including one osteopath, and 2 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1913)	87
Howard University	(1912)	85.7
College of Phys. and Surgs., Baltimore	(1913)	89.2, 90, 91.8, 92.3.
Maryland Medical College	(1912) 83.4; (1913)	88.2
Leonard Medical School	(1911)	83
Starling-Ohio Medical College	(1913)	81.2
Woman's Medical College of Pennsylvania	(1907)	86.6
University College of Medicine, Richmond	(1913)	81.4, 86
FAILED		
Leonard Medical School	(1911)	78.4
Meharry Medical College	(1912)	75.3

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Atlanta College of Phys. and Surgs.	(1912)	Tennessee
Rush Medical College	(1912)	Illinois
University of Louisville	(1911)	Kentucky
College of Phys. and Surgs., Baltimore	(1904)	Maryland
Maryland Medical College	(1912)	Maryland
Medical College of Ohio	(1898)	Ohio
Starling Medical College	(1887)	Ohio
Starling-Ohio Medical College	(1911)	Ohio
University of Wooster, Med. Dept.	(1890)	Ohio
Jefferson Medical College.... (1908) Pennsylvania;	(1912)	Illinois
Woman's Medical College of Pennsylvania	(1910)	Penna.
Chattanooga Medical College	(1910)	Tennessee
Univer. Coll. of Med., Richmond..(1900) Virginia;	(1901)	Virginia

Miscellany

Supervisory Medical Officers in Germany

In Germany provision is made for a supervisory medical service in charge of district physicians known as *Kreisaerzte.* Consul H. W. Harris at Frankfort, in *Daily Consular and Trade Reports,* June 9, 1914, describes the manner of appointment and duties of these medical officials. They are appointed by the state and are under the supervision of the state authorities in the various provinces. They may be called on to cooperate with local health authorities, mine and factory inspectors, federal insurance officers and others. Their duties embrace not only matters for the prevention of disease, but also duties which under American practice belong to coroners, medical examiners, boards of health, mine inspectors, undertakers, etc. In combating infectious diseases the local authorities must render assistance in carrying out the district physician's proposals. He is charged with the duty of maintaining intimate relations with private medical practitioners of his district for promoting knowledge about medical matters, medical societies, etc., and in making investigation in regard to outbreaks of infectious diseases he must consult with the private physicians who have cases under treatment. This applies to meningitis, lockjaw, childbed fever, typhoid, diarrhea, relapsing fever, hydrophobia, glanders, trichinosis, meat- and fish-poisoning, snake-bite, etc., as well as to the usual infectious diseases. He must watch over general health conditions and see to the enforcement of the laws and regulations in regard to health, apothecaries, hospitals, other health institutions, midwives, etc. He is required to keep a record of all physicians, medical assistants, dentists, midwives, apothecaries and druggists with their clerks and apprentices, and must also keep a personal record of the status of every practitioner in his district, and must make it his particular task in conjunction with the medical practitioners of his district to warn in a proper way against the injurious doings of quacks, and must keep a watchful eye on persons who practice the healing art without permission and who assume titles in this connection to which they are not entitled. With the aid of the police he keeps a biographical record of quacks and illegal practitioners. He also inspects drug-stores, dispensaries and similar establishments, inspects the books and sees that illegal fees are not charged for prescriptions. He also keeps especial surveillance over midwives and their practice, and examines and passes on the fitness of persons who wish to practice midwifery. Besides these duties, specific instructions are given to district physicians in regard to housing, factory and hygienic conditions of the people, and on many other subjects. He is the medical authority to whom are to be referred all matters pertaining to the hygienic welfare of the people of his district. He may be employed full time on salary, in which instance he is not allowed to do private practice, or he may be on salary and fees, when he may be allowed to practice. In addition to the very modest salary, certain allowances are made for house-rent, office, caretaking, etc. Leave of absence for rest or on account of sickness is allowable each year, and after ten years of service as district physician, if incapacitated he is granted a pension for life.

Fly Larvae and Horse Manure

The Department of Agriculture has been conducting experiments to find a method of destroying flies by chemical treatment of horse manure (*Bull.* 118, Dept. Agric., July 14, 1914). Of the twenty-four chemicals tested, the best results were obtained from borax and calcined colemanite or crude calcium borate, which showed a larvicidal power of over 99 per cent. in nearly all trials. Borax not only kills the larvae but also prevents the eggs from hatching; calcined colemanite acts on the larvae alone. The minimum effective amount is 0.62 pound of borax and 0.75 pound of calcined colemanite with the addition of 2 or 3 gallons of water to 8 bushels (10 cubic feet) of manure, which will destroy practically all the fly maggots. In these small quantities the borax did not interfere with the normal fermentation of the manure. Since boron in large quantities inhibits the growth of plants, tests were also made to determine if the borax-treated manure exerted any such deleterious effect. Tests on tomatoes, peas, beets, radishes, kohlrabi, oats, corn, cucumbers, lettuce, apple seedlings and rosebushes were negative with the amounts of borax mentioned. Wheat appeared to suffer a temporary setback under heavy applications of borax. The department issues the warning that borax-treated manure has not been studied in connection with the growth of all crops, nor has its cumulative effect been studied. It recommends that not more than 15 tons per acre of borax-treated manure should be used, and that not over 0.62 pound of borax be employed for each 8 bushels of manure. The suggestion is made that borax be applied to floors and crevices in barns, stables, markets, etc., and to street sweepings, and water added as in the treatment of horse manure. Borax, which costs about 10 cents a pound at retail, may be had at 5 or 6 cents a pound in 100-pound lots; calcined colemanite sells for about 2 cents a pound in large shipments, and for about 4 cents a pound in smaller quantities. The department figures that the cost of borax treatment will be about 1 cent per horse per day, and that of treatment with calcined colemanite considerably less

Training the Left Hand

Some time ago the development of left-handedness in children was warmly advocated by various persons not only because in this way reliance could be placed on both upper extremities for mechanical work, which would undoubtedly be of advantage in case of serious disturbance of the functions of the right arm, but also because the hope was entertained that by training the left arm, a second speech center might develop in the right hemisphere of the brain in the same way as the well-developed right arm corresponds with the speech center placed in the left half of the brain. The Berlin physician, M. Fränkel, was especially active in the advocacy of this plan; in fact, experiments in this direction were undertaken in various localities. The practical results which have been so far reported do not correspond in any degree to the optimistic expectations of the advocates of the method.

In 1911, Dr. Schäfer, on the basis of permission granted by the school deputation, collected statistics with reference to left-handedness among about 18,000 pupils of the Berlin public schools. These statistics show that 4.06 per cent. of all the children are left-handed, 5.15 per cent. of all the boys and 2.98 per cent of the girls. The percentage of children in whom both hands are equally developed is very small, being only 0.21 per cent. The overwhelming majority, 95.73 per cent. of all children, are distinctly right-handed. In several school districts, among 448 teachers there were ten who were left-handed. L. Katscher's work on "Training the Left Hand" (*Die Ausbildung der linken Hand*) was the theoretical basis for the exercises to train the left hand. They included exercises in writing, arithmetic, manual training and gymnastics; especially in the last two systematic efforts were made. In general, the result showed that the possibility of employing the hitherto unused left hand at first excited great joy and marked interest, but the physical awkwardness generally was a great hindrance. This was particularly shown in writing, in which the mirror-writing and scrawling crows' tracks diminished the success of the instruction. In drawing, the success was relatively greater, especially when the drawings were made on the blackboard; also in manual training good results were obtained in building, plaiting and weaving. In gymnastics the special exercises such as bending the fingers, the hand and the left arm produced an increasing aptitude and skill.

The experiment was tried in 145 classes. Children to the number of 2,611 (1,497 boys and 1,114 girls) undertook these left-handed exercises. They were given up in three cases; in one class because the teacher was ill, in two others because these exercises were regarded as useless, time-consuming in carrying out the instructions laid down by the school board, and a hindrance.

The outcome of the whole experiment shows that in no case could a preference for the left hand be developed. It may be trained to be a welcome assistant to the right hand, but never as a substitute for it. In teaching writing the complaint is made of a destruction of the esthetic sense and a deterioration of the hand writing. The children refused to write with the left hand, became nervous and worried over it, and increased intellectual development was in no case observed. Almost all those who gave an opinion were unanimous that the advantages stood in no relation to the expenditure of time, pains and patience.

Old Age Pensions in Denmark

For twenty years Denmark has had laws providing for old age pensions. Prof. Katherine Coman gives in the *Survey* the history of this legislation and its working, together with a statement of opinion as to the law, derived from an inquiry in that country concerning it. The pension is granted to persons over 60 years of age, either men or women, who are found to be worthy and in need. An unmarried woman is subject to the same conditions as a man. Wives, widows or divorced women are entitled to a pension equivalent to that which would have been awarded to the husbands. The amount of the pension is not fixed by law, but is left to be determined in each case. An attempt has been made in some communities to standardize the amount of the pension. This applies practically only to Copenhagen and Fredericksborg. A maximum pension was fixed, which differs for men and women, married couples and couples with children in the places mentioned above. A maximum is also fixed for other towns and the rural districts. The tendency has been for the amount granted to be increased from year to year, although the amounts are still very low, estimated on the basis of the cost of living in a country like the United States. These pensions seem to be becoming a heavy burden on the taxpayers of the communes and on the state treasury, which has assumed half of the expenditure.

In 1895 the average annual pension in Denmark cities, was 72.59 kroner (a krone is about 27 cents). In 1906 and 1907, the average had increased to 118.69 kroner. In 1892, the total number of beneficiaries under this pension law was 43,826. In 1911 it had increased to 79,289. The total expenditure had increased from 2,500,000 kroner in 1892 to 13,000,000 in 1912 and 1913. In an investigation of this form of provision for old age, it was found that the sums expended for poor relief outside the pension law have also increased. An inquiry by Professor Coman as to whether this amount was not regarded as a new form of poor relief, was answered by every one from taxpayer to administrator in the negative, though there were differences of opinion as to the desirability of such a law. Professor Coman states that there is no question that the economic injustice of leaving the workingmen in a condition in which they are liable to suffer from actual want or requiring them to accept poor relief has been satisfactorily terminated, and heavy burdens have been lifted from children, relatives and benevolent employers. The rapid increase on the demands on the public treasury, however, have startled even the best friends of the measure, and already modifications of the law have been suggested whereby workingmen are to be required to contribute, during their working years, to the fund for their later relief. Another plan suggested has been to standardize the pensions for towns and rural districts, as in the case of the city of Copenhagen, in order that the amount of expenditure required may be made more certain than under the present arrangement. It has been proposed to reduce the number of beneficiaries by raising the age limit to 65. It may not be easy to retract a concession like this, since every laborer has a vote, and practically all belong to the Social Democratic Party, whose opinion is generally that the workingman is entitled to an amount of the surplus which the employer makes.

Medicolegal

Malpractice in Treatment of Gunshot Wound

(Dailey vs. Shaffer (Mich.), 146 N. W. R. 192)

The Supreme Court of Michigan affirms a judgment against the defendant for malpractice while treating the plaintiff's husband for a gunshot wound in the calf of his right leg. The court says that the shot tore its way clear through the thick part of the calf, leaving a hole large enough to insert two fingers. The man was removed to his house, and the defendant arrived within a few minutes thereafter and took charge of the case. The wound was partially cleansed and some of the foreign matter removed, after which antiseptic gauze was inserted, and the leg was bandaged. Strychnin tablets were administered, as the patient was suffering from shock and loss of blood. After giving members of the family some instructions as to treatment during his absence, he left at about 11 a. m., after having been there an hour, and returned at 3 p. m., to find the patient somewhat improved. At this time, he remained about fifteen minutes. On the first visit, the defendant made some investigation to learn the extent of the injury, but did not go far enough with it to learn whether any of the arteries had been severed or punctured. On the second visit, he made no investigation in this respect. At 7 p. m. it was thought that the patient was bleeding too freely, and repeated attempts were made to reach the defendant over the phone, but without avail. At 4 a. m. next day, the condition became alarming, and a neighbor was dispatched for the defendant, but before he arrived the patient was dead. A post-mortem examination disclosed the facts that the posterior tibial artery was cut off and the popliteal artery was partially divided, and experts gave it as their opinion that the patient died from arterial hemorrhage. The negligence with which the defendant was charged was: First, a failure to ligate the severed and injured arteries; second, in failing to visit and attend to the patient as often and as much as he should have done. The defendant admitted that he did not inform himself as to whether the arteries were cut off or punctured, and it was shown by expert witnesses that he should have done so; that he should have found the bleeding point and stopped the hemorrhage. After he determined what course to pursue without this information, he was in no position, as a matter of law, to invoke the protection of the rule in emergency cases, but it was properly submitted to the jury to determine whether he did what was necessary to bring his treatment within the rule in emergency cases, that if a physician exercises his best judgment as to the treatment, he is not liable for negligence for an error of judgment in following one treatment rather than another. The other ground of complaint, as to whether the defendant gave the patient the attention and care which the case demanded, was likewise one for the jury.

Practice of Medicine by Chiropractor

(People vs. Ellis (N. Y.), 147 N. Y. Supp. 681)

The Supreme Court of New York, Appellate Division, Second Department, affirms a conviction of the defendant of the misdemeanor of practicing medicine within that state without any license or registration. The court says that the defendant claimed to be a chiropractor or doctor of chiropractic. He had a sign with regular office hours, and as a witness he admitted having treated about 200 persons for ailments of the stomach, chest, or spine, also for nervousness, hysteria, and diseases coming from pressure on the nerves. The prosecution proved by a witness whom the defendant had treated that the defendant first examined her ankle, pronounced the arch as having fallen, massaged the foot, and advised a different shoe. On a further visit he manipulated the patient's spine, which, speaking as a spinologist, he pronounced out of alignment in several places. He said he could restore it, but it probably would not stay the first time. He further gave the opinion that the nerves leading to the ankle might be so impinged on as to cut off the circulation. In view of the large increase of those who attempt remedies without drugs or instruments, legislatures in this and other states have found it necessary to deal with all who assume to treat or prescribe for physical ailments. The defendant's office-sign, circular and professional card, as well as his own frank admissions as a witness, all showed that he held himself out as able to diagnose, treat, and prescribe for pain, disease and injury. Rubbing and pressure on the human joints are old therapeutic agents. When accompanied by such attempts at diagnosis as the statement that a patient's pains in the ankle were caused by the spine, having come out of alignment through displaced vertebrae, the defendant's acts came within the statutory definition of the practice of medicine. He therefore was guilty of the misdemeanor of practicing medicine without a license, or being registered under the public-health law, Section 174. The information which charged practicing medicine without lawful authority between certain dates, and in particular on five days which it specified, was sufficient. The different acts going on to establish the unlawful practice need not be more particularly set forth in the information, as they simply made up one continuous offense.

Attending Physician Versus Experts on Mental Condition

(Philpott et al. vs. Jones et al. (Ia.), 146 N. W. R. 859)

The Supreme Court of Iowa holds that in this case, in which the probating of a will was being contested on the ground that the maker lacked testamentary capacity, an instruction was properly refused which would have told the jury that "the attending physician is presumed to know the state of the mind of his patient, and these are facts that should be considered by the jury in determining the weight that should be given to their testimony." There is no presumption that a physician who is called to treat a sick man for his physical ailments, is better qualified to testify as to the mental condition of the patient, from the mere fact of attendance on his physical sickness, than is one who is trained to the treatment and who has large experience in the treatment of mental diseases. Besides, the weight to be given to the testimony of a witness depends on too many things to justify the court in limiting its probative force to one particular fact. The condition of the human mind at any stage of human existence is difficult of proof; perhaps the most difficult of any with which courts and juries are compelled to deal. Mental unsoundness, whether resulting from old age or physical sickness, is so various in its character and so different in its manifestations that it is often difficult for the most experienced experts, after most careful and thorough investigation, to trace it to any sufficient cause or to define its extent or its effect on the conduct of the individual. Even the most experienced alienists, with all the facts before them touching the conduct of the individual concerning whose mental condition the investigation is instituted, are often found widely differing in their conclusions as to the then condition of the mind under consideration. Mental unsoundness may exist which would render a man incompetent to make a will, notwithstanding to all outward appearances he seems to be sane to those with whom he comes in casual contact, who are not experts on the question.

Entitled to Recover Expenses and Compensation

(Plumb vs. York County (Neb.), 146 N. W. R. 938)

The Supreme Court of Nebraska holds that a regularly licensed physician, who is paid a salary of $5 per month for his professional services in treating the inmates of the county poor-farm and the county jail, may recover from the county the actual expenses incurred by him in quarantining, fumigating, and suppressing an epidemic of small-pox within his county, together with a reasonable compensation for his services. The court says that it appeared that the plaintiff was called on by the county to attend, quarantine, and fumigate in 132 cases of small-pox. His actual expense in connection with this service was $260, and he charged the county $726 for his professional services in that behalf. The county board disallowed his claim, and he prosecuted an appeal to the District Court. The cause was tried without a jury and the Court awarded him a judgment for $790.35. The county sought to defeat his claim by contending that he was a member of the board of health, and therefore he could not have a return of the money expended by him in the suppression of the disease, and neither could he have compensation for his services rendered in that behalf. Moreover, it appeared that there was no contract entered into between the county and the plaintiff for the services in question, and there was a rule that required members of the board of health to serve without compensation. If the contention of the county was to prevail, however, then the public would be helpless to protect itself against contagious and epidemic diseases. It is easy to understand why the members of the board of health should receive no compensation for serving thereon, but it would be difficult to understand why a physician should be called on to serve the county in suppressing an epidemic and contagious disease without compensation. Many cases were cited to support the contention that an officer must perform all the duties of the office for the compensation provided by law, but those cases were not decisive of this controversy. The plaintiff was entitled to recover the expenses actually incurred and paid by him in the suppression of the small-pox epidemic in question, together with a reasonable compensation for his professional services. The judgment of the District Court was right, and it is therefore affirmed.

On Prohibiting the Use of Tobacco

(City of Zion vs. Behrens (Ill.), 104 N. E. R. 836)

The Supreme Court of Illinois holds void, as an unreasonable interference with the private rights of the citizen, a city ordinance making it unlawful for any person to smoke tobacco in any form, or to have in his possession, any lighted pipe, cigar or cigarette, in or on any street, alley, avenue, boulevard, park, parkway, public passageway, depot, depot platform, depot grounds, hospice, hotel, store, post-office, or other public building or public place within the city. The court says that, recognizing that tobacco smoke is offensive to many persons, and in exceptional cases harmful to some, the court has no doubt that power exists to prohibit smoking in certain public places, such as street-cars, theaters and like places where large numbers of persons are crowded together in a small space. But this is quite a different matter from prohibiting smoking on the open streets and in the parks of a city, where the conditions would counteract any harmful results. The personal liberty of the citizen cannot be interfered with unless the restraint is reasonably necessary to promote the public welfare. In the broad language in which this ordinance was enacted it was apparently an attempt on the part of the municipality to regulate and control the habits and practices of the citizen without any reasonable basis for so doing.

Entitled to Show Who Employed Physician

(Egner vs. Curtis, Towle & Paine Co. (Neb.), 146 N. W. R. 1032)

The Supreme Court of Nebraska says that it appeared that, after the plaintiff was injured, a physician, unknown to, and without authority from him, was called to treat his injuries, and, without any subsequent employment by him, continued to treat him for a considerable period of time. On the trial of the action which he brought against his employer to recover for his injuries, his counsel called the physician to the witness stand and attempted to show by him who employed him. That was not misconduct on the part of counsel. If, as a matter of fact, the physician was the physician of an insurance company that had contracted to indemnify the employer for injuries to its employees, and, by reason of that fact, was called to treat the plaintiff after his injury, the plaintiff had a right to show the fact as a circumstance tending to show that the defendant recognized a liability. If some insurance company was defending the case under the cover of the defendant's name, it was proper to uncover it.

Society Proceedings

COMING MEETINGS

Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Association of Railway Surgeons, Chicago, Oct. 14-16.
American Electro-Therapeutic Association, Battle Creek, Sept. 15-17.
American Roentgen Ray Society, Cleveland, Sept. 9-12.
Association of Military Surgeons of the U. S., Cincinnati, Sept. 29-Oct. 2.
Colorado State Medical Society, Boulder, Sept. 8-10.
Delaware State Medical Society, Wilmington, Oct. 13-14.
Idaho State Medical Association, Boise, Oct. 8-9.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Michigan State Medical Society, Lansing, Sept. 11-12.
Minnesota State Medical Association, St. Paul, Sept. 30, Oct. 1-2.
Nevada State Medical Association, Reno, Oct. 13-15.
New Mexico Medical Society, Albuquerque, Oct. 5-7.
Oregon State Medical Association, Portland, Sept. 10-11.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Vermont State Medical Society, Rutland, Oct. 8-9.
Washington State Medical Association, North Yakima, Sept. 21-23.
Wisconsin State Medical Society, Oshkosh, Oct. 7-9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

July, IV, No. 7, pp. 555-632

1 Conservation of Vision. F. Allport, Chicago.
2 Collection of Municipal Waste. W. F. Morse, New York.
3 Advantages and Disadvantages of Day and Night Collection of Municipal Waste. W. H. Edwards, New York.
4 Recoverable Values of Municipal Waste. G. H. Norton, Buffalo.
5 Cost of Incineration. P. M. Hall, Minneapolis.

Annals of Surgery, Philadelphia

July, LX, No. 1, pp. 1-136

6 *Experimental Operations on Orifices of Heart. A. Carrel, New York.
7 *Bronchiectasis. W. Meyer, New York.
8 *Surgical Aspects of Bronchiectasis. J. G. Mumford and S. Robinson, Clifton Springs, N. Y.
9 Choice of Anesthetic in Operating for Abscess of Lung. F. T. Murphy, St. Louis.
10 *Results of Conservative Treatment of Cystic Disease of Breast. R. B. Greenough and C. C. Simmons, Boston.
11 Two-Stage Operation Especially in Its Relation to Treatment of Cancer. G. W. Crile, Cleveland.
12 *Arteriovenous Anastomosis of Femoral Vessels for Impending Gangrene. Report of Sixteen Cases. C. Goodman, New York.
13 *Melanoblastomas of Foot (Chromatophoroma, Melanoma, Melanosarcoma). Report of Ten Cases. A. E. Hertzler and E. T. Gibson, Kansas City, Mo.

6. **Experimental Operations on Orifices of Heart.**—Also published in *The Journal of Experimental Medicine,* July, 1914, and abstracted in The Journal, August 1, p. 428.

7. **Bronchiectasis.**—It is generally recognized, says Meyer, that a somewhat advanced, viz., a well developed, bronchiectasis is a surgical and not a medical disease. The operative treatment should be considered from the following points of view: *A.* Pneumotomy for draining the suppurating cavities. *B.* Operations done to compress the lung (collapse therapy). (1) By creating therapeutic pneumothorax—nitrogen insufflation; (2) pneumolysis with or without introduction of a tissue filling; (3) thoracoplasty, combines with, or without (4) phrenicotomy. *C.* Operations done to influence the pulmonary parenchyma, producing contracting plus carnification. (1) Transposition of the lung; (2) ligation of branches of the pulmonary artery, with or without subsequent thoracoplasty, pneumolysis and phrenicotomy — intrapericardial ligation of the first divisions of the pulmonary artery. *D.* Amputation of the diseased lung.

8. **Surgical Aspects of Bronchiectasis.**—The following points are emphasized by Mumford and Robinson. Granted that bronchiectasis is commonly the result of bronchial obstruction by foreign body, tumor or disease, the first indication in therapy should be the removal, if possible, of this obstruction. Bronchoscopy for the removal of a foreign body has not infrequently arrested bronchiectasis. In the earlier stages of bronchiectasis, nitrogen gas injection producing artificial pneumothorax is indicated, and should always be tried.

Pleuropneumolysis, or extensive rib resection, is a dangerous procedure, with additional dangers in bronchiectasis. It should be employed only when adherent pleura prevents the introduction of nitrogen gas. Even then it is a dangerous procedure, and one of doubtful value. In late cases of bronchiectasis, when the disease is obviously confined to one lobe, lung resection is the sole hope of surgical cure. The attempt at lung resection at a one-stage operation has been attended with high mortality. Occasional successes do not prove that the one-stage amputation will become the method of choice. The authors hold that for the time being, at least, the general surgeon should first produce compression of the lung by artificial pneumothorax or pulmonary arterial ligature; second, and much later, he should excise. Meanwhile the student of thoracic surgery will develop the one-stage excision.

10. **Conservative Treatment of Cystic Disease of Breast.**—Eighty-three cases in which cystic disease was present have been investigated by Greenough and Simmons and proved by pathologic examination of the tissue removed at operation, but all were cases in which only a partial removal of the diseased gland tissue was performed. The subsequent incidence of carcinoma in these cases, therefore, gives a further light on the tendency toward its development in cystic disease of the breast. In 14 both breasts were operated on—a total of 97 operations. In 59 cases partial plastic resection was performed, and in 32 a local excision was made of the affected portion of the breast. In 2 cases all of the gland tissue was subsequently removed by the plastic operation (subcutaneous amputation), and in 4 cases a later total amputation was done.

The subsequent histories of the 83 cases have been investigated. The length of time which elapsed from the first operation varies in these cases from one to seventeen years, an average of over seven years for each case. Four of the 83 patients, or 4.8 per cent., developed carcinoma of the breast—3 after partial plastic resection, and 1 after a simple excision of the tumor. Four patients have died of other causes, without evidence of any disease of the breast. Sixty-two patients are alive and well, and these with the four dead without recurrence, make 66 of the 83 cases, or 80 per cent., free from recurrence and apparently up to the present time, at least, cured of their disease by a partial operation.

Thirteen cases (15.6 per cent.) showed sooner or later a return of the disease. In 5 patients the disease returned in the other breast, and in 8 patients it recurred on the same side, in the gland tissue remaining after the first partial operation. One patient died ten years after operation with a broken hip. Another five years after operation with a cerebellar endothelioma. In neither case was there evidence of any malignant process in the breast, though both were reported to have had recurrence of cysts. Four patients refused operation, and were reported living and well but with cystic disease present—1 one year, and 3 five years after operation. The other 7 were operated on again, by amputation of both breasts in the greater number of cases, and reported well at intervals of ten, five, four, two, one and one-half years, seven months and one month later. Thus either recurrence of the cystic disease or carcinoma occurred in the breast first subjected to a partial operation in 12 cases out of the 83, or 14 per cent. In 16 cases, or 19 per cent., the patient failed to get permanent relief by the partial operation. In this connection it is of interest to note that in 19 of the 83 cases, or 23 per cent., the disease affected both breasts, although in a different degree. Of the 19, 14 had operative treatment on both breasts, and 5 had operation on one side alone.

The authors emphasize that the occurrence of carcinoma in cases of cystic disease, estimated at about 10 per cent. of all cases, demands radical treatment in all but the mildest cases. The operation of choice should remove all of the gland tissue of the affected side, and, when the disease is bilateral, of both sides, this can best be accomplished by "subcutaneous amputation," leaving the nipple and areola, or by elliptical amputation. Where grave doubt as to diagnosis is present elliptical amputation is to be preferred. Local excision of nodules in the breast, suspected of being malignant, should never be performed. The operation of local excision or partial plastic resection should be restricted to the earliest and mildest types of cystic disease. In such cases plastic resection is the operation to be preferred.

12. **Arteriovenous Anastomosis.**—A view of Goodman's series of 16 cases shows six successes. Several of the cases which promised success, later required amputation (eight cases), but even these patients received temporary relief from pain. The results seem to warrant the conclusion that the procedure is well worth trying in suitable cases, as it affords the only hope, except amputation, for the patient threatened with gangrene. There were 13 end-to-end anastomoses, 1 side-to-side, and in 2 of the cases, an exposure of the vessels showed that an attempt to anastomose was not warranted, on account of the advanced stage of thrombosis of the vessels. In 2 of the cases with gangrene, a low amputation seemed to be satisfactory. Of the 8 cases which were failures, including 1 death, 1 was side-to-side anastomosis, and 3 of the remainder should not have been operated on on account of the presence of spreading gangrene.

13. **Melanoblastomas of Foot.**—The disease is one of advanced age. Males preponderate. In a few of the authors' cases there had been a lesion previous to the tumor, in 1 as long as eight years. These tumors spread by way of the lymphatics. The great viscera which are the usual site of blood-vessel metastasis are singularly free in this affection. The disposition to local recurrence is striking. The variability of the physical appearance is in striking contrast to the clinical similarity. In form they vary from small excoriated ulcers not unlike any indolent ulceration to large angry-looking, fungoid, pigmented masses. The variability in form is, however, not essential. They are all tumors which arise in the dermic or subdermic tissue and push through their covering, the difference in form depending on whether or not they just destroy the skin or project above it. The characteristic portion lies beneath the skin, not above it.

These tumors, the authors state, must be reckoned among the most fatal but in some of the early cases cure may be possible. Very early diagnosis is absolutely essential. Unfortunately when they reach the surgeon they have usually already been subjected to local irritation which has but stimulated their growth. Theoretically, at least, local treatment would cure them if done early. Yet there is never any assurance that the tumor is strictly localized. The tumor should therefore be excised in all cases. In early cases local excision should, theoretically suffice, but there is nothing in the literature to justify such a procedure. On the other hand, if dissemination has already taken place, amputation will avail nothing. The patient may as well in that event use his foot during the small span of life still remaining to him. The fungoid type should give a better prognosis than the ulcerous and should give more encouragement to radical operation. When glands along the iliac vessels are involved any operation is useless.

Boston Medical and Surgical Journal

August 13, CLXXI, No. 7, pp. 253-288

14 *Effects Observed in the Use of Mixed Toxins (Coley) in Sarcoma. T. W. Harmer, Boston.
15 Roentgen Diagnosis of Incomplete Forms of Pyloric Stenosis. F. H. Baetjer and J. Friedenwald, Baltimore.

14. **Mixed Toxins in Sarcoma.**—This paper is based on observations made since June, 1909, in the use of mixed toxins of streptococcus and bacillus prodigiosus (Coley) in 91 cases. Some were early cases in the series in which the doses were too small. Some cannot be traced, some were cases in which no pathologic report was obtained. Some were cases of microscopically proved carcinoma. Some were cases of proved sarcoma in which the toxins were administered as a prophylactic against recurrence after operations which might of themselves have cured. There remain 32 cases; all of these were primary or recurrent, inoperable sarcomata, or cases in which the disease could not be eradicated at operation. All were proven by microscopic examination. All were under treatment at least three weeks. In all cases the results were free from vitiation by concurrent treatment. The average age of all cases is 33.8 years. The average duration of treatment was three months +. The average maximum dose was 11.9 minims. The maximum dose was 53 minims.

The cases are arranged in six groups, determined by the effect of the toxins. Group A includes those cases in which there was no appreciable effect (10 cases). Group B includes those cases in which the growths softened but did not diminish in size. There were 5 such cases. Group C includes those cases in which the growths disappeared, or practically disappeared, but returned. There were 5 such cases. Group D includes those cases in which growths disappeared but metastases simultaneously occurred. There were 5 such cases. Group E consists of one case in which the growth diminished in size but the tumor still persists. Group F consists of those cases which are apparent cures in which growths have disappeared and no metastases have occurred. There are six such cases. They have remained apparently well since conclusion of the treatment, respectively, one year, two months; two years; two years, seven months; two years, nine months; two years, eleven months, and two years, eleven months.

Harmer emphasizes that the treatment of primary or recurrent inoperable sarcoma with mixed toxins must be intensive. The increment of dose and the interval between injections requires some experience but, even after a considerable experience, this method of treatment is always uncertain and so distressing that, its institution is unjustifiable in any case in which operative measures of reasonable safety offer possible hope of removal. It should be instituted in no case unless proven microscopically to be sarcoma. Its institution is unjustifiable in all cases of inoperable sarcoma. The percentage of apparent cures may be regarded as varying from 9.4 to 18.8. Harmer's study suggests to him that the toxins offer no expectation of benefit in cases with multiple melanotic growths in cases with mixed cell growths, in cases with intra-abdominal growths and in cases arising from subcutaneous tissue or bone, excepting perhaps giant cell growths. It suggests that they may be legitimately tried in cases with single melanotic growths. It suggests that they are apparently of value in cases with sarcomata arising in nose and accessory sinuses, whether spindle cell, giant cell or round cell. The operative treatment of true giant-cell tumors gives, in the majority of cases, such good results that the toxins are not indicated. Their use is, however, warranted in those cases in which the growths are so situated that complete surgical eradication is impossible (such as giant cell tumor of the spine) and in these cases the attack should be primarily surgical, followed by toxin treatment.

Journal of Abnormal Psychology, Boston

June-September, IX, Nos. 2-3, pp. 73-216

16 Contrast in Psycho-Analysis: Three Cases. T. A. Williams, Edinburgh.
17 Analysis and Interpretation of Dreams Based on Various Motives and on Theory of Psycho-Analysis. M. Solomon, Chicago.
18 Hysteric Mechanisms in Children. I. H. Coriat, Boston.
19 Psycho-Analysis. P. Janet, Paris.

Journal of Cutaneous Diseases, New York

August, XXXII, No. 8, pp. 545-606

20 Syphilitic Heredity and Congenital Syphilis. W. P. Boardman, Boston.
21 Noguchi's Luetin Test for Syphilis. W. A. Pusey and A. W. Stillians, Chicago.
22 Dermatitis Exfoliativa. Report of Case. J. W. Miller, Cincinnati.
23 Case of Bromid Eruption. H. G. Irvine, Minneapolis.

Journal of Infectious Diseases, Chicago

July, XV, No. 1, pp. 1-243

24 An Attempt to Transmit Poliomyelitis by Bite of Lyperosia Irritans. E. Francis, Savannah, Ga.
25 *Complement-Fixation in Gonococcus Infections. J. A. Kolmer and G. P. Brown, Philadelphia.

26 *Simple Method of Cultivating Bacilli Preferring Conditions of Partial Anaerobiosis. G. D. Horton, Corvallis, Ore.
27 An Attenuated Culture of Trypanosoma Brucei. C. A. Behrens, Ann Arbor, Mich.
28 *Classification of Pathogenic Streptococci by Fermentation Reactions. J. G. Hopkins and A. Lang, New York.
29 *Anaerobic Cultures in Scarlet Fever. G. F. Dick and G. R. Henry, Chicago.
30 Characteristics of Bacteria of Colon Type Found in Bovine Feces. L. A. Rogers, W. M. Clark and A. C. Evans, Washington, D. C.
31 *Toxins of Intestinal Obstruction. F. B. Gurd, Montreal.
32 Relationship of Septic Sore Throat to Infected Milk. J. A. Capps and D. J. Davis, Chicago.
33 *Experimental Bovine Mastitis Produced with Hemolytic Streptococci of Human Origin. D. J. Davis and J. A. Capps, Chicago.
34 Investigation into Fermentative Activities of Aciduric Bacteria. A. H. Rahe, New York.
35 *Purpura Associated with Bacillus Mucosus in Blood. G. C. Weil and J. W. McMeans, Pittsburgh.
36 Sanitation of Swimming Pools. W. A. Manheimer, New York.
37 Classification of Colon Group. I. J. Kligler, New York.
38 *Quinin Treatment of Rabies. J. G. Cumming, Ann Arbor, Mich.
39 Method for Making Carbohydrate Serum Broth of Constant Composition for Use in Study of Streptococci. W. L. Holman, Pittsburgh.
40 *Action of Vaccines and Concentrated Antistreptococcus Serum in Experimental Streptococcal Arthritis. J. J. Moore, Chicago.
41 Use of Decolorized Acid Fuchsin as an Acid Indicator in Carbohydrate Fermentation Tests. Acid Production by Bacteria. W. L. Holman, Pittsburgh.
42 Experiments on Variability of Fermentative Reaction of Bacteria, Especially Streptococci. W. C. Thro, New York.

25. **Complement-Fixation in Gonococcus Infections.**—About 60 per cent. of all cases of gonococcus infections investigated by Kolmer and Brown reacted positively to the gonococcus complement-fixation test. In the few cases of pyosalpingitis examined, 66 per cent. reacted positively. The highest percentage of positive reactions, 83 per cent., occurred in cases of arthritis, considered clinically as possible gonococcus infections. The authors regard the gonococcus complement-fixation test as of particular value in aiding the diagnosis of the nature of an obscure arthritis, in pelvic inflammatory diseases of women, to deciding whether or not a given case of urethral infection is cured or still harbors foci of living gonococci and aiding in the diagnosis and management of vaginitis in female children.

The reactions are not generally as satisfactory as those occurring in the syphilis reaction because the quantity of gonococcus antibody is much smaller unless grave and widespread gonococcus metastases exist, and the fixation of complement by bacterial amboceptor and antigen is not so marked as that occurring with syphilis reagin and a lipoidal extract. In a comparative study of a number of serums tested with both the antisheep and antihuman hemolytic systems slightly better results were secured with the latter. Gonococcus antigens to be of any value must be polyvalent. An antigen composed of a simple suspension of organisms in saline solution yielded 11 per cent. better reactions than filtrates. It appears that the bacterial protein, aside from the endotoxins, aids in the antigenic effect. Alcoholic extracts of gonococci possess little or no value. The occurrence of positive reactions in about 9 per cent. of cases of chronic gonococcus infections with antigens of staphylococci, streptococci and diphtheroid bacilli, indicates the active rôle these organisms may assume in these infections. The occurrence of about 5 per cent. positive reactions with an antigen of the micrococcus catarrhalis would indicate that this organism may be likewise active in chronic urethritis.

A study of antigonococcus and antimeningococcus sera with antigens of gonococci and meningococci, indicates the close biologic relationship of the gonococcus and meningococcus and while their respective amboceptors are most specific for their own antigens, in lower dilutions this specificity is not so apparent and the results constitute another example of "group" reaction similar to those occurring with the group of streptococci, diphtheria bacilli, spirochetes, etc.

26. **Cultivation of Bacilli Partially Anaerobic.**—Horton describes his method as follows: Employ an ordinary large test-tube such as is generally used in making potato cultures. In this insert a tightly fitting piece of thin glass which should be about three-fourths the length of the test-tube. Place plain agar-agar, as culture medium in the tube and insert a cotton plug. Sterilize the tube thus prepared. After this process slant the tube so that the agar lies high on one side of the central glass slide. Carefully observe the tube and note this, as exactness in this regard has a direct bearing on the success of the technic. The water of condensation will tend to collect at the bottom of the lower side thus minimizing the chance of surface spreading or contamination of the higher side. Streak the lower side with the bacillus subtilis, taking care to cover the whole surface. Inoculate the higher side with some aborted material, amniotic fluid from an aborted calf, or the fluid from the interior of a cyst of the ovary. After inserting the cotton plug, push it down into the tube and place a tightly fitting rubber cork over it to make the tube air-tight. The tube thus prepared must be incubated at 37 C.

Within two to three days growth will take place on the higher side in which the suspected material was planted, thus enabling a further study of the organisms or colonies present. Horton has had excellent results in using this method for the cultivation of the *Bacillus bifidus, Tissier,* and the *Bacillus abortus,* Bang. To aid in this practice it is suggested that test-tubes with the glass slide be made all in one piece, thus precluding all possibility of the *Bacillus subtilis* contaminating the desired growths. So constructed, the tubes may be slanted in the usual way, there being no need for having one side of the slant higher than the other.

28. **Classification of Streptococci by Fermentation.**—Analysis of their experiments seems to justify Hopkins and Lang in drawing the following conclusions: The streptococci usually concerned in severe infections in man may be differentiated from the common saprophytic types by fermentation tests. The tests are best performed in infusion broth colored with litmus, containing 2 per cent. or more peptone and 1 per cent. of the fermentable substance. The initial reaction should be between 0.0 and 0.5 per cent. normal acidity (phenolphthalein). Only a complete change of the litmus to pink should be considered positive. The useful test substances are lactose, salicin, raffinose, mannite and inulin.

On the basis of these reactions Hopkins and Lang can recognize the pathogenic and six saprophytic groups: (*a*) Pyogenic group; characterized by fermentation of lactose and salicin. (*b*) Four salivary groups; two characterized by fermentation of raffinose, one by fermentation of inulin, and one by failure to ferment salicin, raffinose, mannite or inulin. (*c*) Fecal group; characterized by fermentation of mannite. (*d*) Equine group; characterized by failure to ferment lactose. The streptococci in this class are saprophytes and are commonly found in horse dung. Titrations of the amount of acid formed in fermentation are of no value in classification. Tests for ability to hemolyze human blood are of value in that highly pathogenic strains are usually strongly hemolytic. The type of chain formation, the milk coagulation test, and the neutral red reaction, are not reliable as bases for classification.

29. **Anaerobic Cultures in Scarlet Fever.**—In blood-cultures from 24 cases made anaerobically by Dick and Henry positive results were obtained in 20 cases. A comparison of the kind of organisms found in these blood-cultures with the organisms present in the throat and urine would indicate that during the acute stage of scarlatinal angina, organisms enter the blood-stream in considerable number and are excreted in part at least in a viable condition through the kidneys. The authors suggest that the excretion of living bacteria through the kidney may have some connection with the development of scarlatinal nephritis. A number of organisms are described which are commonly associated with scarlet fever, some of which produce rash in guinea-pigs, but the authors were unable to say that any of these animals really had scarlet fever.

Hemolytic streptococci were found in the blood in 7 cases, in the lymph-nodes in 2 cases, in the spleen in 2 cases and in the urine in 3 cases. Very small streptococci were isolated from the blood in 5 cases. They were much smaller than the hemolytic streptococci and did not as a rule affect blood. Gram-negative diplococci were recovered from the blood in 1 case, from the urine in 2 cases, and from the throat in 1 case. Large gram-positive diplococci were found in the blood in 3 cases, in the urine in 2 cases and in the throat in 1 case. Diphtheroid bacilli were recovered from the blood in 1 case, from the urine in 1 case and from the throat in 2 cases.

31. **Toxins of Intestinal Obstruction.**—Gurd's experiments prove that vascular disturbances, namely, venous stasis, are equally as potent as occlusion of the lumen in the development of a poisonous substance in the intestinal mucosa, and that the substance produced in this manner is likewise a splanchnic paralyzer. The development of the poisonous material depended exclusively on vascular disturbance of the gut wall in a number of animals which were operated on and the portal veins or its branches ligated. In all of these operated animals the same type of fluid, which possessed the same toxic properties as the fluids found in closed duodenal loops, was discovered.

Dogs in which the portal vein, or the branches thereof draining the upper half of the intestinal tract, was ligated, died regularly within fifteen to eighteen hours. The animals never completely recovered from the stupor of anesthesia and were frequently found dead in exactly the same position in the cage as when returned from the operating room. The intestines, pancreas, and kidneys were found deeply cyanosed and the heart blood unduly fluid. The lumen of the intestine contained fluid blood-stained material, as a rule of a more watery consistency and deeper purple color than that found in cases of gut occlusion. The intestinal contents were collected from such animals and the cyanosed mucosa scraped off and placed in saline solution under toluol for extraction. Since the mucosa itself appears to contain a greater content of the toxic principle than does the content of the lumen, it would appear that the substance responsible for the intoxicating symptoms is the result of tissue autolysis rather than a bacterial product.

Gurd says it remains to be proven whether the death of the individual in cases of portal obstruction is due to the absence of the liver activity or to the development and absorption of the intestinal toxin, or of a combination of these two factors, and his experiments indicate that the effect on the nutrition of the intestine may be a sufficient cause for the untoward manifestations.

33. **Bovine Mastitis and Human Streptococci.**—The authors claim that hemolytic streptococci of human origin may cause mastitis, lasting for several weeks in cows. This time roughly corresponds to the duration of milk-borne epidemics. The streptococci may gain entrance through an abraded or injured surface of the teat. It appears possible, therefore, for mastitis in cows to be produced by an infection from the milker whose hands are contaminated perhaps from a sore throat. Mastitis results promptly when the cocci are injected directly into the udder by means of a catheter. The mastitis may exist without physical evidence. A caked bag may not occur, though pus and streptococci in large numbers are being secreted in the milk. Stringy, ropy, or gargety milk may or may not occur during the course of the mastitis.

In order to detect such infections, it might be necessary to examine milk from each quarter for bacteria and for pus. This may explain the failure to detect the source of the streptococci in some of the epidemics of sore throat. No change was noted by Davis and Capps in the cultural or pathogenic properties of the streptococci after growing in the udder of a cow for four weeks. The presence of various contaminating bacteria tend to inhibit the growth of hemolytic streptococci in milk.

35. **Purpura with Bacillus Mucosus in Blood.**—Clinically, the case studied by Weil and McMeans was a progressively severe bacteriemia in which cultures of the *bacillus lactis aerogenes* were obtained during life from the blood, urine and prostatic secretion. Purpura, although a late manifestation, was the result of this infection. On account of the systemic reactions after each surgical interference (passing sounds), of the urethra, the authors feel convinced that this was the point of entrance of the infection into the bloodstream. The authors suggest that probably infection of the genito-urinary tract by bacteria of the mucosus group is more common than is realized.

38. **Quinin Treatment of Rabies.**—The quinin treatment was tested by Cumming against fixed virus, as well as, against street virus. The former was a six-day virus, while the latter killed rabbits in about ten days, and guinea-pigs in eight days. The virus was given intracranially; the bisulphate of quinin was used in all experiments, the injections being intraperitoneal. The results were negative. The experiments were controlled both as to the infectivity of the virus and as to the absence, for the most part, of untoward symptoms from the quinin treatment. The dose of virus in most of the tests was not much larger than the smallest infecting dose. This amount of the virus is approximately 1/200,000 part of the total virus in the brain and spinal cord of a rabbit at the beginning of the paralytic stage. Inasmuch as the quinin failed as a preventive measure against extremely small doses of virus in actual tests, Cumming asks whether it cannot reasonably be • assumed that this method of treatment is of no curative value in cases of hydrophobia manifesting symptoms in which the amount of virus would be many thousand times greater? In the absence of protection by quinin against small doses of virus, even when a series of daily injections of quinin is given preliminary to the injection of rabic virus, Cumming says, we cannot expect favorable results from quinin after symptoms of hydrophobia have developed.

40. **Vaccines in Experimental Streptococcal Arthritis.**—Concentrated antistreptococcus serum was prepared by Moore according to the methods employed in preparing concentrated diphtheria antitoxin. Fifty-two strains of streptococci were used including viridans and hemolyticus, as well as strains from cases of epidemic sore throat. The strains were isolated from patients having tonsillitis, alone or complicated with acute or chronic arthritis, endocarditis, serositis, nephritis and pyorrhea. The virulence of many strains was tested on rabbits; thirty-four produced acute or chronic arthritis in these animals. Four series of rabbits were injected with this serum: (a) after the establishment of acute arthritis; (b) immediately after receiving live streptococci; (c) before the injection of the live streptococci; and (d) before and again after receiving the living streptococci. In none of these groups did the concentrated serum appear to have any preventive or curative effect on the acute arthritis. Experimental streptococcal arthritis was either prevented by, or ran a much milder course after, prophylactic injections of a homologous streptococcus vaccine. An immunity was produced which persisted over forty days in at least one case. The immunity appeared to be intimately associated with, and probably dependent on, the production of opsonins. Endocarditis and nephritis were less frequent in the vaccine-treated rabbits than in the controls.

Journal of Outdoor Life, New York

August, XI, No. 8, pp. 225-255

43 Schoolchild Problems in Tuberculosis. F. H. Mann, New York.
44 *Fresh Air and Proper Food in Treatment of Tuberculosis. G. L. Bellis, Oak Forest, Ill.
45 *Problem of Infection in Tuberculous Families. J. B. Hawes, 2d, Boston.
46 Before and After-Care of Tuberculous. E. Hochhauser, New York.

44. **Fresh Air and Proper Food in Treatment of Tuberculosis.**—All substances Bellis considers proper food for the tuberculous patient that supplies in an easily digestible form and in sufficient quantities all of the elements that go to make up a normal, healthy human being. To promote the eating and digestion of the various materials represented by the classification constitutes the problem of the physician or institution, that would assist nature to the utmost in combating tuberculosis. Primitive man lived in the great out-of-doors and appeased his hunger with such substances as were most easily obtained. Cookery was an unknown art and it may be more than a mere incident that infectious

diseases have multiplied in direct ratio to the extent with which the human race have demanded that the life of food be destroyed by fire before being eaten.

In this age of so-called civilization, people, sick or well, insist that what they eat must appeal to their senses of taste and sight, rather than to a clear complete knowledge of what constitutes nutritious and digestible food. It is somewhat doubtful, says Bellis, if we could return suddenly and completely to the food of primitive man without dire consequences. In the present day we are forced to compromise in the matter of food. The individual patient's taste, digestion, and power of elimination must be considered, together with the economies of the problem. The great majority of persons ill with tuberculosis, and other diseases as well, are finicky in their choice of food. Misdirected sympathy and "mollycoddling" by parents, neighbors, friends, and too often physicians, are responsible for this state of affairs.

The food to be consumed must be rich in those principles most essential to metabolism. Milk stands at the head of the list, for it contains in goodly proportions all of the required elements. Occasionally the taste of milk is repulsive. Where this objection is present, the flavor of the milk can be easily changed by the addition of any one of the numerous spices and extracts. The products of milk, butter and cheese are also exceedingly nutritious. Bellis places eggs second on the list. In their raw state they are especially rich in albumen and fat, easily digested, and ordinarily readily obtained. Beef occupies third place. Raw beef Bellis believes to be a most valuable substitute for raw eggs. Pork in the form of breakfast bacon and ham, the former for its fat content, and both for the intestinal antiseptics which are introduced in their curing, must not be forgotten. Next in importance is a generous mixed diet of vegetables. Not alone because of the very nutritious properties of many of them, especially the cereals and legumens, but also on account of the desirable addition of fats in the form of cream, oils, butter and suet used in their preparation. Coarse vegetables act as a "scrubbing brush" to the entire alimentary canal, cleansing it and stimulating the flow of the digestive juices. The fruits come under this heading and when eaten at appropriate times furnish to the body many elements of great value. Because of their laxative properties, fruits will obviate the necessity for pills in the dietary of many individuals.

45. **Family Tuberculosis Infection.**—Tuberculosis infection takes place chiefly in childhood years in the intimate contact of family life. There are three classes of tuberculous, says Hawes, which are the chief sources of family infection, the unknown case, the known case treated in his own home, and the returned sanatorium or hospital patient. The last class of returned sanatorium patients is the most important one and best repays our efforts. The responsibility of the State toward its patients, Hawes states, does not end when the patient is discharged nor does the responsibility of the municipality end when the patient leaves for a State sanatorium. Cooperation between State and local forces must be constantly striven for. Tuberculosis is primarily a local problem but the State may well direct and advise but not replace local work.

Hawes' paper is based on a study of 600 patients, discharged from various State sanatoriums. The great majority of them, approximately 83 per cent. were in the advanced or moderately advanced stages of the disease at entrance to the sanatoriums, while nearly 50 per cent. were discharged with positive sputum and with the disease still active. These 600 patients, including in these figures only the immediate members of the family, exposed 2,601 others to this disease. Of these 2,601 individuals, only 597 or 23 per cent. had ever been examined for tuberculosis, despite the fact that at the patient's admission to the sanatorium his physician as well as the local board of health were at once notified so that the other members of the family might be examined. Of these 597 exposed patients who were examined, 75 or 12½ per cent. were found to be positive cases of tuberculosis. There were 966 children, 15 years and under among those exposed individuals. Of these 362 or 38 per cent. had been examined and 38 or 10½ per cent. found to be positive cases.

The aims in Massachusetts are to have a trained social worker in each institution. It will be the duty of such a person to become acquainted with the patients, devoting her attention especially to those about to leave, finding out their plans for the future and preparing the way for them. In addition to this there should be one or more field workers for each institution. The work on behalf of the State will be to direct and encourage such local work.

Journal-Lancet

July 15, XXXIV, No. 14, pp. 371-398

47 Work of the Medical Profession. F. A. Spafford, Flandreau, S. D.
48 Relation of Sanitation to Death and Disease. H. W. Hill, St. Paul.

August 1, XXXIX, No. 15, pp. 339-424

49 Nursing as Profession. G. D. Head, Minneapolis.

Lancet-Clinic, Cincinnati

August 1, CXII, No. 5, pp. 117-140

50 Conservation of Hearing Function. W. C. Phillips, New York.
51 Causative Factors in Mental and Nervous Diseases. J. C. George, Dayton.
52 Surgical Disorders of Digestion. W. D. Haines, Cincinnati.

August 8, CXII, No. 6, pp. 141-168

53 Surgery in Relation to Life Insurance. W. J. Mayo, Rochester, N. Y.
54 Abuse of the Obstetrical Forceps. J. W. Rowe, Cincinnati.
55 Torticollis. H. H. Hoppe, Cincinnati.

Medical Record, New York

August 15, LXXXVI, No. 7, pp. 279-320

56 Present Estimate of the Value of Radium in Surgery. R. Abbe, New York.
57 Trichinosis, with Report of Fifteen Cases. M. H. Sicard, New York.
58 Case of Phlebitis of the Penis, Simulating Edema Induratum, Complicating Acute Gonorrhea. M. Zigler, New York.
59 Tonsillectomy, Its Indications and Choice of Operation. W. H. Huntington, Washington, D. C.
60 Bacillus Coli Infections in Infancy and Early Life. W. M. Hartshorn, New York.
61 Ulcus Cruris Inveteratum. W. P. Cunningham, New York.
62 The End of Life. C. R. Green, Troy, N. Y.

Military Surgeon, Chicago

August, XXXV, No. 2, pp. 101-210

63 Sanitary Service of Maneuver Camps. J. H. Ford, U. S. Army.
64 Proposed Methods of Pitching and Striking Pyramidal, Small Pyramidal and Ward Tents. W. W. Reno, U. S. Army.
65 Investigation Relative to Life Cycle, Breeding, and Some Practical Means of Reducing the Multiplication of Flies in Camp. H. C. Michie, U. S. Army.
66 Relation of Army Surgeon to Civilian Surgeon. H. C. Coe, U. S. Army.

Oklahoma State Medical Association Journal, Muskogee

August, VII, No. 3, pp. 79-109

67 Relationship of Nervous Diseases to Venereal Diseases. J. W. Duke, Guthrie.
68 State Health Problems. J. C. Mahr, Oklahoma City.
69 Puerperal Infection. C. R. Hume, Anadarko.
70 Treatment of Puerperal Sepsis. W. A. Fowler, Oklahoma City.
71 Intestinal Obstruction. M. H. Foster, Alderson.

Southern Medical Journal, Mobile, Ala.

August, VII, No. 8, pp. 603-680

72 Early Diagnosis in Malarial Infections. G. E. Henson, Jacksonville, Fla.
73 Pituitary Disturbance as Related to Some Cases of Epilepsy, Psychoses, Personality and Other Obscure Problems. B. R. Tucker, Richmond, Va.
74 Use of Pituitary Extract in Obstetrics. F. W. Wilkerson, Montgomery, Ala.
75 Diagnosis of Certain "Stomach Cases." A. G. Brown, Jr., Richmond, Va.
76 Hyperchlorhydria. C. Stanley, Washington, D. C.
77 Effects of Alcohol on Mental and Nervous Diseases. H. S. Ward, Birmingham, Ala.
78 Some Physical Reasons Why We Are What We Are. G. H. Benton, Miami, Fla.
79 Fissure in Ano or Painful Ulcer. C. D. Render, Birmingham, Ala.
80 Relation of the Medical Profession to Accident Insurance. W. E. Magruder, Baltimore.
81 *Ovariotomy Sub-Partu. W. Kohlmann, New Orleans.
82 Congenital Pyloric Stenosis with Report of Cases. L. S. Booker, Durham, N. C.

83 Use of Iodin in the Abdomen; Report of Eight Cases. J. G. Gaither, Hopkinsville, Ky.
84 *Elimination of the Preventable Seven Per Cent. Mortality in the Surgical Treatment of Acute Abdominal Diseases. F. G. Du Bose, Selma, Ala.
85 Appendiceal Abscess—A Clinical Study. J. L. Campbell, Atlanta, Ga.
86 Iodin Technic in Surgery. W. H. Wilder, Birmingham, Ala.
87 Case of Sub-Temporal Decompression for Relief of Intra-Cranial Pressure of Obscure Origin: Recovery. G. T. Tyler, Jr., Greenville, S. C.
88 Complications of Submucous Resection of the Nose. W. L. Simpson, Memphis, Tenn.
89 Epithelioma Following a Pterygium. R. Fagin, Memphis, Tenn.

81. Abstracted in The Journal, Dec. 20, p. 2270.

84. **Surgical Treatment of Acute Abdominal Diseases.**—Du Bose summarizes his paper as follows: 1. There is a preventable death-rate of approximately 7 per cent. in acute abdominal diseases. 2. To overcome this a diagnosis of at least the presence of an acute abdominal condition must be made at the first visit or less than twelve hours after its onset. 3. To appreciate that early operation is the safest of all treatment. That the measures advised by the advocates of masterly inactivity are never safe, are a last resort, to be used only on those unreasoning people who refuse surgery, or on those who are seen late in the disease, and on these only until they can be brought to a hospital and have had operative relief. 4. To stop teaching and reporting statistics of cases treated by the expectant plans without paralleling such records with those in which immediate diagnosis and prompt surgical operations are done and a comparison of results in each series. 5. To encourage a more intimate relation with the internist and have him witness operations and there study the living pathology. 6. To let surgeons and internists appreciate the fact that the symptoms are not always in direct ratio to the severity of the unseen pathologic process.

West Virginia Medical Journal, Wheeling

August, IX, No. 2, pp. 41-74

90 Typhoid Fever and Illegal Practitioners vs. State of West Virginia. W. W. Golden, Parkersburg.
91 Acute Diarrhea of Children. W. Gaston, Parkersburg.
92 Inflammations of Nasal Accessory Sinuses. H. H. Haynes, Clarksburg.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

July, XI, No. 127, pp. 289-336

1 *Intramuscular Injections of Antitoxin in Treatment of Diphtheria. J. D. Rolleston and C. MacLeod.
2 Salvarsan and Neosalvarsan in Treatment of Hereditary Syphilis. J. L. Bunch.
3 Case of Mesenteric Thrombosis in Youth Originating from Caseating Tuberculous Gland. H. L. Murray.

1. **Intramuscular Injections of Antitoxin.**—Intramuscular have entirely supplanted subcutaneous injections of diphtheria antitoxin at the Grove Hospital. Without preliminary washing the outer side of the thigh in its middle third is painted with 2 per cent. solution of iodin, the needle is driven deep into the body of the vastus externus, and the injection is given in the ordinary way. Twenty thousand units (= 50 c.c.) can readily be injected even in small children, but the authors have never exceeded this dose at one time. Their youngest patient, aged 2 weeks, received 4,000 units for nasal diphtheria without any ill-effects. Directly the needle has been withdrawn after injection, the site of puncture is again painted with the iodin solution and a collodion scab is applied.

The thigh is preferred to the gluteal region not only because there is less probability of injuring important vessels or nerves but also because the thigh muscles are much more compact and exercise greater pressure on the injected fluid, rendering absorption more rapid. Not only is the actual injection much less painful, but the subsequent pain which often causes a restless night and persists for two or three days after subcutaneous injection, is ill-marked and often entirely absent. It is superior to the intravenous method, not only in the greater simplicity of its technic, but also in the less rapid excretion of antitoxin after injection. The more rapid absorption of antitoxin by the intramuscular route is shown, not by the effect on the faucial or laryngeal process, but by the lesser incidence of paralysis, especially of a severe kind.

British Medical Journal, London

August 1, II, No. 2796, pp. 221-276

4 On the Making of a Scottish Medical School. A. Ogston.
5 *Medicine from the Chemical Standpoint. A. E. Garrod.
6 *Surgeon of the Future. J. Bland-Sutton.

5. **Medicine from the Chemical Standpoint.**—After touching on the foundations of medicine, the progress of chemical science and biochemistry, Garrod discusses generally, the investigations made into the proteins and other compounds, the specificity of chemical structure, the metabolic activities of the living organism, the regulation of metabolism, inborn errors of metabolism, protective mechanisms against toxic agents, metabolic disturbances due to disease of organs, deficiency diseases, influence of chemical knowledge on the practice of medicine, chemistry in diagnosis, dietetics, therapeutics, empiric and scientific. Concluding, he says, that the reason the progress of medicine has been more rapid in recent years than ever before is due to the cumulative advance of science as a whole. Modern physics and chemistry, and the borderland science of physical chemistry, have rendered possible modern physiology and pathology, and on the foundation thus provided is being raised the stately edifice of a modern medicine, in which the scientific spirit shall have freer play than heretofore.

6. **Surgeon of the Future.**—Speaking of the surgeon of the future, Bland-Sutton says that surgeons are of two types: they are either craftsmen or biologists. The surgical craftsman invents variations in technic—metal plates, wires and screws for bones; or fancy methods of suturing wounds. Some expend their ingenuity on surgical cutlery and improve the knives and needles. The utility of a simple tool such as the clip forceps is inestimable. In spite of much ingenuity among surgeons an ideal ligature material awaits discovery. Clever contrivances like the laryngoscope, bronchoscope and cystoscope have revolutionized special branches of surgery. Another useful instrument, the esophagoscope, requires for its successful use a surgeon with the instincts of the sword swallower and the eye of a hawk.

The biologic surgeon studies pathology in its broadest aspect and investigates, in the laboratory, problems of morbid anatomy and bacteriology. The diagnostic value of reports issued from the laboratory by the pathologist and the bacteriologist, to be of value, must be estimated with the help of clinical experience. If the surgeon has had no experience in bacteriologic methods he must accept the reports from the laboratory with the hopefulness of a patient swallowing physic compounded from a prescription he does not understand and which he is often unable to read. The training of surgeons in clinical pathology is of great importance, and it requires little foresight to recognize that for men ambitious to attain high places in surgery the high road lies through the pathological institute.

Dublin Journal of Medical Science

July, III, No. 511, pp. 1-80

7 Experiences with Wassermann Reaction. E. J. McWeeny.
8 *Clinical Report of the Rotunda Hospital for One Year, November 1, 1912 to October 31, 1913. H. Jellett, D. G. Madill, R. M. Allen.
9 Etiologic Controversy anent Beriberi with Some Remarks as to Milled Rice. H. D. King.

8. **Clinical Report of Rotunda Hospital.**—The Hospital Staff of the Rotunda Hospital attended 4,136 labors from November, 1912, to November, 1913, with a mortality of 0.41. Seven deaths occurred in the extern department, eleven deaths in the intern department. Four deaths were the result of septic infection, one the result of accidental hemorrhage, one the result of unavoidable hemorrhage, and one the result of pulmonary embolus. There were twelve cases of unavoid-

able hemorrhage. Three mothers died—one of pyemia with thrombosis of the right ovarian vein. In the second case—one of central placenta praevia—bipolar version was performed, but the patient collapsed immediately after. The postmortem examination showed fatty degeneration of the heart. There was no hemorrhage after the version was completed. The third death also occurred in a case of central placenta praevia at term. There had been intermittent hemorrhage for four weeks before admission. Bipolar version was performed, and the patient delivered herself spontaneously four hours later. The postmortem examination showed that there was a tear of the cervix involving the bladder.

There were 24 cases of contracted pelvis. In four cases delivery was spontaneous. In 5 cases the forceps were applied, and delivery effected. In 2 cases, internal podalic version was performed. In 1 case, the child was extracted as a breech presentation. In 7 cases, cesarean section was performed, and in three cases pubiotomy was performed. Two patients died after cesarean section, both from septic poisoning. In one case of pubiotomy, the piece of bone between the saw-cut and the symphysis came away during the puerperium. This occurrence made not the smallest difference to the patient's power of walking. If anything, she walked better, and at an earlier date, than do the average number of pubiotomy patients. This patient subsequently delivered herself spontaneously in the hospital. There were 13 cases of prolapse and presentation of the cord. Five children were born alive, and 8 were born dead. There were only 5 cases of eclampsia. All the mothers recovered, and 4 children out of 6 were born alive. The forceps was applied in 64 cases. All the mothers recovered, and 54 children were born alive.

Lancet, London

August 1, II, No. 4744, pp. 281-358

10 *On Gastric Ulcer with Special Reference to Its Treatment by Gastrostomy. W. W. Cheyne.
11 Selection of Method of Operation in Treatment of Gastric and Duodenal Ulcers. A. von Eiselsberg.
12 *Internal Derangements of the Knee. R. Jones.
13 Results of Operation (Laryngo-Fissure) for Intrinsic Cancer of Larynx. E. Schmiegelow.
14 Hyperthyroidism: Primary and Late Results of Operation. C. H. Mayo.
15 Typhoid Perforation. G. E. Armstrong.
16 Treatment of Inoperable Carcinoma of the Uterus by Application of Heat. J. F. Percy.
17 Factors of Safety in Cleft-Palate Surgery. J. R. Eastman.
18 *Suture of the Levator Ani Muscle in Perineorrhaphy Operations. H. Jellett.
19 *Results of Radical Operative Treatment of Cancer of the Uterus. T. Wilson.

10. **Gastric Ulcer Treated by Gastrostomy.** — Cheyne believes that the question of gastrostomy is worth while considering in cases of adherent ulcers nearer the pyloric end which cannot be excised, in preference to gastro-enterostomy and closure of the pylorus. The advantages are very great. In the case of stricture of the urethra the quickest way of getting rid of the induration of the walls is to tie in a catheter for a few days and it seems to Cheyne, that the same result would probably follow in an indurated ulcer of the stomach. He would, of course, combine infolding of the ulcer with the gastrostomy whenever possible. While gastrostomy has not previously been suggested as a method of treating gastric ulcer, jejunostomy has been carried out in a considerable number of cases of ulcer of the duodenum on much the same principles, but although it has its warm advocates the idea does not seem to have taken hold. It seems to Cheyne that jejunostomy for duodenal ulcer does not possess the advantages that gastrostomy offers in the case of certain gastric ulcers. Ulcer in the duodenum seems to set up, and keep up, hyperchlorhydria and movements of the stomach and this may continue even though the patient is fed through a jejunostomy opening. Cheyne suggests that even in cases of duodenal ulcer, a gastrostomy with passage of the tube well down the duodenum, combined with infolding of the ulcer, might act better than jejunostomy, and might possibly take the place of gastro-enterostomy and occlusion of the pylorus in cases in which the infolding of the ulcer did not produce serious constriction of the lumen of the duodenum.

In a case cited there was an ulcer of considerable size on the posterior surface of the stomach, high up near the cardiac end and firmly adherent to the parts behind, and on the anterior wall of the stomach at the same point there was also a commencing contact ulcer. The conditions were most unfavorable for excision. What Cheyne did, therefore, was to leave the ulcer alone and to perform gastrostomy beyond the ulcer by Witzel's method, pushing the catheter through the pylorus and for about 3 inches along the duodenum. The patient was fed through the tube very soon after the operation, and the tube was left *in situ* for six weeks, when it was removed and the wound allowed to heal up. No food was given by the mouth for five weeks. The immediate result of the operation was that the patient at once lost all pain and discomfort from which she had previously suffered, and rapidly began to put on flesh and regain strength, and there was no trouble about the wound which healed in a few days, except, where the tube passed down to the stomach. When tested with food by the mouth at the end of five weeks no discomfort was caused, and on leaving out the tube a week later the wound closed in a few days and since then she has had no further trouble.

12. **Internal Derangements of the Knee.**—Speaking of luxation of the internal semilunar cartilage, Jones says that he refuses to operate in any case which he sees immediately after the first displacement, as so large a proportion of such cases get well under appropriate treatment, nor does he encourage operation in cases in which the recurrent trouble is painless and is never followed by effusion into the joint. He strongly advocates operation in cases in which the recurrence is sometimes followed by acute symptoms and encourages it in all recurrent cases in which a strenuous athletic life is a means of livelihood or a physical necessity. Operation is a positive necessity in the case of men who work among moving machinery or stand in positions in which a yielding knee may mean disaster. He has operated on patients from 12 to 60 years; age, therefore, is not a contraindication. An argument in favor of operation is the occurrence of tubercle and so-called rheumatoid trouble as a direct result of the irritation of a displaced cartilage. Further, a knee which has been the seat of trauma is very susceptible to infection, and he is, therefore, careful not to operate during the presence of effusion nor to move it during operation for fear of the ingress of air or dust.

18. **Suture of the Levator Ani Muscle.**—The essential features of the operation devised by Jellett are: (1) The careful dissection of the necessary amount of vaginal mucous membrane off the rectum; (2) the exposure and suture of the separated levator ani muscles; and (3) the careful approximation of the cut edges of the vaginal mucous membrane in such a manner as to leave no projection or redundancy. The operation is carried out as follows: The extent of the perineal tear is carefully determined, and its anterior edges are marked out by bullet forceps. A third bullet forceps is applied to the perineal skin just behind the posterior edge of the tear. The position of the separated edges of the levator ani is determined by palpation through the mucous membrane of the vagina. An incision is then made from side to side along the line of junction of the skin and the vaginal mucous membrane. This incision cuts through the skin and any underlying scar tissue. A flap of vaginal wall is then dissected up off the underlying rectum. At its lowest part it is firmly held to the rectum and the sphincter ani by cicatricial bands, the result of the old cicatricial healing. As soon, however, as these have been cut through the separation of the remainder of the flap by blunt dissection is an easy matter.

When the dissection of the flap is complete a triangular space is exposed, which is bounded laterally below by the remains of the superficial vaginal and perineal muscles, and at a deeper level by the pubo-coccygeal fibers of the levator ani muscle, while its floor is formed by the rectum. It is then an easy matter to catch the edges of the levator with clip forceps or dissecting forceps, and to draw them downward and inward until they meet in the middle line. If the separation and atrophy of the muscle are marked, then it may not be possible to draw the edges down sufficiently, but in the great majority of cases they can be brought into view. Three or four interrupted sutures of catgut are then passed through them from side to side, so that when tied they will approximate them in the middle line; for the present, however, they are left untied.

The next step is to trim the vaginal flap into proper shape, so that when the operation is complete there may be no redundancy. The cut edges of the flap are then brought together by a continuous catgut suture passed from above downward, and ending at the vulvar orifice. This being done, the catgut sutures in the levator muscle may be tied. The last step consists in the introduction of silkworm gut sutures passed so as to close the skin edges of the perineal wound. These sutures are passed from side to side, and traverse the skin and the remains of the superficial perineal muscles and also the elevator muscle, so as to supplement the buried catgut sutures. Any bleeding vessel, if of large size, should be caught and tied, but, as a rule, the best method of stopping bleeding is by proceeding rapidly with the operation.

19. **Treatment of Cancer of the Uterus.**—From 1896 until Dec. 31, 1913, Wilson operated on 596 cases of uterine cancer. Of these, in 67 the disease affected the uterine body. Among the 67, 15 vaginal hysterectomies with no mortality, and 29 abdominal hysterectomies with 3 deaths, were performed. Until the end of 1913 there were 529 cases of cancer of the cervix uteri. These can be conveniently divided into two groups according as operation by the vaginal or the abdominal route was the method of choice. In the first period, lasting until the end of 1905, there were 246 cases of which 37 were operated on by the vaginal method with one death, and 7 by the abdominal route with 6 deaths. In the second period, from Jan. 1, 1906, to Dec. 31, 1913, 283 cases were seen, among whom 20 were operated on by the vaginal route with no deaths and 72 by the abdominal with 8 deaths. The total immediate mortality of the vaginal method has been 57 cases with one death, or less than 2 per cent.; and of the abdominal, 79 operations with 14 deaths or 17.7 per cent. The great majority of abdominal hysterectomies were performed by Wertheim's method. The ratio of operability has steadily increased; in the years 1896 to 1899 it was 14 per cent.; in the last four years it has been more than 36 per cent.

The total five year results up to June 30, 1909, have been investigated and show that, with an increased operable ratio and the adoption of the abdominal method of operation the absolute curability of Wilson's cases have risen from 5.5 to 10.2 per cent. Of the patients surviving operation 16 of 51=31 per cent. of the vaginal, and 10 of 23=43 per cent. of the abdominal, remained well and free from recurrence for five years and upward.

Annales de la Société Med.-Chir. de Liége

LIII, Nos. 1-6, pp. 1-126

20 *Intermittent Crippling Contracture of Various Muscles Except Those of Face and Chest in Otherwise Healthy Young Man. (Myotonie acquise.) L. Beco.
21 Present Status of Operative Treatment of Glaucoma. L. Weekers.
22 *Is Operative Treatment Required for Small Bullet Wounds of Chest or Abdomen? Lenger, L. Delrez and C. Tecqmenne.
23 Perforated Duodenal Ulcer; Five Cases. C. Tecqmenne.
24 Importance of Radiography in Diagnosis of Renal Tuberculosis. Hogge.
25. Stenosis of the Pylorus with Hematemesis in Three-Weeks' Babe; Recovery after Posterior Gastro-Enterostomy. A. Hougardy.
26 *Divergent Dislocation of the Metatarsus. Lenger.
27 *Megacolon. (Maladie de Hirschsprung.) M. Dubois.
28 Roentgenoscopy of the Stomach and Intestines. (Examen du tube digestif aux rayons X.) Bienfait.

20. **Acquired Myotonia.**—The young man's general health in the case reported by Beco has not been impaired by the intermittent severe contracture of the various groups of muscles whenever he attempts to use them. He is robust and apparently free from inherited or acquired taint and had always been healthy until two abscesses developed on the right foot a year ago. The contractures occur even during sleep, but the sensibility and responses to electric tests are approximately normal. This justifies a more favorable prognosis than with ordinary myotonia, Beco adds.

22. **Gunshot Wounds of the Abdomen.**—Delrez and Lenger do not agree in their views on this subject. The latter advocates abstention as long as there are no signs of internal hemorrhage or other disturbance, while Delrez pleads for a prompt laparotomy with every bullet wound of the abdomen so as to ascertain and remedy any injury of the viscera. Each presents an array of cases which apparently sustain in turn each of the divergent views.

26. **Dislocation of the Metatarsus.**—Lenger remarks that divergent dislocation may almost be said to be merely the exaggeration of a physiologic movement. Reduction under a general anesthetic should be done at once if the dislocation is seen before the foot is swollen. When edema has developed, roentgenoscopy from the front and side may be necessary to ascertain the true condition. The main point in treatment is to restore the first metatarsal bone to place. When this is accomplished one can be content without attempting more. It might be imprudent to cut into the foot to restore the four other metatarsal bones to place. But if the first metatarsal bone cannot be reduced without operating, do not hesitate to expose it; it is possible that reduction of an intervening tendon may be all that is necessary. When the foot is crushed and amputation becomes necessary, if the first metatarsal bone can be saved, the functional use of the foot is retained and the gait not affected. This is because the foot is really made up of two parts, both triangular, a rear and internal tarso-metatarsal part, constituted by the seven bones of the tarsus and the first metatarsal bone. This is the strong arch of the foot, the arch of strength and movement; the arch rests on two supports: on the heel at the back and on the head of the first metatarsal bone in front. These two abutments support the weight of the body in walking and standing. The other part of the foot comprises the last four metatarsal bones, and it serves only to maintain the balance of the foot. Two tendons passing across the hollow of the foot define and separate the two parts. Lenger insists that the surgeon should feel that his task is done when he has succeeded in reproducing the arch of strength and movements. The rest of the foot can be left unmolested. Reexamination of one patient ten years after amputation of the last four metatarsal bones, run over by a wagon, shows perfect control of the foot. It is held and used normally, thanks to the preservation of the entire tarsus and the first metatarsal bone.

27. **Megacolon.**—Dubois' patient is a boy of nearly 12 with pronounced Hirschsprung's disease; extreme constipation had been the rule since early infancy, the stools were fluid, the peristalsis of the colon abnormally intense; the abdomen measured 71 cm. Of late there had been intermittent, more or less complete obstruction of the intestinal tract. Although the stools were fluid they were not abnormally frequent except when diarrhea alternated with inveterate constipation. Colitis is the rule, and there may be ulceration. The food should be such as to leave little waste, and the bowel should be rinsed out through a long soft tube with tepid water containing a teaspoonful of sodium bicarbonate and one of salt to the liter. This softens up impacted feces and promotes its expulsion; in his case the girth went down from 71 to 55 cm. in five days under this treatment. Dubois does not approve of operating on children under 5 except in emergencies. In the cases on record operative treatment on 14 infants was followed by 100 per cent. mortality; in 28 between 2 and 5, the mortality was 40 per cent.; in 46 between 5 and 15, it was 26 per cent.; in 41 between 15 and 50, it was 27 per cent. and in 14 patients over 50, it was 85 per cent. Colostomy should be merely the first step of the more complex operation. Taking up a fold in the colon,

fixation or colostomy are incomplete and do not do much good, and resection at one sitting is dangerous. Unilateral exclusion and implanting the ileum in the sigmoid loop is much better in most cases.

Bulletin de l'Académie de Médecine, Paris

LXXVIII, Nos. 26-28, pp. 879-994 and 1-61. Concluded from p. 611

29 Gratifying Results of Special Training for Certain Mentally Defective Children. (Adaptation sociale des enfants psycho-anormaux éducables.) J. Roubinovitch.
30 *Improvement of Myxedematous Boy of 14 after Graft of Monkey's Thyroid. (Greffe de la glande thyroide d'un singe à un enfant atteint de myxedème.) Voronoff.
31 *Ascaris in Pyopneumothorax; Eighth Case on Record. R. Blanchard and M. Letoux.
32 Morphin Acted on by Yeast as Analgesic. (Analgésie obstétricale.) Ribemont-Dessaignes, Bazy and Bourquelot.
33 Liver Lesions with Amebas Seven and Eighteen Years after Latent Infection; Two Cases. (Amibiase hépatique tardive de forme nodulaire.) C. Achard and C. Foix.

30. **Graft of Monkey's Thyroid Improves Myxedema.**—Voronoff's patient was a boy of 14 who had developed myxedema after measles at the age of 8. The graft of the right lobe of the thyroid with its parathyroids was taken from a large monkey—a baboon—and implanted in the neck of the boy. It was embedded in a vascular region and was sutured closely to the surrounding tissues in order to promote adhesions and formation of new vessels. Voronoff states that during the six months since, the gradual improvement in both the physical and the mental condition has been striking. The boy had formerly been apathetic and stupid, the skin scaling off, the nose and lips enlarged; all this has retrogressed and the features show nothing abnormal while from his former apathy in school the boy has become lively and unruly.

31. **Ascaris in Pyopneumothorax.**—A robust country woman was taken suddenly with pains suggesting pleurisy and puncture later revealed fetid pus. After a purge she passed two ascarides. As the pyopneumothorax persisted in spite of treatment, the pleura was opened and a macerated ascaris was found in the pus. Recovery was soon complete showing that there could not have been a fistula at any point.

Journal de Médecine de Bordeaux

July 19, LXXXV, No. 29, pp. 485-498

34 Neosalvarsan in Syphilitic Keratitis. C. Fromaget.
35 *Tardy Equivalents in Gastric Pathology. R. C. Augistrou.

35. **Tardy Equivalents in Gastric Pathology.**—Augistrou gives the details of 7 cases in which there were various disturbances coming on two or three hours after a meal, but not the usual train of pains relieved by vomiting, with the painful point in the back when food is ingested. Instead of this familiar syndrome, his patients had various disturbances which he regards as the recurring equivalents of the above syndrome. Five of them at this time after meals became dizzy and extremely depressed with tremor and profuse sweating, some feeling that death was impending. Two had besides recurring pain in the shoulder and arm or lower part of the chest. In only 2 of the 7 cases were the patients relieved by taking food, and one by vomiting. In only 2 cases was the stomach region tender during the acute phase. In 2 cases, however, there was a history of the typical tardy gastric pain in former years. In another case the atypical disturbances described above progressed to become finally the true typical attacks. One case was peculiarly instructive as the typical and atypical disturbances alternated, all coming on at the same hour after eating, the reflex pains and the general reaction at one time and another day the intense pain localized in the stomach.

Some of the patients had been treated for months in vain with drugs to act on the nerves and neuralgia, but a cure was soon complete when the diet was restricted to milk and egg dishes, with some alkaline powder. The gastric juice may be secreted in excess or there may be a deficit; the only reliable differential signs are the regularity of the interval after eating when the disturbances appear and their subsiding again; the regular recurrence for a few days to two weeks or more, and the usually complete cure under the simplest dietetic measures. The trouble is not hyperchlorhydria but merely abnormal sensitiveness of the gastric mucosa or spasm of the pylorus in persons with an unstable nervous system. All the above patients were what he calls inveterate neuropaths, great talkers, easily moved to tears or anger, and often complaining of headache and not feeling well in the morning.

Journal d'Urologie, Paris

July 15, VI, No. 1, pp. 1-152

36 *Anuria from Relics of Old Pelvic Inflammation. (Des anuries de cause indéterminée.) P. Bazy.
37 *Reflux of Urine into Ureter; Four Cases. (Reflux urétéral acquis.) O. Pasteau.
38 *Suburethral Abscess in Women. (Abcès urineux chez la femme.) P. Héresco and M. Cealic.
39 *Syphilitic Lesions in the Bladder. (Syphilis vésicale.) G. Gayet and Favre.
40 *Restoration of the Bladder. R. Grégoire.
41 *Modified Technic for Perineal Prostatectomy for Cancer. R. Proust.

36. **Anuria from Indeterminate Cause.**—Bazy reports several cases of anuria apparently ascribable to a calculus but nothing of the kind could be found, and the course of the cases showed that the trouble was some mechanical obstruction of the ureter, but not from stones, neoplasms or inflammatory processes. In the first case a man of 73 had had kidney colic and passed gravel at various times. The ureter evidently became dilated and stretched during the course of this nephrolithiasis, with the consequence that it became kinked low down and anuria resulted. Roentgenoscopy showed some vague shadows which suggested calculi in the pelvic ureter but which must have been of other origin. These misleading shadows were noticed also in two other cases of anuria in all of which concrements were incriminated but finally they had to be exculpated. Decapsulation of the kidney in one case started instantaneously the natural flow of urine. These "false calculi" are generally multiple and bilateral; the organs and soft parts in which they are located are movable, and hence the false calculi can be displaced in their relative positions. They are evidently relics of old inflammation in the pelvis and may drag on or kink the ureter in time.

37. **Reflux of Urine into Ureter.**—Pasteau does not refer to a congenital dilation of the ureter but to an acquired permanent gaping of the pathologic ureter mouth, or to a transient gaping. He describes a case of the latter in which an opaque fluid in the bladder was forced up into an apparently normal ureter between the spurts of urine from the ureter. The other ureter and kidney were tuberculous. After nephrectomy there was no further reflux in the other ureter, demonstrating that there had been no anatomic lesion but merely transient atony of the musculature. The danger is imminent of infection of the sound kidney from the reflux thus invited; it is further favored by the abnormally powerful contractions of the secondarily inflamed bladder. Another point to be borne in mind is the possibility of blundering in the diagnosis when from the ureter urine is drawn that came from the bladder instead of the kidney.

38. **Suburethral Abscess in Women.**—Héresco and Cealic report four cases of abscess on the median line just below the urethra in which the pus was mixed with urine, all the features of the suppuration corresponding to the analogous urinary fistulas in men.

39. **Syphilis of the Bladder.**—Gayet and Favre give a colored plate of the findings in three cases. The hematuric cystitis subsided so promptly under treatment for syphilis that there can be no question, they declare, of the specific nature of the bladder trouble. The hematuria came on suddenly and was profuse in each case, recurring, uninfluenced by local measures, at nearly every micturition, with more or less pain. The cystoscopic findings illustrated show various phases of syphilitic affections of the bladder. When they have progressed to ulceration, secondary infection blurs the clinical picture. The trouble usually is differentiated only by exclusion after the failure of ordinary measures.

40. **Restoration of Bladder.**—Grégoire thinks that the case he reports is the first to be published in which a new bladder was made from the rectum for extensive destruction of the vesicovaginal wall without exstrophy or cancer of the bladder. This is the fifth case in which this technic has been applied. Continence of urine was not secured in any instance but the results of the operation otherwise were satisfactory.

41. **Modified Perineal Prostatectomy.**—Proust's technic is profusely illustrated, featuring his method of locating the ureter where it crosses the vas deferens. Following the latter up to the seminal vesicles on each side, separating these from the bladder and turning them over backwards, exposes the region below so that access to the ureters is rendered simple by following along the vas on each side.

Lyon Médical

July 19, XLVI, No. 29, pp. 97-140

42 Nephropexy for Movable Kidney. G. Gayet.

Presse Médicale, Paris

July 25, XXII, No. 59, pp. 565-576

43 *Comparison of Phthalein-Test Findings with Excretion of Urea in Chronic Nephritis. (L'épreuve de la Phénolsulfonephthaléine.) F. Widal, A. Weill and P. V. Radot.
44 Convoluted Thickening of the Scalp. (Pachydermie vorticellée du cuir chevelu.) Malartic and Opin.

43. **Phthalein Test and Urea Excretion.**—Widal, Weill and Radot state that with the phthalein test, the Ambard formula and tests for urea in the blood-serum, remarkably parallel findings were obtained with all. They list them from a number of cases, the figures all rising and falling together, both in normal persons and in patients with Bright's disease as also in patients with both heart and kidney disease but not oliguria. This parallelism confirms the precision of the various tests and favors the choice of the simplest technic which is that of the phthalein test. They remark in addition that this latter technic is free from the sources of error to which the others are liable. As it gives the same results as the Ambard formula they should be interpreted in the same way.

They distinguish between true azotemia, that is, retention from progressive accumulation of urea in the body fluids, and the azotemia which is merely the result of some disturbance in the excretion of urea which is borne for a long time without the urea accumulating in the body fluids. The fluctuating urea content of the blood serum in these cases is of no import for diagnosis or prognosis unless considered by means of the phthalein test or Ambard formula. This reveals the slightest upset in excretion of urea, and confirms the assumption of an underlying kidney lesion in case of incipient or abortive Bright's disease.

Revue de Médecine, Paris

July, XXXIV, No. 7, pp. 473-552

45 Advantages of Dried Peas and Beans in Antidiabetic Diet. (Les cures de légumes secs dans le diabète.) M. Labbé.
46 Traumatic Shock or Traumatic Asthenia. R. Benon.
47 Edema with Liver Disease. (Les hépatites hydropigènes.) P. Le Damany.
48 Sciatica from Affections of the Spinal Nerve Roots. Fine Therapeutic Effects of Mineral Mud-Baths. M. Dobrokhotow.

Revue Médicale de la Suisse Romande, Geneva

July 20, XXXIV, No. 7, pp. 449-500

49 Mode of Action of Mineral Waters. de Senarclens.
50 *Ventrofixation of Retroflexed Gravid Uterus. O. J. Rapin.
51 Operative Treatment of Gonorrheal Epididymitis. C. G. Cumston.

50. **Ventrofixation of Retroflexed Gravid Uterus.** — The woman of 40 had complained for a year of symptoms suggesting retroflexion of the uterus. They had developed after a fall, and they became much aggravated by the second month of pregnancy. After failure of all other measures, Rapin slipped his hand back of the uterus through a laparotomy incision, detached numerous adhesions, brought the uterus up into place and held it with two silk sutures through the median line of the abdominal wall. Pregnancy continued unmolested to normal term.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

June, XXII, No. 6, pp. 161-188

52 Intravenous Colloidal Metal Injections in Puerperal Fever. R. Willette.
53 Ether Dressings in Gynecology. R. Condamin.

Semaine Médicale, Paris

July 8, XXXIV, No. 27, pp. 313-324

54 Prevailing Views on Surgical Shock. R. de Bovis.
55 *Chronic Appendicitis and Torsion of the Omentum. F. Lejars.

July 22, No. 29, pp. 337-348

56 *Signs of Organic Hemiplegia. J. Lhermitte.

55. **Chronic Appendicitis and Torsion of Omentum.**—Lejars relates a case which shows that adhesion and partial torsion of the omentum or even of one strand of fibers may entail symptoms suggesting chronic appendicitis. The omentum trouble is generally traceable to mischief in the appendix, possibly many years before. In his case twenty-two years had elapsed after a brief and mild attack of appendicitis, leaving chronic slight tenderness, when the man of 39 suddenly developed new symptoms and the operation revealed the omentum adherent to the nearly normal appendix, the stretched adherent strip twisted several times on itself. This and the few similar cases on record teach the importance of examining the omentum even to quite a distance at all appendix operations.

56. **Signs of Organic Hemiplegia.**—Lhermitte discusses the phenomena characteristic of organic hemiplegia to which Panski, Babinski and Bergmark have recently called attention. Even although we already have many signs of organic hemiplegia, yet these *symptomes de luxe* are important not only because they aid in excluding functional trouble but also because they throw light on the pathologic physiology of the syndrome. They show that ordinary hemiplegia is an infinitely more complex manifestation than was formerly recognized. Not only the apparatus innervated by the centers in the region injured suffer from the disturbance in the centers (deficit phenomena), but other apparatus connected with them suffer likewise, either from loss of control (in which case anarchy prevails among them), or from excessive control of inhibition (phenomena of dissociation or Monakow's diaschisis). Among the comparatively new signs revealing trouble of this kind is the excessive secretion of saliva, the heavy coating of the tongue, sometimes only on the paralyzed side, profuse excretion of urea crystals stopping short at the median line, and a modified sense of taste or smell on the paralyzed side. This may be bilateral, and it may explain the loss of appetite in some cases. The sphincters may act in an anarchistic way, and enuresis may be the only sign left of a transient, possibly scarcely noticed, hemiplegia. This anarchy of the sphincter may be exaggerated or brought back by changes in temperature, by sneezing or coughing. In one case irresistible micturition occurs every time the hemiplegic takes his place at the table. Panski has also reported recently three cases in which glycosuria disappeared after organic hemiplegia developed. One woman of 60 had 5 per cent. sugar in the urine before but there was none afterward for a year, not even after subsidence of the hemiplegia, and it did not run above 2 per cent. at any time. In the others it never reappeared, or only at long intervals. Babinski applies the term *anosognosie* to a peculiar modification of the consciousness which he has noted in two cases, namely, the complete ignoring or the semblance of completely ignoring the fact of the hemiplegia. The patients seemed absolutely unaware of their infirmity although otherwise they were intelligent.

Archiv für Gynaekologie, Berlin

CIII, No. 1, pp. 1-242. Last indexed July 4, p. 67

57 Infantile Hypoplasia of Uterus Frequently Masks Serious Pathologic Processes or Their Relics. (Tuberkulose, Uterusatresie und Amenorrhoe.) J. Schiffmann.
58 General Anesthesia in Gynecology. H. Schlimpert. Continued.
59 Muscular Degeneration Causing Spontaneous Rupture of Uterus at Term. G. v. Mandach.
60 The Corpus Luteum in Ovulation and Menstruation. (Corpus luteum menstruationis und Corpus luteum graviditatis.) A. Marcotty.

61 Case of Deforming Fibrous Ostitis with Extensive Tumors in Bones. P. Sippel.
62 Changes in Blood during Delivery, Lactation and the First Menses Thereafter. L. Terhola.
63 Further Improved Technic for Treatment of Genital Prolapse. (Die Suspension der Portio vaginalis an den Sakrouterin-Ligamenten.) E. Wertheim.
64 Toxicity of Urine, Serum and Colostrum during Pregnancy, Delivery and the Puerperium Not Proportional to Clinical Picture in Eclampsia. P. Werner and E. Kolisch.

Berliner klinische Wochenschrift

July 20, LI, No. 29, pp. 1349-1396

65 Effectual Inoculation against Diphtheria. (Die Diphtherieschutzimpfung von Säuglingen nach v. Behring.) P. Rohmer.
66 Experimental Pneumonia. (Eine Methode zur experimentellen Erzeugung von Pneumonie und einige mit dieser Methode erzielte Ergebnisse.) S. J. Meltzer (New York).
67 *Foerster's Operation in Treatment of Spastic Paralysis. T. Gümbel.
68 Residuum in Stomach Later than Six Hours with Gastric Ulcer Remote from the Pylorus. (Zur Frage des Sechsstundendrestes bei pylorusfernem Ulcus ventriculi.) Faulhaber.
69 Carbonated Baths. (Einige Gesichtspunkte für die Beurteilung von Kohlensäurebädern.) W. Scheffer.
70 *Atypical Gout and Allied Metabolic Disturbances. Goldscheider. Commenced in No. 28.
71 *Relations between the Thymus and Exophthalmic Goiter. H. Matti. Commenced in No. 28.

67. **Section of Spinal Roots for Spastic Paralysis.**—Gümbel has compiled 107 cases in which Foerster's operation has been done for Little's disease. The mortality was 13 per cent. He has operated himself in 8 cases, here described in detail. One patient died and the outcome was injuriously affected in one case by an intercurrent hip-joint disease. The results were disappointing in all; none of the patients is able to use his legs although painstaking after-care followed the operations. Better results are obtained in spastic paralysis with the ordinary measures. A still further drawback of the operation is that the laminectomy left a weakness of the spine. In one of his cases the tendency to curvature of the spine became much aggravated and in 2 others curvature developed in previously straight spines.

70. **Disturbances Resulting from a Tendency to Atypical Gout.**—The first part of Goldscheider's article was reviewed in these columns August 15, abstract 58, p. 613. He describes here a number of typical cases of atypical gout and allied metabolic disturbances all of which call for treatment similar to that for true, typical gout. The importance of the subject lies in the unrecognized or overlooked fact that a number of symptoms on the part of the nervous and circulatory systems and the kidneys are the result of metabolic disturbances analogous to or identical with those of gout. These may be due to an inherited tendency, to overwork, or to lack of exercise. Treatment of the metabolic disturbances applied in time and systematically is liable to give highly gratifying results. The groups of the atypical forms of gout include persons with a gritting noise in the joints, with or without tophi; obesity; congestion in the liver; kidney stones and gravel and nephritis. He found gout in 163 of 424 obese patients; the symptoms were much the same in all. Pains in the joints were more common in the obese with high blood-pressure. He found typical or atypical gout further in 30.1 per cent. of 232 cases of enlarged liver in the non-obese. In 4.9 per cent. there was a tendency to kidney stones, and among those with cardiovascular symptoms the proportion was 10 per cent.

It seems plausible to assume that symptoms on the part of the cardiovascular system, nerves, etc., in these cases are due to deranged or insufficient metabolism of purins or to excessive intake of purins beyond what can be properly metabolized, or to the inherited tendency underlying the constitutional obesity, or to an upset in the liver control of metabolism. Goldscheider's aim is to emphasize the importance of a deranged metabolism as a factor in cardiovascular, nervous and renal phenomena. He admits that the only proof he has to offer for some of his statements is the success of treatment based thereon.

71. **The Thymus with Exophthalmic Goiter.** — Matti's research and study of the literature confirm that the thymus is often directly concerned in the production of exophthalmic goiter. The monopoly hitherto enjoyed by the thyroid is at an end. The adrenals often are insufficient in this disease and epinephrin may be indicated to prepare the patient for operative treatment. The changes in the thymus in exophthalmic goiter are not to compensate for the thyroid, but are directly coordinated with and parallel to the changes in the thyroid.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 18, XLIV, No. 29, pp. 897-928

72 *Atrophy of the Prostate. A. Müller.
73 Endemic Goiter. (Zum Krofproblem.) E. Bircher.

72. **Atrophy of the Prostate.**—Müller remarks that comparatively few realize that retention of urine may be the consequence of atrophy of the prostate as well as of hypertrophy. An abnormally small prostate may cause a clinical picture in every respect similar to that from enlargement of the organ. It sometimes happens that the syndrome is ascribed to nervous incompetency of the bladder as the anticipated enlargement of the prostate is not discovered. He had two typical cases of the kind which he here describes in detail and compares with analogous experiences on record. The disturbances are caused not by obstruction from enlargement of the gland but from derangement of the functioning of the bladder sphincter which is involved more or less in the shriveling process. The suprapubic incision permits better oversight and is to be preferred in these cases. Differential diagnosis is difficult mainly in that all bladder disturbances of central origin, especially tabes, have to be excluded before positively incriminating atrophy of the prostate. In some cases hypertrophy of one part was accompanied by atrophy of the rest or there may be a true miniature hypertrophy. Stretching the prostate, or the Bottini operation, or resection of the sphincter may cure the trouble after failure of medical measures. He compares the various technics in vogue, especially Young's conservative operation, which he describes in detail, remarking that he does not know of its having been applied to date to any extent in Europe.

Deutsche medizinische Wochenschrift, Berlin

July 23, XL, No. 30, pp. 1505-1552

74 *Treatment of Acute Threatening Conditions with Pneumothorax. J. Grober.
75 Cultivation of Parasite of Rabies. (Züchtung des Lyssavirus nach H. Noguchi.) R. Kraus and B. Barbara.
76 Pharmacology of Colloid Solutions. (Die vitale Färbung mit sauren Farbstoffen in ihrer Bedeutung für pharmakologische Probleme.) H. M. Evans, W. Schulemann and F. Wilborn.
77 *Agglutination Titer in Infectious Diseases. C. Klieneberger.
78 Experiences with Rosenbach's Tuberculin. A. Mayer.
79 *Treatment of Diarrhea by Anesthetics by the Mouth. M. Henius.
80 Chronic Copper Poisoning from Alloy Filling of Tooth. (Chronische Kupfervergiftung durch das Tragen von schlechter Goldlegierung im Munde.) E. Harnack.
81 Sore Tongue and Gums as Early Symptom of Pernicious Anemia. H. Stern (New York).
82 The Pulse Wave with Disease of Aorta. (Brachialis-Wellenschreibung.) Engelen.
83 Serodiagnosis. (Untersuchungen zum Abderhaldenverfahren.) L. Nieszytka.
84 *Induced Hardening of Ligaments Cures Flat-Foot, etc. (Gerbung der Bänder zur Heilung des Plattfusses und anderer Knochendeformitäten.) M. Katzenstein.
85 *Neuropathic Equivalents in Infants. M. Wilhelm.
86 Tests for Urine Affected by Hexamethylenamin. (Vortäuschung von Eiweiss nach Hexamethylentetramin.) J. Schumacher.

74. **Threatening Conditions with Pneumothorax.**—Grober does not refer to induced artificial pneumothorax but to that complicating tuberculous processes or stab wounds or other injury of the lungs, when it is important to relieve vital organs from the pressure of the air. The air must be allowed to escape only very slowly, through a puncture needle and tube into a jar of water. Dry cups may relieve pain for hours at a time, and the patient may become accustomed to his pneumothorax until it no longer distresses him. But during the acute phase opiates may be necessary. By relieving the pain they permit deeper breathing and this helps to restore the circulation. Swallowing may be impeded by the displacement of the esophagus, and special care with the food is necessary on this account. Signs of sepsis may render puncture advisable even when there are no symptoms

from compression. Heart stimulants may be usefully combined with the opiates in some cases.

77. **Agglutination Titer in Infectious Diseases.**—Klieneberger has encountered eight cases of typhoid in the last two years in which agglutination occurred once at 1 to 2,560; three times at 1 to 10,240; twice at 81,920 and once at 1 to 163,840. These high titers did not last over many days. In some cases of paratyphoid infection, the serum agglutinated at 1 to 81,920 and kept this up for over four months. In pyocyaneus infection agglutination occurred at 1 to 40,960 in one case, but in two others only at 1 to 2,560. This same figure was obtained also in three proteus infection cases.

79. **Treatment of Diarrhea by Reducing Sensitiveness of the Stomach.**—Henius thinks that Fuld has hit the nail on the head by his statements in regard to "gastrogenous diarrhea," that is, diarrhea set up by a reflex action on the colon from the oversensitiveness of the stomach. Just as reflex vomiting can occur from this cause, reflex diarrhea may be started and maintained by it. Treatment should aim to soothe the irritable stomach. By deadening the sensibility of the stomach, the reflex action is arrested and the diarrhea is cured. Cocain may answer the purpose: ten drops of a 3 per cent. solution of cocain fifteen minutes before meals.

84. **Treatment of Flat-Foot by Induced Shriveling of Ligaments.**—Katzenstein induces hardening and shriveling of overstretched and relaxed ligaments responsible for flat-foot and other deformities. He discovered by accident the effectual action of the tanning process and then proceeded to apply it systematically. One of his cured patients is a youth of 15 who has been cured by this means of crippling and painful bilateral flat-foot disturbances. He does not even have to wear insoles now. Katzenstein uses formaldehyd for the purpose, injecting, for example, into the tibionavicular ligament from 0.5 to 1 c.c. of a weak solution of formaldehyd under local anesthesia. A plaster cast is then applied to hold the ligament in its shortened position. When the cast was removed after three or four weeks the ligament was firm and hard. He gives an illustration of an apparently almost normal child of 5 cured of extreme flat-foot and inward bowed legs. He injected the formaldehyd into the tibionavicular ligament and into the medial lateral ligament of each knee, with a plaster dressing for the three joints. He thinks that relaxed ligaments are the cause of deformity of bones far more often than is generally recognized. By detecting the loss of elasticity early it may be possible to ward off deformity and correct it by restoring the pull to the ligaments. This is a truly causal treatment of deformity and renders apparatus superfluous.

85. **Neuropathic Equivalents in Infants.**—Wilhelm relates the case of an infant of 8 months who died from pneumonia after an attack of diphtheria; for months previously it had had attacks of vomiting suggesting stenosis of the pylorus. As soon as the diphtheria developed, the vomiting stopped but began again after recovery, stopping anew as the pneumonia came on. Wilhelm suggests that the vomiting may have been a conditional reflex, and that this was arrested by the intercurrent disease. The vomiting occurred first in connection with some indigestion. The mother was extremely nervous and the inherited taint maintained the vomiting as a conditional reflex on the intake of food.

Jahrbuch für Kinderheilkunde, Berlin

July, LXXX, No. 1, pp. 1-132

87 Periodical Vomiting with Acetonemia. G. Hilliger.
88 Cause of the Physiologic Loss of Weight in the New-Born. (Physiologische Gewichtsabnahme neugeborener Kinder.) G. Benestad.
89 Adaptation of Cow's Milk for Infant Nutrition. (Versuche zur Anpassung der Kuhmilch an die Frauenmilch zu Zwecken der Säuglingsernährung.) E. Müller and E. Schloss.
90 *Development of New-Born White Rats when Separated from the Mother and Artificially Fed. H. Brüning.
91 Early Appearance of Centers of Ossification and Calcification in Hypoplastic Chondrodystrophia Fetalis. E. Conradi.

90. **Development of New-Born Animals under Artificial Feeding.**—Brüning found that young rats taken from the mother during the first few days of life and artificially fed on food rich either in albumin and fat or in carbohydrates were lighter and smaller at the end of the nursing period than those left with the mothers. Artificial feeding with food rich in fat and albumin immediately after weaning caused a marked and progressive increase in weight. Food rich in carbohydrate after weaning, on the contrary, caused a decrease in weight so that the animals on the forty-second day were about the size of half-grown mice. When the latter group were placed on a mixed diet they increased in weight but did not come up to the standard of the group fed with an abundance of fats and proteins. Roentgen examination did not show any changes in the bones. The intestinal canal of the animals fed on carbohydrates showed the type of the herbivora, and that of those fed on proteins the type of the carnivora. The former have little fat tissue while the latter are quite plump. There was no marked difference in the intestinal flora of the two groups, but there was a relative scarcity of bacteria in the upper part of the intestinal tract in both groups.

Münchener medizinische Wochenschrift, Berlin

July 21, LXI, No. 29, pp. 1601-1656

92 *Cure of Deep-Seated Cancers by Roentgen Exposure of Surface. (Heilung tiefliegender Karzinome durch Röntgenbestrahlung von der Körperoberfläche aus.) E. Bumm and K. Warnekros.
93 Curves to Record Skin Reaction to Tuberculin Tests. (Graphische Analyse kutaner Reaktionen.) C. v. Pirquet.
94 *Clinical and Experimental Experience with Salvarsan Injected into the Central Nervous System. W. Weygandt, A. Jakob and V. Kafka.
95 Dusting Wound with Anesthetic Powder before Suturing. (Daueranästhesie.) G. Hotz.
96 *Passive Transmission of Protective Ferments in Mental Disease. A. Fauser.
97 Two-Way Retention Catheter for Continuous Irrigation of Bladder and Kidney Pelvis. E. Holzbach.
98 *Severe Intestinal and Liver Trouble Set Up by Chronic Dyspepsia. (Chronische Magen- Darmdyspepsie, Colitis gravis und Leberzirrhose.) R. Schütz.
99 Operative Treatment for Cleft Palate. (Gaumenspalte.) R. Drachter.
100 Food as Cause and Cure of Disease. (Die Ernährung als Krankheitsursache und Heilfaktor.) Schittenhelm.

92. **Deep Cancers Cured by the Roentgen Rays.**—Bumm and Warnekros state that after disappointing extensive trials of mesothorium and other radio-active substances, they returned to roentgenotherapy with a modified technic, and here report two years of most encouraging experiences. The secret of success, they say, is to use hard tubes, by the cross-fire technic, to generate 500 X units in the depths. As about six-sevenths of the rays applied to the surface fail to penetrate to a depth of 10 cm., fully 3,500 X units have to be applied to the skin to obtain the 500 units in the focus. They state that no serious injury results from this intensive exposure of the skin to the exclusively hard rays, even with 800 X units. At worst, the skin may blister but this heals in three or four weeks, and a month of a transient local dermatitis is not to be considered when balanced against the cure of malignant disease. Seven cases of advanced cancer of the uterine cervix, fourteen of the breast and one of the lung are reported, all showing remarkable benefit under the exposures, even the microscope confirming the complete retrogression of the cancer, as they show by slides of excised scraps. The tissues became indurated, with hyaline degeneration of the connective tissue, and there was not a trace of cancer by the fifth week in one typical case of a bleeding carcinoma in the uterine cervix, as large as a man's fist, the patient aged 37. The rays were applied externally alone, the distance from the focus 10 or 15 cm., the daily exposure totaling 60 or 80 minutes, the different fields of exposure overlapping so that each was exposed from 90 to 120 minutes. In two weeks the growth had subsided by one-half and by the end of the third week the retrogression continued spontaneously after the close of the course of treatment.

In one case the interval since treatment has been over a year and the cure has persisted to date. The patient, a woman of 42, was already in advanced cachexia with dyspnea from an inoperable recurrence of cancer of the breast. The lymph-nodes in the axilla were much enlarged, both above and below the clavicle, and adherent. This patient returns every two or three weeks for a prophylactic exposure. One great advantage of Roentgen treatment over the knife is that any lymph-nodes involved or other metastases, feel the curative influence of the rays on their way to the deeper focus. Ovarian cancers proved the hardest to influence in their experience but fine results were obtained in 2 cases with metastases left after panhysterectomy for ovarian cancer.

94. **Intraspinal Injection of Salvarsan.**—This article reports extensive experiments on monkeys treated with neosalvarsan injected directly into the central nervous system in doses relatively much larger than are used in the clinic and three times as concentrated. One monkey by lumbar puncture was given—proportional to its weight—thirty times the amount given to patients, and yet it showed no signs of anything wrong, kept clinically healthy, and only the microscope revealed slight and circumscribed histologic changes. The dose was 3 c.c. of a 0.15 per cent. solution. With stronger solutions injected into the spinal canal or brain the nervous tissue showed signs of severe irritation, especially in the vessel walls and the glia. The monkeys injected subdurally and into the spine even with large amounts of the solution used on patients (0.15 to 300) were not affected deleteriously in the slightest and even the microscope failed to reveal the slightest change. The article is accompanied by fourteen pictures of the microscopic findings under the intensive dosage. The results of the research are very encouraging for the mild intraspinal use of neosalvarsan in Gennerich's dosage, that is, not over 6 c.c. of a 0.15 to 300 solution. (See also Berlin Letter in THE JOURNAL, June 20, p. 1979.)

96. **Passive Transmission of the Defensive Ferments.**—Fauser injected ten rabbits with serum from patients with dementia precox. The serum digested ovarian tissue or testicle tissue according as it came from a woman or man, and this discriminating property seemed to be transmitted to the rabbits' serum.

98. **Dyspepsia, Colitis and Cirrhosis of the Liver.**—Schütz gives the details of four cases in which primary dyspepsia brought on serious inflammation in the colon. A tendency to spontaneous healing was evident in two cases, showing that even quite severe bowel trouble is liable to retrogress spontaneously. This explains the occasional appearance of pus in the stools of patients with dyspepsia who yet never develop severe enteritis; a mild attack passes over undetected. The modification of the intestinal flora by the abnormal digestive processes may be the chief factor in the colitis.

Zeitschrift für Kinderheilkunde, Berlin

July, XI, No. 4, pp. 267-336. Last indexed Aug. 22, p. 713

101 The Relation of Measles to Other Pathologic Processes. H. Koch.
102 Slight Erythrocyturia in Infancy and Childhood. Castro.
103 The Acidity of the Stomach Contents in Infancy and Childhood on Milk and Meat Test Diets. E. J. Huenekens.
104 Relation of the Heart Muscle to Spasmophilia in Early Childhood. K. Morgenstern.
105 Relation of Chronic Deficient Nourishment to Infection and the Clinical Signs of Decreased Immunity. E. Thomas.
106 Congenital Edema from Lymphangiectasis. B. Erlanger.

Zentralblatt für Gynäkologie, Leipsic

July 25, XXXVIII, No. 30, pp. 1049-1088

107 Conservative Treatment of Umbilical Hernia in the New-Born. (Heilung von Nabelschnurbrüchen.) F. Ahlfeld.
108 The Intra-Uterine Pessary in Treatment of Amenorrhea. (Zur Therapie der Amenorrhöe: Ein Wort für den Intrauterinstift.) Rieck.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 19, XXXV, No. 86, pp. 897-912

109 Atypical Typhoid Fever. I. Illuminati.

July 21, No. 87, pp. 913-920

110 Exophthalmos as Early Sign of Meningitis. M. Zannini.

Rivista Ospedaliera, Rome

July 30, IV, No. 12, pp. 561-608

111 *Mercury Test for Tuberculous Nature of Effusion. (La reazione di Morelli negli essudati pleurici di natura tubercolare.) M. Zannini.
112 *Spastic Ileus. G. Cauli.
113 Ambard's Formula for Recording Functional Capacity of the Kidneys. (Cio che deve la chirurgia urinaria alla costante di Ambard.) R. Bastianelli.

111. **Mercury Test for Effusions.**—Zannini has been giving Morelli's test a thorough trial and found it extremely simple and reliable. He applied it in 13 cases of transudate and 35 of effusions, comparing the findings with those of the Rivalta test. In the 35 cases of effusions the Rivalta test was positive in all, but the Morelli test was negative in 15. Everything in these cases indicated a tuberculous process, confirming Morelli's assertion that effusions of tuberculous origin always respond negatively to the test. It is made by dropping three or four drops of the fluid into a glass filled with a saturated solution of mercuric chlorid. If the fluid is an effusion, a yellowish ring of mercury albuminate will form on the surface; it will either adhere to the walls of the vessel or it will sink to the bottom whole. This is the positive reaction. If the fluid is a transudate instead of an effusion, the mercury acting on the albumin forms numerous small flakes or granules which sink thus segregated to the bottom. This is the negative reaction.

112. **Spastic Ileus.**—Cauli discusses the present status of the conception of ileus from spasmodic contraction of some segment of the intestine and reports a case from his own practice. His patient was a robust boy of 17 with no pathologic antecedents. After ten days without bowel movements he developed severe abdominal pain and vomited incessantly. There did not seem to be any specially tender points but sometimes the pain seemed more intense to the right, below the umbilicus, and sometimes more in the left iliac fossa. He could not retain even a sip of ice water, and during the paroxysms of pain the pulse was small and frequent, the face drawn. After four days of these symptoms there came a lull, the lad feeling very much better and getting up, but the bowels did not move and he continued to vomit. No effect was realized from morphin and enemas and the pains returned, becoming so intense that operative relief became imperative. Nothing pathologic was found at the laparotomy except that the small intestine over a stretch 20 cm. long was contracted and also the descending colon and flexure, the segment not larger in diameter than one's little finger. Otherwise the viscera seemed normal; the intestines above the contracted segments were not much dilated. The abdomen was sutured without further intervention and the vomiting ceased and bowel functioning was restored after a few days.

Two days after his discharge from the hospital he returned with his old symptoms but in a milder form; he was kept under observation for a few weeks during which periods of complete well being alternated with periods of vomiting but the intestines moved freely. Treatment included opiates, atropin, hot applications and suggestion. No effect from the atropin could be detected. By the end of the sixth week after the first appearance of symptoms he was apparently entirely cured and has had no signs of trouble since. The good general condition during the intervals between the attacks of pain was noticeable; even when the vomiting and the occlusion of the bowels kept up, yet the lad felt well and his pulse was good during the intervals. This is the opposite to what is observed with true ileus.

Hospitalstidende, Copenhagen

July 15, LVII, No. 28, pp. 865-888

114 Necessity for Interrupting Pregnancy on Account of Progressing Pulmonary Tuberculosis; Six Cases. (Abortus provocatus ved Lungetuberkulose.) G. E. Permin.

Svenska Läkaresällskapets Handlingar, Stockholm

XL, No. 2, pp. 133-215

115 Criminal Responsibility. (Om den s. k. tillräkneligheten.) O. Kinberg.
116 Hemorrhagic Leptomeningitis from Anthrax Bacilli. H. Berglund.

Ugeskrift for Læger, Copenhagen

July 23, LXXVI, No. 30, pp. 1319-1362

117 Typical Roentgen-Ray Findings with Gastric Cancer. (Ventrikelcarcinomet i typiske Röntgenbilleder.) T. E. H. Thaysen.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 10 Chicago, Illinois September 5, 1914

A FEW POINTS OF PRACTICAL IMPORTANCE IN OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY*

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The prodigious advancement made in medicine and surgery during the past forty years has made it impossible for one mind to master every department pertaining to the study and practice of our profession. To be as nearly perfect in one department, and to know as much of each of the other branches as time, talent and circumstances will permit, is all the ablest of us can do.

In this Section our attention is limited to obstetrics, gynecology and abdominal surgery. It takes a capable man to be master of one of these branches, but a far more able man to be master of all three. It is the object of your chairman to dwell briefly on a few important points in each, namely, intestinal stasis, painless operations, Roentgen-ray therapy in gynecology and abdominal surgery, the curative effect of radium, the Percy treatment of inoperable carcinoma uteri, the compromise operations of obstetrics, the treatment of placenta praevia, and surgery in the treatment of puerperal eclampsia.

INTESTINAL STASIS

This is unquestionably one of the most important subjects before the medical profession to-day and it is, to a large extent, for the abdominal surgeon to solve most of the details of this comparatively new phase of an old problem, and to corroborate, as far as possible, the epoch-making work and teachings of Sir Arbuthnot Lane. In his address, delivered at the North-East London Post-Graduate College, Nov. 1, 1913, Lane[1] says:

> By chronic intestinal stasis I mean that the passage of the contents of the intestinal canal is delayed sufficiently long to result in the production, in the small intestine especially, of an excess of toxic material, and in the absorption into the circulation of a greater quantity of poisonous products than the organs which convert and excrete them are able to deal with.
>
> In consequence there exist in the circulation materials which produce degenerative changes in every single tissue of the body or which lower its resisting power against invasion by deleterious organisms.
>
> Perhaps the best scientific confirmatory evidence I can put forward of the harmful effect of defective drainage, both of the body as a whole and of the several tissues which contribute to it, has been afforded recently by the remarkable experiments of Carrel in the growth of living tissue, in which he has shown that tissues are immortal, and grow to the greatest advantage if the drainage of their toxic products is carried out effectually.
>
> Owing to unsuitable diet in infancy and to the habitual assumption of the erect position, delay of fecal material takes place in the large bowel, or cesspool, of the gastro-intestinal tract, or, as it can be best described, the "general drainage system of the body." In consequence of this, new membranes or resistances to downward displacement are formed by the crystallization of lines of force upon the surface of the peritoneum along which strain is especially exerted.

Thus he explains the formation of the "bands," "kinks," "folds," "veils" and "membranes" to which his own name and that of Jackson, Treves, Reid and of Jonnesco and Juvara, have been attached. It is the formation of these new structures which explains the occurrence of stricture of the bowels, of appendicitis, of disease of the ovaries, of cancer of the cecum and of the rectum. It further serves to solve the mystery of elongation and dilatation of the duodenum, the spasmodic contraction of the pylorus, the consequent dilatation of the stomach from accumulation of its contents, and the "cardiospasm" of Plummer.

More than this, the changes mentioned above may terminate in ulceration and perforation about the pylorus and lesser curvature of the stomach and even cancer of this organ may result. Or changes may produce infection of the liver and gall-bladder, or lead to the formation of gall-stones, cholecystitis or malignant degeneration.

Other symptoms enumerated by Lane are: the loss of fat; wasting of muscles; degenerative changes in the skin with alteration of its texture and color; the temperature, in uncomplicated cases, is subnormal; stasis always exists in Raynaud's disease; there is mental apathy, stupidity or misery and, occasionally, melancholia or even imbecility and suicidal tendency. Neuralgia and neuritis are frequent; epileptiform tic and headaches are often present; want of control of temper which may lead to misery or even crime. Patients complain of rheumatoid aches and pains in muscles and joints; the thyroid gland wastes; the blood-pressure may be raised or depressed; the breasts show degenerative changes and cancer readily develops in them. Organs prolapse and change in size, shape and weight. The patient becomes short of breath on exertion, resembling asthma; but this may be due to distention of stomach or intestines interfering with the action of the heart. Most of the degenerative changes affecting the heart appear to be due to auto-intoxication. The kidneys may become affected. The hair of the head loses color early and falls out; hair grows in places in which it is ordinarily inconspicuous or absent. The pancreas becomes infected from stasis of the duodenum, resulting in chronic induration, inflammation and finally cancer of this organ. Pancreatic diabetes may ensue. Degenerative diseases of the eye are produced and vary with the degree of auto-intoxication.

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* Chairman's address, read before the Section on Obstetrics and Gynecology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

[1] Lane, Sir W. Arbuthnot: On Chronic Intestinal Stasis, Brit. Med. Jour., Nov. 1, 1913.

According to Lane, the direct changes resulting from the lowered resisting power of the tissues, produced by auto-intoxication, are: infection of the gum, causing pyorrhea alveolaris; tuberculous infection, not produced by direct inoculation; rheumatoid arthritis, which cannot develop except in the presence of defective drainage of the gastro-intestinal tract; infection, directly or indirectly, of the genito-urinary tract, through the blood-stream (by organisms other than tubercle) producing nephritis, cystitis, pyelitis, endometritis, salpingitis, etc.; development of adenomatous tumors in the thyroid gland, or general enlargement of this organ, or of exophthalmic goiter; Still's disease; infections of the skin of a pustular nature; infections of the large intestine by organisms which produce the several varieties of mucous and ulcerative colitis; and ulcerative endocarditis.

Lane states that he has "chosen merely a few obvious, typical, indirect results of the auto-intoxication of chronic intestinal stasis" and that "the point of practical interest . . . is that the drainage scheme be made to work efficiently . . . by mechanical means or by operative interference, and that the resisting power of the tissues of the body is such that they can destroy the organisms or poisons, if not advanced too far or if cancer has not developed;" and, "nothing is more remarkable in the whole range of surgery than the result of the removal of the large bowel in a case of rheumatoid arthritis. The transition is abrupt and startling."

The treatment varies: The non-operative treatment consists in the use of paraffin oil before each meal, the application of a spring support to the abdomen below the umbilicus to keep up the "transverse colon, cecum and other prolapsed viscera," and "to put into the stomach as little food as is likely to decompose and become poisonous in its passage through the intestines."

Operative treatment is resorted to only when the above or other modes of treatment fail and may necessitate the removal of the appendix when it interferes with the lumen of the ileum; or to "short-circuit" the bowel, by dividing the ileum and putting it into the pelvic colon. If the colon is freely movable and pendulous, Lane always removes it down to its junction with the sigmoid; his rule is: *Remove the large bowel, if it may be easily effected, if not, be satisfied with ileocolostomy. Gastro-enterostomy for duodenal distention, even if there is ulceration, is, in Lane's opinion, both unnecessary and harmful. If the ulceration has caused considerable reduction of the lumen of the pylorus, he resorts to gastro-enterostomy. Lane also performs gastro-enterostomy in ulceration of the stomach (in the absence of cancer) in addition to short-circuiting, with or without colectomy. He thus removes the strain from the lesser curve, effectually draining the stomach.*

Those who have carefully studied Lane's work on intestinal stasis, and the case reports of him and his followers, cannot help but be profoundly impressed by the reports of the results obtained from the operations of gastro-enterostomy, ileocolostomy or colectomy, or of all three, whether in the same subject at the same time or at different times. The profession is by no means unanimous in its opinion as to the real necessity of these heroic operative procedures for the relief of chronic intestinal stasis. Deeper delving and further investigations on the part of the internist and the abdominal surgeon alone will solve the problem.

PAINLESS OPERATIONS

Crile's kinetic theory of shock and its prevention through anoci-association[2] has found favor with many surgeons. There are, however, not a few who are averse to Crile's new method. The objections most writers offer are, that the time lost in making the injections of novocain and quinin-urea-hydrochlorid is considerable, that the abdominal walls remain more or less rigid, and that the numerous and extensive injections of both drugs, necessary to anesthetize the field of operation, have a tendency to devitalize the structures involved and thus cause delay in union of the parts as well as create a predisposition to the formation of stitch-hole abscesses. Many admit, however, that "anoci-association" is an ideal and practical method. The most serious operations may be performed without the slightest pain and with total absence of shock, while the clinical results, which Crile and his associates have obtained, leave naught to be desired. In 1908 their mortality was a fraction over 4 per cent.; in the last 1,000 operations (not selected cases) the mortality was reduced to 0.8 per cent. These figures speak for themselves and are deserving of serious consideration.

ROENTGEN-RAY THERAPY IN GYNECOLOGY AND ABDOMINAL SURGERY

Many of our surgeons look on roentgenotherapy as the sovereign remedy in uncomplicated cases of uterine hemorrhages. Since, however, in the opinon of some writers, the cure is obtained solely through the destruction of the ovarian follicles, they caution against the use of the Roentgen rays in young and nervous women. Others maintain that in young women the amenorrhea which follows the application of the Roentgen rays, is only transitory; that a permanent sterilization is almost impossible; that in women near the menopause active follicles are rarely present, and destruction of the ovaries is only a precursor to the climacteric period. The appellation, "Roentgen castration," is therefore, a misnomer and incomparable to surgical castration.

The experience of Bumm, Krönig,[3] Gaus, Döderlein, Kelly, Burnam, and others with the effects of Roentgen rays on fibroid tumors of the uterus show that uterine hemorrhage may be successfully arrested; that, frequently, the tumors diminish in size; occasionally, even a cure may be effected, though not infrequently, the tumors remain as large as before. All agree that a timely myomectomy or hysterectomy yields the most satisfactory result. The administration of the Roentgen rays is limited to those cases in which extirpation of the tumor, or of the uterus, is inadvisable and relief from hemorrhage or other symptoms alone is sought.

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[2] Crile, George W.: The Kinetic Theory of Shock and Its Prevention through Anoci-Association (Shockless Operation), Cleveland Med. Jour., 1913, xii, 513.

[3] Krönig, B.: Die Strahlentherapie in d. Gynäkologie, Strahlentherap., 1913, v, No. 2.

THE CURATIVE EFFECT OF RADIUM

The curative effect of radium on malignant disease has been vigorously assailed. Judging from the good results obtained from radium, mesothorium and the Roentgen rays, in the hands of such men as Krönig, Gaus, Döderlein, Dominici, Kelly, Burnam, Park, Parker Syms,[4] and the Ransohoffs, as well as my observations in my own cases and those of others, the scathing adverse criticism of recent date seems uncalled-for and wholly unjustifiable. Some of the favorable results obtained, especially those from radium and mesothorium, are definite and unmistakable; and while it is, perhaps, too soon to speak of the good achieved with these remedies in terms positive and absolute, it is neither fair nor just to condemn them unqualifiedly.

For the present we know that in all operative cases the knife is the best agent for combating malignant disease; and that radium, mesothorium, as well as the Roentgen ray, have proved of unexpected value in some of the inoperable cases, as well as in some of the superficial forms of cancer. Therefore, it behooves us to encourage the work of those who have occupied themselves with determining the value of these remedies in the treatment of malignant disease.

THE PERCY TREATMENT OF INOPERABLE CARCINOMA UTERI

I feel it obligatory to speak a word in favor of this treatment of inoperable carcinoma uteri. Since witnessing the work of Percy in Chicago last fall, I have had an opportunity of seeing two cases of inoperable cancer of the uterus.

In one, Mrs. X, aged 48, coming into my care Nov. 15, 1913, the actual cautery (Percy method without opening the abdominal cavity) was used five different times at intervals of one week, two weeks and four weeks. At the end of that time only a small portion of the body of the uterus remained, and the vagina with the region formerly occupied by the cervix and lower uterine segment, appeared perfectly healthy, but an offensive watery vaginal discharge continued. The patient then received, at intervals of one week, three applications of radium (80 mg.) by Dr. Louis Ransohoff. The result was most marked and highly satisfactory. What there was left of indurated tissue in the vaginal vault, tenderness of the parts and of offensive discharge, disappeared promptly; the patient gained rapidly in weight, and is to-day, so far as the eye can see and the finger can feel, in every respect a healthy woman. Within the last seven weeks she has gained 20 pounds.

The other, Mrs. Y., aged 35, was first seen about the middle of March. This, too, was an inoperable case of carcinoma uteri. Up to this time the Percy method (not opening the abdomen) has been employed three times with, apparently, the same satisfactory results as in the first case. She is now ready for the radium treatment.

THE COMPROMISE OPERATIONS OF OBSTETRICS: THE INDUCTION OF PREMATURE LABOR, THE USE OF THE HIGH FORCEPS, VERSION AND EMBRYOTOMY ON THE LIVING CHILD

In considering the so-called compromise operations, my sole object is to awaken an interest in the new therapy of narrow and contracted pelvis which, after the doctrine of narrow pelvis had been formulated by Litzmann and Michaelis of Kiel, has been so beautifully worked out by German obstetricians. Briefly stated, this new treatment consists of the test of labor, hebosteotomy, symphyseotomy, or abdominal cesarean section.

The hope has been expressed that the induction of premature labor, the application of the high forceps to a floating head above the pelvic brim, version, or embryotomy on a living child, might be, eventually, eliminated from obstetric practice. This hope has been realized only to a limited extent.

The induction of premature labor is to-day as popular in England as ever and is more favored in some parts of Germany. The high forceps continues, more or less, in favor in France and in this country, and version still enjoys well-deserved popularity. Aseptic midwifery and a more intelligent care of the premature infant have considerably reduced the maternal as well as fetal mortality of artificial labor. Asepsis in the use of high forceps or version has also been of value, though the maternal and fetal mortality has not, thereby, been markedly reduced.

The application of forceps to a freely floating head above the pelvic inlet, or to a head which will not engage, but steadily remains above the brim, is, with the knowledge of to-day, no longer considered good practice. A judicious perseverance in the use of high forceps in cases in which the os is fully dilated, the membranes ruptured and the head fixed at the inlet, is justifiable; but great care must be exercised to avoid injury to the child's head and damage to the soft parts of the mother. Prolonged and violent traction on the head, and the repeated introduction of the forceps by the same attendant or by different operators, cannot be too severely condemned.

Embryotomy on a living child can be regarded as justifiable only in cases of excessive hydrocephalus, extensive spina bifida, double monsters or when the fetal head is impacted in the pelvis and the child's life already seriously endangered, or when there is risk of rupture of the uterus, as in a case of impacted shoulder with excessive attenuation of the lower uterine segment and marked retraction of the contracted fundus. In most of these cases, version is impossible without rupture of the uterus.

Version is justifiable only in those instances in which the head is fixed on the brim of the pelvis, the mother's soft parts are uninjured, the uterus not overdistended, and a reasonable trial of the forceps have failed to deliver. (Early external, or combined version on the head or feet, as in transverse or oblique presentations, is not included here.)

The new therapy of narrow pelvis means: Send your patient to a hospital before labor begins, and give her the benefit of the test-of-labor; if this fails, perform hebosteotomy or, if need be, cesarean section. Under this management 80 per cent. of more than 30,000 patients with narrow pelvis have delivered themselves spontaneously; 15 per cent. of the patients have required hebosteotomy, and in only 5 per cent. was a cesarean section necessary. In all the maternal mortality was 0.1 per cent., and the fetal mortality about 4 per cent.

THE TREATMENT OF PLACENTA PRAEVIA

This is still an open question. Those who advocate abdominal cesarean section in every case of placenta praevia are as mistaken as those who will not admit that hysterotomy is ever necessary in this condition. The great majority of cases of placenta praevia, it is true, may be favorably treated by the use of the tampon, the rubber dilator, version or slow extraction of the child, so far as the mother is concerned. Not so with the child; the majority, or at least a very large percentage, of the children perish under this treatment. In my opinion abdominal hysterotomy is indicated in every case of placenta praevia in which the hemorrhage cannot be controlled, no matter what the condition of the cervix, the character of the child's presentation or the location of placental implantation. Thus, if the placenta has developed normally, the hemorrhage from a placenta praevia centralis may be readily controlled if the os is dilatable, and the presentation vertex or breech; but hemorrhage may be difficult or impossible of control in a case of placenta praevia lateralis, marginalis or partialis, if the placenta is abnormally developed (for instance when the chorionic villi have penetrated the muscularis) and when, in connection with this condition, the cervix is elongated or the os very rigid, and the presentation of the child such that a correctly placed tampon or the insertion of a rubber balloon will neither control the loss of blood, nor cause obliteration of the cervix or dilatation of the os. Of those obstetricians who put so much stress on the importance of the life of the child when advocating cesarean section for eclampsia, yet strenuously argue against cesarean section in the treatment of certain forms of placenta praevia, permit me to ask: Is not the life of the child to be considered as much, and even more, in cases of placenta praevia than in eclampsia? The child delivered through the abdomen in a case of placenta praevia has a far better chance for life than one born in the same manner in eclampsia.

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[4] Syms, Parker: The Prevention and Cure of Cancer, New York State Med. Jour., May, 1913.

THE MERITS OF SURGERY IN THE MANAGEMENT OF PUERPERAL ECLAMPSIA

In a recently published paper on eclampsia, read in New York,[5] we read the following: "The practitioner who seeks to learn from medical literature how the toxemias of pregnancy are best treated, may well feel that he has authority for the most radical treatment on the one hand and for shameful neglect of the patient's interest on the other."

In April, 1913, two papers on the treatment of eclampsia were read before the New York State Medical Society. One advocated vaginal cesarean section as one of the methods of emptying the uterus in the treatment of this disease, and the other maintained that the medical care of puerperal convulsions has given the best results, so far as the mother is concerned.

The writer of the more recently published article refers to these two papers as follows:

> Any one reading those two papers on eclampsia would be in serious doubt as to how to treat a case of toxemia, because he is told on the one hand that the only real hope for the eclamptic patient lies in the immediate emptying of the uterus, *although a number will die in spite of this treatment*, and on the other hand he is assured that the only safe method of treatment of eclampsia is by purely medical means, *though a certain number of patients, approximately the same, will be lost by following this method.*[6]

The author of the paper of recent date, just referred to, does not quote a single sentence from either paper to which he alludes. This we may readily pardon; but when, carelessly or wilfully, misrepresentation is added to seemingly specious argument, it must be corrected. Personally, I welcome and always respectfully consider the severest criticism, and, as this subject is of the greatest importance to child-bearing women, I regard it as my solemn duty to make the correction on this most auspicious occasion.

The author in question states that *"approximately the same number of patients die" when treated by "purely medical means" as when subjected to "the immediate emptying of the uterus."* In my paper, to which this writer unquestionably refers, conclusive proof is furnished that, under strictly medical treatment, the collective maternal mortality is really less than 13 per cent., and that the most favorable statistics of the maternal mortality of eclampsia, when surgical means have been employed, do not fall below 28 per cent. No effort is made to prove my statements incorrect; and yet this writer has the temerity to state in the same paper that *"the published results of a large number of cases"* (of eclampsia) *"in which the abdominal cesarean section has been performed, show that the maternal mortality runs somewhere between 40 and 50 per cent."*[6]

My own paper[7] on eclampsia, read at Rochester before the New York State Medical Society, in 1913, is an earnest protest against the immediate emptying of the uterus after the first convulsion, or the indiscriminate performance of cesarean section, to the exclusion of every other means, for the relief of puerperal toxemia. The arguments brought forth in my paper have not been refuted, and I reiterate: *Up to the present time, we have no better means of combating puerperal eclampsia than by the hypodermatic use of large doses of veratrum viride, free saline catharsis, hot baths or packs, strict milk diet and, if the patient be in labor, to facilitate its progress with or without the aid of the forceps or version on the feet.* Seeing is believing. Try this treatment and you will be convinced! Let us seek triumph only in truth!

Peterson's[8] last paper on abdominal cesarean section for eclampsia, appeared in the last issue of the *American Journal of Obstetrics.* Like all of his literary efforts, this paper again reveals his enormous capacity for work, and that he has plenty of time in which to do it. In this paper he furnishes the statistical evidence that the maternal mortality of puerperal eclampsia may be reduced to a little less than 13 per cent. when abdominal cesarean section is performed early; in other words, the maternal mortality of this disease can be made as low with abdominal hysterotomy as when treated by purely medical means.

For the sake of argument, and for the sake of argument only, this statement is accepted. It alone is sufficient to demonstrate that Peterson has, virtually, solved the problem in favor of the medical treatment of eclampsia. Who will now advocate abdominal cesarean section in every case of puerperal convulsions, if the same—and even better results—can be obtained with medical care?

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[5] Bull. New York Lying-In Hosp., January, 1914.

[6] Italics my own.

[7] Zinke, E. Gustav: A Critical Review of the Medical and Surgical Treatment of Puerperal Eclampsia, Am. Jour. Obstet., 1913, lxvii, No. 6.

[8] Peterson, Reuben: A Critical Review of 500 Published and Unpublished Cases of Abdominal Cesarean Section for Eclampsia, Am. Jour. of Obst., June, 1914.

NEWER POINTS OF VIEW REGARDING THE PART PLAYED BY DIFFERENT FOOD SUBSTANCES IN NUTRITION *

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For the continued performance of their physiologic functions and for the maintenance of their material integrity, living organisms are dependent on an adequate supply of suitable nutrients. Their needs in this respect are evidently not uniform at all times. Periods of growth and development, of convalescence and repair, determine special requirements that are not encountered at other epochs in the life-cycle, just as rest and activity alternate in making unlike demands on the organism during the routine of each day. It was realized, long ago, that these varied manifestations of the bodily mechanism may create specific demands in respect to the food substances; but it was a forlorn hope to expect to penetrate far into the mysteries of nutrition until some definite and fairly comprehensive knowledge regarding the chemical make-up of the products taken into the body as food had been unveiled. An elementary understanding of the fate of the fats and carbohydrates came earliest, because these foodstuffs were the first to have their chemical constitution unraveled. The story of the metabolism of the protein substances is only now beginning to keep pace with the newer knowledge of the structure of these highly complex nitrogenous compounds, and there are chapters bearing on numerous other factors in the food intake — on the place of the inorganic salts, the lipoids and diverse accessory features in the dietary — that still remain to be written even in their broadest outlines.

To speak of "newer" points of view regarding the rôle of the different food substances in nutrition, as I am expected to do, implies a contrast of to-day with yesterday in this progressive domain of physiology. One need not turn back far to reach the days of Liebig, to whom, above all others, are due the beginnings of present-day knowledge of the constitution of foods, tissues and excreta. In Moleschott's popular "Physiologie der Nahrungsmittel," published in 1859, the chief concern of nutrition was portrayed as the production of good blood. He wrote:

> One of the foremost questions which humanity will always address to the physician, is how good, healthy blood, capable of development, can be attained. And, modify the inquiry as they will, all those who are concerned therewith are forced by experience to admit, whether it be frankly or with reserve, that our thoughts and our loves, our children and our powers depend on our blood—and our blood on food.

Accordingly, Moleschott further maintained that vigorous nutrition is the consequence of efficient formation of blood; so far as the latter process means an enrichment of the circulating fluid in protein substances, the vigorous nutrition would express itself, above all, in the muscular tissues. "The more meats, legumes and cereals are consumed and digested," says Moleschott, "the plumper are the muscles, the firmer their fibers, the more powerful their action." Other diets, of rice, or vegetables, or fish, were pictured as leading to an enfeebled musculature. For the fats and carbohydrates there were known depots other than the muscles. Not until the work of Carl Voit was the principle of nitrogenous equilibrium definitely established for the animal body.

The vague and indefinite generalizations of a generation ago in respect to the functions of the foodstuffs have slowly been transformed into the more tangible theories and suggestive hypotheses of the passing decade. To give you some more concrete ideas of what these changes have involved I may refer to the teaching current in my own student days, more particularly as it is related to nitrogenous metabolism. Sir Michael Foster wrote in 1891: "At all events the greater part of the proteid material of the food enters the blood as proteid material, either as peptone or in some other form, and is carried as proteid material to the tissues." The latest dictum respecting this phase of absorption presents an entirely different point of view. Proteins are now understood to be disintegrated in the digestive tract into relatively simple nitrogenous fragments, the amino-acids, not exceeding twenty in number. It is these digestion products, absorbed into the blood-stream and now demonstrated beyond peradventure to be present there, that represent the real form in which the protein intake of the body is transported throughout the organism. Protein metabolism has at length become essentially a question of the behavior of amino-acids in the body — their uses and fate.

So far as the nitrogenous transformations are concerned, the amino-acids are the center of interest in nutrition, the pivot about which the modern conceptions turn. For him who would understand the real significance of the proteins in the functions of the organism there is no escape from the necessity of appreciating clearly the nature of the amino-acids — those derivatives which arise when, either in the laboratory of the chemist or in the alimentary processes of digestion, albuminous substances are disintegrated. A generation ago it was the superficial distinctions between animal and vegetable proteins, between albumins and globulins and albuminoids that formed the basis for discussions of relative nutritive merit. To-day we are more concerned with the question whether this or that protein, whatever its biologic origin, will yield the characteristic, desired amino-acids, such as tyrosin and tryptophan, leucin and lysin, glycocoll and cystin, histidin and arginin. Our attention is fixed on the building-stones or units out of which the great protein structures are put together.

Instead of referring to the proteins in terms of their physical properties or empirical composition — their content of carbon, hydrogen, oxygen, nitrogen or sulphur — at least so far as the problems of nutrition are involved, the time has arrived for estimating their behavior in the organism on the basis of the quota of each of about eighteen well-defined amino-acids which the individual representatives of this group of foodstuffs can yield. Most, if not all, of these amino-acids are essential for the construction of tissue and the regeneration of cellular losses. In proportion as any specific protein can furnish these constructive units it may satisfy the nutritive needs of the body. The efficiency of the individual protein in this respect must depend on the minimum of any indispensable amino-

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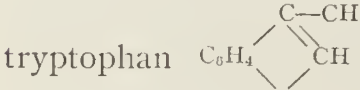
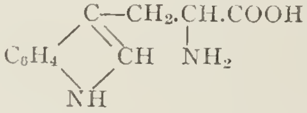
* Read at the joint meeting of the Section on Practice of Medicine and the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

acid that it will yield; for it is now known that some of them cannot be synthesized anew by the animal organism. If, for example, a protein or mixture of proteins comparatively deficient in their yield of the sulphur-containing amino-acid cystin be furnished alone to supply the body's nitrogenous requirement, the production of new, cystin-yielding molecules of protein will be limited by the amount which is available in the diet. An excess need not be wasted, for it can be burned up like sugar or fat to provide energy; but new construction or growth is limited by the minimum of the essential unit.

Although a supply of all or most of the characteristic amino-acids derived from typical proteins is essential for the construction of new tissue or the repair of the old, it by no means follows that all of them are inevitably needed in the ordinary function of maintenance, that aspect of nutrition characterized by the preservation of unchanged body-weight in the adult from day to day. Nevertheless, certain amino-acids are absolutely indispensable even in maintenance. This is well shown in recent observations conducted by Osborne and myself under the auspices of the Carnegie Institution of Washington. We have succeeded in keeping small animals (albino rats) during long periods on mixtures of isolated protein, fats, carbohydrates and inorganic salts as they are present in the protein-free fractions of milk. The advantage of this experimental procedure lies in the fact that it is possible to test, as we have done, the nutrient efficacy of individual proteins. The upshot of our now extensive experience has been to demonstrate pronounced differences in proteins from different sources. Some, like the proteins of milk, the edestin of hemp-seed, the albumin of egg-white, are individually capable of satisfying the nitrogenous needs of the body at all stages of its development. Chemical analysis has disclosed the potential existence of most of the familiar amino-acid groups in each of these protein complexes. When the gliadin of wheat, a prominent protein of this seed, is fed as the sole protein, adult animals are suitably maintained; but growing animals cease to increase in body-weight, remaining in nutritive equilibrium without growth, unless the amino-acid lysin  $\underset{NH_2}{CH_2}.CH_2.CH_2.CH_2.\underset{NH_2}{CH}.COOH$ is added to the gliadin-food. Thereupon growth is promptly resumed. The explanation becomes apparent in the fact that gliadin is almost entirely devoid of the lysin radical; and inasmuch as this is obviously needed for new protein construction, growth cannot proceed until the missing unit is supplied. Again, zein, the most conspicuous protein of the maize kernel, fails to yield either lysin or tryptophan  or glycocoll $\underset{NH_2}{CH_2}.COOH$ and accordingly is entirely inadequate to meet the nitrogenous needs of animals in respect to either maintenance or growth. It may be fed in the greatest abundance; yet the animals decline in health unless the zein is supplemented by some more perfect protein. If the amino-acid tryptophan is added to the imperfect maize protein, maintenance of body-weight, without growth, is promptly established. Evidently tryptophan is indispensable for some physiologic function quite apart from increase in tissue substance. If both tryptophan and lysin are added to the zein, the diet thereupon becomes suitable for growth. In glycocoll, likewise missing in zein as in several other proteins, we have an instance of an amino-acid which can undoubtedly be manufactured when it is needed. From these facts it is apparent how essential certain amino-acids are in the nutritive processes and how unable the body is to synthesize some of these anew.

I trust that this hasty review has given emphasis to the contention that the problem of protein metabolism has largely become one of amino-acid supply. Provided only that they are rendered free and available by the digestive processes, the body cares little whence its amino-acids are obtained. Meat proteins, egg proteins, cereal proteins—all serve in the same sense. Indeed, the amino-acids themselves, isolated in the chemical laboratory, appear to be equally available. We begin to understand why a diet largely made up of corn with its abundance of the imperfect zein and its relative poverty in more complete proteins may be poorly suited for growing individuals; why corn is so advantageously supplemented by a little skimmed milk with its casein and lactalbumin; why gelatin, which does not yield tyrosin, tryptophan or cystin, fails by itself to meet the demands of the body for nitrogenous pabulum; why a low intake of a suitable protein may be infinitely more advantageous to nutrition than a surfeit of an "incomplete" protein.

Nor is the story of the rise of the physiology of the amino-acids ended here. These compounds furnish a superior medium for the growth of bacteria, not infrequently yielding products of pronounced toxicity or pharmacologic potency. A series of amins ranging from simple forms to complex types owe their origin to the action of micro-organisms on proteins, both outside of the body and within the alimentary tract. Putrescin, cadaverin, tyramin, histamin are derived from the amino-acids arginin, lysin, tyrosin and histidin, respectively. Likewise the widely vaunted alimentary offenders, indol and skatol, are chargeable to the putrefaction of the tryptophan group in the protein molecule; phenol and cresol are similarly derived from tyrosin. Thus many of that vague and heterogeneous collection of compounds once convincingly included in the indefinite expression "ptomains" are doubtless nothing else than the fragments of amino-acids that have fallen sacrifice to bacteria before they could be absorbed intact into the blood-stream. Now that the production of these more or less toxic amins and alcohols is clearly referable to the action of known types of bacteria on individual amino-acids, the way to avert the malaise or more serious consequences with which the putrefaction products are so often charged may be a step nearer. Gelatin, for example, furnishes no tryptophan, tyrosin or cystin; the intestinal bacteria are therefore unable to liberate indol, phenol, hydrogen sulphid or mercaptans from it.

To still another domain the discovery of the amino-acid structure of the proteins has admitted fresh rays of light. The phenomena of immunity, creating almost an entire new science of immunology; the precipitin reactions; anaphylaxis and its varied manifestations—all of these point to the participation of proteins; and, what is more significant, owing to the highly specific character of the responses, they postulate the existence of individual proteins in numbers far exceeding the possibilities suggested by the ordinary criteria of individuality. How are we to conceive of a hundred or a thousand specific albumins from as many tissues and individuals? We need merely grasp the convenient hypothesis furnished by our knowledge of the amino-acids which they yield. Assuming that ten different amino-acid derivatives are united even without duplication to form a single protein, mathematical calculation indicates the possibility of over three million different combinations; for eighteen amino-acids the possible combinations have been estimated to exceed millions of millions. In the face of such figures one realizes what specificity may really mean when thousands of structurally isomeric compounds can theoretically, at least, yield precisely the same proportions of the same amino-acids and yet remain distinct in respect to the relative arrangement of their constituent units. The development of an almost innumerable number of special enzymes, as suggested by Abderhalden's recent studies now widely applied in serodiagnosis, likewise finds the possibility of an explanation in what has just been noted. A thousand structures may require a thousand different keys to unlock them.

It might be illuminating to dwell further on other consequences entailed by the development of the biochemistry of the amino-acids; but we must return again to the physiology of two decades ago for a reminder of other changes that have been wrought by the hands of progress. Urea was, of course, recognized as the predominant excretory end-product of nitrogenous metabolism. Its history was difficult to follow, and almost entirely obscured. Foster voiced a then current belief in his widely studied text-book in suggesting that a large portion of the urea leaving the body by the urine is formed from the creatin of the muscle, though the objections to such a theory were already obvious to him. The normal presence of creatinin in the urine offered a difficulty which was not entirely solved by charging its origin to creatin ingested as meat. Nor was only creatinin left as a source of confusion. Uric acid and other excreted products remained to be accounted for, as they occurred in varying amounts in the urine.

Foster wrote:

> Urea is the chief end-product of proteid metabolism, but that end is probably reached in several ways; so that probably a very large number of nitrogenous chemical substances make a momentary appearance in the body. Some of these fail to become urea, and either without or after further change make their appearance in the urine. But we do not know whether their appearance is accidental, the result of imperfect chemical machinery; or whether they, though small in quantity, serve some special ends in the economy. Perhaps sometimes, or with some of them it is the one case, at other times or with others it is the other case. . . . The evidence as far as it goes tends to show that the metabolism of proteid is very complex and varied, that a large number of nitrogen-holding substances make a momentary appearance in the body, taking origin at this or that step in the downward stairs of catabolic metabolism and changing into something else at the next step, and that the presence in various parts of the body and even in the urine, in small quantities, of so many varied nitrogenous crystalline substances, forming a large part of what are known as extractives, has to do with this varied metabolism. Possibly the transformations by which nitrogen thus passes downward take place to a certain extent in such organs as the liver and the spleen, which are remarkably rich in these extractives. But the whole story of proteid metabolism consists at present mostly of guesses and of gaps.

In this veil of mystery that surrounds the chemical transformations of the food-substances in the body there are today many rifts through which new truths have been brought to light. Uric acid is no longer associated with the metabolism of the simple proteins, but is recognized as the excretory end-product of the purins, a group of compounds distributed widely in nature, either free or combined as they are in the nucleoproteins of cellular tissues. By the exclusion of glandular material, like liver and sweetbreads, and of meat with its free hypoxanthin, the dietitian can reduce the production and output of uric acid in man at will. Here is one of the striking instances of where, through the newer knowledge of foods and metabolism, the physician has become a master of the chemical performances of the organism. The creatinin of the urine, provided that it is not reinforced by ingested precursors in meat, represents a story of the inner workings of the organism quite independent of the protein in the diet. The ammonia output is in a measure an index of the overproduction of acids in the body. Although by no means the only regulatory device whereby the neutrality of the blood and tissues is maintained in health, ammonia is nevertheless automatically furnished in conspicuous amounts when it becomes necessary to offset an impending acidosis. Hitherto the therapeutic procedure in such cases has been to furnish an alkali, commonly sodium bicarbonate, and thereby conserve the available supply of bases in the body from depletion. Recent studies have shown that a similar contribution of bases is afforded by a judicious selection of the dietary. There are foods which act as potential acids and others which function as bases in the organism. When burned up either in the laboratory or in the body-cells, they leave a preponderance of acid or base, as the case may be, in their ash. In this respect potatoes, apples, raisins, and cantaloupe, for example, are base-forming foods which depress the output of ammonia and increase the solubility of uric acid in the urine, as the experiments of Dr. Blatherwick in our laboratory have demonstrated; whereas meats, cereals and prunes (the latter with their content of benzoic acid) furnish acids in preponderance. Milk is intermediate in this respect. From the point of view here raised it is quite easy to accomplish as much with a liberal allowance of certain selected foods as with half an ounce of the familiar bicarbonate. To do this, however, implies that the physician must become as well acquainted with the properties of the foods as he appears to be with such novelties as amboceptors and complement, polyvalent vaccines and immune serums, salvarsan and epinephrin.

Turning attention to another group, the fats, the question must have arisen in the minds of many a physician as to why certain representatives of these foodstuffs have so long maintained a reputation for superior merit in connection with nutrition. There are several fluid fats which are quite as available, or even more easily procurable than is cod-liver oil. Yet this product continues to enjoy a vogue that cannot be dismissed as the mere result of advertising propaganda. Cod-liver oil was a favorite, particularly in the dietotherapy of children, long before the present era of catch-phrase circulars and illuminated billboards. Its supposed unique virtues have called forth varied attempts at explanation. At one time it was the trace of iodin found in cod-liver oil which was believed to endow it with superiority over other fats like cottonseed oil and olive-oil having essentially the same physical properties and the same mixtures of glycerids, or fats proper. When this explanation no longer appeared tenable, the superior value of cod-liver oil was attributed to its ready digestibility. Lately Osborne and I have observed an unexpected efficiency in the product which is not shared by many other fats of similar superficial properties. We have fed growing animals (albino rats) on mixtures of isolated food substances including an abundance of fat in the form of commercial lard until, owing to the lack of some essential and as yet unknown ingredient of adequate dietaries, growth was checked. The replacement of a portion of the lard in the diet by cod-liver oil invariably brings prompt restoration of growth which continues uninterrupted until the adult stage is reached. Butter-fat and egg-yolk fat likewise contain a "growth-promoting" ingredient which appears to be more or less completely wanting in other dietary fats of both animal and vegetable origin. There is, for example, a marked difference between lard and the fat elaborated by the mammary gland. Whereas our experimental animals show symptoms of malnutrition with a cessation of growth and decline in weight at the end of three months on a diet including lard as the sole fatty ingredient, when either butter-fat or cod-liver oil were used there was no sign whatever of failure after a year or more of uninterrupted feeding on the same diet day after day.

It is well known that all of the naturally occurring fats, such as have just been mentioned, are complex mixtures of true fats in the chemical sense, along with other substances including lipoids, pigments and compounds more soluble in fat than in the watery mediums of the body. The lipoids, in particular—cholesterol, lecithins, cephalins — have come into prominence in connection with various reactions involved in serum diagnosis and such phenomena as hemolysis, narcosis and absorption. Though long recognized as a constituent of the nervous tissues and certain pathologic products such as gall-stones, cholesterol has remained a compound of unknown function until very recent times. At the present moment the consensus of opinion appears to be that cholesterol is not ordinarily formed within the organism of the higher animals, and that these are dependent on the food intake to maintain the essential supply thereof. If this be true the ultimate source must reside in constructive plants; and assuming occasional losses from the body, doubtless with the feces, the store of cholesterol can be kept intact in man only by renewal from a suitable dietary. Ordinarily, in the adult living on a ration of products derived from many sources, no difficulty arises, because compounds of the cholesterol type are widely distributed and presumably found in all cells; but it is quite conceivable that in individuals like growing children or patients living on a diet restricted in character a real deficiency of cholesterol may ensue. It is known that the hemolytic phenomena of the red blood-cells are related to their lipoid content; and the therapy of the future may find a place for such substances as cholesterol, kephalin, etc., in the management of hemolytic anemias and other pathologic manifestations. Here, again, the intricacies of the diet cannot be overlooked by the intelligent physician of the future.

I have dwelt somewhat on the possibilities in respect to cholesterol and the growth-promoting components of milk-fat, egg-fat and cod-liver fat because it affords an opportunity to emphasize the hitherto largely unappreciated importance of factors in nutrition which cannot be expressed in terms of the familiar protein, fat and carbohydrate or in calories of energy. These factors may be inorganic in some cases, as is instanced by the reputed rôle of iodin and the wide distribution and alleged significance of manganese, boron, silicon and other elements in animal tissues; they are frequently organic in character. To class these varied factors together under the euphonius designation of "vitamins," as has lately been done, does not render less obscure the deficiencies which the absence of them from the diet may entail; nor does it give any clue to the mechanism whereby growth may be promoted, metabolism stimulated, or deficiency diseases engendered. Not only in those admitted instances of diet deficiencies such as beriberi and scorbutus, but also in numerous other clinical and experimental types of malnutrition there is need for further research. The proverbial adherence of the medical profession to dogmatic statement must be changed. Its members must become eager to take up the current views, study the underlying data as well as they can, and watch the consequences. Let us welcome the day when the food market and the kitchen are taken into consideration by the physician as seriously as are the apothecary's shop and the fashionable spas.

If in all the foregoing little mention has been made of the carbohydrates in nutrition, it has been because, in a general way, more has been known about them for a longer time than is true of the other nutrients. Even among the carbohydrates the principle of specificity comes into play. The physiologic carbohydrates are the six-carbon sugars, such as glucose, levulose and galactose. Unless an ingested carbohydrate can be converted into this simple type of sugar in the alimentary tract, its nutritive value is distinctly impaired or entirely lost. For this reason, all attempts to introduce more complex sugars, dextrins or starches directly into the blood-stream, for prompt distribution to the tissues which need them, have failed. In experiments conducted in our laboratory, animals have received subcutaneous or intraperitoneal injections of cane-sugar or milk-sugar for weeks and months without acquiring the capacity to utilize so little as a single gram introduced in this way in an undigested form. Carbohydrates like inulin and the galactan of agar-agar or of Irish moss can furnish no energy to the human organism because it is unable to digest them, that is, to convert them into simple sugars. The possibility of nourishing an individual in some way other than by the oral path evidently depends on introducing the nutrients in the form of those units—the amino-acids, simple sugars and fats—which normally constitute the actual pabulum of the hungry cells.

Physiology has borrowed its methods largely from the sciences of physics and chemistry. It also has a fruitful method of its own, that of experiments on animals and man. None of these procedures can be dispensed with. They corroborate and supplement each other, and they serve to test the hypotheses which give the impetus to progress. The medical profession must insist on conserving for the physiologic sciences the opportunity to continue its studies untrammeled by the passing prejudices of those who fail to appreciate its motives.

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INTERMEDIARY PROTEIN METABOLISM *

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The subdivision of protein metabolism into intermediary metabolism and tissue metabolism indicates that we to-day are in possession of a much more detailed and accurate knowledge concerning animal metabolism than was available a few years ago. The controversy between Voit and Pflüger and their followers of the past generation as to whether the protein of the food must be incorporated in the protoplasm of the tissues before it is oxidized was an unprofitable and useless controversy, because it was too far in advance of the experimental knowledge of that period. We still do not know the spatial relationship between protoplasm and food materials at the moment of oxidation. On the other hand, we no longer speak of protein metabolism as being an oxidation process at all in the sense understood by Pflüger and Voit. While protein materials like other carbonaceous food materials are of course finally oxidized in the body, we now believe that the nitrogenous foodstuffs first undergo changes and chemical transformations involving the loss of all protein characteristics before they are completely destroyed by the oxidation processes involved in the production of heat and energy. Through the investigations of Kutscher (1898), and more recently of Abderhalden and his associates, it has been made clear that protein materials are completely decomposed into simple crystallizable products, the amino-acids, as a result of digestion. This discovery is fundamentally important for it has necessitated a complete revision of the earlier ideas and doctrines as to the nature of the metabolic processes involved in the utilization of protein as food. The old, burning question as to whether protein must be incorporated in the living tissue protoplasm before it is oxidized we now know was a false question, because the food protein has been altered beyond recognition even before it leaves the digestive tract and many of us no longer believe that protein as such is ever oxidized in the body.

The discovery that protein materials are split up into the simplest possible component parts during the digestion suggested two new fields for metabolism investigations. The first of these is the question as to whether simple amino-acids can be substituted for ordinary food protein, and which if any of the amino-acids are most indispensable for the maintenance of the animal organism. Much interest and important work has been done in this field, and it has become quite clear that some amino-acids are indispensable while others appear to be less necessary constituents of the food. The importance of all these data to the science of metabolism, if not to medicine, is self-evident in view of the fact that practically all the amino-acids can be manufactured. The second metabolism problem which required renewed investigations when the deep-seated character of protein digestion became clear concerns the subsequent history of the digestion products, and inasmuch as my own investigations lie in this field, I shall confine myself to a discussion of this problem.

Formerly it was generally believed that protein materials were but little altered by the digestion, and the protein of the food was supposed to pass into the blood-stream without any material alteration. Since no peptones were found in the blood the peptones formed during the digestion were supposed to be regenerated into more complex albuminous materials while passing through the mucous membrane of the intestinal wall just as fatty acids and glycerin are believed to be transformed into neutral fats during the absorption. This hypothesis seemed plausible, because it agreed with the experimental observations and because the animal organism was supposed to be dependent on the complex kind of proteins found in the blood. Many investigators, including Kutscher and Abderhalden, adhered to this explanation of what happens to the nitrogenous food in the intestinal wall even after it became certain that amino-acids and not peptones were the chief end-products of the digestion. Many physiologists, however, abandoned the protein regeneration hypothesis about ten years ago. To them it seemed highly improbable that the proteins should first be completely split up into amino-acids only to be immediately recombined into albumin and then again immediately broken down so as to give the urea, the elimination of which is greatly increased three or four hours after the intake of protein food.

In place of the protein regeneration hypothesis these dissenting physiologists assumed that the transformations of nitrogenous materials which take place in the intestinal wall are of a destructive rather than of a constructive character. Just as the digestive ferments convert the proteins into amino-acids within the digestive tract, so by a continuation of the digestive or hydrolytic processes most of the amino-acids immediately lose their nitrogen while passing through the intestinal wall and the liver. The prompt formation of urea, the supposedly large amount of ammonia in the portal blood, and many other features of the nitrogen metabolism were explained in a fairly plausible fashion by this hypothesis.

There remained, however, another possibility, namely, that the intestinal wall does nothing to the amino-acids but simply lets them through. From a theoretical aspect, this point of view has been the most plausible, and notwithstanding numerous early failures, the efforts to prove that the amino-acids are absorbed from the intestine without change have been continued, and now there is no longer any doubt about the fact that the end-products of protein digestion, the amino-acids, are quickly and easily absorbed. In fact, the speed of the absorption and the speed with which the amino-acids are distributed to all the different tissues in the body is one of the reasons why the earlier investigators failed to find the digestion products in the blood.

By means of the quantitative colorimetric methods devised in my laboratory, by means of Van Slyke's micro method, and by means of Abderhalden's qualitative ninhydrin test it is now easy to show that the amino-acids are absorbed. We have therefore now not the slightest reason for believing that the amino-acids formed during the digestion undergo any change while passing through the walls of the intestine.

The essentials of the story of protein digestion and absorption appear to be very clear indeed, and can be stated in two or three sentences. In the stomach the greater part of the protein is dissolved and much of it is converted into albumoses and peptones. In the

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* Read before the joint meeting of the Section on Practice of Medicine and the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

intestine the dissolved products as well as the remaining undissolved residues are attacked by the trypsin and are thereby split up into amino-acids. The intestinal wall yields another ferment, erepsin, which, so to speak, prevents the absorption of albumoses and peptones by converting such as may escape the action of the trypsin into amino-acids — and the amino-acids as fast as they are formed are absorbed and transported by the blood to all parts of the body.

The absorption of amino-acids from the blood by the different tissues and organs is extraordinarily rapid, but is not complete. The communication between the blood and the tissues appears to be about equally good in either direction, and the accumulations of the nitrogenous digestion products in the blood and in the tissues reach therefore substantially the same level. This is, I think, true for the nitrogenous waste-products as well as for the digestion products, and if correct is important, for it means that by analyses of the blood we determine also the concentration or accumulation of the same products in the tissues.

The speed of the absorption is not the same for all tissues. The liver, for example, according to Van Slyke, absorbs amino-acids from the blood more rapidly than do the muscles even when the amino-acids are injected into the general circulation, and similar though smaller variations will doubtless be found in the speed of absorption revealed by different muscles; but such variations are probably only temporary, so that on the whole it will be found true, I think, that the concentration of a given nitrogenous product in the blood is the same as in such general tissues as the muscles.

In view of the established fact that the muscles absorb the greater part of the amino-acids coming from the digestive tract, it is no longer permissible to regard the liver as the chief seat of the urea formation. The greater part of the urea formation represents nothing but the removal of the nitrogen from amino-acids which are not needed for the rebuilding of new tissue material, and there is in my judgment no reason to doubt that the muscles which absorb the greater part of the amino-acids also form from them the greater part of the urea. Dr. Denis and myself have repeatedly emphasized this point of view, and recent studies made in the Harvard Medical School by Drs. Fiske and Sumner on the urea formation have clearly indicated that this process is not localized in the liver.

In its broad outlines the intermediary protein metabolism appears now comparatively simple and clear. The blood gets amino-acids from the digestive tract and all the tissues get them from the blood. From the amino-acid mixtures thus received each tissue rebuilds itself, and the amino-acids which are not needed for such synthesis are converted into urea and carbonaceous remainders. The latter are either converted into carbohydrates or are otherwise oxidized for the production of heat and energy. When protein materials from within the body are broken down, as in fasting and in fevers, these are in all probability digested in the tissues down to the stage of amino-acids, and from that stage on undergo the same transformations as do the amino-acids derived from the food.

According to this view it is to be noted that the specialization of functions which characterizes the higher animals does not extend very far into the field of general protein metabolism. All the tissues probably take part in this process roughly in proportion to the weight of living protoplasm contained in them. We cannot therefore expect to find the general protein metabolism materially or specifically altered because of this or that disease in any particular organ. I feel it incumbent on me to emphasize this aspect of the case, for we laboratory workers are often expected to elucidate diseases by metabolism studies when no such elucidation is possible on the basis of the available fund of knowledge of metabolism processes.

THE SPECIFIC DYNAMIC ACTION OF THE FOODSTUFFS *

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The conclusions to be reported in this paper are based on results obtained from 250 experiments on dogs. The animals rested quietly in a respiration calorimeter, at an environmental temperature of 26 C. (78.8 F.), and were subjected to different dietary conditions. Under these circumstances the simplest nutritional elements can be given and their effect on the heat production can be noted in hourly periods. This gives an idea of the interplay between the nutrient particles and the oxidizing tissues.

Dr. Du Bois will present the story from the point of view of investigations made with a similar though larger respiration calorimeter devised to determine the nutritional condition of the human being in disease.

All nutrient proteins, starches and compound sugars undergo fragmentation in the intestinal tract into simple chemical substances which are soluble in the fluids of the body. A polysaccharid like starch is broken up into glucose molecules; a disaccharid like cane-sugar (sucrose) is split into a molecule each of glucose and fructose, and lactose undergoes similar transformation into a molecule of glucose and one of galactose. Glucose, fructose and galactose are sugars which may be absorbed and carried to the living cells by the blood-current that bathes them. In similar fashion, the protein molecule is demolished in the intestine and broken into units such as glycocoll (amino-acetic acid), alanin (aminopropionic acid), glutamic acid, which is a dibasic amino-acid with five carbon atoms, and there are many others. These amino-acids are absorbed into the blood-stream and are carried to all the living cells of the body.

The result of the ingestion of food in any quantity is to increase the amount of heat production in the body. The extent to which the increase in metabolism occurs depends not only on the quantity, but also on the kind of food introduced into the blood-stream. Since the power to increase heat production exerted by protein, carbohydrate and fat is different for each substance, Rubner has defined this power as the specific dynamic action of the substance. The term is technical and cumbersome, yet the meaning is perfectly simple.

Every one has experienced the increased feeling of warmth after a hearty meal, and no one eats largely of meat in midsummer, for it increases heat production and consequently increases sweating.

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* Read before the joint meeting of the Section on the Practice of Medicine and the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

* From the Physiological Laboratory of the Cornell University Medical College, New York.

The reason why the various foodstuffs increase heat production has not been entirely clear and it is this somewhat complicated problem with which the present paper deals.

In the first place, the increase in the heat production has nothing whatever to do with the increase in intestinal activity (*Darmarbeit*), a theory advocated by Zuntz; for the heat production is not increased by the ingestion of insoluble substances like bones or agar-agar, of saline cathartics even with the production of violent intestinal movements, or of Liebig's extract, which stimulates the glands to secretion. Likewise, incombustible substances such as urea and sodium chlorid when given in health, and glucose when given in diabetes, may be absorbed, carried in the bloodstream and eliminated in the urine without causing an increase in the oxidative processes. These facts have been established by Rubner, by Benedict and by others.

When, therefore, the heat production of a dog rises 30 or 40 per cent. after glucose has been given, and even 90 per cent. after a large quantity of meat, it is evident that the cause of the specific heat production must lie, not within the absorptive or excretive mechanisms, but in the interplay between the living cells and the nutrient material, the sugars and amino-acids contained in the blood.

To determine the effect of sugars and amino-acids, experiments have been devised in which a dog was given a standard maintenance diet every evening, and eighteen hours thereafter, when the gastro-intestinal tract was free from food, the *basal metabolism* was measured. In Dog 3, on which eighty-two experiments have been performed, the basal metabolism was determined at different intervals and averaged 16.7 calories per hour. It scarcely varied from this during a period of nearly three months.

The effect of a substance to be tested was measured by giving it eighteen hours after the standard diet and noting the change which took place from the normal basal metabolism.

THE METABOLISM OF CARBOHYDRATES

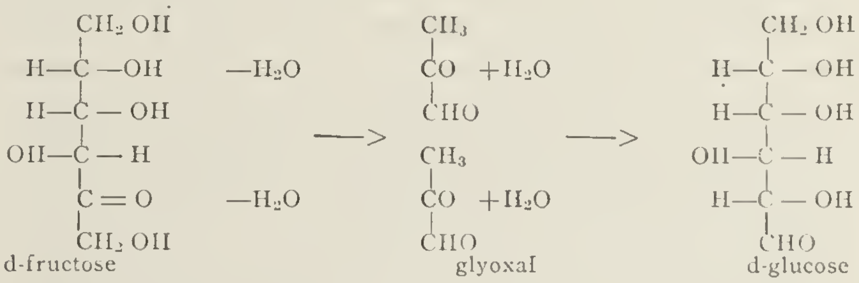
After 50 gm. of glucose the heat production rose in one of the hourly periods to a maximum of 32 per cent. above the basal level. After 70 gm. of glucose a maximum rise was 38 per cent. With 50 gm. of fructose a similar rise was 44 per cent. and with 50 gm. of sucrose one of 48 per cent. Here then are very large increases. It has been shown on another occasion that 50 gm. of glucose are absorbed into the blood and disappear from the gastro-intestinal canal from three to four hours after its administration. At first the sugar-content of the blood increases, but then quickly falls to its normal percentage as the blood becomes more dilute, the latter fact being indicated by a fall in hemoglobin percentage. This greater volume of blood bears a greater number of readily diffusible molecules of sugar to the active tissues of the body. Following the end of the absorption of glucose, the kidney eliminates a large volume of the water which has caused the dilution of the blood, hemoglobin returns to its normal percentage, and the composition of the blood is again regulated by the liver and other organs through which it flows. In consequence of this, the heat production of the fourth or fifth hours after the ingestion of glucose regains the level of the basal metabolism. Those older experiments, which were performed during twenty-four-hour periods, do not show the very great temporary rise in metabolism after glucose ingestion, since calculations based on a long interval of time give no idea of the real state of affairs. Grafe's recent work on dogs which were overfed on carbohydrates throughout the day shows large increases in metabolism, as high as 33 per cent. above the level of an eighth day of fasting. This is fully explained in the light of the results given above.

But what is the cause of the increased heat production after the ingestion of sugar? On a former occasion I stated that it was due to the mass action of the sugar-molecules reacting with the living cells.

One might argue that this increased heat production is due to a breaking up of sugar in the inert fluids of the body and not in the cells themselves. An analogy is found in the living yeast-cell in which the greater part of the destruction of sugar is accomplished within the cell, itself, and a minor part in the surrounding fluid (Rubner). Recent work, however, has shown that the blood-plasma contains no glycolytic enzymes and cannot accomplish the breakdown of sugar.

Another explanation is offered by F. G. Benedict, who declares that acids formed in the intermediary metabolism of sugar are stimuli to increased metabolism. In substantiation of this, Benedict cites an instance of increased heat production following the administration of 100 gm. of fructose to a diabetic patient, by whom this sugar was not oxidized, but in whom it was converted into glucose and eliminated in the urine. Benedict interprets this as due to the breaking up of fructose into acid and other radicals which are subsequently synthesized into glucose. Modern theory indicates that methylglyoxal is the principal intermediary substance in this transformation. Benedict's experiment was of such interest that it has been repeated, using phlorhizinized dogs, but it could not be confirmed. The diabetic animal did not oxidize the fructose; it also transformed fructose into glucose, but the metabolism was in no way increased.

The transformation of glucose into levulose may thus be written:



If this transformation takes place through methyl glyoxal, which is also believed to be an early metabolism product of glucose, then when a molecule of glucose breaks and forms two molecules of methyl glyoxal, these small three-carbon aldehyd radicals cannot, through their presence, place metabolism on a higher level. But through their mass action on the living cell, the oxidative processes involved in their destruction may cause metabolism to reach this higher level. This is the metabolism of plethora.

Experiments have also been made with alcohol alone and with alcohol and 50 gm. of glucose. When 9.4 gm. of alcohol were given alone, the heat production of the dog was increased 10 per cent. When alcohol was given with glucose the heat production was raised above the level to which glucose alone would have caused it to rise, and alcohol was oxidized in preference to carbohydrate as shown by a marked depression of the respiratory quotient. Here the alcohol, with its small molecule containing only two carbon atoms, proved to be the more available fuel.

METABOLISM OF AMINO-ACIDS

Dakin states that nine of the seventeen amino-acids which make up the composition of protein yield glucose when they are broken up in the body. Glycocoll with two carbon atoms and alanin with three are completely convertible into glucose, and the ammonia produced in this transformation forms ammonium carbonate in the blood, which, in turn, is converted into urea. These reactions are *endothermic,* that is to say, heat is absorbed in order to produce sugar and urea. In the transformation of 20 gm. of glycocoll into 16 gm. of glucose and 8 gm. of urea 17.1 calories are absorbed. When 20 gm. of alanin undergo this transformation, 3.6 calories are required. The amino-acid known as glutamic acid contains five carbon atoms, three of which are convertible into glucose. These three amino-acids have been extensively used in the experiments to be described, which were devised in order to interpret the cause of the very great increase in the heat production which follows the ingestion of meat.

A striking point is that if 20 gm. of glutamic acid be given to a dog there is no increase whatever in the heat production of the animal. Twenty gm. of glutamic acid yield 13 gm. of sugar which, of itself, is too small to increase the production of heat. This amino-acid which is convertible into sugar and urea may be given without appreciable change in the heat production. If, however, 20 gm. of glycocoll be given, a very great increase in heat production follows. The higher metabolism lasts for seven hours. Twenty gm. of glycocoll containing 40 available calories increases the heat production by 30 calories during this period. This is greater than the 17 calories absorbed in the intermediary production of sugar and urea. Ten gm. of glycocoll produce just half the effect which 20 gm. accomplish.

Twenty gm. of alanin, containing 73 available calories, increases the production of heat by 20 calories, and 30 gm. of alanin cause an increase of 30 calories. The result which follows administration of the amino-acids is like that which occurs after meat ingestion, in that the amount of the increase is proportional to the quantity of material metabolized.

What is the cause of these great increases in heat production? Twenty gm. of glucose may have no effect whatever on the heat production, and 70 gm. may cause an increase of 20 calories, yet 20 gm. of glycocoll, which is convertible into only 16 gm. of glucose, raise the heat production by 30 calories, a height that 70 gm. of glucose cannot bring about.

What is the reason?

At the International Congress of Hygiene and Demography, held in Washington, I presented the view that it was due to the stimulation of the protoplasm to higher activity through the mass action of accumulated amino-acids. Folin had shown that amino-acids were quickly absorbed and were retained by the tissues, and he believed that their metabolism was of slow development, none taking place in the first hour. Experiments which have since been instituted have led me to believe that the highest heat production is coincident with the highest metabolism of amino-acids and that the amino-acids themselves do not lie in the tissues without being involved in a highly active metabolism. A year ago, Miss Wishart performed experiments on dogs killed in the height of excessive protein digestion, and failed to find any great increase in the quantity of non-protein nitrogen in the muscles. Another convincing reason of the rapidity of the metabolism of amino-acids, such as glycocoll and alanin, lies in the speed with which Csonka found that the sugar derived from them is eliminated in phlorhizin glycosuria. If 20 gm. of glycocoll be administered to a diabetic dog, 16 per cent. of the sugar derivable from it is eliminated in the urine of the first hour. At the end of five hours, 86 per cent. of the sugar which could be derived from glycocoll metabolism has been eliminated. The elimination of the sugar is almost as rapid as when a comparable quantity of glucose is given to the dog. The point to be emphasized is that this method of determining the rapidity of the metabolism of glycocoll and alanin shows that the early hours of their highest metabolism is coincident with the maximum increase in the production of heat within the dog after their ingestion.

After all, might not the great rise in metabolism be due to the oxidation of glycocoll or alanin as so much refuse which cannot be used as fuel for the cells? To determine this, glycocoll and alanin were given to the dog in the diabetic condition and the metabolism was measured. The heat production rose in both instances. Since the amino-acids were not oxidized but were eliminated as sugar and urea in the urine, the increased heat production must have been due either to the stimulus exerted by them on the living protoplasm or to the stimulation produced by the oxy- or keto-acids formed from them during their transformation into sugar.

That specific intermediary acids formed in metabolism are the real stimuli is indicated by the fact, first shown by Rubner, that when ingested protein is reconstructed into body protein the amino-acids involved in this reaction do not cause an increase in the heat production.

It does not seem probable, however, that this stimulation is induced by all acids, for the strong dibasic glutamic acid is without effect. It may be that lactic acid derived from alanin and subsequently converted into glucose is an effective stimulus, whereas methyl glyoxal, which is a problematic cleavage product of glutamic acid and is convertible into sugar, may not be an effective stimulus to higher oxidation.

In phosphorus poisoning, which is accompanied by formation of lactic acid, the total heat production is above the normal, although a high protein metabolism may here also be an accessory factor. In high altitudes, where lactic acid is always produced, metabolism increases.

The rise in heat production in diabetes may be partly induced by the great increase of fat in the blood and by the increased protein metabolism and not entirely by the diabetic acidosis as suggested by Benedict. For, in the dog, diabetic acidosis plays a very subsidiary part and yet an increase in the metabolism of the fasting phlorhizinized animal of 75 per cent. above the level of the basal metabolism has been noted.

Even though the cause of the increased heat production after protein ingestion be due largely to a stimulation caused by the presence of certain oxy- or keto-acids, yet the metabolism induced thereby can be defined as the metabolism due to amino-acid stimulation, to contrast it with the metabolism due to plethora in the presence of food molecules in abundance.

In conclusion, it may be stated that living cells metabolize carbohydrates and fats in increased quantity when these are present in large amounts in the surrounding fluid, and that they are also stimulated to a higher heat production during the metabolism of certain amino-acids tó an extent which is entirely out of proportion to the energy value of those amino-acids, and which may indeed be independent of their energy value.

THE TOTAL ENERGY REQUIREMENT IN DISEASE

AS DETERMINED BY CALORIMETRIC OBSERVATIONS[*]

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The total energy requirement of an individual is represented by his heat production or, in other words, his total metabolism. If food of a total caloric value equaling the heat production be taken, the normal man will remain in nutritive balance. As a rule, the appetite in health regulates the intake to a nicety, although some of us need the guiding influence of the bathroom scales and the restraining influence of tight clothes. In disease, on the other hand, the appetite is no index of the requirement and the nutrition of the cells is at the mercy of the physician. Likewise, the stomach and kidneys are at his mercy, and he must regulate the diet so that it will nourish the cells without throwing too much work on damaged organs or oxidative functions of the body. It is often just as important to know the proper dosage of foods as to know the proper dosage of drugs.

The most satisfactory instrument for measuring the heat production is the respiration calorimeter[1] of the type devised by Atwater and Rosa in Middletown, Connecticut. Such a calorimeter, modified for clinical purposes, has been constructed by the Russell Sage Institute of Pathology in the wards of the Second Medical Division of Bellevue Hospital. Since its completion a year and a half ago, it has been used in 142 observations. A number of normal controls have been studied, but most of the subjects have been patients from the adjoining metabolism ward in which all diets are weighed and analyzed. This ward is under the control of the institute and those in charge of the calorimeter.

On the morning of the observation a patient, usually without his breakfast, is placed within the calorimeter where he remains for three or four hours. He finds himself on a comfortable bed in a well-ventilated box about the size of the lower berth of a sleeping-car. He can amuse himself by looking out of the windows, but since the scenery is monotonous he usually dozes for about half the time and allows his mind to vegetate for the other half. Absolute rest is essential, and the only movements permitted are those connected with turning in bed from time to time. All such movements are registered automatically by a device which is delicate enough to record even the small amount of work done by a man in stroking his mustache.

As the subject lies in the calorimeter the oxidation of the various foodstuffs within his tissues produces a certain amount of heat each hour. Approximately three-fourths of this heat leaves the surface of the body by means of radiation and conduction. This heat is removed from the calorimeter by a system of cooling pipes and is accurately measured by electrical thermometers. About one-fourth of the heat is removed from the body by the vaporization of water from skin and lungs. This water vapor is caught and measured in a sulphuric acid bottle.

If the body temperature should rise, it is obvious that some of the heat produced would be stored in the body itself and not eliminated. The estimation of this heat in short periods is a matter of great technical difficulty since the changes in rectal temperature, which are recorded every four minutes by means of a very accurate electrical thermometer, may not represent the average temperature changes of the body. Other thermometers strapped in the axillae and on the surface of the thorax or abdomen demonstrate that the different parts of the body show temperature curves which are by no means parallel, and that one part of the body may even be cooling while another part is warming. If the body temperature of a man of average size rises 0.5 degree centigrade it means that from 25 to 30 calories have been stored in the body in addition to the calories eliminated from the body. Such large changes, amounting to one-fourth or one-third of the total heat production for an hour, have been observed within an hour, and it is obvious that any inaccuracy in the determination of the average body temperature causes an error in the method of direct calorimetry. While the error may be large in a single hourly period, it becomes very small in an observation lasting three or four hours and seldom exceeds 5 per cent.

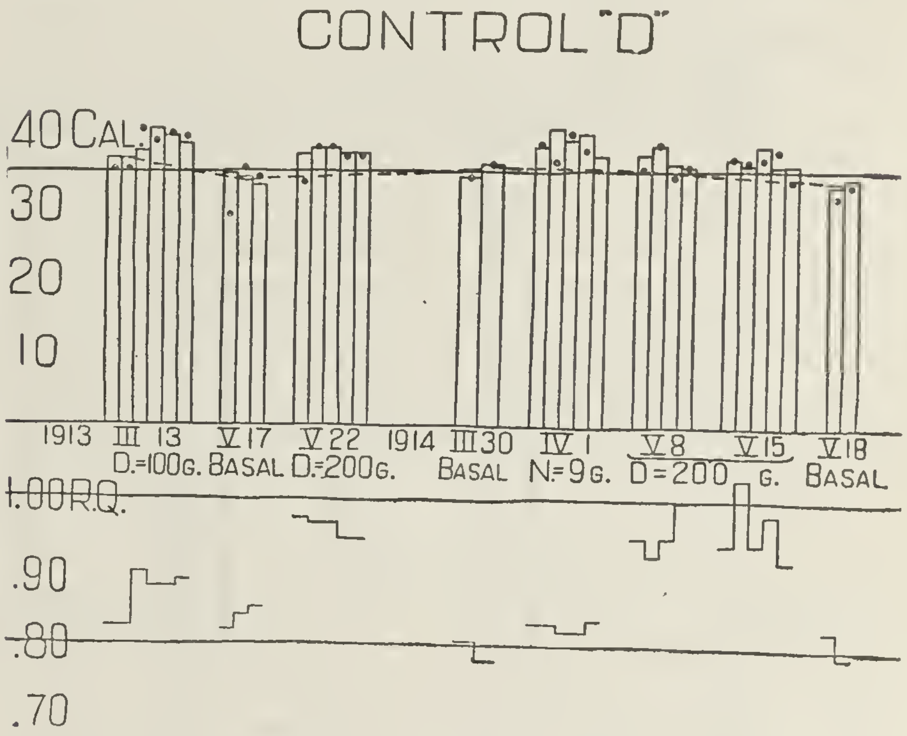

Chart 1.—Control D. Showing the basal metabolism in hourly periods and the effects of food in increasing the heat production. Each column represents the calories per square meter of body surface as determined by the method of indirect calorimetry. The round dot represents the calories as measured by the method of direct calorimetry. *D* stands for glucose; *N*, nitrogen in the form of casein and egg albumin. These were taken approximately one hour before start of observation except on March 13, 1913, when the glucose was taken after the basal metabolism had been determined in two one-hour periods.

The heat production is measured not only by this method of direct calorimetry but also by the more accurate method of indirect calorimetry. The box is ventilated by a rotary fan which sucks the air out of one end of the chamber, drives it through a bottle of sulphuric acid to remove all moisture, then through a bottle of soda lime to remove the carbon dioxid and finally returns the same air, absolutely pure and odorless, to the other end of the calorimeter. As the patient uses up oxygen, this gas is supplied automatically from a small tank. By weighing these various bottles and tanks at the beginning and end of each hour it is a simple matter to determine the carbon dioxid produced and the oxygen consumed. Knowing the relative proportions of these and also the nitrogen of the urine one is able to calculate with great accuracy the grams of protein, fat and carbohydrate oxidized by the patient during that hour. Knowing the heat produced by the oxidation of 1 gm. of each of these substances it becomes a simple matter to calculate the total heat production.

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[*] Read before the Section on Practice of Medicine and the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[*] From the Russell Sage Institute of Pathology in affiliation with the Second Medical Division of Bellevue Hospital.

[1] Atwater and Rosa: Description of a New Respiration Calorimeter. 1899, Bull. 63, U. S. Dept. of Agr. Benedict and Carpenter: Respiration Calorimeter for Studying the Respiratory Exchange and Energy Transformations of Man. Carnegie Instit. Wash., 1910, Pub. 123.

The two methods of direct and indirect calorimetry agree within 5 per cent. in about three-fourths of the experiments, and in many cases the figures are almost identical as is shown in Chart 1, that of one of the normal controls. In the total of all the experiments so far calculated, involving the measurement of 23,000 calories, the two methods agree within 1.6 per cent. As yet no disease has been found in our somewhat limited series of observations in which there is any consistent disagreement between the two methods. This is a matter of considerable import, since the previous work in the study of the heat production in disease has been done almost exclusively by the method of indirect calorimetry. The agreement of the two methods shows that the calculations by indirect calorimetry have not been vitiated by any profound and unsuspected changes in the intermediary metabolism.

It is comparatively easy to determine the total metabolism but difficult to find the exact normal figure with which to compare the results. We have measured the basal heat-production of a number of normal persons of varying weights and have grouped them with the normal controls examined by Benedict in his bed calorimeter, all determinations being made on individuals at complete rest, from fourteen to sixteen hours after the last meal. It will be seen in Chart 2 that if we express the metabolism in terms of calories per square meters of the body surface per hour, the results will group themselves close to the average figure of 34.2 irrespective of the body-weight. The dotted line represents the average of forty-nine normal controls studied by various types of apparatus in many laboratories. It is evident that the level is the same for persons whose weights are between 40 and 50 kg. (from 88 to 110 pounds) as for those whose weights are between 60 and 70 kg. (from 132 to 154 pounds). On the other hand, if we express the results in terms of calories per kilogram per day we have a line of averages which falls steadily as the weight increases. In order to have a single base-line which need not be changed for persons of varying weights we therefore compare all our results with the average normal figure of 34.2 calories per square meter per hour.

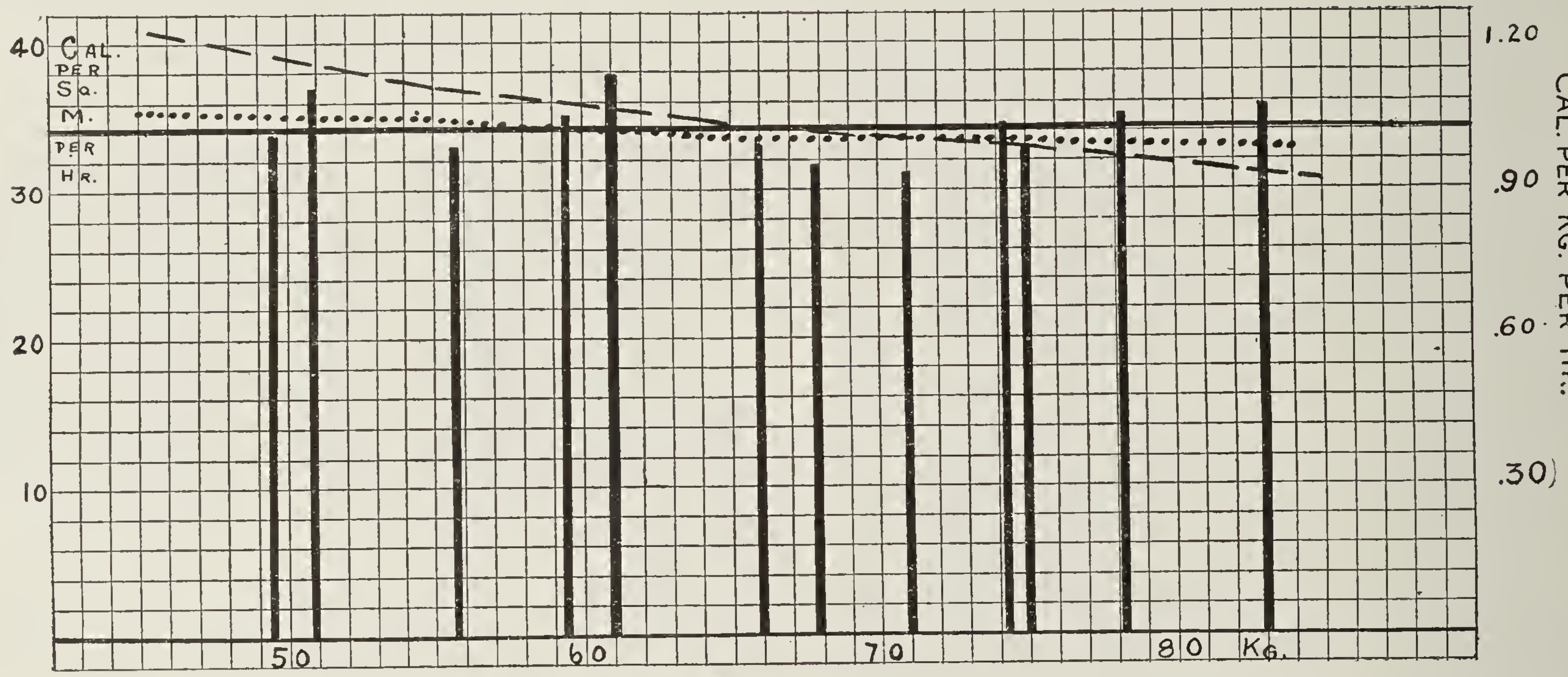

Chart 2.—Basal metabolism of normal men from fourteen to sixteen hours after the last meal. Columns represent calories per square meter per hour produced by subjects in bed calorimeter. Horizontal line drawn at 34.2, the average. Interrupted lines represent averages of 49 normal controls studied with various types of respiration apparatus, arranged in five groups according to weight. Dotted line shows the results expressed according to surface area. Dash line represents the same 49 controls with the results expressed in terms of calories per kilogram per day.

While the metabolism of a given individual remains fairly constant for years, there may be a variation among normal men of 10 per cent. above or 10 per cent. below the average. Further study will perhaps show even a greater variation. The metabolism is increased in childhood, diminished in old age, and probably depends, to a great extent, on the nutrition of the body and the mass of active protoplasm. Nevertheless, Rubner's law that the metabolism of different individuals and different species of animals is proportional to surface area does hold good within certain limits. These limits may be wide when we try to compare the metabolism of babies, guinea-pigs, athletes and fat men, but, as we have shown above, the limits are narrow for a group of men of approximately normal build.

Voit and Rubner demonstrated the fact that the taking of food raised the heat production, and the term of specific dynamic action was applied to this phenomenon. The cause of this was little understood until Lusk[2] studied the matter in great detail, making hourly determination of the heat production of dogs in the small Cornell calorimeter. His work on dogs has been duplicated on normal men as nearly as the human stomach will permit, but, of necessity, the amounts of food are relatively smaller and the increases in heat production distinctly less marked. Chart 1 shows the basal metabolism of control D and the effects of glucose and protein meals. The increase after glucose amounts to from 8 to 10 per cent. and after protein to 12 per cent.

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[2] Lusk: Animal Calorimetry, Papers II, III, V, VI, Jour. Biol. Chem., 1912, xii, 349; xiii, 27, 155, 185; Cause of the Specific Dynamic Action of Protein, Arch. Int. Med., December, 1913, p. 485; The Specific Dynamic Action of the Foodstuffs, this issue, p. 824.

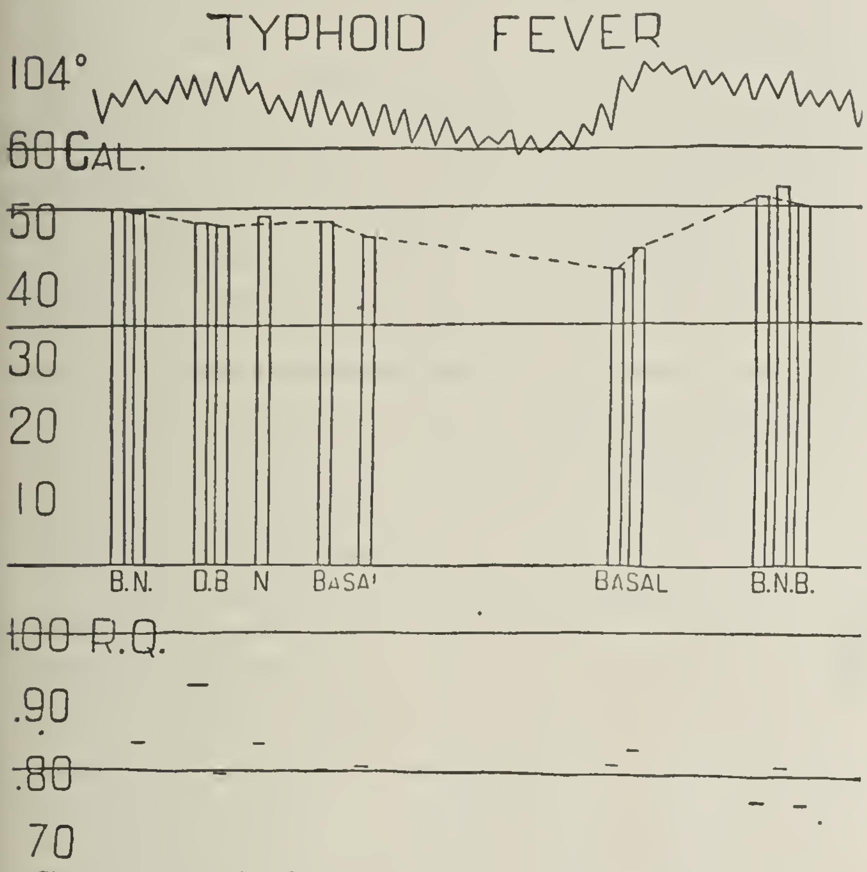

Chart 3.—Typhoid fever, "Morris S." Basal determinations, *B* connected by dash line. *N*, protein meal. *D*, from 100 to 200 gm. of glucose. Results expressed in averages.

Since the time of Voit and Pettenkofer a great deal of work has been done on the subject of the respiratory metabolism and total heat production in disease. Magnus-Levy[3] established the fact that in exophthalmic goiter the energy requirement was greatly increased even to a point as high as from 50 to 70 per cent. above the normal and showed that in cretinism and myxedema the heat production might be as low as from 45 to 50 per cent. below the normal. Kraus,[4] Grafe,[5] Rolly[6] and others demonstrated that in typhoid fever the metabolism was raised to from 30 to 40 per cent. above the normal. Grafe[7] has recently shown that the heat production is low in certain stuporous conditions and increased in lymphatic leukemia and cancer. The total heat production in diabetes has been studied by many observers with varying results, but Benedict and Joslin,[8] using the calorimeters in Boston, have shown that in cases of severe diabetes with acidosis there is an increase in metabolism.

The study of the metabolism in typhoid fever and the effects of the high-calory diet was begun in Bellevue Hospital in 1911 in association with Dr. Warren Coleman. The small Benedict apparatus was used and the calculations were made according to the method of indirect calorimetry. A summary of the results will be presented by Dr. Coleman[9] in another Section but it may be stated that the heat production of the patients was not raised by the administration of large amounts of food during the height of the fever. The matter seemed so important that it demanded investigation by the use of the calorimeter.

Observations were therefore made on nine typhoid patients during the course of the fever and convalescence. The first part of the results on one patient, who was in the calorimeter twenty-two times, is shown in Chart 3. This patient enjoyed the work with the calorimeter. His original infection was by no means mild and he had one relapse which was severe and a second relapse which scarcely interrupted a rapid convalescence. Throughout the disease he was so well nourished that his weight remained practically constant.

It will be noticed that during the fever his total metabolism was from 40 to 50 per cent. above the average normal and that it was scarcely increased at all on the days when the observations were made shortly after the ingestion of 100 gm. of glucose or 64 gm. of protein. A study of the nitrogen in the urine in this and three other cases shows that the percentage of calories derived from protein during fever when the patients were fasting was seldom raised above the upper normal limit of 20 per cent., although one patient early in his disease derived 28 per cent. of the calories from protein.

As the temperature falls the total metabolism diminishes and the percentage of calories derived from protein drops to 10 or 15 per cent. During convalescence heat production may be from 20 to 30 per cent. above normal, and at this stage glucose and protein exert as great a specific dynamic action as in health.

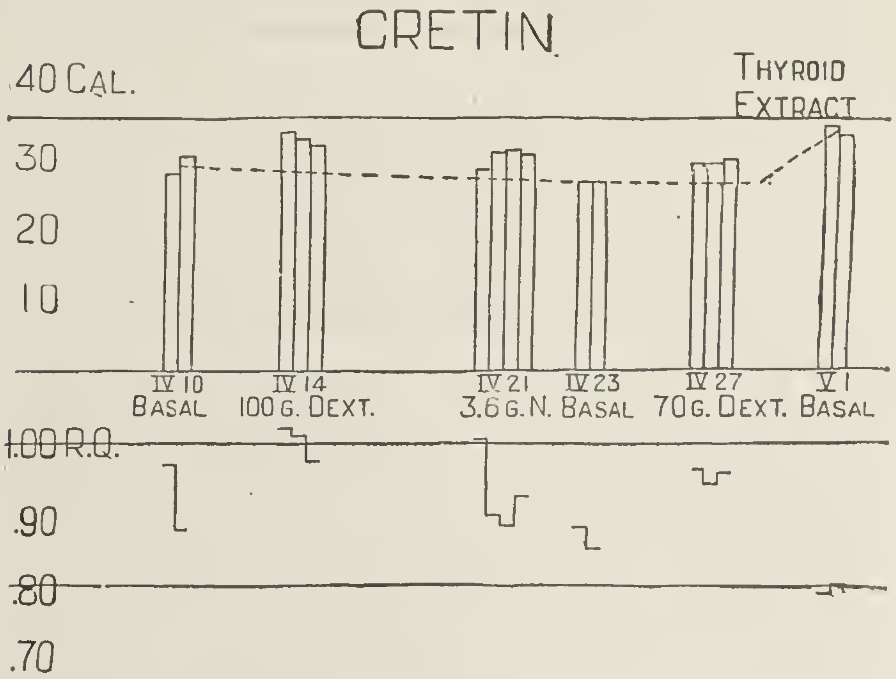

Chart 4.—Cretinism results expressed in hourly periods. Thyroid-extract treatment begun two days before last observation.

The diseases of the thyroid gland have been studied with particular interest since the level of the total metabolism seems to be the best index of the activity of the thyroid secretion. In one cretin who was 36 years old but had the mental and physical development of a child of 8, the total energy requirement was from

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3. Magnus-Levy: Gaswechsel bei Thyroiden, Berl. klin. Wchnschr., 1895, xxxii, 650; Ueber Myxödema, Ztschr. f. klin. Med., 1904, lii, 201.

4. Kraus, Fr.: Ueber den respiratorischen Gasaustausch im Fieber, Ztschr. f. klin. Med., 1890, xvi, 160.

5. Grafe: Untersuchungen über den Stoff- und Kraftwechsel im Fieber, Deutsch. Arch. f. klin. Med., 1911, ci, 209.

6. Rolly: Experimentelle Untersuchungen über den Stoffwechsel im Fieber und in der Rekonvalescenz, Deutsch. Arch. f. klin. Med., 1911, ciii, 93.

7. Grafe: Beiträge zur Kenntniss der Stoffwechselverlangsamung bei stuprösen Zuständen, Deutsch. Arch. f. klin. Med., 1911, cii, 15; Die Steigerung des Stoffwechsels bei chronische Leukaemie und ihre Ursachen, Deutsch. Arch. f. klin. Med., 1911, cii, 406; Das Verhalten von Gesamtstoffwechsel und Eiweissumsatz bei Karzinomatösen, Deutsch. med. Wchnschr., 1914, xl, 518.

8. Benedict and Joslin: Metabolism in Diabetes Mellitus, Carnegie Inst. Wash., 1910, Pub. 136; A Study of Metabolism in Severe Diabetes, 1912, ibid, Pub. No. 176.

9. Coleman, W.: The Effects of Food on Metabolism in Typhoid Fever, read in the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

18 to 25 per cent. above the normal but was raised almost to the normal on the third day of treatment with thyroid extract (Chart 4). The specific dynamic action of food was normal in this patient.

A series of seven patients with exophthalmic goiter were studied before and after treatment in an effort to guide the therapeusis in this disease, which is remarkable for the number of "remedies" that do not give relief. Luckily we were able to show some beneficial effects of treatment, although good results were obtained by rest and careful feeding alone. One patient, who had shown moderately severe symptoms for one year, was studied over a considerable period of time. If we look at the results as expressed in Chart 5, we notice that, in marked contrast to the cretin, the metabolism is 80 per cent. above the normal, falling to 60 per cent. on rest and good food. Von Noorden[10] has stated that the specific dynamic action of food and especially of meat is increased in fever and in exophthalmic goiter. We have seen that this was not the case in fever and it was evidently not true of this patient, since his metabolism was not raised even so much as that of a normal man by glucose, casein and meat. After treatment by Dr. S. P. Beebe with his antithyroid serum, there was a distinct improvement in the man's condition and fall in the metabolism. After the first month there was a rise in metabolism to its former level but the general improvement continued perhaps, however, at a slower rate.

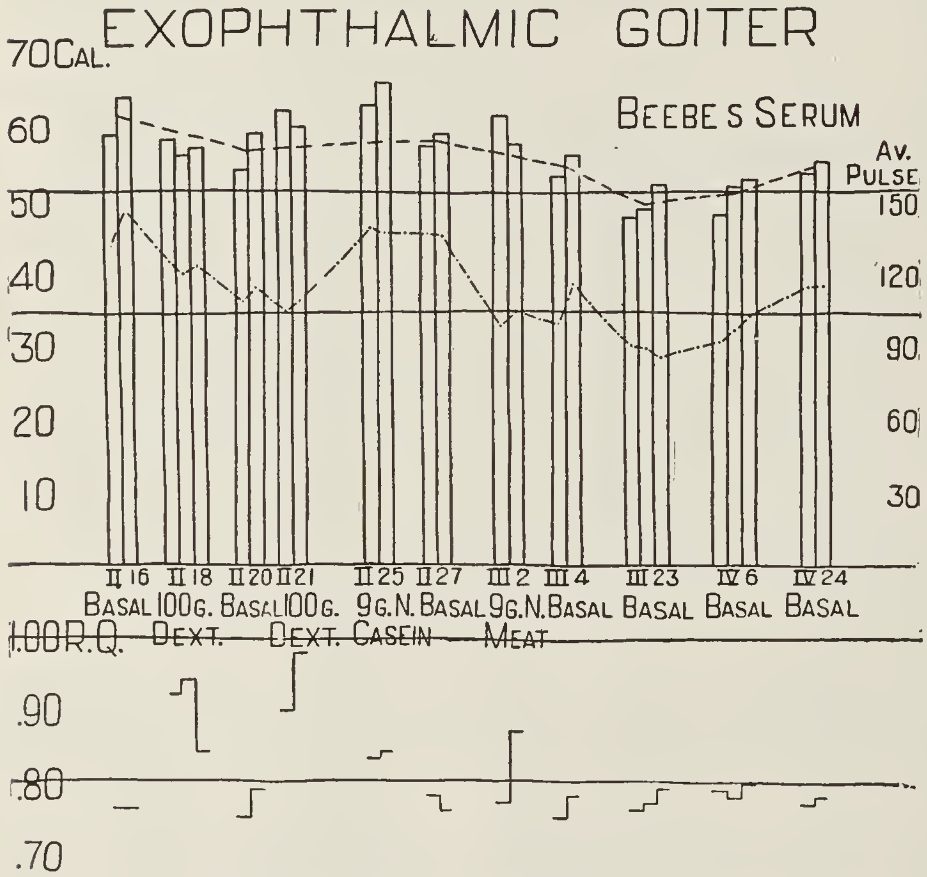

Chart 5.—Exophthalmic goiter. Results shown in hourly periods. Dash line connects basal determinations. Dot-dash line represents average pulse during the period of observation in calorimeter.

A young woman who was up and about, though not quite able to continue her work as trained nurse, showed the extraordinarily high metabolism of 92 per cent. above the normal. After ligation of the arteries by Dr. John Rogers, the metabolism fell to 60 per cent. above the normal and the patient's condition was distinctly improved.

One young woman with a mild case of the disease showed a marked rise in metabolism four days after ligation of the four thyroid arteries, indicating that the operative procedure had temporarily increased the activity of the gland. Later there was distinct improvement in her general condition and a fall in the heat production to its former level.

Other conditions have been studied in a few cases and while the results need confirmation, they are suggestive and may lead to a better understanding of the various factors which influence the heat production in disease. One patient with splenic anemia, whose hemoglobin was 25 per cent., had a metabolism 11 per cent. above the normal; another with pernicious anemia for which a splenectomy had been performed, showed an increased metabolism amounting to 20 and 26 per cent. above the normal, while his hemoglobin was only 20 per cent. This confirms the older work, which demonstrated that there is no diminution of oxidation as a result of the low percentage of hemoglobin. In a patient with nephritis a change in blood-pressure from 195 to 160 caused absolutely no change in heat production. One man with acromegaly had a metabolism 18 per cent. above the normal, another with symptoms of deficiency of the secretion of the posterior lobe of the hypophysis gave results sometimes high and sometimes normal but he was so stupid that he made a very unsatisfactory subject. Another man with malaria was studied at the height of his fever, and also six days later when his attacks were cured. With a temperature of 104 F. the metabolism was 83 per cent. above the average, with a normal temperature 21 per cent. A patient with auricular fibrillation, mitral stenosis and greatly enlarged heart but without orthopnea, was observed three times lying flat on his back and twice propped up with a back-rest. We were astonished to find the metabolism which was normal when he was propped up was 8.5 per cent. higher when he was lying down and were even more surprised to observe the same phenomenon in the only normal control we studied in this posture.

The increases due to fever, hyperthyroidism and the like, are probably small compared to the increase caused by muscular work in delirium tremens or convulsions. Even slight restlessness or mild excitement causes a rise in heat production which is distinctly appreciable in the calorimeter.

In conclusion, it may be well to emphasize the fact that the nutrition of a patient depends absolutely on the relationship between his energy production and his food-supply. If the organism fails to obtain food from without it will draw on its own glycogen stores, fat depots and supplies of body protein.

129 East Seventy-Sixth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF MENDEL, FOLIN, LUSK AND DU BOIS

Dr. S. J. Meltzer, New York: For more than thirty years I have been moving on the periphery of laboratory work on one side and clinical medicine on the other side. Well do I remember the wide gulf which separated the laboratory men from the men in clinical medicine. To-day we have heard four men telling of their work in the sciences of medicine and telling it to a large audience, consisting, as far as I can judge, chiefly of men who are active in the practice of medicine. There are reasons for more congratulations. We heard to-day four men telling of their own original work in the scientific part of medicine. In the times gone by the laboratory man was satisfied to discuss work which was done on the other side of the Atlantic; to-day the scientific men in Europe take profound notice of the work done in this country. Again, in the past, laboratory men used to be proud of the fact that they had nothing to do with the practice of medicine. To-day the laboratory men are anxious to do work in fields which are of special interest to the practitioner. Mendel speaks of "gaps and guesses" in scientific reports. I am certain that a thousand years from now "gaps and guesses" will have a prominent place in scientific reports. The gaps which we fill out by our investigations, we do by means of guesses, and they reveal to us new gaps. Liebig's theories are mere guesses for us to-day, to be forgotten. But they were instrumental in filling up many gaps by facts. Theories are of value because they help us to discover facts, and as long as they can do that they are still of value to us. I wish to say to Dr. Mendel that the amboceptor theory of Ehrlich, of which he spoke somewhat disparagingly, has brought out thousands of important facts in immunity, and is still capable of bringing out new facts. I am still more sorry that Dr. Mendel spoke in a somewhat disparaging manner about salvarsan. The synthetic creation of such a specific substance like salvarsan is one of the most wonderful discoveries made in recent times in the sciences and practice of medicine. The discovery by Dr. Mendel in conjunction with Osborne, that butter does contribute to the growth of rats, while lard does not do it, is perhaps the best he has ever made. This discovery was made by the empirical method; they do not tell us on what hypothesis they found it; neither what is the nature of the "vitamin" which differentiates lard from butter. We call this method, when used in science, the inductive method. But it differs from the empirical method which the physician uses merely by the application of criticism. Criticism is here necessary to differentiate the coincidental from the causal connection. Here the physician must learn from the scientist. A patient may get better merely while he is taking a drug and not because he takes it. But there is one point which the scientist has to learn from the physician; it is the principle of *non nocere;* be sure that you do not do any harm. For instance, the knowledge that the minimum diet is of no perceptible immediate harm to animals is no evidence that it will be of no harm, acute or chronic, to human beings. Neither do we know that infants will behave like rats regarding the difference between butter and lard.

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[10] Von Noorden: New Aspects of Diabetes, New York, E. B. Treat & Co., 1912, p. 20.

DR. F. M. POTTENGER, Los Angeles, Cal: Does this difference in the absorption of fats apply to all animals alike, whether herbivorous or carnivorous and also to man?

DR. E. P. JOSLIN, Boston, Mass.: I should like to ask Dr. Lusk if he has an explanation to offer as to why the metabolism is not increased by food in typhoid fever?

DR. ALLAN EUSTIS, New Orleans: I wish to discuss that part of the paper in which Dr. Mendel refers to the amins formed by the putrefaction of the several amino-acids in the intestinal tract. This has a broad practical application in clinical medicine, as each of these amins has its own specific physiologic action, just as the amins from the vegetable kingdom, represented by the alkaloids strychnin, morphin, etc. Tyramin (para-oxyphenylethylamin), which is yielded by tyrosin on putrefaction, is capable of raising the blood-pressure in a dog from 110 to 250 mm., while in man it has produced a rise to 180 mm. I have made application of this fact in treating nearly five hundred cases of arterial hypertension, in which the systolic blood-pressure has been kept down to 140 or 150 mm. by dietetic means alone. It must be remembered that caseinogen of milk yields 7 per cent. of tyrosin on digestion which contra-indicates milk as an ideal food in this condition. Inasmuch as all animal proteins yield large amounts of tyrosin they are also contra-indicated, while the best results will be obtained from a cereal and fruit diet. The clinical application of the formation of histamin (beta-imidazolylethylamin) from histidin can be made in the treatment of bronchial asthma and urticaria. When injected intravenously, this amin causes violent bronchial spasm similar to an attack of asthma, while when rubbed vigorously into the skin a solution of 1:1,000 causes a typical urticarial lesion. Along dietetic lines alone, I have been able to give relief in 168 cases of bronchial asthma and twenty-six cases of urticaria, some of the asthmatics having had the disease for twenty years. A diet for these conditions should be based on the fact that the yield of histidin in the more common types of proteins is: hemoglobin, 10 per cent.; sturin, 12 per cent.; caseinogen, 2.5 per cent.; 2.5 per cent., and gliadin, 1.4 per cent. Articles of diet which yield little or no hisidin may be allowed. It must not be concluded that all cases of arterial hypertension are due to the absorption of tyramin from the intestinal canal, nor that all cases of asthma and urticaria are due to histamin absorption; but it must be admitted that these amins have a decided practical bearing in clinical medicine and must be reckoned with.

DR. DOUGLAS HEAD, Minneapolis: I should like to ask whether any observations have been made as to the effect of butter feeding on heat production in long, thin-chested, enteroptotic persons as compared with those of short, stocky build?

DR. A. J. CARLSON, Chicago: I think you all know that in this particular field America has made a distinct contribution to science. I have been impressed by the interest taken in this symposium by the members of the American Medical Association. If there is anything new of importance in the practice of medicine it is this modern work in nutrition. And it is evident that when the laboratory men really have something to say the clinical men will listen.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: Will Dr. Folin explain one point on which he did not touch? We recognize that in enterodigestion the proteins are split into amino acids. Dr. Folin holds that the amino acids are absorbed directly into the walls of the intestines, a view held by many others. The proteins are carried to each cell and each cell utilizes what is suited to its needs. This I dare say is all right. One point which he should explain, is important. There must be some synthesis of amino acids in the body. The sero-albumin and globulin in the blood are specific proteins, each coming from different sources. These are taken into the blood, and by the brilliant work of Folin and others we are now able to demonstrate the presence of amino acids in the body. Now there must be some synthesis somewhere. We must not lose sight of the fact that enterodigestion is not the only form of digestion that occurs in the animal body. There is in the blood a digestive process as much as in the intestines. A proteolytic ferment is present in the blood, a trypsin and an antitrypsin, and the understanding and the adjustment of the relation of these two factors is one of the great problems of physiologic chemistry.

DR. OTTO FOLIN, Boston, Mass.: Undoubtedly all will agree that the question asked by Dr. Vaughan is too much for even a laboratory worker to attempt to answer. The question that Dr. Vaughan has really asked is "How are tissues formed?" I have discussed the subject of the destruction and the history of protein in the body from the point of view of food and from that of destructive metabolism. The matter has two aspects, a destructive and a constructive; the constructive or the synthesis of protein is synonymous with the formation of tissue itself and is far from the transformation of amino acids into urea. There are two distinct aspects of metabolism. I considered only the destructive processes, the breaking down, and these only as produced by the class of agents sometimes known as enzymes. Frequently enzymes are of the destructive variety. They are hydrolytic and there is a degradation form of reaction. As to the difference between the enzymes and the proteins and the subject of hydrolytic and synthetic ones, all can discuss this part of the subject as well as I can.

DR. GRAHAM LUSK, New York: Replying to Dr. Joslin's question, "Why is there no increased metabolism in typhoid fever after giving an excess of food?" I would call attention to the fact that under normal conditions the basal metabolism is measured by the heat production of a subject whose gastro-intestinal tract is free from food and who is living at an environmental temperature of 26 C. (78.8 F.). If, however, the temperature be lowered there is an increase in the heat production although, under these circumstances, the ingestion of food may now produce no specific dynamic action. Furthermore, it is known that, if the metabolism be increased to a certain point through carbohydrate, the addition of amino acids to the diet may cause no further increase in metabolism. Likewise, it should be remembered that in fever the protein metabolism can never be reduced to the low level present in the normal person, so that when amino-acids enter the organism under these circumstances they tend merely to replace those already breaking down in large quantity. It is therefore apparent why in fever the metabolism may have already been lifted to such a level that ingestion of food causes no further increase.

Dr. Eugene F. Du Bois, New York: A comparison of the metabolism of enteroptotic persons with that of short, stocky men would be interesting, but we have had no opportunity of making such observations. From a theoretical consideration it would seem that the enteroptotic, undernourished persons would have a rather low metabolism, and it would seem that muscular persons would have the higher metabolism. Yet from clinical observations it appears that the enteroptotic persons have the greater energy requirement. We have at times tried to guess the actual heat production of individuals and groups of patients but have found that sometimes we were as much as 25 per cent. from the true figures as determined by the calorimeter.

COMMON ERRORS IN GALL-TRACT SURGERY *

C. E. RUTH, M.D.
DES MOINES, IOWA

An operative technic which gives a low mortality may be far from perfection, especially when relief is not obtained by the patient from the trouble for which the operation was done, or when other calamities must be endured by the patient which are a direct result of the operation.

In no class of operative procedures for non-malignant conditions are secondary operations required in so large a percentage as in those done on the gall-tracts. In no class of abdominal work is the temptation greater for inefficient or incomplete work, and in none is complete work more difficult than that encountered in many of these cases. Stones in the common duct, at or near the lower end, are found and removed successfully by only a very few operators. The amateur aspirant to surgical honors and perquisites can safely drain a large readily accessible gall-bladder, and if perchance he find a stone, that is the end of the matter with him as covering all requirements and obligations.

I am reminded that once I opened the abdomen, after having done several thousand abdominal sections, and examined carefully for gall-stones and did not find any, but at post-mortem four weeks later seventeen stones were found in the gall-bladder and one in the ampulla of Vater.

At another time when doing an abdominal section for other causes I confirmed by direct palpation a previously made diagnosis of gall-stones, but six months later when the patient came to operation for removal of the gall-stones, I could not even find a gall-bladder, but encountered pancreatic calculi amounting to over a thousand grains, forming a complete cast of the entire pancreatic duct system. These I was able, with great difficulty, to remove successfully through incisions in the pancreas after opening through the gastrohepatic fold of mesentery, which enabled me to reach the affected organ after displacing the stomach downward. I am convinced that no operation for relief of supposed pathology in the biliary tracts is completed without an examination of the pancreas.

The large number of secondary gall-tract operations is due to errors in diagnosis, failure to remove all calculi, allowing the drainage to close while infection is still active, and failure to remove the gall-bladder in all cases in which there is not a free communication or passage in both directions through the cystic duct, provided the common duct is freely patent.

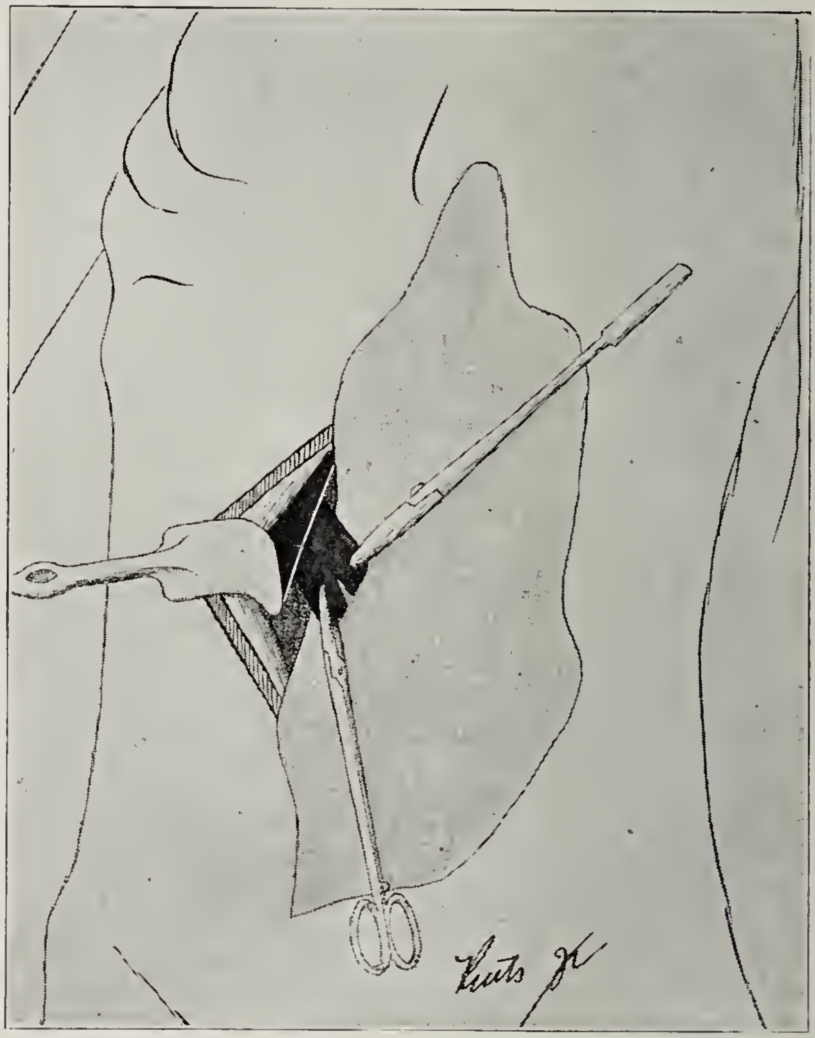

Fig. 1.—Author's technic. Method of incising gall-bladder, the fundus being grasped by flat forceps.

Bile may often pass quite readily from the common duct into the gall-bladder, but returns with much difficulty or not at all by the ordinary contractions of the gall-bladder. In such cases permanent drainage or removal of the gall-bladder can alone afford permanent relief. The removal of the gall-bladder or its entire mucosa down close to the junction with the common duct is imperative to make relief permanent and obviate drainage annoyance.

In many cases of secondary operations following gall-bladder drainage I find the pyloric end of the stomach, first part of the duodenum, gall-bladder, liver and abdominal wall one continuous mass of adhesions. The result is that such a patient is never free from discomfort by pain, dragging, impaired stomach motility and often partial obstruction of the pylorus, which causes gastric dilatation with its accompanying entertainment. Unnecessary and rough handling of abdominal viscera during operation, unnecessary wiping of endothelial surfaces with gauze (especially dry gauze), extensive and unnecessary spreading of infection over clean territory and making no intelligent use of Nature's preventive material at hand are the principal causes of these deplorable and preventable com-

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

plications. Relief of these patients from the operative complications requires much more skill and represents much more danger and difficulty than to deal properly with the original trouble.

In no case should the gall-bladder be attached directly to the abdominal parietes in drainage operations, because of the traction and dragging so liable subsequently to torture the patient. In all cases the drainage tube placed in the gall-bladder should be large and the margins of the gall-bladder should be inverted so that when the tube is removed the margins of the inverted gall-bladder opening at once collapse and promptly close the drainage (Figs. 3 and 4). However, should the bile show the presence of infection (by culture examination) a tube must at once be replaced and drainage maintained until the infection is under control.

The first or original tube placed in the gall-bladder must be secured by a catgut suture placed in the gall-bladder which will hold at least eight days (Fig. 4). The tube should lie free in the abdomen from where it leaves the gall-bladder to the point where it is to pass through the parietes, and at the latter point it should pass through a stab wound made on purpose for it, and should *never pass* (as is the almost universal custom) *through the main wound* (Fig. 5). The protruding end of the tube should then be connected to a drainage tube long enough to reach a safe distance from the patient (better attach it to the bed rail), where it enters a bottle containing 2 or 3 ounces of 10 per cent. alcohol-carbolic solution, into which the end of the drainage tube is passed so that the end of the tube is kept all the time below the surface of the liquid. This plan enables the main wound to be closed entirely and to remain dry, and in the vast majority of cases primary union can be secured, thus entirely eliminating other preventable complications, namely, suppuration of any part of the main wound, prolonged convalescence and a large percentage of hernias, for which there is *slight, if any, justification* (Fig. 6).

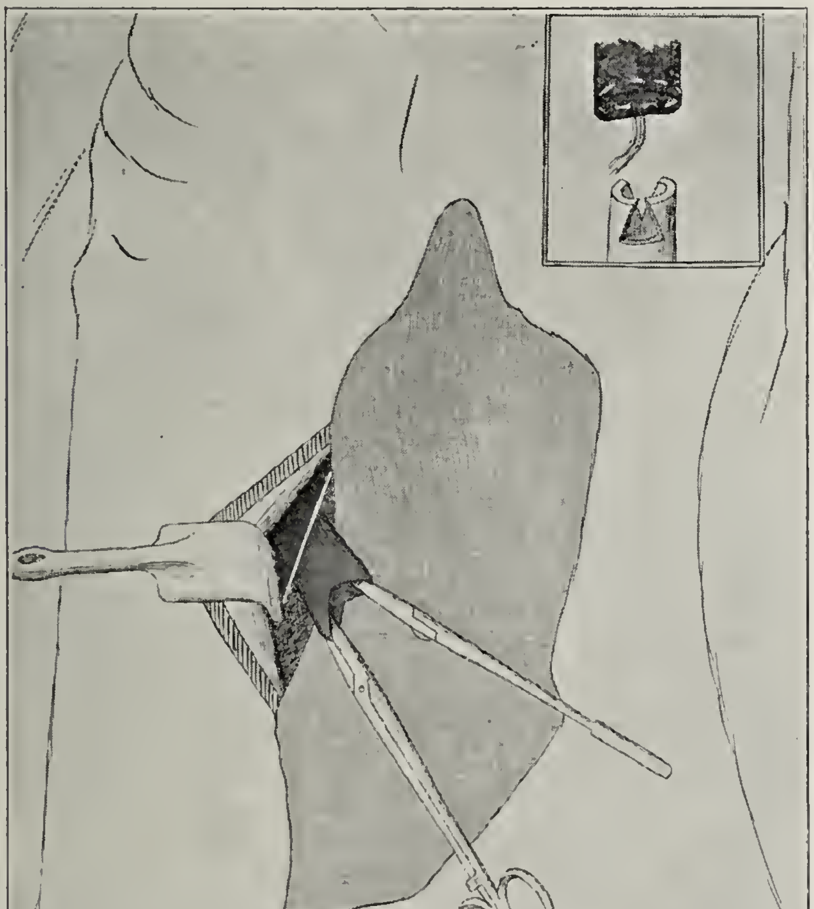

Fig. 2.—Opening in fundus spread, allowing ready access to the interior of the gall-bladder. Method of placing the first row of sutures, and the prepared drainage tube are depicted in the upper corner of the illustration.

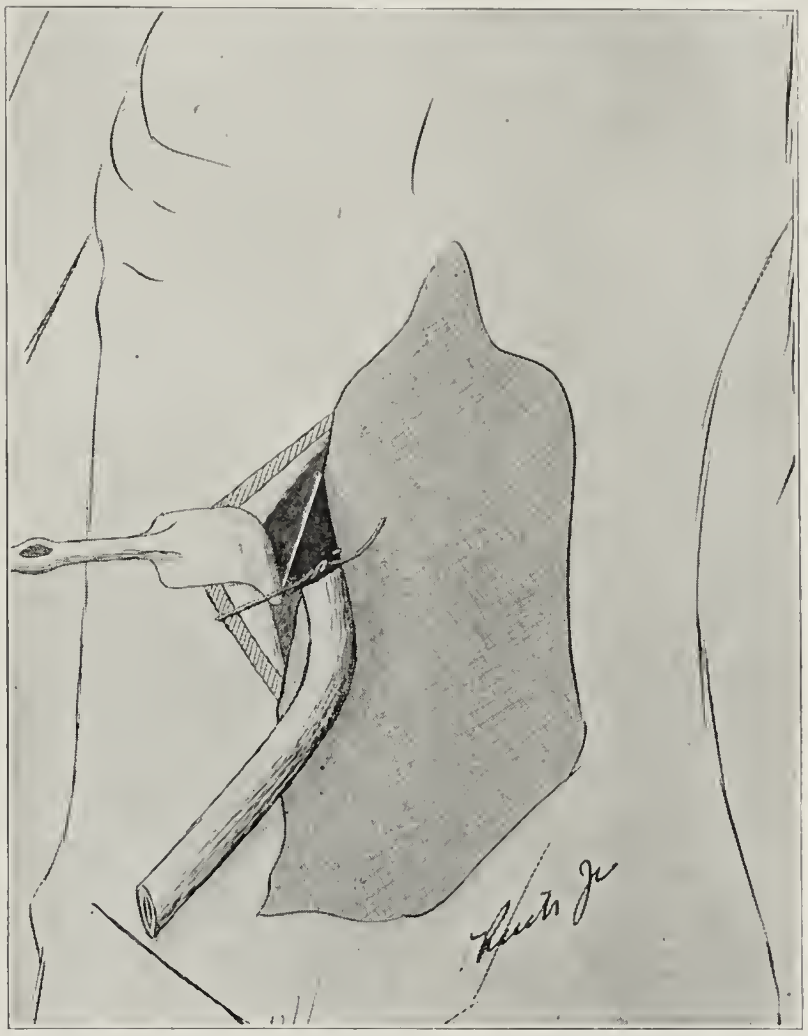

Fig. 3.—Drainage tube *in situ*, and held by the first row of sutures.

The use of the median incision for operating in all gall-tract cases will make it possible at the same time to deal with any other condition or complication in the abdomen through the same, or an extension of the same, incision, while it almost removes the temptation to use the main wound for drainage instead of the stab, say 2 inches to the right, which will give vastly better drainage, particularly with the patient lying on the right side. The time-honored incision through the rectus, straight or bayonet, is much more vascular than the median or near median incision, causing some degree of annoyance in operating, and when anything but a simple drainage of a readily accessible, distended gall-bladder is done, requires enlarging to such a degree that more or less sectioning must be done of the nerve supply to the abdominal wall and rectus with permanent sensory paralysis of a portion so that as one patient expressed it, "I am unable to tell whether I am feeling my own abdomen or some one else's except by sight," to say nothing of increased danger to hernia from imperfect motor and nutritive muscular innervation as well as liability to infection from drainage contact with the line of incision. Many gall-tract cases require appendenctomy, and in women often attention to the uterus or adnexa as well, in which case the median incision or an extension of it enables all to be done through the one incision with no necessity for any complication whatever arising from such extension and with no added operative difficulty. Any gall-tract operation can be done quite as well, and if complicated much better, through the median incision.

Removal of the gall-bladder is seldom difficult if done at the first operation under proper technic or as a secondary procedure, provided infection and trauma have not caused extensive and dense adhesions.

In my own work I prefer to remove the gall-bladder by first clamping the cystic duct between strong forceps close to its junction with the common duct, and then divide the duct between the forceps. The forceps placed on the cystic duct close to the common duct must be made to grasp the cystic artery also. The gall-bladder is then readily separated from the under surface of the liver and entirely removed almost without hemorrhage. In other cases in which adhesions are dense and it is difficult to find and follow the cystic duct, though the gall-bladder is accessible, I have found it easier and better to follow the gall-bladder and cystic duct downward from the fundus, splitting the bladder and duct all the way down. In this way I have found it easy to trace and the hemorrhage was slight. When the termination of the duct is found, it and the gall-bladder may be dealt with as above, or the mucosa of the cystic duct may be ligated close to the mouth of the duct, all the balance of the mucosa removed and the two outer coats closed over all, leaving a smooth peritoneal surface. This is as effective as removal and it as safely eliminates the gall-bladder as a subsequent annoyance as does the other plan.

A good-sized drainage tube should, however, be sutured in the bottom of the wound in contact with the point of greatest probability of bile leakage, and the patient should lie on the right side for the first forty-eight hours so that there will be free down-hill drainage through the tube to the outside of the body and no tendency to damming back or overflow through the general peritoneal cavity, but an open canal and no back pressure.

SUMMARY OF OPERATIONS ON THE GALL-TRACT

Case	Age	Stones*	Operation	Complications	Infection	Remarks
1	71	+	Primary	Infarcts in liver, profoundly septic	Not determined	Condition critical; pus; extensive adhesions; patient died†
2	39	+	Secondary	Gastrojejunostomy	Colon bacillus	Extensive adhesions
3	60	+	Primary	Profoundly septic	Not determined	Condition critical; pus
4	36	—	Secondary	....	Mixed, colon bacillus, staphylococcus	Extensive adhesions‡
5	51	+	Primary	Phthisis very adv.	Colon bacillus	Condition critical
6	34	+	Primary	Appendectomy	Colon bacillus	....
7	42	+	Primary	Appendectomy, trachylorrhaphy, perineorrhaphy and hemorrhoidectomy.	Mixed, colon bacillus, staphylococcus	Pus
8	34	—	Primary	Appendectomy and right oophorectomy	Colon bacillus	....
9	35	—	Primary	Appendectomy and ten days later pneumonia	Pure streptococcus	Condition critical
10	39	+	Primary	....	Colon bacillus	Pus
11	50	—	Secondary P. O.	Ventral hernia and extensive adhesions	Not determined	Extensive adhesions§
12	48	+	Primary	Umbilical hernia and later perineorrhaphy and hemorrhoids	Colon bacillus	....
13	36	+	Primary	....	Colon bacillus	....
14	64	+	Primary	Umbilical hernia	Colon bacillus	....
15	53	—	Primary	Visceroptosis	Colon bacillus	....
16	45	—	Primary	Appendectomy	Not determined	....
17	45	+	Primary	Appendectomy	Staphylococcus	....
18	53	—	Primary	Appendectomy, later phlebitis, septic	Mixed, colon bacillus, staphylococcus, streptococcus	Condition critical; extensive adhesions
19	54	+	Primary; secondary P. O.	Ventral hernia and ovariotomy	Colon bacillus	Condition critical; extensive adhesions‖
20	55	—	Primary; secondary P. O.	Hemorrhoidectomy	Not determined	....
21	53	+	Primary	Appendectomy	Colon bacillus slow in clearing up	....
22	27	—	Primary	Appendectomy	Pure staphylococcus	....
23	33	+	Primary	Typhoid fever	Pure typhoid	Condition critical; pus

* In this column + indicates stones, and — no stones. † This was the only death in this series; the other patients recovered. ‡ Mrs. H. L. had one previous cholecystotomy operation for the same condition and required two subsequent operations before recovery was complete and permanent. The last consisted of cholecystectomy. § Mrs. L. E. S. had three previous abdominal sections which were accountable for the ventral hernia. Those three previous operations had been done by the same operator. Conditions unknown to the writer.

‖ The ventral herniotomy complication in this case (Mrs. M. C.) resulted from an abdominal section done by the writer two years previously when an ovariotomy was done for removal of a cyst containing 3 gallons of pus, and her temperature was 103 under profound sepsis.

An additional precaution is the placing of an angular or curved glass tubal connection in the drainage tube which passes through the abdominal wall and connecting the other end with a long tube which is passed into the drainage bottle; and by leaving 1 or 2 inches of the glass connection exposed, the presence or absence of drainage can be at once noted on inspection.

In obstruction of the common duct from inoperable carcinomatous conditions, it is wise to make an anastomosis between the fundus of the gall-bladder and the highest point available in the small intestine.

A small Murphy button properly placed makes an admirable anastomosis connection, though I think it wise to attach a string and piece of gauze to the intestinal side to exert traction on the button and prevent its sticking or perchance falling back into the gall-bladder.

When the gall-bladder is not available as above for switching the biliary current into the intestinal tract, and the common duct is largely lost by removal for malignancy, a soft rubber drainage tube may be inserted into the hepatic end of the common duct and secured by encircling catgut ligature and suture while the other end is inserted into the duodenum passing through the intestinal coats diagonally for ½ to ¾ inch. It should have a silk or linen thread attached to gauze in the intestine and fastened to the lower end of the tube. This will make light traction on the tube in all downward peristalsis, and will finally free the rubber, which will pass with the fecal current, but not before Nature's kindly offices have formed a mucous- and endothelial-lined tube or new duct to convey bile into the intestine.

The function of the gall-bladder being to regulate the tension of the gall circulation and not at all for storage purposes readily accounts for the relative impunity with which it may be removed and the patient suffer no marked inconvenience in its loss.

Avoidance of a return to the old habits of life which caused the original gall-tract infection will usually prevent a return of the conditions which necessitated the first operation, provided the operation be properly done or the patient's condition be such as to warrant a completed operation.

The time has long and forever gone when we operate on the gall-tract simply to remove stones. Recently I drained a gall-bladder for an infection which was only four days old and found that we were dealing with a most intensely vicious, primary, pure streptococcic infection. The progress of this case, however, was favorable until the tenth day when a pneumococcic infection caused complete consolidation of the entire right lung. The latter complication taxed the patient to the utmost and made it impossible to avoid infection of the main wound, which is a rare occurrence in our work, though a good recovery was made.

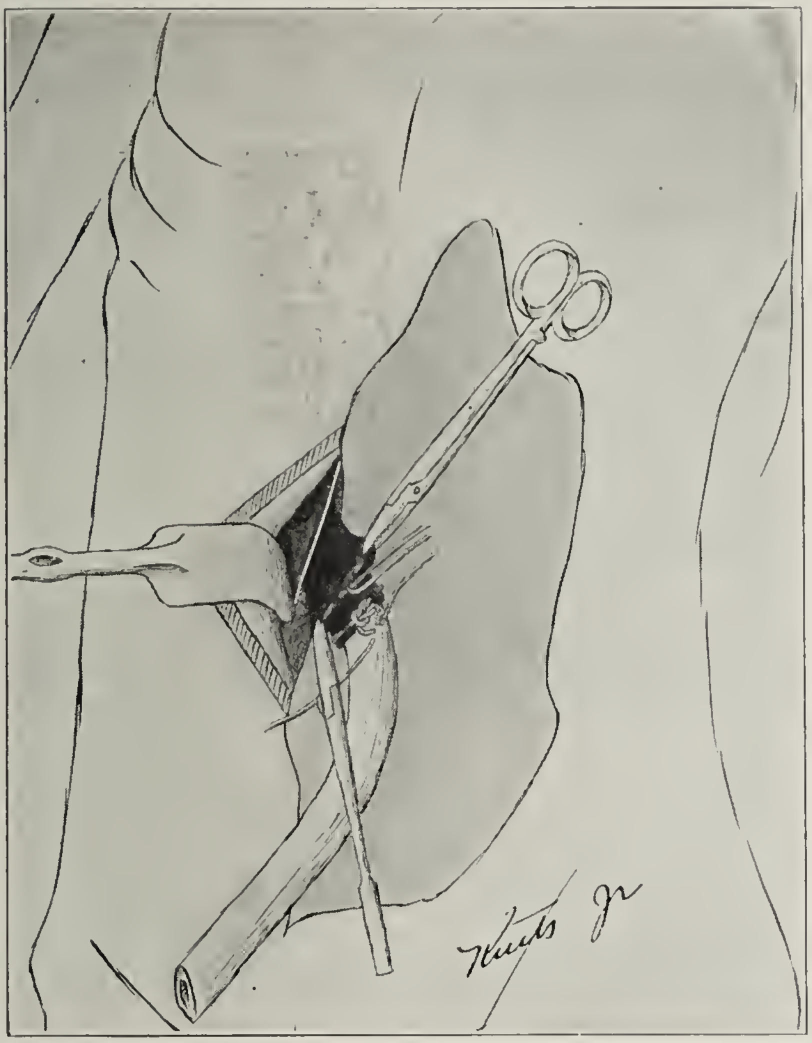

Fig. 4.—Second row of sutures in place and tube ready for inversion into the gall-bladder. Note the suture passing through the tube, insuring against dislodgment by undue traction or other accident. (The suture ends have not been tied and clipped.)

Three cases are of sufficient interest, I think, to justify reporting in some detail:

Case A.—Mrs. L., patient of Dr. Johnson, Alden, Iowa, was operated on about six weeks before she came into my hands, and drainage of the gall-bladder was done, but no stones were found. She was first seen by me Nov. 8, 1912, and operated on in Iowa Falls. She had obtained no relief from the previous operation.

Finding the pyloric end of the stomach and the first part of the duodenum firmly attached to the anterior abdominal wall, I released them and redrained the gall-bladder. Relief was prompt and continued so long as the drainage was maintained, but pain returned at once when the drainage of bile ceased.

She returned to me for operation, Feb. 3, 1913, at which time, dreading to remove the omental graft which I had placed to prevent the duodenum and stomach from uniting to the abdominal wall, and not enjoying the prospect of an enucleation of the gall-bladder because of the adhesions which I knew to be extensive and dense, I decided to drain permanently the gall-bladder into the nearest and most readily accessible part of the intestinal tract; this happened to be the hepatic flexure of the colon.

The anastomosis was made with a small Murphy button with string and gauze in the intestine attached to the bottom. Recovery was without incident save that the button was never found, and she was absolutely free from pain and discomfort for five months, when the pain returned as before.

Examination showed that the cholecystenterostomy anastomosis had practically closed so that drainage of bile into the colon from the gall-bladder was no longer free, and the gall-bladder was found distended with bile which had become sufficiently stagnant within the cystic duct to begin the formation of calculi on a mucous cholesterin precipitate. The gall-bladder was accordingly removed after sectioning and permanently and carefully closing the former attachment to the colon. This plan offered the only apparent hope of permanent relief because the cystic duct patency permitted of tolerably free passage of bile into the gall-bladder but would not allow it to return readily by the same route.

Case B.—Woman, referred by Dr. Will G. Walker, Corydon, Iowa, was operated on in April, 1910, and had two gall-stones removed and some work done on the pelvic organs. March, 1911, she was operated on and another drainage of the gall-bladder was done. Neither operation gave any relief from pain or daily vomiting. She was first operated on by me Dec. 13, 1911, for a small inguinal hernia on the right side. Following this herniotomy she did not vomit for five weeks. Then vomiting returned and was as bad as before.

June 24, 1912, she returned for relief from pain and vomiting. Roentgenoscopy revealed dilatation and ptosis of the

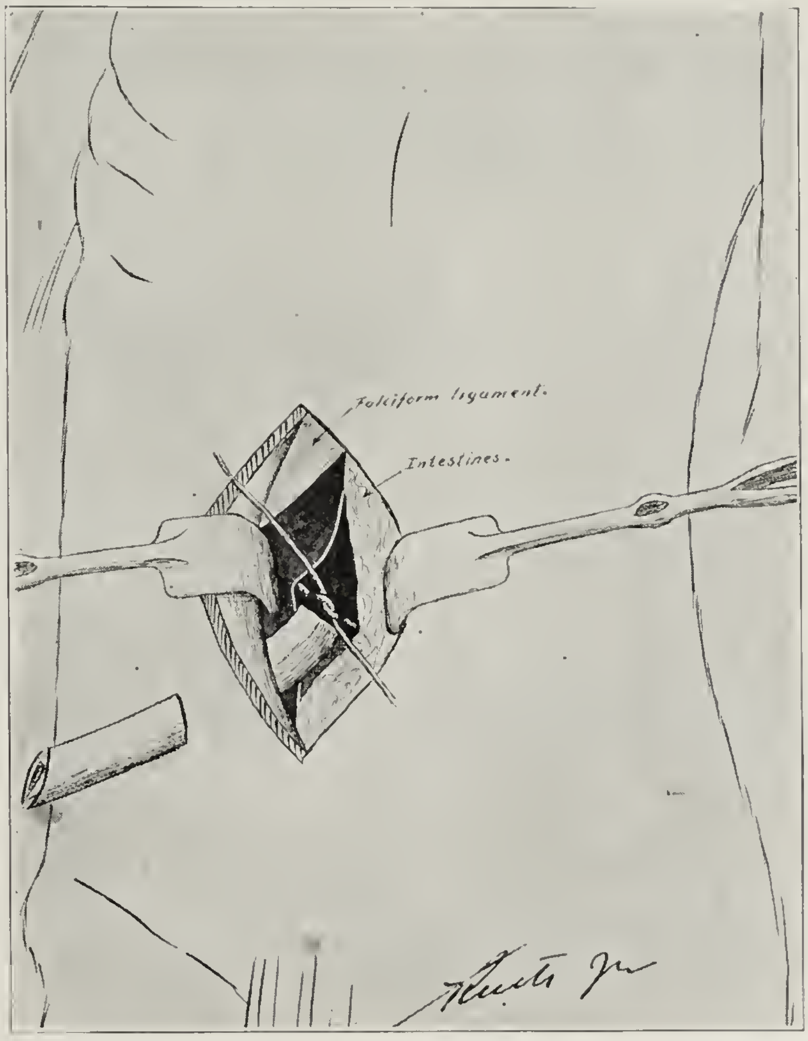

Fig. 5.—Showing position of parts after the tube has been inverted and the free end brought externally through a stab wound. Generally a stitch of silk-worm gut is placed through the skin edges and tube, again insuring against dislodgment of the tube by traction.

greater curvature of the stomach. Impaired motility of the stomach was believed to be due to adhesions. Opening the abdomen disclosed a mass of adhesions so dense and extensive that in the patient's enfeebled condition I lacked the courage to separate them and chose the easier operation, namely, a posterior gastrojejunostomy without loop, in the hope that better drainage of the stomach would control the pain and vomiting. Recovery was prompt and she rapidly gained in flesh and strength, but within a few weeks occasional vomiting and some pain returned, and within five months it was as bad as ever, though on a dry diet she would occasionally gain quite a little for a time in flesh and strength only to lose it again.

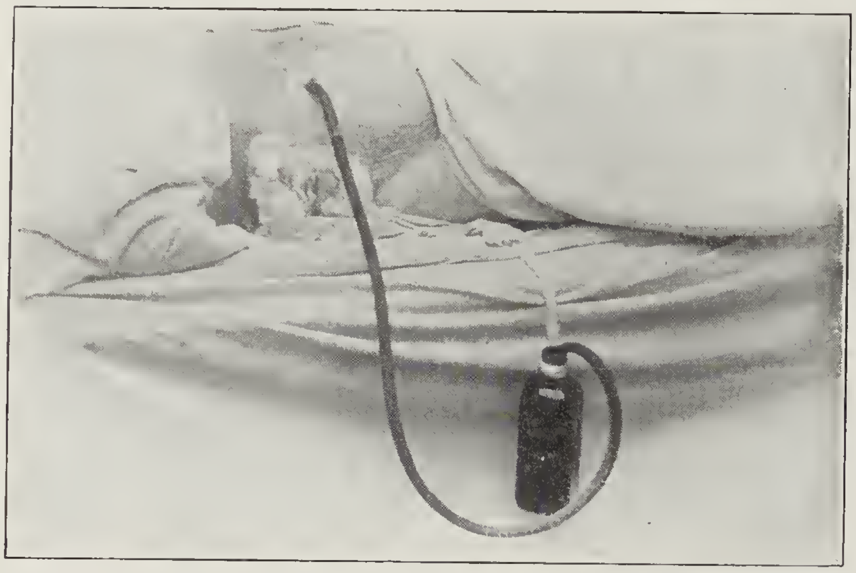

Fig. 6.—Showing arrangement of external drainage system. Skin about median wound remains slightly discolored from iodin stain. Note relation of stab wound to median incision, and the glass connection (sight drain) between drain proper and rubber tubing. Bottle, containing alcohol-phenol solution, should be lower than depicted, thus obviating all danger of kinking the tube at the neck of bottle.

May, 1913, careful examination of stomach after Ewald and motor meals showed only evidence of impaired motility, presumably due to the old adhesions following her first two operations.

July 16, 1913, I separated the most extensive and dense adhesions I have ever seen that were uniting stomach, duodenum, liver and anterior abdominal walls, and then over all the extensive area thus denuded I anchored omentum to prevent reformation of adhesions and limitations of the stomach and duodenal functions. Slight acute dilatation threatened for a couple of days, but yielded to the use of the stomach tube, after which recovery was uneventful and the patient gained about 30 pounds in weight in three or four months, but within eight months there was a return of the old symptoms and loss of all she had gained.

Case C.—Mrs. G., referred by Dr. J. W. Garver, Peru, Iowa, was operated on in January, 1910, for cholelithiasis; in April, 1910, ovariotomy was done; in January, 1911, she was operated on for ventral hernia, and in September, 1911, for appendicitis. She came into my hands July 25, 1912, suffering from severe attacks of pain and vomiting. Pain was vaguely located in her upper abdomen. Her strength, however, was good and she was quite obese. She had dilatation of the stomach, and nearly all the omentum she possessed had been used up in adhesions resulting from previous operations. We had decided on gastrojejunostomy as the safest and surest means of relief, but finding a gall-stone of considerable size, it was removed and drainage of the gall-bladder was done, after which I did my regular posterior gastrojejunostomy without loop, *with rubber dam over the posterior edge of the anastomosis.* She has for nearly two years since operation been free from pain and vomiting, and has made considerable additions to her already abundant adipose.

These cases are presented as object lessons, in the belief that an analysis of the cases in which bad results were obtained or in which the patients were relieved only after four or five operations may help us in reaching the goal at a bound, or at most a second trial, in competent hands instead of repeatedly jeopardizing life in new operative attempts in which the surgeon's operative difficulties have been doubled or even quadrupled by previous bungling.

It is to be hoped that a better understanding of the value and use of the omentum may soon become more general among those who essay the art of surgery, that the stomach and intestines particularly may be less impaired in their subsequent functions after all abdominal work, but especially in the upper abdomen. All friction of a delicate endothelial surface in the abdomen by gauze of any kind must be avoided or reduced to the minimum. Especially must no dry gauze be allowed to *ever come in contact with any endothelial surface* in the abdomen unless it be for the deliberate purpose of destroying or injuring the same and causing adhesions as may be justifiable in attempts to secure *omental* vascular attachments to the abdominal walls in cases of ascites. The slightest contact of dry gauze with any of the endothelial lining of the abdominal cavity will destroy much of its surface.

Carelessness in failure to protect the intestines and omentum from skin contact, now that the use of iodin in skin preparation has become almost universal, is another cause of adhesion complication in otherwise clean and satisfactory operative procedures. It is not an uncommon sight in the operating room to see large masses of abdominal viscera rolled out of the abdomen on a skin surface, but recently painted with Churchill's tincture of iodin.

COMMENT ON OPERATIONS IN TWENTY-THREE CASES

The twenty-three cases in which operation was performed in the few months covered by the report present an average age of 46⅙ years, the oldest patient being 71 and the youngest 27 years of age.

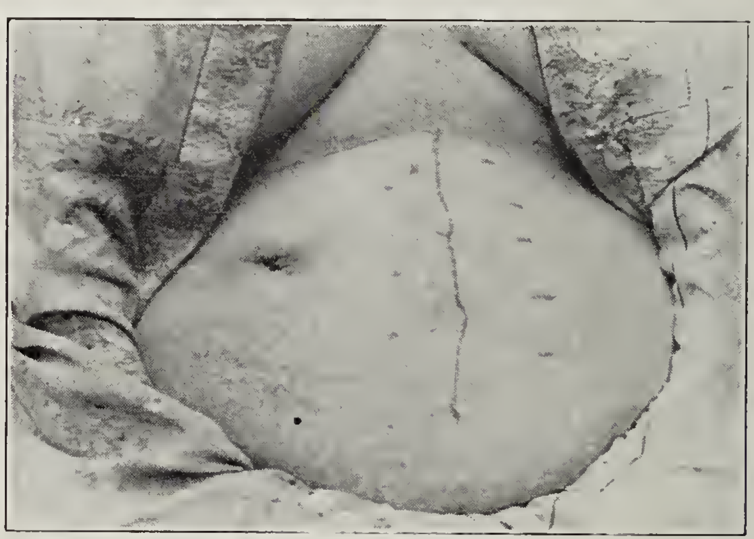

Fig. 7.—Same as Figure 6 (Case 21), showing abdomen after removal of drainage tube.

Seven of the cases are noted as in a critical condition, by which I mean that they were emergency cases as truly as the average acute appendicitis.

One patient, however, was in the last stages of pulmonary tuberculosis and was operated on because of the terrible suffering from the cholelithiasis from which she begged operative relief. She recovered without incident from the operation, but died from tuberculosis soon after her return home. The operation gave her immediate and complete relief from pain.

There was only one fatality, and that in a man aged 71, who had had biliary obstruction for four months, was *in extremis* with profound sepsis and numerous infarcts in the liver, and the gall-bladder showed necrotic points.

Ether was the anesthetic used in all but the tuberculosis case, in which chloroform was given.

The operation time ranged from thirty minutes to one and three-quarter hours, according to the severity, difficulty and number of complications handled.

Gall-stones were found and removed in fourteen cases, no stones in nine. In Case 9, however, while we found no calculi we did find a pure streptococcus infection, and he had a leukocytosis of 62,200, with 90 per cent. of polymorphonuclears. Fifteen cases showed colon bacillus as the infecting organism, three of which had joined company with the staphylococcus, and in one case both streptococci and staphylococci were present.

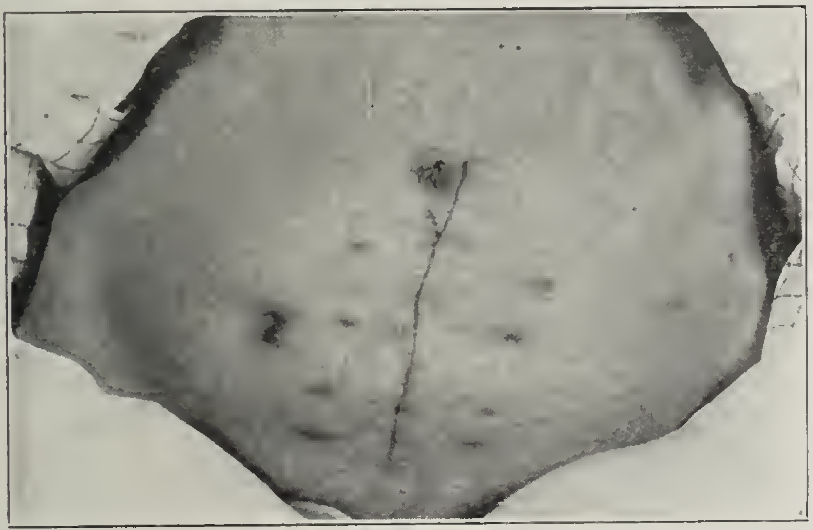
Fig. 8.—Showing applicability of method in case of general suppurative peritonitis complicated by acute dilatation of stomach, with enormous amount of fecal matter in the organ. Patient apparently moribund four days before abdominal section. Although median wound was bathed in purulent matter, union of the parts was obtained without any difficulty.

Other operations and diseases are noted as complications and were present in twenty of the twenty-three cases.

Of these complications nine are appendectomies, two ventral herniotomies, two umbilical herniotomies, two perineorrhaphies, two ovariotomies for ovarian cysts, one trachylorrhaphy, three hemorrhoidectomies and one phlebitis. Three patients had profound sepsis, and in one of these gravely septic cases the gall-bladder mucosa, being necrotic, was removed. In only one case was a cholecystectomy done, and in one the mucosa of the gall-bladder was removed. All cases were drained until the discharge was nearly or quite sterile. In all but three cases the gall-bladder was inverted around the drain and all closed within one week after the drainage tubes were removed, and some did not drain longer than two days after removal of the tube.

One case was complicated by visceroptosis and in that case the ptosed condition received operative attention.

One case developed consolidation of the entire right lung on the tenth day (pneumococcic infection), and in this case the infecting organism in the gall-bladder was a pure primary streptococcus.

In the series of twenty-three cases cholecystotomy was complicated by no less than twenty-nine operative or other conditions of greater or less importance.

If this small number of cases can be said to carry any important lessons for us it would seem to be that cholecystotomy without grave complications should be practically without mortality.

Cholecystotomy is no bar to other operative procedures if the patient is in good condition and the operations be properly done with sufficient dispatch, and whenever possible other important pathologic conditions should be eliminated as far as it is consistent with safety to the patient.

HENRY B. WARD,
STATE UNIVERSITY,

ABSTRACT OF DISCUSSION

Dr. Frederick Cotton, Boston: We all see a lot of cases in which a secondary operation in gall-bladder surgery is necessary, and we all know the difficulty of preventing adhesions. Dr. Ruth spoke particularly of the median incision, which is not the usual incision made. I think we all agree that the old incisions are unnecessary; but as between the more usual incision at the side of the rectus abdominis and the median incision, there are certain grounds for debate. I have used the median incision for a good while in explorations and used the rectus incision for gall-bladder drainage. The danger of hernia is not common unless a duodenal leak occurs. I have seen only one case after digestion of the abdominal wall for weeks from escaping pancreatic juice. Hernia is not a particularly important factor in these upper abdominal cases if good closure is obtained.

Dr. Edward Martin, Philadelphia: Concerning but one or two points in Dr. Ruth's paper there may be a difference of opinion. Surgeons who operate on the liver and ducts may be compared to plumbers. A first-class plumber always leaves something to go back for. With the surgeon this something is not intentional but is incidental to an incomplete preparation and operative diagnosis. In a number of operations for gall-stones they have not been found, or, indeed, anything else which could be bettered by surgical intervention. Under such circumstances if there be no evidence of back pressure, if the gall-bladder is normal and has not been treated brutally, what particular reason is there for drainage? The gall-bladder is easily, quickly and permanently closed, and the wound convalescence is as prompt as is that from any simple incision. Dr. Ruth advocates a median incision. In certain patients with lax abdominal walls the median incision will reach any point; but why we have adhesions, why we fail to find gall-stones, or to diagnose pancreatic conditions, is because we do not provide adequate access, without visceral and parietal trauma. The vertical cut if made in women with fat, full, tense abdomens gives poor access. If made to the inner side of the middle of the rectus muscle it divides no nerve trunks. If made to the outer side it divides the nerve-supply and is followed by atrophy of the rectus segment. Hernia develops and may become a distressing complication. Moreover, a satisfactory closure of the deeper part of the parietal wound is often difficult or impossible. The incision which gives best access, is least destructive and is most readily closed is first a vertical midline cut for primary exploration; then a transverse cutting of the rectus muscle five fingers' breadth above the umbilicus, a splitting of the external oblique, cutting of the internal oblique and a splitting of the transversalis upward and outward toward the costal border. The whole flap is turned up, when the liver and its ducts are entirely accessible for exploration or operation. Under this incision I have exposed and satisfactorily drained an abscess at the very top of the liver not bigger than a small apple. How many operators have been satisfied with closure of a vertical cut in one of the fat, full abdomens, the stitches tearing through the posterior rectal sheath on the slightest tension? The view of such a wound from within the abdomen gives a picture widely differing from that suggested by the final neat skin closure. With the vertical and transverse cut, the stitches hold because the direction of their pull is across that of the muscles and fascia, the wound comes together easily and the ultimate closure is good. Two fingers' breadth above the umbilicus is the usual position of the transverse tendinous lines of the rectus muscle. The suture is somewhat easier if the cut be carried through the line. This is, however, not necessary as mattress sutures readily approximate and hold in place the cut muscle surfaces.

Dr. Philander Harris, Paterson, N. J.: In operating on the gall-bladder for gall-stones I have employed one or other of the vertical or downward incisions. I have operated a few times by the central incision but not sufficiently often to become familiar with it. If I should adopt the central incision I question whether I could so easily deliver a portion of the liver as I can with the vertical incision. Whatever I might say against the central incision would be theoretic and not entitled to any consideration. I have employed nothing but stab-wound drainage in operating for gall-stones in more than eight years. I certainly feel that the best way to get undesirable secretion out of the body is to bring it through a stab-wound incision, getting as far to the right as has been indicated by Dr. Ruth. I do not drain through the incision, nor do I sew the gall-bladder to the peritoneum. The advantage, I believe, of stab-wound exit and efficient drainage established in that manner arises from the fact that it is on lower ground. Unless the patient is turned well to the right it is a decided advantage to have the drainage at the lower point of the incision and to the right of it. The operation might, perhaps, be improved by employing two large tubes instead of one. I have employed twin drainage with stab-wound exit for five years. With the double drainage two tubes come out of the stab-wound exit and from each of them there is a drainage pail. One tube may enter the gall-bladder; the other, any desired place. The gall-bladder is sewed with very fine catgut around the tube which enters it, and the catgut by which the fundus of the bladder adheres to this tube is carried out through the stab-wound by means of the forceps. In the first twenty-four hours blood comes out through the little triangular space. In two or three days the wick is withdrawn and the tubes may be left as long as desired. I believe that the operation of cholecystectomy is gaining ground while the operation of cholecystotomy is taking a less important place.

Dr. D. N. Eisendrath, Chicago: We are passing through the same stage with regard to common-duct surgery that we have passed through with the gall-bladder proper. There was a time when one could only make a diagnosis of gall-stones when the patient had jaundice. That we cannot have common-duct stone without jaundice is a belief that had better be dropped. I find that the secondary cases have been those in which the gall-bladder has been taken out and in which the operator did not have the courage to take out the common duct. It is time for us to decide that when we operate for gall-bladder disease we have to consider also the condition of the common, hepatic and cystic ducts. If I find gall-stones in the gall-bladder it is the last part of my operation. As Dr. Martin said, we cannot get as good exposure of the common duct through the median as through the lateral incision. Kehr, a year ago, reported 54 cases in which he had examined the common duct and in 32 palpation was negative and yet stones were found. In over 50 per cent. of my cases when palpation was negative, by opening the common duct I have found stones. My technic is to leave the gall-bladder alone at the early part of the operation, take a couple of traction sutures and open the common duct between them, explore toward the ampulla and up into the hepatic duct. A considerable number of the so-called secondary operations are due to overlooking common-duct stones. Another element of failure is leaving a gall-bladder in, which ought to have been taken out at the first operation. Taking the gall-bladder out in the secondary operation is most difficult. Everything is so adherent that you cannot get a line of cleavage. This can be avoided if the gall-bladder is taken out primarily. When the common duct is enlarged to the size of the index finger, or its walls are thickened or there are many small stones in the gall-bladder the common duct must be explored. If there is marked pancreatitis, drainage of the common duct is also of much benefit. It has been shown experimentally that at the end of three weeks the bladder, no matter how badly infected, is sterile.

Dr. J. H. Carstens, Detroit: It seems that all these cases depend on circumstances. We can remove the gall-stones, sew up the gall-bladder and drop it back. If there is an infected gall-bladder this cannot be done. It can be done only with the mulberry variety of gall-stones; this I often do. In clean cases I make the incision transversely in the direction of the fibers of the external oblique muscle, separating them and pulling them apart. Then I separate the fibers of the rectus in the opposite direction without cutting them and pull them apart. I separate the transversalis fibers and take hold of the gall-bladder, opening it and remove the stone or stones, and carefully close it, bringing the edges together and amplifying it with a row of Lembert sutures. I then drop the gall-bladder and close the opening in three layers. The incision is always very small. I thus have not cut any nerves and there is no danger of hernia. I make the same incision in ordinary cases, when I want to drain but do not attach the gall-bladder to the incision. In some cases there are extensive adhesions but they have produced no symptoms. I generally can feel the ducts, and if I find no trouble I let the adhesions alone, because if they are broken they may produce new adhesions that will cause serious symptoms. I separate only enough adhesions to get to the top of the gall-bladder, which I open, scoop and float out the gall-stones, and insert a drainage-tube. If I have an infected gall-bladder I do not operate until the acute inflammation has subsided, if possible. Then I make as small an incision as possible, pull up the gall-bladder and stitch it all around to the peritoneum without opening it. I have thus the peritoneum clean and closed and can open the gall-bladder and wash out the gall-stones without danger of infection. Sometimes I also take out the gall-bladder if it is gangrenous, or remove only the lining membrane. As a rule, before I touch the gall-bladder I explore the ducts. If they are pervious and contain no stones I let them alone; if they are large I split them up, but I would not split up every one when there is nothing the matter with it. In some of these cases we also have a loose liver coming down and causing great distress. In such cases I generally scrape the surface of the liver and the anterior peritoneum behind the ribs, shove the liver into place as nearly as possible and then stitch the gall-bladder to the incision, which I make quite high, and it helps materially, I think, to keep the liver in place, although the latter may become sufficiently adherent to relieve the symptoms without the attachment of the gall-bladder.

Dr. John A. McGlinn, Philadelphia: I take the rather advanced stand that gall-stone disease is essentially a surgical and not a medical condition and if diagnosed the stones should be removed. I do not believe that gall-stones may be innocuous for a number of years and no pathology result from their presence or the original cause of the stones. Four years ago I studied and reported observations on the pathologic findings in 506 cases of gall-stones. In all of these cases gross pathologic lesions were found either in the biliary tract or adjacent organs. It is interesting to note that the lesions were practically always multiple. This explains why it is so often necessary to reoperate in gall-stone cases. The tendency is simply to remove the stones when found and not seek for other pathologic lesions. It should be borne in mind that the whole right upper quadrant of the abdomen should be explored in operating for gall-stone disease, so that lesions of various parts of the biliary tract as well as those of adjacent organs can be dealt with.

Dr. F. D. Gray, Jersey City, N. J.: The question of double drainage mentioned by Dr. Harris should, to my mind, only arise under exceptional circumstances. It might be considered when the field of operation has been soiled or when there is uncontrollable oozing of blood. Again there may be a doubt in one's mind whether the sutures will hold in unusually softened tissues with a resultant leakage. If there is any necessity for drainage, except that of the gall-bladder, it appears to me that a drainage tube will, in that location not be sufficient, on account of the tendency of septic fluids to gravitate into the lower abdomen. The most effective thing under these circumstances is to introduce a strip or two of iodoform gauze beneath the gall-bladder (or its stump in cases of cholecystectomy), below which is inserted a layer of dental dam, to prevent adhesions, the whole of which constitutes a coffer dam, as it were, to intercept and carry all drainage fluids to the surface. In my opinion this is more effective than a second tube can be and I have had good results with the method.

Dr. Channing W. Barrett, Chicago: The necessity for the median incision can be done away with by a double incision instead of a compromise one to reach two extreme ends of the abdomen. The compromise incision never reaches either end very well. If the gall-bladder is to be operated on, a 3-inch incision will attend to that. This can be made without injury to the abdominal wall and nerves.

Dr. C. E. Ruth, Des Moines, Iowa: I use the stab-wound drainage because properly used it will never produce hernia. No drainage, however, can be continued through any wound without some infection about it, and for that reason there is a liability that if we use the main wound for drainage we will add to or cause infection that could be avoided. So far as hernia is concerned, possibly it is not common in the East, but it has been with me a source of great trouble, not in my own cases, however. The secondary cases coming to me with hernia are not a few. In determining the time of drainage we have, in practically all our cases for the last year and a half, made repeated cultures before we allowed closure of the wound. We never allowed the wound to close until the primary infection had become decidedly diminished in virulence. The staphylococcus from the skin we try to avoid by taking our cultures far down in the gall-bladder. With reference to stones being the cause, as mentioned by Dr. Martin, for this operation, I believe they are the primary cause of infection. I never object to the straight median incision and I increase the size if necessary to get the space for rolling the liver out. I do object particularly to the old longitudinal incision that starts under the rectus and which, if prolonged, does cause destruction of the nerve-supply to a portion of the abdomen. If one prefers to use two incisions I have no objection, but I prefer one. I have never found it necessary to use more than one, or to curve the incision to the right. I can conceive of the possibility for it, but so far have not found it necessary. There is no question that the use of two tubes when the peritoneum is soiled, is good practice. I have abandoned stitching the gall-bladder to the peritoneum because of the traction. I like the use of the round ligament for the suspension of the gall-bladder.

TREFOIL OR STELLATE KERATECTOMY FOR ANTERIOR STAPHYLOMA *

S. LEWIS ZIEGLER, M.D.

PHILADELPHIA

Keratoplasty has been successfully employed to remedy certain corneal defects, but only a moiety of procedures have been devised to meet the indications present in anterior staphyloma. When a protruding but circumscribed corneal ectasia has proved to be more or less obstructive to the vision, and the remaining tissues of the globe have not been seriously involved in the pathologic process, conservative surgery demands that a mobile globe shall be preserved, and, whenever it is possible, that a modicum of useful vision shall be secured.

To meet these indications I devised, in 1895, a simple form of corneal excision, which I have designated as *trefoil keratectomy*. It is adapted chiefly to those cases in which a limited portion of the cornea is staphylomatous and in which correction of the ectasia can be made by the removal of a three-leaved flap from the lower part of the pendulous cornea (Fig. 1). When, however, the whole cornea is involved and a four-leaved flap must be excised to correct the deformity, the procedure is designated as *stellate keratectomy*.

PRELIMINARY TREATMENT

Full antiseptic precautions should be observed, as most cases of corneal staphyloma are the result of infectious processes, such as trachoma, suppurative conjunctivitis and other mucopurulent discharges. A course of sedative treatment should, therefore, be applied to the palpebral conjunctiva. As many of these cases are complicated by lacrimal blennorrhea or obstruction, it is often necessary to perform rapid dilatation of the tear-duct. If this is indicated, it should be done at least one week prior to the corneal excision. It is often wise to irrigate the nose with an antiseptic wash.

ANESTHESIA

This operation has been performed under cocain-epinephrin anesthesia, but full ether narcosis is to be preferred, since the restlessness of the patient might interfere with the proper introduction of the sutures, or even cause an injury to a transparent lens, if such should be present.

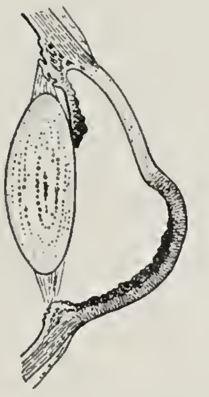
Fig. 1. — Vertical section of anterior staphyloma, showing clear cornea above and ectasia below. The thickened iris-tissue has been glued to the cornea by plastic inflammation.

INSTRUMENTS REQUIRED

In my earlier operations I used a speculum, Graefe knife, fixation forceps, a pair of small, strong scissors, a needle-holder, needles and fine black silk sutures. In cases of emergency an iris forceps, iris scissors, silver spoon and spatula, and a wire loop may be required and should be included on the tray. In a later method I changed the technic by substituting a keratome for the Graefe knife, and a corneal punch (Fig. 2) instead of the scissors. The two methods appear to be equally efficient, although in certain cases the punch cannot be used because of lack of space in which to introduce it.

DESCRIPTION OF OPERATION

Three methods will be described, (*a*) trefoil keratectomy with the scissors, (*b*) trefoil keratectomy with the punch and (*c*) stellate keratectomy with both scissors and punch.

Trefoil Keratectomy

Scissors Method.—First Stage: With the speculum inserted and the globe firmly held by fixation forceps, the operator should first inspect and outline the exact area to be excised (Fig. 3 *A*). The Graefe knife is then passed horizontally through the base of the staphyloma from the temporal to the nasal side, keeping the edge of the blade turned directly forward, as for a Saemisch incision, and drawing it backward and forward but not allowing it to emerge fully until the aqueous fluid has completely escaped (Fig. 3 *B*).

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Second Stage: One blade of the scissors is now introduced beneath the upper margin of the horizontal incision, a little to the right of the center (2 or 3 mm.), and a long vertical incision made. A second converging cut is then made, the same distance to the left of the center, which joins the first at the apex and thus makes a V-shaped incision and opening (Fig. 3 *C*).

Third Stage: The two corners of the opposing wound-margins are successively grasped with the forceps and a triangular piece (Fig. 3 *C*, upper margins) excised by scissors from each corner, thus making a three-leaved opening (Fig. 3 *D*).

Fourth Stage: The vertical wound is closed by two or three fine black silk sutures passed through the opposing wound-margins and tied (Fig. 3 *E*). The horizontal wound is then sutured in like manner (Fig. 3 *F*).

A Kalt suture (linen) may, if preperred, be inserted through the outer layers of the cornea and tied as a mattress-suture. The cut surfaces must be carefully approximated at all points.

Punch Method.—First Stage: A vertical incision is made through the base of the staphyloma with an angular keratome (Fig. 3 *G*), and the inferior blade of the punch is passed into the anterior chamber and beneath the cornea, while the punch is closed with a short, quick thrust, thus excising the left lateral flap (Fig. 3 *G*, shaded part).

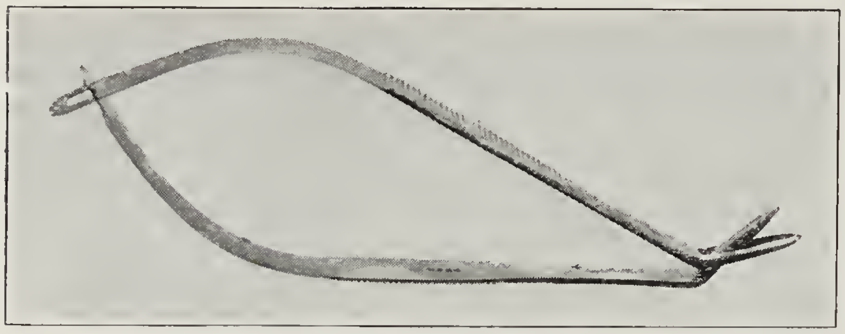

Fig. 2.—Corneal punch, with long oval points. The spring was adapted from McClure's iris scissors.

Second Stage: The punch is removed, introduced on the other side of the wound-edge, and the right lateral flap is excised in the same way (Fig. 3 *H*, shaded part).

Third Stage: The upper margin of this long, oval wound is now grasped at its center by the punch and a vertical piece excised (Fig. 3 *I*, shaded part), leaving a trefoil opening (Fig. 3 *D*).

Fourth Stage: The sutures are now inserted to close first the vertical wound (Fig. 3 *E*) and then the horizontal wound (Fig. 3 *F*), as previously described.

Stellate Keratectomy

This operation is chiefly indicated when the staphyloma involves the whole of the cornea, or when a central mushroom staphyloma has developed. It can be performed either with the knife and scissors or with the keratome and punch, as is preferred.

First Stage: A horizontal incision is made in the center of the cornea, with the Graefe knife or with the keratome (Fig. 3 *J*).

Second Stage: The upper and lower vertical flaps are excised with the scissors or with the punch (Fig. 3 *J*).

Third Stage: In like manner the two horizontal flaps are excised (Fig. 3 *K*).

Fourth Stage: Each section of the stellate[1] incision is closed by a single suture, and a central mattress-suture is finally inserted.

COMPLICATIONS

If, by chance, abnormally high tension should cause extrusion of the lens, or if vision can be improved by the removal of a cataractous lens, the loop or the silver spoon should be used for this purpose and the toilet of the wound made before tying the sutures. If it seems possible to improve the vision by iridectomy or by De Wecker's irito-ectomy, this may be done before the wound is closed, but *pari passu,* it is better to postpone such an attempt until after healing has occurred.

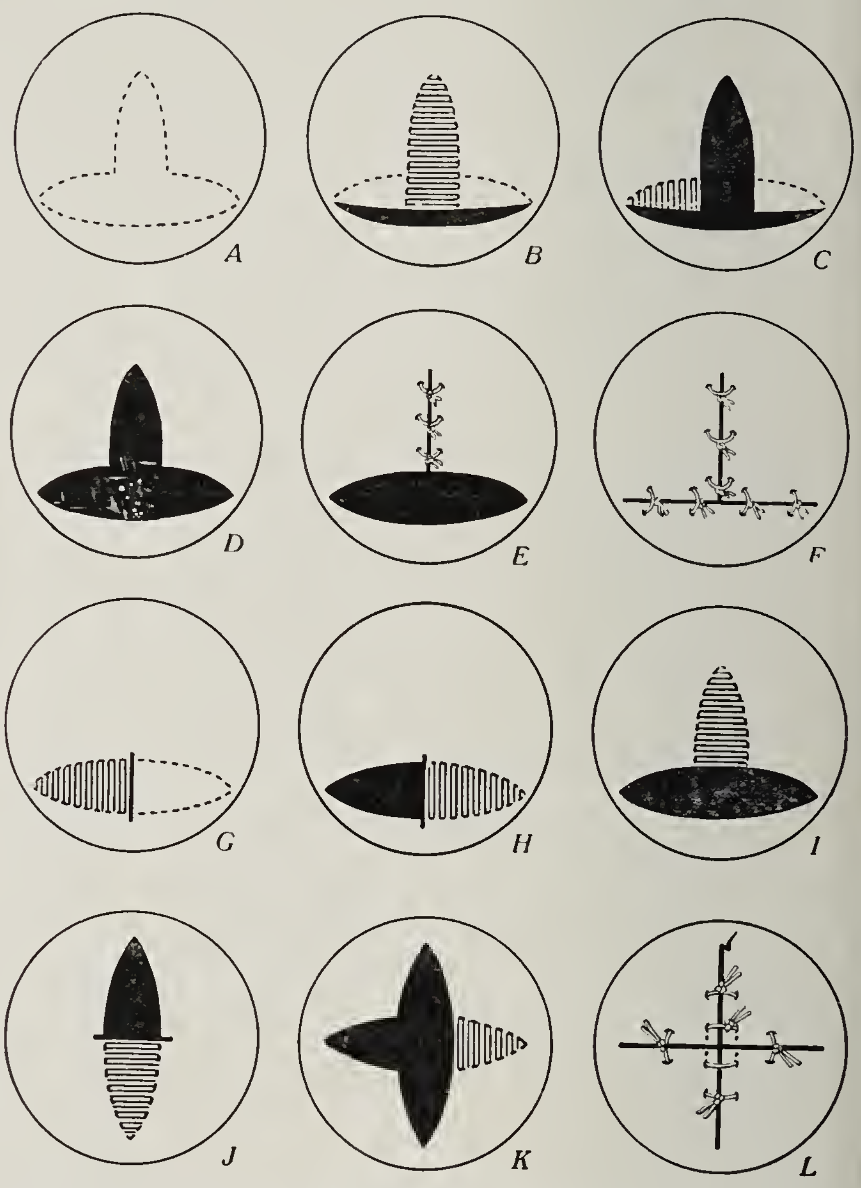

Fig. 3.—Incisions and sutures for both trefoil and stellate keratectomy; *A,* three-leaved flaps outlined; *B,* corneal incision below, *à la* Saemisch, shaded part of upper flap ready for removal; *C,* upper flap excised, left tip shaded; *D,* trefoil keratectomy completed; *E,* vertical wound sutured; *F,* both vertical and horizontal wounds sutured; *G,* vertical keratome incision for punch operation, left flap shaded; *H,* left flap excised, right shaded; *I,* right and left flaps excised, upper flap shaded; *J,* horizontal keratome incision for stellate keratectomy, upper flap excised, lower one shaded; *K,* upper, lower and left flaps excised, right flap shaded for removal; *L,* stellate keratectomy completed and sutures inserted.

POSTOPERATIVE TREATMENT

Mercuric chlorid ointment should be inserted into the conjunctival culdesac and a light bandage with a cresol solution compress adjusted. A slow-healing wound may be stimulated by touching it with a weak solution of silver nitrate. An infected wound should have an application of liquor formaldehydi, 0.5 per cent., and ice-pads should be applied. A wound that slightly gapes or shows other irregularity should receive a gentle touch with the hot galvanocautery point.

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[1] Since preparing this paper my attention has been called to the star-shaped incision of Attias, recently devised and published in the Ophthalmoscope, January, 1914. His sutures cross over from the upper right flap to the lower left flap and vice versa.

REPORT OF CASES

I shall briefly cite three interesting examples of this keratoplastic procedure in types that are quite diverse, the first occurring in an extremely attenuated cornea that had yielded to a superficial necrosis through the erosive action of a blennorrhea, the second in a cornea that was practically normal except in the ectatic area involved, and the third in a cornea that was greatly thickened by plastic deposit and made staphylomatous by the increased intra-ocular tension behind it.

Case 1.—Margaret M., aged 19, was first seen by me during an attack of typhoid fever, March 17, 1895, in consultation with Dr. George Morley Marshall, the present otologist at St. Joseph's Hospital, who was at that time in charge of the medical service. There was primary infection of the ethmoid and antrum, with secondary involvement of the ears and eyes, the former through an infectious otitis media purulenta and the latter through a profuse blennorrhea of the lacrimal sac, which kept both eyes bathed in a purulent discharge in spite of free irrigation and ice-padding. The left eye showed multiple areas of corneal ulceration with some ectasia. The cornea of the right eye was markedly involved by sloughing keratitis. One week later it was found necessary to perform a Saemisch incision in the right eye to check the corneal slough, but the globe proceeded to shrink and was finally enucleated, June 10, 1895, at which time rapid dilatation of both tear-ducts was performed, *ad maximum.*

Oct. 28, 1895, an examination of the left eye showed adherent leukoma with marked anterior staphyloma, the ectasia being very thin and bulging forward below, as illustrated in Figure 1, while a small area of clear cornea was still preserved along the upper margin. The eyelids could not be closed over the staphyloma. The vision was limited to light perception and light projection. There was no discharge present.

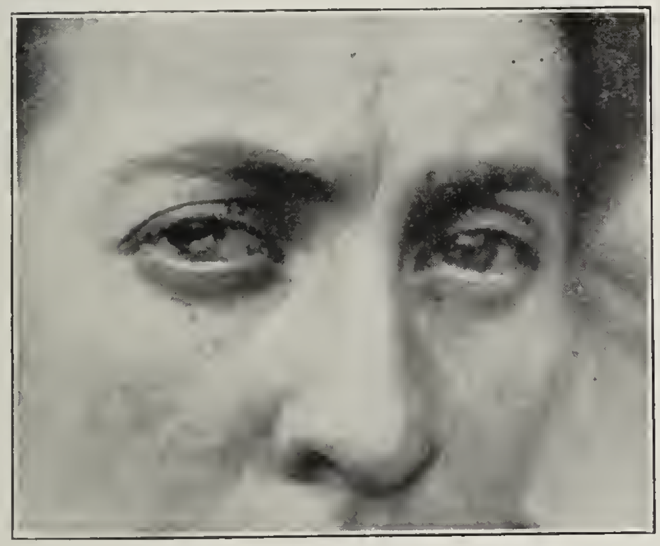

Fig. 4 (Case 2).—Result of keratectomy in the right eye; clear cornea above; flat leukoma below; final vision 20/100.

As the patient had been able to count fingers before the pupil was drawn into the scar, and as the globe seemed to be healthy, I decided to make a plastic operation on the cornea. Ether was administered and trefoil keratectomy was performed, the primary incision being made with a Graefe knife through the base of the staphyloma, after which a large vertical flap was cut out with the scissors and the two lateral tips later excised. The iris was freed from above. The corneal wound was closed by fine black silk sutures, the vertical first, and the horizontal last. Healing was uneventful and the cornea became nicely flattened. Vision had recovered to the degree of 10/200 at the time of patient's discharge from the hospital.

Case 2.—Mary McC., aged 19, applied to Wills Eye Hospital March 20, 1908, suffering from corneal staphyloma of the right eye, down and in. Scar was somewhat weakened at lower margin. Cornea was clear above. The globe was not involved. Tension + 1. Iris was adherent to the scar. The lesion was the result of a blow received during childhood. Iridectomy was performed by me four years ago.

April 24, 1908, patient was admitted to the hospital during the internship of Dr. J. Milton Griscom, at present assistant surgeon to the hospital, to whom I am indebted for these notes. Trefoil keratectomy was performed and the wound sutured.

May 1, 1908, sutures were removed.

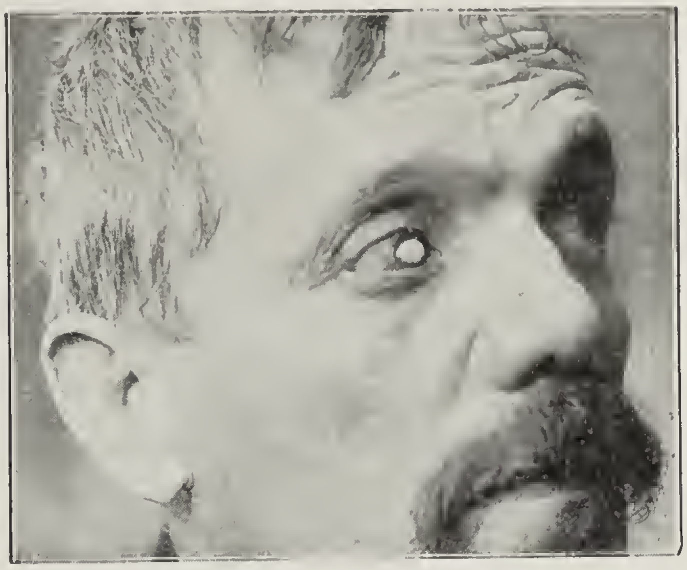

Fig. 5 (Case 3).—Large leathery staphyloma excised in the right eye, leaving a well-flattened cornea.

May 3, 1908, shallow anterior chamber, due to a small break in the line of the wound.

May 5, 1908, deep anterior chamber. Wound closed.

May 20, 1908, patient was discharged cured. Cornea was firm and flattened. Vision 20/100. The present appearance of the right eye is well shown in Figure 4.

Case 3.—Alphonso R., miner, aged 47, came to Wills Eye Hospital, Dec. 4, 1908, with ulcerative keratitis and adherent leukoma, the result of severe traumatism from a flying piece of steel, six weeks before. Perforating ulcer, 3 by 4 mm.

Dec. 6, 1908, Stilling's operation with lead style and rapid dilatation of tear-duct was performed to eliminate the danger of lacrimal infection.

Jan. 13, 1909, iridectomy was made for visual purposes.

Jan. 29, 1909, patient was discharged without visual improvement.

July 12, 1909, patient returned with large staphyloma of cornea at the site of the old scar. Marked interstitial thickening of the cornea, which resembled leather in looks and feeling. Tension was + 2. Under ether anesthesia three triangular areas were excised with the corneal punch (trefoil keratectomy) and the necessary sutures inserted. The sudden release of intra-ocular pressure caused the lens to be extruded, but no other complication ensued.

Aug. 20, 1909: Recovery was uneventful. Patient was discharged with a well-flattened scar but no improvement in vision. Figure 5 shows the appearance of the eye at that time.

1625 Walnut Street.

ABSTRACT OF DISCUSSION

Dr. John Green, Jr., St. Louis: The surgery of corneal staphyloma dates from the Alexandrian period of Greek and Roman civilization. It is not surprising that these beauty-loving peoples should have devised methods to diminish a deformity which, in its higher degrees, is irksome to the victim and repulsive to those with whom he comes in contact. The method adopted was that of ligation: A needle bearing a doubled thread was passed through the base of the staphyloma; the needle then was cut off, and the tumor tightly enclosed within the bight of the thread above and below. The method was modified by passing needles similarly armed, at right angles, then tying off the tumor in four sections. Beer, in 1805, proposed and practiced simple abscission, without suturing the gaping wound. Critchett, 1863, in order to retain a part of the vitreous, passed curved needles through the sclera and ciliary body, entering above and emerging below the staphyloma, which was then abscised. Knapp, 1868, modified the method by quilting his sutures horizontally through the conjunctiva and episclera. DeWecker, 1873, circumcised the conjunctiva at the base of the staphyloma, abscised the protruding mass and drew the conjunctiva together with a purse-string suture. The outcome of these various operations is often very satisfactory: a globular mass of varying size, freely movable by reason of undisturbed muscular attachments. The artificial eye is often remarkably lifelike, fully as prominent as its fellow and with really extraordinary lateral and vertical mobility.

It has been contended, and with some justice, that in the case of laborers, a blind eye, even though unsightly, that is painless and free from congestion, is better for the individual than the best prothesis. If then, a protruding staphylomatous mass can be flattened by operation, and the result be a quiet blind eye, only disfigured by a flat scar, it is pertinent to inquire whether such a procedure may not only be justifiable but also definitely indicated. For partial staphyloma Dr. Ziegler's trefoil keratectomy appeals to me as an excellent measure. It seems possible that the technic might be simplified by omitting the approximating sutures and covering the cornea with a double pedunculated conjunctival flap. Possibly a double overlying flap, drawn from either side of the cornea (similar to Francis' double flap for scleral wounds) might serve still better. More and more ophthalmic surgeons are using these flaps to great advantage in both linear and jagged wounds of the cornea, and I see no reason why such a flap should not be serviceable in the condition under discussion. The indications for stellate keratectomy for total staphyloma in a blind eye seem to me far less clear. I should feel that an eye so operated on was somewhat of a menace to its fellow. I should prefer either to leave it alone or to enucleate, with a fat, glass or gold ball implantation in Tenon's capsule.

Dr. John E. Virden, New York: I have had no experience with Dr. Ziegler's operation, but in connection with partial staphyloma I have had recently two or three pleasing experiences without surgery in cases of early staphyloma of the cornea, in which I followed a suggestion I read, by some foreign authority; that is, the dropping into the eye three times a day of a 1:1,000 epinephrin solution, which reduces the tension and allows nature to fill up the gap. I have had two very beautiful recoveries from that procedure.

Dr. S. Lewis Ziegler, Philadelphia: With reference to the use of epinephrin in the treatment of staphyloma, this suggestion was made by my colleague on the staff of Wills Hospital, Dr. Paul J. Pontius, who published a series of cases in the *New York Medical Jorunal,* Sept. 28, 1912. It is a most excellent procedure, but the preparation must be used in full strength (1:1,000) and instilled 3 times a day. It is chiefly applicable to cases of partial or total slough of the cornea, where suppuration has ceased and ectasia is just beginning to manifest itself. Under this treatment the regenerative process will so stiffen the cornea as to prevent the formation of staphyloma. It has proved very successful in my hands. The conditions that I referred to in my paper were not the conditions that Dr. Green mentioned in the first part of his discussion. I was not referring to staphyloma that involved more than the corneal tissue and did not intend to include staphyloma that extended into the ciliary region. The suggestion of covering the wound with conjunctiva I think is an excellent one, if the technic of Kuhnt is followed. On the other hand, there are many cases in which the cornea is so stiffened by reduplication of tissue and formation of plastic deposit that the wound when it is incised does not coaptate and you must draw it together with a suture. The sutures can be put in by my method, by Kalt's or by any of the others. I do not think that we have anything to fear from the use of sutures in this character of tissue, or in other types of leukomatous cornea. They have been used very freely and successfully. I have nothing further to add to the operation except to say that I feel sure those who will try it in the cases indicated will find it a successful procedure, without danger of complications and with great benefit and satisfaction to both patient and surgeon.

IMMUNITY IN MEASLES

Charles S. Woods, M.D., Iowa City, Iowa

Hektoen[1] concluded from his study of experimental measles that "the virus of measles is present in the blood of patients with typical measles some time at least during the first thirty hours of the eruption."

It would seem that Hektoen's experiments prove beyond a doubt that measles may be transmitted by injecting the blood of a person having measles into another person in normal health. One would expect, therefore, that infants *in utero* would be liable to contract measles if the mother should happen to have the disease during pregnancy. I wish, therefore, briefly to relate an observation which I have had the opportunity of making on this point. About seven years ago I called to see a woman who presented the usual signs of measles. She had never had the disease. Two children in the family were just recovering from it. She was in the eighth month of pregnancy. I was greatly concerned and hourly expected a premature birth of the child. The attack of measles was quite typical. The patient was very uncomfortable, chiefly because of the bronchial involvement. She passed through the attack without any unfavorable results. About three weeks later I delivered her of a normal child.

I supposed that the child had acquired the disease from the mother, and perhaps he did. Only recently, however, I have received word from the father that the child had a rather severe attack of measles this spring. And while it is true that measles may attack a person a second, and even a third time, this child while *in utero* must have had the most ideal opportunity for acquiring immunity against this disease. It is generally believed that if a pregnant woman is infected with syphilis late in pregnancy the child usually escapes.

It is impossible to say that this child did not have measles *in utero*. Children have been born with measles, small-pox and certain other diseases which were certainly contracted from the mother.

This case emphasizes the very great difficulty in securing immunity, as well as the remarkable power of the virus of measles to invade the human organism.

RETROPERITONEAL HERNIA DUE TO AN ABERRANT MIDDLE COLIC ARTERY *

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Retroperitoneal hernia is not a common condition, but it occurs with sufficient frequency to warrant a very careful study of its cause, the symptoms it may produce and its treatment. A critical analysis of the whole subject will be found in the monograph written by Sir Berkeley Moynihan entitled "On Retroperitoneal Hernia," a second edition of which was written in collaboration with Mr. J. F. Dobson in 1906. This work contains a very complete bibliography, and the author has narrated in detail many of the cases which have been recorded in the literature. The etiologic factor responsible for the production of this class of hernia has, in the vast majority of instances, been demonstrated to exist in the numerous peritoneal folds and fossae which are produced in the normal development of the intestinal tract and its serous covering. These folds and fossae are formed mainly in four distinct regions. They are as follows:

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Hektoen: Experimental Measles, Jour. Infect. Dis., 1905, ii, 238.

1. Duodenal folds and fossae in the region of the duodenojejunal juncture. Here we have, in addition to a few extremely rare types, the two chief varieties of (*a*) "left duodenal hernia," and (*b*) "right duodenal hernia."

2. Peritoneal folds and pouches in the region of the cecum and vermiform appendix. These are responsible for a considerable variety of cases of "pericecal hernia."

3. The fossa at the base of the mesentery of the sigmoid flexure of the colon. Hernia into this fossa has been described from time to time.

4. The region of the "lesser sac" of peritoneum and the foramen of Winslow. Hernia occurs into the lesser sac of peritoneum through the foramen of Winslow, or again there may be hernia into the lesser sac through an abnormal aperture, as through the lesser omentum, the gastrocolic omentum, the great omentum or the transverse mesocolon.

Among the earlier writers on this subject we have Treitz, Waldeyer, Eppinger, Toldt and Jonnesco. The Hunterian lectures of Treves in 1885 on the anatomy of the intestinal canal and peritoneum in man make a well-known monograph containing a study of the peritoneal fossae. Again Huntington in his exhaustive and beautifully illustrated work on "The Anatomy of the Human Peritoneum and Abdominal Cavity Considered from the Standpoint of Development and Comparative Anatomy" (1903) gives us an account of the various fossae concerned in these forms of internal hernia. The writings of Lockwood and Rolleston and of Berry on this subject may also be referred to.

The frequency of retroperitoneal hernia may be judged from the fact that Moynihan was able to collect from the literature 68 cases of left duodenal hernia, 17 cases of right duodenal hernia, 19 cases of pericecal hernia, 2 cases of intersigmoid hernia and 12 cases of hernia into the foramen of Winslow.

The case recorded in this paper is possibly unique, occurring as it does in connection with an extremely rare abnormality, namely, the existence of an aberrant origin and course of the middle colic artery. In this instance the artery in question arose from the right common iliac artery and proceeded upward to its destination in the transverse colon. In relation to this aberrant vessel a peritoneal pouch was developed which contained the whole of the small intestine. The case is of further interest because, while apparently all cases hitherto recorded were either found accidentally post mortem, or at operation performed for symptoms caused by the hernia (frequently strangulation), in the present instance an operation was undertaken for digestive disturbance due to an hour-glass stomach, and the retroperitoneal hernia found on opening the abdomen was not accountable for any symptom whatever save a slight degree of ileostasis which appeared in the Roentgen-ray findings.

The history of the case is as follows:

J. H., man, aged 60, complained of epigastric pain for three years. As a rule the pain came on some hours after eating, but in this respect the history was somewhat vague. Eighteen months prior to operation he had a severe attack of hemorrhage, vomiting a large quantity of blood, and for several days subsequently blood was passed in the stools. This was the only time at which he suffered from hemorrhage. He had lost weight and there was an excess of free hydrochloric acid in the gastric analysis. There was a tumor situated immediately above and to the left of the umbilicus which, on examination, seemed to be incorporated in the left rectus muscle. The tumor was oval, its long axis being vertical. It was about the size of a large lemon. Roentgenograms after a bismuth meal showed an hour-glass contraction of the stomach with a marked permanent incisura toward the cardiac end. A condition of ileostasis was also noted.

A diagnosis was made of gastric ulcer with cicatricial contraction producing an hour-glass stomach. It was also suggested that a chronic infection of the abdominal parietes had extended from the ulcer, following in all probability a slow perforation with adhesions.

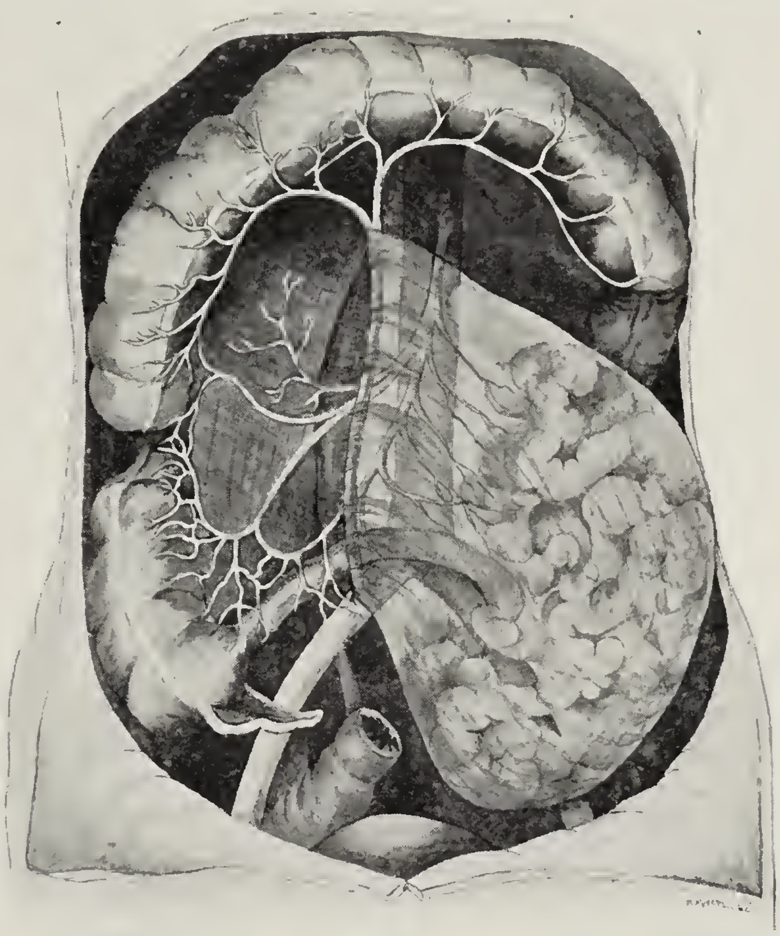

Fig. 1.—Retroperitoneal hernia due to an aberrant middle colic artery. The artist has represented the sac as if it were transparent in order to indicate its relations as described in the text.

The abdomen was opened, the stomach was found adherent to the parietes and the left rectus muscle for about 4 inches of its extent converted into dense cicatricial tissue which cut almost like cartilage. In the attempt to separate the stomach the cavity of that viscus was opened. A clamp was laid flat on the anterior surface and closed so that the adherent portion of the stomach was isolated and further leakage prevented. The stomach was separated from the parietes by removing a slice of the cicatricial tissue of the parietes along with it. A partial gastrectomy was performed between Payr's gastrectomy clamps, and the affected portion of the stomach removed. Immediate anastomosis of the remaining parts of the stomach was now done and the abdominal parietes closed.

This patient exhibited a remarkable condition of internal hernia in which the entire small intestine was contained in the hernial sac. When the abdomen was first opened no small intestine was visible, but one found a large flabby sac occupying a position chiefly in the left lumbar region and extending deep down into the pelvis. The opening of the sac lay immediately to the right of the middle line and was bounded anteriorly on its free margin by a structure which extended from the brim of the pelvis upward towards the transverse colon. On picking up this structure, which felt like a thick cord, one was surprised to find that it pulsated and thus it became obvious that a large artery formed the margin of the opening. By pinching the vessel at two points separated from one another by about an inch, it was quite easy to determine by compression the direction of the blood-flow within the vessel. Pinching at a lower point obliterated the pulse above, while pinching it above had no effect on the pulsation below. It was quite obvious that the current was from below upward, and on further examination we determined that the artery arose from the right common iliac. On examination it also became quite obvious that the artery was distributed to the transverse colon and in fact was an aberrant middle colic artery.

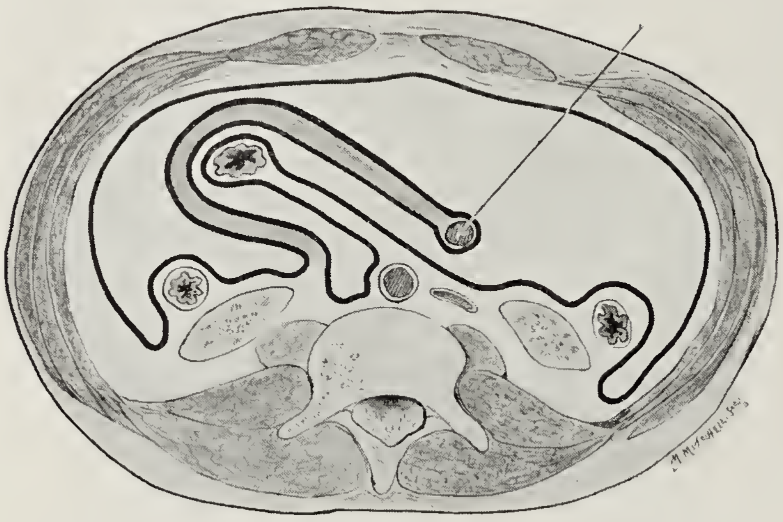
Fig. 2.—Retroperitoneal hernia due to an aberrant middle colic artery (indicated by the arrow). Diagrammatic representation of a transverse section illustrating the relations of the folds of the peritoneum forming the sac.

On examination of the peritoneal sac one found that, with the exception of about 2 inches of the lower end of the ileum which passed out to join the cecum, the entire small intestine was contained within the peritoneal sac. The patient was apparently not suffering any inconvenience from the conditions which one found, and in the belief that in all probability this man, who was now 60 years of age, had had this hernia without inconvenience for the greater part of his life, and further because of the fact that it seemed almost impossible to obliterate the sac efficiently had one thought it necessary to do so, it was determined to leave matters as they were.

The patient made an excellent recovery from his stomach trouble and has remained perfectly well since the operation, which took place about six months ago.

The diagrams which I here reproduce (Figs. 1, 2 and 3) illustrate the position of the hernia and its relations.

The opening of the sac was quite large so that the fingers of one's hand could be thrust within it without difficulty. The intestine was quite readily pulled out of it and there was no constriction placed on the bowel—in fact, it seemed hardly possible for strangulation to occur. The fundus of the sac was quite free so that one could lift it up out of the pelvis, and it seemed as if one could almost shake the intestine out of its acquired bag. The descending colon lay behind the sac, the transverse colon above it and the ascending colon immediately to the right of its neck. The fixed point of the duodenojejunal juncture was entirely within the sac, lying under shelter of its upper portion, and the only piece of small bowel passing through the mouth of the sac was the terminal 2 inches of the ileum where it passed to the ileocecal juncture.

It would appear that the vast majority of cases of retroperitoneal hernia have a very intimate relation to the course of some particular blood-vessel; in course of development the blood-vessels lie in a retroperitoneal position, and as they course to or from the various viscera, which they supply with blood, they maintain their position in the same plane of tissue, passing between the two leaves of the mesentery in reaching the small bowel or running behind the posterior parietal peritoneum to reach such viscera as the ascending colon, which as a rule possesses no mesentery.

In the early embryo of the sixth week the intestinal canal runs a straight course and the blood-vessels are distributed to its various portions as branches of the aorta which proceed to their destination between two folds (right and left) of peritoneum, described as its mesentery. Subsequently this simple arrangement becomes complicated by rotation of the intestine and by the fusion of different layers of peritoneum. The result of these processes is to produce various folds of peritoneum and certain fossae related to these folds. These fossae normally persist in such localities as the duodenojejunal juncture, the ileocecal region, or at the root of the mesentery of the sigmoid. The free margin of the gastrohepatic omentum bounding the foramen of Winslow has a similar origin. In these regions therefore and in relation to these fossae, hernias are prone to develop, and the fossae are deepened as the pressure of loops of bowel is brought to bear on them until eventually large sacs may be formed, accommodating, it may be, many feet of bowel.

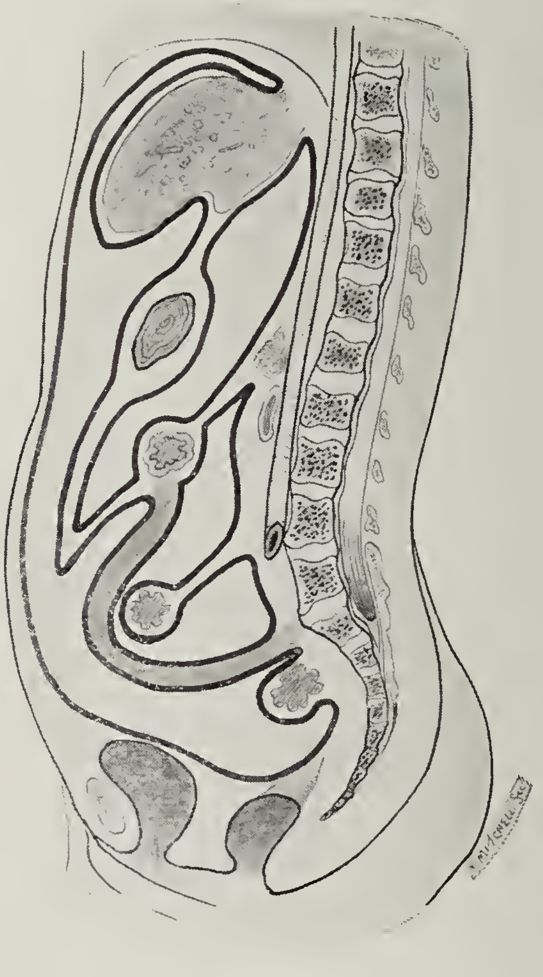
Fig. 3.—Retroperitoneal hernia due to an aberrant middle colic artery. A diagrammatic representation of a sagittal section illustrating the relations of the folds of peritoneum forming the sac.

The fold bounding the neck of the fossa on its anterior or ventral aspect is usually occupied by a blood-vessel, and unquestionably the vessel is responsible in these instances for the production of the fold and the fossa behind it. Hence in the neck of the sac in a retroperitoneal hernia we usually find a blood-vessel which forms its anterior boundary. Thus in "left duodenal hernia" the vessel found on the ventral margin of the orifice of the sac is the inferior mesentery vein to which is, as a rule, closely applied the left colic artery, forming the so-called vascular arch of Treitz. In right duodenal hernia the vessel concerned is the superior mesenteric artery. In pericecal hernia it is the ileocolic or ileo-appendicular artery which lies in the fold bounding the fossa. The sigmoid vessels are similarly related to the neck of the sac in "intersigmoid hernia," and one finds the hepatic artery and portal vein with the bile-duct bounding the foramen of Winslow on its anterior aspect.

We may assume that the aberrant middle colic artery in my case produced a peritoneal fold as it coursed from its origin from the right common iliac artery to its destination in the transverse colon. A fossa occurring in a position posterior to the fold would permit of the formation of a hernia. Hence in this instance the neck of the sac on its anterior aspect contained in its free margin the middle colic artery.

It is a point of great practical importance to note the fact regarding the relationship of large and important blood-vessels to the neck of the sac; otherwise, in cases of strangulation particularly, one might inadvertently sever the vessel in relieving constriction and thus jeopardize the vitality of a large amount of bowel.

The anomalous origin of a "middle mesenteric artery arising from the common iliac and supplying vessels to the transverse and descending colon" has been described by Hyrtl. I have been unable to consult his original paper but a reference to this fact will be found in Quain's "Anatomy," Volume II, Part 2, published in 1899.

Moynihan describes various methods which have been adopted in individual instances to relieve constriction in strangulated hernias of this type so as to deal with it efficiently and yet to preserve the important vessels concerned, without injury. Thus the sac has been opened at a point distant from its orifice. Distended loops of bowel have been punctured and emptied of their contents in order that reduction of the size of the bowel may be accomplished. The intestine is then dislodged from the sac through its orifice. Subsequently obliteration of the sac near its orifice is brought about by sutures introduced in such fashion as to prevent interference with the circulation of blood through the vessel. In one instance the inferior mesenteric vein at the margin of the orifice was cut across but it was found to be thrombosed — presumably collateral circulation had already been sufficiently established to prevent gangrene of the bowel, as the patient recovered.

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ABSTRACT OF DISCUSSION

Dr. Charles A. Powers, Denver: The rare condition which Dr. Primrose has described is unique, and I doubt whether we will ever see a similar case. Dr. Primrose wisely permitted this small intestine occupying the very large sac to remain where it had been lodged for several years. It was doing no harm and the patient made a good recovery. A man of lesser experience and less wise judgment might have attempted a radical cure of this hernia and thereby had a fatal result. The situation found was an unexpected one and emphasizes the fact that when we find conditions of this nature which have existed for a long time within the abdomen and which will probably do no harm, it is our duty to let them alone.

Dr. William B. Coley, New York: I have had no experience with the particular type of intra-abdominal hernia described by Dr. Primrose. He has, however, referred to two cases of intersigmoid hernia reported prior to 1906. I believe my own case, published in the *Annals of Surgery,* July, 1909, is the only one observed in this country. Furthermore, I think my case remains unique from the fact that the hernia occurred in an infant 3 days old. The only symptoms were apparent pain (judging from the almost constant crying of the infant) and gradually increasing distention of the abdomen. When the diagnosis of intestinal obstruction was made, the condition of the child was too desperate to permit of operation. He died shortly afterward. I performed a necropsy, and found practically all of the small intestine in a retroperitoneal pouch in the intersigmoid fossa. An additional point of interest in my case was the fact that the intestine had ruptured and the whole abdomen was filled with its contents.

Dr. E. Wyllys Andrews, Chicago: The most valuable contribution we have in Dr. Primrose's paper is probably the one referred to by Dr. Powers, namely, the impossibility of radical operative procedure in many of these cases. What was not perhaps quite so forcibly emphasized as it might have been is the anatomic fact that every one of these retroperitoneal hernias is a constriction band formed by a blood-vessel. In the foramen of Winslow is the gastrohepatic omentum which contains the hepatic artery. It goes without saying that we dare not interfere with these structures in endeavoring to reduce. We have a left colic and the right colic form, and in all these cases constricting bands seemingly in the blood-vessels, the accidental injury or obstruction of which in relieving the band would cause a gangrene of a segment of the large or small intestine. So not only is it proved that it is the part of wisdom to let these alone when they are not causing obstruction, but it is equally true that it is impossible to relieve the obstruction sometimes when the hernial content is strangulated. We can only make some form of stoma. I refer to this in more detail in the Hernia Section of the American System of Surgery. Ample experience shows that a strangulated hernia, for example, through the foramen of Winslow, cannot be removed. The problem is then of saving life, and that can only be brought about by some method of anastomosis, external or internal. It may become the part of wisdom not to try to reduce the bowel, but to relieve its constriction and distention by some kind of a stoma or anastomosis, or by resection of the gangrene. This is further complicated in diagnosis by the fact that practically none of these cases has ever been diagnosed before operating. They are not hernias which are known and operated on as hernia. They come to us as cases of intestinal obstruction, for which we do an emergency operation. Therefore, in some respects, it seems as if they hardly deserved classification as hernia at all.

The Importance of Observation in Diagnosis.—Which is the worst error, to fail to observe certain conditions, or to observe them and interpret them incorrectly? In the writer's opinion, the first is much the worse error. Observation is a matter of patience, training and thoroughness, in all of which a man may improve himself, but the use which he makes of his observations is partly a matter of his mental equipment. True, he can train his powers of thought and judgment to some extent, but we vary greatly in the quality of our cerebral cells, and the saying of the father of medicine, "Experience is fallacious and judgment difficult," is always true. To observe correctly and decide wrongly is sure to happen to the best of us, but to observe carelessly happens only when we permit it.—Thomas McCrae, *Canadian Med. Assn. Jour.*

FURTHER OBSERVATIONS ON THE HEMIOPIC PUPILLARY REACTION OBTAINED WITH A NEW CLINICAL INSTRUMENT *

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The need of such a test as the hemiopic pupillary reaction, if it holds in cerebral cases any of the topical diagnostic possibilities originally suggested by Heddaeus and later elaborated by Wernicke,[1] is so great that no labor should be spared fully to estimate the value of every promise it may offer.

In a paper[2] before this Section last year a complete historical summary and bibliography were given of this subject and of the Wilbrand test.[3]

PREVIOUS OBSERVATIONS

It will suffice here to recall some cardinal points from the researches of previous observers. Most important was the work of Hess in clearly showing what a great stumbling-block the phenomenon of dispersion light within the eye media had been in both making and interpreting observations, and, since it has been frequently noticed in discussion that this phenomenon is still apparently a hazy concept to many, it may be worth while to dwell on it for a moment. By dispersion light is understood that light which in traveling the media of the eye is diverted by diffraction, refraction, etc., in all directions from the rectilinear path of the ray entering the eye. Dispersion light is strongest immediately about the image on the retina and decreases farther away from the image, but is still strong enough at right angles to the axis of the ray to render the path of the ray visible, if observed in a dark room through a trephined scleral window in the freshly enucleated eye. A somewhat similar phenomenon is commonly observed when a searchlight is seen playing about in different directions on a dark night or when a beam of light passes through water, especially if any turbidity is present. Dispersion light may also be observed in one's own eye entopically when a beam of light is so arranged as to fall entirely on one's blind spot.

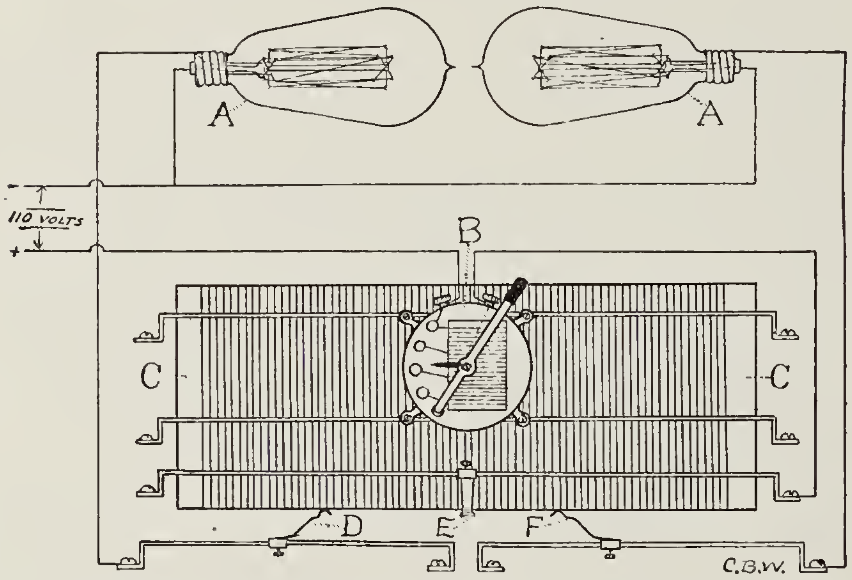

Fig. 1.—Diagram showing method of controlling lighting current in hemiopic pupillary apparatus: *AA'*, 60-watt tungsten lamps; *B*, rheostat controlling house current; *C*, slate slab wound with German silver wire; *D*, *E*, *F*, sliding contacts controlling current supplied to each lamp.

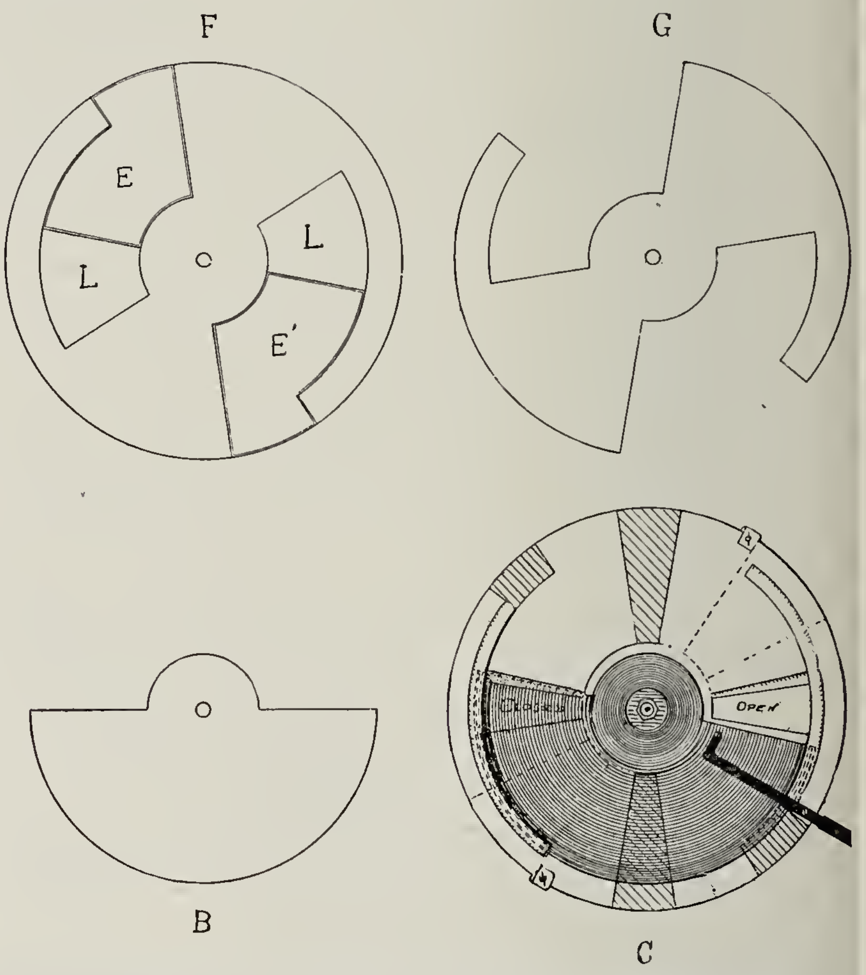

Fig. 2.—Plan of rotary shutter, assembled in *C* from segments *F*, *G* and *B*, in the position where the equal areas *L* and *L'* are cut down to about one-half full size.

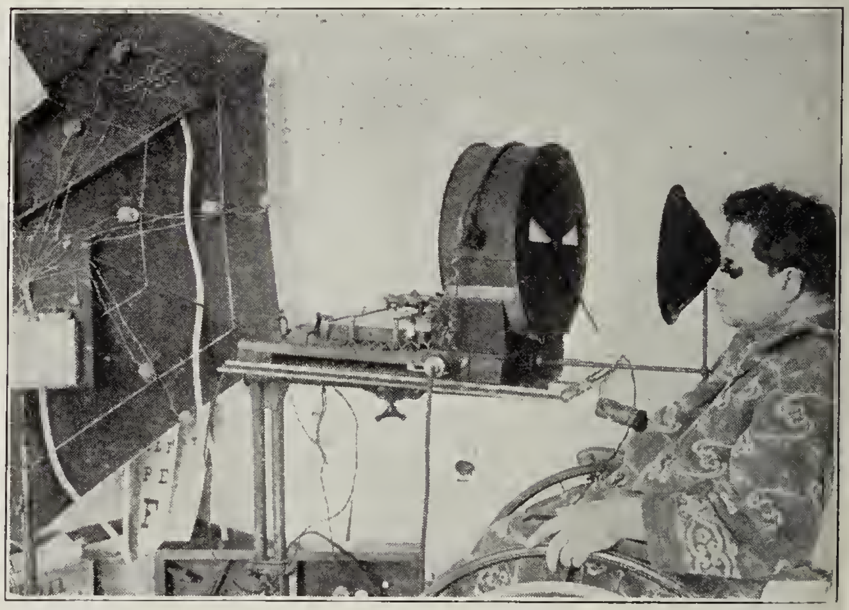

Fig. 3.—Patient in position before the hemiopic pupillary apparatus. At the left a portion of the new apparatus for performing the Wilbrand test on these patients may be seen.

Hess, in one of his crucial experiments, placed a small light on a perimeter-like apparatus so that the light could be moved off or on the blind spot. The consensual pupillary reaction was noted by means of an entopic pupillometer on the other eye. He noted no pupillary reaction when the light was moved concentrically with the fixation point above or below the blind spot onto the seeing retina; indeed, sometimes there was a slight reaction in moving from retina onto blind spot due to reflection from the bright optic disk. If, however, the light was moved slightly toward the fixation point, a marked reaction resulted. Therefore he concluded that a small area about the macula contained all the pupillomotor fibers, so that when a ray of light was thrown on the peripheral retina, the resulting pupillary reaction was due to dispersion light stimulating the macula rather than to direct stimulation of the peripheral retina. Further, he showed that the exact center of the macula was the most sensitive point in the macular region. From a study of these facts it was at once obvious that previous observations were not at all well controlled with respect to dispersion light, the properties of which really constituted the crux of the whole situation.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the surgical clinic of Prof. Harvey Cushing at the Peter Bent Brigham Hospital, Harvard Medical School.

* On account of lack of space this paper has been abbreviated for The Journal. It will appear in full in the Transactions of the Section and in the author's reprints.

[1] In the Wernicke reaction, as the phenomena was later commonly designated, a slender beam of light was thrown on the blind and then on the seeing retina of a hemianopic eye. Briefly, if there was no difference in pupillary reaction the lesion was central or posterior to the corpora quadragеminata and the reflex arc. While if there was a difference in reaction, the lesion was anterior or peripheral, interrupting the reflex arc from the blind retina to the sphincter iris.

[2] Walker, C. B.: Topical Diagnostic Value of the Hemiopic Pupillary Reaction and the Wilbrand Hemianopic Prism Phenomenon, with a New Method of Performing the Latter, The Journal A. M. A., Sept. 27, 1913, p. 1152.

[3] The results of further investigation of the latter subject are too space-consuming to be included in this report, but will be given later.

This fact having been established, the next step was the production of a satisfactory instrument which would perform the test and at the same time control the dispersion light. The latter could not be dispensed with but could be made to affect the macula with constant strength in one of two ways: first, by rotating a light at fixed radius from the fixation point from blind to seeing field, and, secondly, in a "hemikinetic" manner, to use the term of Hess. This involves two equal areas of light, symmetrically disposed about the fixation point, and so arranged that each area may be exposed alternately as the other is closed. The intensity of the areas of life must be controllable about the point of photometric balance, and during the period of change the total area exposed must be constant and equal in amount to the full area of one of the lights. In this way the direction of the light entering the eye may be changed, but the amount of dispersion light reaching the macula remains constant.

Hess devised an instrument of sliding shutter type to accomplish this. Two equal vertical openings of rectangular shape equidistant from the fixation point were illuminated from behind through milk glass. The openings in the sliding shutter which exposed the two areas alternately were so placed that the moment one area began to be cut off the other area was exposed by the same amount. This fulfilled all the conditions except that of symmetry during the period of change, when light is cut off from one side of one area but added to the opposite side of the other area, as is of necessity the case with all plain sliding shutters. The result of this arrangement may be a pupillary jump during the change, since at that instant more dispersion light reaches the macula from one light by addition than is subtracted from the other light. This is most obvious in the mid-position when the two half areas are found to be asymmetrically disposed with respect to the fixation point by exactly one-half the width of either area. Sliding shutters which will be light-tight have a tendency to stick at times and the resulting movement of the whole instrument is then such as to produce an oscillating series of asymmetrical positions. Further to minimize these objections, the areas have to be made as narrow as possible so that a pupillometer must be used to make observations satisfactorily, on account of the low intensity of direct illumination.

In order to obviate the difficulties of symmetry, the rotary shutter described in my last communication was devised and two or three hemiopic reactions were observed with it, but while it solved the problem of symmetry well enough, it was small, crudely made and poorly lighted as compared with the present instrument, so that a pupillometer was necessary to make observations in most cases.

DIFFICULTIES WITH RECENT METHODS

This last point brings up a consideration of some of the difficulties encountered in making observations with the various forms of pupillometers. Questions of pupillary illumination or of observation ability on the part of the patient form a basis for most of these difficulties.

Thus in the entopic pupillometer the patient observes his own consensual pupillary reaction. A dispersion circle limited in size by the pupillary margins is projected on the retina by an encapsulated point source of light fixed close to the eye and with all extraneous light excluded. Any change in the size of the pupil is noticed as an enlargement or contraction of the retinal dispersion circle which is projected into space as a sort of moon or round window of light surrounded by darkness. While the patient notices this phenomenon and reports on it he must also keep his other eye carefully on the point of fixation and pay no attention to the shifting lights in the field of vision. If a field defect is present in both eyes the entire dispersion circle will not be seen except by special arrangement, such, for instance, as was used on the instrument presented last year.

While this method is the most sensitive we have, it has the common error of all monocular pupillometers of damping, as it were, pupillary dilatations, since as dilatation comes on more light is admitted to the eye, producing a tendency to contraction. Conversely, when pupillary contraction comes on, it is exaggerated, more light being excluded. But still more confusing is the peculiar pupillary bounce present at all times with most patients, and probably augmented by the preceding factors together with psychic or perhaps accommodative reflexes, although no change in light intensity has taken place. Altogether, the mental and physical condition of patients with field defects resulting from brain tumors is usually such as to inhibit the individual attention necessary for trustworthy observations with entopic method.

With the objective method, the monocular pupillometer being used, the main difficulty arises from the amount of light necessary to give a good view of the pupil. This degree of illumination is about the same in amount whether it be from the light in a pupillometer such as described in the previous paper,[2] or whether it be daylight or light from any source whatever, and the amount is such that as soon as the pupil is properly illuminated, it is at the same time markedly contracted. Under these conditions when a certain increment of light is added to the light already strongly contracting a pupil, the reaction may be hardly perceptible, while if the same increment of light is thrown on a dark adapted retina the reaction will be very noticeable. If the test lights used on the other eye are not of considerable strength, the stimulation may not be, in certain cases, sufficient to travel the consensual route and override the strong stimulation already present in the consensual eye sufficiently to give reactions that can be interpreted as other than equivocal or negative.

The logical sequence of these considerations was the desire to construct an instrument which would utilize the same light, necessary in any case for observation of the pupil, also to perform the hemiopic pupillary test. In addition to these requirements other desirable conditions to be fulfilled would be the possibility of varying the size of the areas symmetrically within all necessary limits and of rotating either area about the point of fixation from the blind to the seeing field. Further, both lights should be under complete control so that the intensity of either one could be varied above or below or made exactly equal to that of the other, or that the intensity of both could be varied together without disturbing the ratio of intensity between them. Such an instrument would also come much nearer satisfying the demands of a routine clinical instrument since the usual pupillometer trappings could be dispensed with, or used at will, and the pupillary reflex directly observed. Accordingly, somewhat over a year ago an instrument, of which a description follows, was constructed to meet, as well as possible, the imposed conditions.

THE NEW INSTRUMENT

A diagram of the necessary light control is shown in Figure 1. The lights, *AA'*, are new 60-watt tungsten filament lamps selected from a large stock as nearly equal in all measurements as possible. From the wiring scheme it will be seen that they are connected in parallel. One side of each is directly connected to one side of the house current (110 volts). The other side of each lamp is likewise connected to the other side of the house current but must first travel through a set of resistances. The whole current first passes through a rheostat, *B*, whereby it may be varied in five steps from nothing to full strength. From the rheostat, the current then passes to the fixed bar of the sliding contact, *E*. This sliding contact, together with similar contacts *D* and *F*, may be moved laterally in contact with the edge of a slate slab *C* measuring 1 by 12 by 8 inches and wrapped with No. 26 B & S gage (0.016 inch diameter) German silver wire, the interval between the turns of the coil being about 0.2 cm. This size of wire was found by experiment to have the necessary resistance to regulate the individual lamps, and still would not burn out under the contacts, with ordinary care. From the contact the current divides, passing through a variable amount of resistance to contacts *D* and *F*, and thence through their individual fixed bars, and on to their respective lamps. If now we wish to decrease the intensity of the light *A*, we have simply to move the contact *D* farther out or to decrease *A'* move the contact *F* farther out. If now with either of these contacts at any distance we wish to produce further change in the relative light intensity, we may simply move the contact *E* between the two contacts *D* and *F* until the desired point is reached without adding extra resistance but merely readjusting that already in use. Thus, if necessary, we can throw the whole or any part of the resistance on the slab *C* into the circuit of either light or divide it between them in any ratio. For purposes of measurement, the slab resistance is divided into ten divisions (points) each way from the center.

These two lights are encased end to end in the diameter of a heavy tin drum of about the size of an ordinary snare drum (14 inches diameter by 6 inches depth). Access to the interior is allowed by two doors in back. The inner surface of the drum is enameled white, and has two movable partition wings of the same curvature as the circumference so that when not in use they can be made to lie flat against the curvature of the drum. When it is desired to prevent one light from contributing more or less to the other, these wings may be turned inward to a corresponding degree or may be moved until they touch the axle for maximum effect. This axle in the center of the drum is hollow and acts as a hub posteriorly to receive the fixed axle on which the whole drum may be revolved, but anteriorly it has two large holes bored in it to transmit light to the fixation point, and still farther forward acts as an axle for the movable segments of the rotary shutter, which makes up the front of the drum.

The rotary shutter is an elaboration of the same type as that previously described. The segments (Fig. 2) necessary to make up the shutter were cut out of heavy tin, although a similar weight in sheet brass would probably have worked up with less tendency to warp. The first disk, *F*, has two equal openings *L* and *L'*, the shape being such as to give the maximum area for the minimum movement of the shutter. The inner margin of each area is on an arc of 1 inch radius from the center and the outer margin on an arc of 5½ inches from the center, at maximum opening an arc of 45 being subtended. On the quadrants, *E* and *E'* is placed another segment of size and shape to fit the interval left by the next superimposed segment *G*. Thus a smooth surface is provided for the shutter to move on below, and above the proper level is obtained on which to solder an overhang under which the shutter may pass and give a light-tight closing. The back of this disk carries two plates of milk glass covering the openings. The anterior end of the hollow axle also has a milk-glass window on which is marked a letter *A* and a dot, serving as a fixation point.

The next superimposed segment, *G*, serves mainly the purpose of symmetrically regulating the size of the lighted areas, but at the same time it carries two circular arms extending along the outer margins of the lighted areas, forming a smooth course on which the edge of the shutter may travel under cover of another overhang providing a light-tight margin. This disk is not fixed to the drum as the first one is, but is free to rotate when the clamps holding it to the first disk are loosened. The shutter is a semi-circular disk, *B*, actuated by a jointed hand lever, as is shown in the assembled shutter *C* drawn in the position where the lighted areas *L* and *L'* have been cut down to about one half their full size.

To eliminate any asymmetry that may be due to reflection from the patient's face, a wide, short cone, truncated to fit the patient's eye, is provided on an adjustable support, so that the distance from the fixation point can be varied within any desirable limits, from 10 to 20 inches usually giving satisfactory illumination. A patient in position before the instrument is shown in Figure 3.

METHOD OF EXAMINATION

Before making any tests, in order to avoid as much as possible any psychic or accommodative changes or any tendency to loss of fixation, the patient is familiarized with the movements of the shutter, until the shifting of light areas ceases to be of interest. The room is then darkened to exclude all asymmetrical light, and with the shutter at mid-position or entirely open on the blind side, so that light adaptation may be kept equal, or as low as possible before the test is made, the patient is placed in position before the instrument with one eye covered, and the light is gradually increased until the movements of the iris can be accurately followed. This light strength varies slightly, depending on the color of the iris; it is greater for the darker irises. The patient is now told to sit back and close the eyes before proceeding with the observations, in order to increase the dark adaptation, which has a tendency to increase the difference in reaction, and to avoid fixation fatigue. Previously, of course, the lights have been photometrically balanced by means of the sliding contacts and further adjusted to the normal eye so that the pupillary reaction is the same from both lights.

Observation of direct pupillary reactions may be made with the unaided eye, or a short-focus telescope may be used. A very simple aid is made by rolling up a tube of stiff paper which will hold a magnifying glass in one and fit snugly about the observer's eye at the other end, thus at once cutting out shifting and somewhat confusing illumination on the observer's eye, and enlarging the pupillary movements. This tube may be held in the mid position to avoid asymmetrical reflections. Observation of the consensual pupillary reaction may be effected directly if all light from the instrument is screened off and limited to the eye under examination, by a heavy black conical curtain. Light is then admitted to the room until the movements of the consensual pupil can be followed, but without the use of the curtain the consensual pupillary reaction can also be observed objectively with the monocular pupillometer or subjectively with the entopic pupillometer previously described.

The rate of movement of the shutter has considerable effect on the resulting pupillary reaction. This holds true for the normal eye as well as for the hemianoptic eye. In general, on the normal eye if this change is made slowly from one light to the other no reaction may be noted if the accommodative and psychic reactions are not active. These latter reactions are very noticeable the first time a young person sits down to the instrument and simply fixes attention on the central point. If now the pupil is carefully observed with no change in light distribution one often notices in the course of the first minute or so decided variations in the size of the pupil. A noise or a spoken word may cause a distraction of attention or relaxation of accommodation with corresponding exaggeration of the normal hippus that may be noted for a time in absolute silence. These changes become reduced to a minimum as the patient becomes more and more at ease. In older persons whose accommodative reflexes are no longer active these reactions are much less noticeable if present at all. If a distant fixation point were observed through the hollow axle the condition would doubtless be better if it were not for the liability of the test-lights near at hand to stimulate accommodative reactions as they flash into view.

When these reactions are quiescent there may be no pupillary reaction if the lights are slowly changed, but if the change is suddenly made, we notice a quick pupillary contraction followed by a somewhat slower dilatation to the former size. This may be repeated on the return change if the interval is two or three seconds or more. As the interval is decreased to the neighborhood of one second or less the pupillary contraction and dilatation becomes less until the interval is of such length that the pupillary reaction apparently does not have time to take place, either on account of the time required for transit of the reflex arc or for light adaptation phenomena. While it might be due to a combination of the two the interval is such as to favor light adaptation as an explanation. Symmetry of distribution on both sides of the macula is not necessary. The same thing happens if the lights are turned into the vertical position and a point a short distance out on the horizontal line through the center is taken as an eccentric fixation point. These reactions obtained on the normal eye are the same from either light when the instrument has been adjusted.[4] This same reaction may be elicited when the two lights are placed in the seeing field of a hemianoptic eye. But in any case, if the eye is allowed to fix a very short distance — a centimeter or less toward either light, for instance — so that asymmetry enters, a difference in pupillary reaction is noticeable.

In examining hemianopic cases the most satisfactory interval of alternation seems to be that which gives the maximum noticeable pupillary movement and seems to be about the same interval (2 or 3 seconds) as that at which the pupillary bounce is most active in the normal eye. The rate of change from one light to another is made as rapidly as possible for the same reason. In some cases in which the hemiopic pupillary reaction is marked, however, it is difficult to mask it with any kind of a shutter movement. Again, when the reaction is not marked, blinding the macula may be resorted to as a means of intercepting the reaction. A piece of heavy black paper having a circular hole an inch or two in diameter is held over one of the light areas and the patient told to look steadily at the center of this spot of light until looking at the center of the instrument fixation can still be maintained in spite of the blinding.

In order to get an idea of the magnitude of a hemiopic pupillary reaction, aside from measuring the pupillary sizes, two methods were used which gave relative results: first, the amount of resistance necessary to cut one light down to the point at which the reaction was the same from one dim light and one bright light. With the second method, the size of the areas was cut down until the consensual reaction could not be made out with the pupillometer on the other eye with any degree of certainty.

In addition to the use of the shutter with the lights in fixed position one light may be exposed and the whole drum rotated so that the light may pass back and forth from blind to seeing field at constant distance from the point of fixation performing concentric rotation tests, as was mentioned in the last paper. Concentric rotation of one light entirely in the seeing field, however, may give a psychic as well as light adaptation contraction of the pupil; so that this movement must be repeated several times with patients in order to reduce the psychic element as much as possible by thorough familiarization with the procedure.

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[4] In all cases with eccentric fixation, the shutter movement must be as rapid as possible, for, although the total areas in the mid-position of the shutter are symmetrical, there are two periods of asymmetry during the change before and after the mid-position, but these give stimuli in opposite directions so that the total effect balances well with rapid motion.

Cases with relative central scotomata and vision in the neighborhood of 20/200 can be assisted in fixation by sticking a white paper ring symmetrically around the fixation point. With this aid almost all cases can make out the center. At all events, if there is any tendency to look to one side of the center, it is of such direction as to reduce and not to increase a hemiopic pupillary reaction.

Fourteen cases of both anterior and posterior lesions were carefully studied. Their histories, examination and field charts are given in full in the transactions of the section and in the author's reprints, but cannot be given here on account of space limitations. The results of this study may be here summarized as follows:

SUMMARY

From a study of these cases it would appear that the idea of using relatively strong symmetrical illumination has not been an unfruitful method of examination for the hemiopic pupillary reaction. In fact, it has been rather disappointingly fruitful from a standpoint of clinical diagnosis, since apparently a very similar type of reaction has been found in cases of both anterior and posterior lesions.

In the most characteristic form of the reaction, there is, with central fixation on the rotary shutter, no pupillary bounce whatever, as light is changed from the seeing to the blind field, with any rate or interval of shutter movement. The pupil simply dilates slowly in the course of two or three seconds, being somewhat more suggestive of a pupil being released from the effects of light adaptation, than of an ordinary pupillary dilatation as usually seen in a light reaction test. On changing back to the seeing field there are two kinds of reaction according to the rate of shutter movement. If the change is slow so that light adaptation may have time to take place to a certain extent, the pupil will slowly contract to a certain size. If, however, the shutter movement is very rapid, the pupil contracts with a sudden jerk to a size smaller than with slow movement, and it dilates as light adaptation comes on, to a size about the same as that with the slow shutter movement. This effect of light adaptation varies with the strength of illumination used, being much more marked with the strong illumination used in direct examination than with the weaker illuminations which may be used in consensual examinations.

In addition to this characteristic type of reaction there are those cases in which there is only a slight pupillary bounce when the light changes to the seeing field, but the pupil is noticeably larger with the light in the blind field than when in the seeing field. Finally, as the reaction becomes equivocal, it is noted that without distinct difference in pupillary size at rest, there is a more marked pupillary bounce on one side than on the other.

These reactions in their various stages have been found in anterior lesions as well as in posterior lesions. Indeed, one of the most striking examples was in a posterior case. The phenomenon has been found in rather early stages of incomplete hemianopsia of both bitemporal and homonymous types. It has been found in tract and chiasmal lesions both with and without relative central scotomata.

The topical diagnosis in the cases presented is without question in the anterior group of chiasmal and tract lesions. In the group of posterior cases the diagnosis is almost as certain, though without necropsy it would not be possible to say absolutely that there was no involvement of the pupillary tract, or of the primary ganglion centers. In addition to this rather slight ray of hope, there is the possibility in some of the cases that secondary degeneration may have affected the pupillometer tract as has been suggested by Rothman. In this connection it would be extremely interesting to follow for from six to eighteen months the pupillary reactions in a very early case of hemianopsia due to capsular apoplexy.

Previously we have been contending largely with the problem of dispersion light, but now, having disposed of that problem more or less satisfactorily, we are evidently confronted by a still more serious complication in the retinal properties of light and dark adaptation. One can blind one half of the retina by looking at the edge of a large bright surface and obtain a difference in pupillary reaction in the normal eye with the rotary shutter. Indeed, the action of the normal eye with direct test on the rotary shutter shows the complication of light adaptation. In complete homonymous cases of whatever origin, Cushing has long noted a large pupil in the eye having lost the temporal field, that is, having lost the greater area of active retina. I have seen this phenomenon several times and three such cases are given in this report. Two of them are posterior lesions. This pupillary status appears too constantly for a sympathetic phenomenon and it cannot be explained by assuming all the pupillomotor activity to be resident in a small macular area, nor does it agree with the idea that the reflex pupillary arc is still intact on the blind side in posterior lesions, even if it were known that the pupillomotoric area were quite large and extended farther on the nasal retina. It may be more easily understood when we consider the light and dark adaptative effect of the two unequal retinal areas on their respective pupils.

From the examination of these cases it would appear that the blind retina has, to say the least, either lost or decreased in light and dark adaptive effects on the pupil. If light and dark adaptive pupillary reactions exist merely as a regulating mechanism, and involve the presence of retinal pupillomotor activity, then we are forced to the conclusion that the retina must either be weakly pupillomotoric to a considerable distance from the macula (30 to 40 degrees), or it is pupillomotoric in a small central area which is sufficiently active, when split, to give a difference in reaction to that distance by asymmetry. In either case, the pupillomotoric activity must fail in the blind retina in order to give the results obtained in these examinations. This has occurred, apparently, in posterior cases against rule (obtained from certain rare cases of subjective blindness from posterior lesions with retained pupillary reactions) that hemianoptic posterior lesions do not disturb the pupillomotoric activity of the blind retina. Possibly the rarity of these cases offers an explanation, that is, that the percentage of cases in which the hemiopic retina is left intact pupillomotorically is no greater than in cases of subjective blindness from posterior lesions, where pupillary reaction is retained. However that may be, it seems reasonably certain that the light adaptive properties are sufficiently damaged in posterior cases of hemianopsia to give a pupillary reaction closely simulating the hemiopic reaction of the pupillary reaction of anterior cases.

Aside from these difficulties, the possible complication of psychic reactions must also be considered. The concentric movement reflex which I have previously mentioned, and could demonstrate in many of these cases, is doubtless simply a light adaptation phenomenon from which the psychic element may be worn away by repetition. The precautions taken before proceeding to the examination aid considerably in eliminating psychic reactions. But the consistency with which the hemiopic pupillary reaction occurs and may be repeated, argues much against psychic complications of any importance. With good cases which could stand the strain of fixation for a considerable period, I have demonstrated the reaction to chiefs and colleagues time after time, as long as they cared to look at it, and none had difficulty in making it out with the unaided eye.

Indeed, in the most marked cases the reactions are so striking that with rough methods one would expect to find a semblance of the phenomenon, and such has been found to be the case. With a pocket flash-light or an electric ophthalmoscope sufficiently strong to give a good view of the pupil, one can get a distinct though not a marked difference in pupillary reaction whenever, on repeated trials, the light is flashed from roughly symmetrical positions on each side of the fixation point. If two flash-lights are held in symmetrical positions and flashed alternately, the reaction is still better but never as marked, or as constant as with the rotary shutter. The fact that the reaction can be detected in marked cases by rough methods both in the anterior and in the posterior cases has an interesting significance in considering the great variety of results reported by observers using these methods.

If the retina has a low grade of pupillomotoric activity or a combination of light adaptive and pupillomotoric properties to some distance from the macula, as my results seem to show, how may the work of Hess be explained? Hess threw a small light on his own optic disk and obtained no reaction by the entopic method when he moved the light above or below concentric with the macula, on to the seeing retina. In fact, sometimes he obtained a better reaction when he passed from the retina on to the bright blind spot because of more reflected light. It is obvious that if the retina about the blind spot had a pupillomotor sensitiveness practically equal to the stimulation of the macula by reflection from the blind spot itself, then the results of Hess could be obtained in the same manner but for an entirely different reason than he supposed, namely, that the peripheral retina had no pupillomotoric activity. Accordingly the size, shape and illumination of the equal areas of the rotary shutter were designed to get the maximum effect from as large an area of retina as possible, and still keep the dispersion light reaching the macular region constant. With this instrument the reflection from the blind spot simply balances its lack of pupillomotor activity, so that its asymmetrical location apparently has no effect.

Altogether from a careful study of the cases reported herein, apparently many conclusions may be drawn, of which the following would appear particularly justifiable.

CONCLUSIONS

1. A weak hemiopic pupillary reaction may be masked by the pupillometer light when observed consensually.

2. Light and dark adaptive phenomena, in addition to dispersion light, seriously complicate the hemiopic pupillary reaction.

3. The hemiopic pupillary reaction is definitely present in anterior lesions, when examined by the rotary shutter method.

4. The hemiopic pupillary reaction is also present in cases having every clinical evidence of being purely posterior cases, although necropsy examination is necessary to prove absolutely that there is no involvement of the optic tract or primary ganglion centers.

5. Although it may be concluded from the examination of these cases that the peripheral retina does possess a weak pupilomotor sensitiveness, there is no evidence that the hemiopic pupillary reaction has any topical diagnostic value.

I am deeply indebted to Prof. Harvey Cushing not only for kindly facilitating this investigation but also for generously allowing me the privilege of presenting this particular phase of his cases.

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ABSTRACT OF DISCUSSION

Dr. Walter B. Lancaster, Boston: It seems to me that our views of the anatomy and physiology of the pupil reflex paths will have to be revised if these preliminary reports prove to obtain in case of further investigation. We hope that by another year Dr. Walker will have examined enough of these cases to establish certainly whether all posterior lesions as well as the anterior show this phenomenon. He has not attempted to theorize concerning what path the reflex follows. It is an important physiologic problem. Another revolutionary idea which seems to follow from Dr. Walker's experiments, is that the periphery of the retina as far at least as 30 degrees, has the pupillomotoric function as well as the central region. Hess would limit the pupillomotoric area to the central 15 degrees only. I think this a good time to say something in appreciation to Dr. Todd's recommendation for research work. It might appear that this piece of research work was in vain, because this symptom is proved to be of no diagnostic value; but the necessary knowledge of the literature and the exhaustive study of the various factors that come into this problem cannot fail to be of decided value in solving other problems the worker is sure to meet in practice. Of course the importance of proving that the Wernicke symptom has no diagnostic value is obvious.

SAFE AND SPEEDY EXTRACTION OF THE IMMATURE CATARACTOUS LENS FOLLOWING PRELIMINARY CAPSULOTOMY *

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The contentions embodied in this thesis are:

1. An ample, properly executed preliminary capsulotomy has, in mature cataracts, many advantages over immediate capsulotomy or capsulectomy.

2. In morgagnian cataract it enables one to make what is difficult otherwise, namely, an efficient opening in the capsule.

3. The extraction of the clear lens in high myopia is feasible by this method, and

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

4. It will render immature cataract operable after a six-hour interval, leading up to a clean extraction.

These contentions are submitted in the foregoing order that their correlated value may be presented and that the subject-title shall receive final and full consideration. It is generally stated by most writers that the lens-capsule is a highly elastic membrane which, on section, curls outward. It is very doubtful if this statement be true; not as to its curling outward, which is thought to be due to another cause, but as to its elasticity. If it were elastic and under tension it would gape only to incisions at right angles to the lines of traction; that a crucial incision should gape would require elastic fibers radially disposed. This is simply a matter of physics. There is nothing to show histologically the presence of elastic tissue in the lens-capsule; on the contrary, it is a homogeneous hyaline structure which does not stain, nor has the most searching microscopic examination shown elastic fibers therein. Neither can the gaping of the capsulotomy wound be explained on the basis of inherent elasticity in the lens fibers themselves. To quote Tscherning, "The contents of the crystalline lens are composed, in the adult, of two parts: the nucleus, which cannot change its form, and the superficial layer which, on the contrary, possesses this faculty to a very high degree; its consistence is very nearly that of a solution of very thick gum." Quoting Hocquard, he continues, "The whole is surrounded by a capsule which is inextensible or very nearly so. In fact, the laws of dynamics and of finely coordinated muscular action elsewhere in the body demand that, for accommodation, the lens capsule shall be inelastic." In an address delivered in the University of Oxford, Sir William Job Collins says:

> The lens is truly described as very elastic in the sense of readily tending to resume its original form after the withdrawal of any force that has modified its form or volume. I should not be disposed to allow that the same elasticity is true of its capsule, though this is alleged by most authors. From a study of it in dissection and in operations, I should be more disposed to say, with Bowman, it is "a hard and dense structure and determines the exact outline of the lens." The capsule is composed of albuminoid substance not of elastic tissue and betrays no trace of cellular structure; on laceration it gapes and sometimes curls in a fashion suggesting that *it is held taut by the reefing lines that bind it to the ciliary processes.* [Italics mine.—H. E. S.]

Underlying the anterior capsule of the lens and forming with it an intimate union is the epithelial layer whose cells by elongation become lens fibers. The well-known reproductive faculty inherent in these cells, and that any epithelial residue left clinging to the capsule may by proliferation produce a secondary membrane, make imperative that as little as possible of this be left in the eye. A close examination of secondary cataracts will disclose a small opening in the capsule, lens matter at the periphery of the pupil and growing out into this new lens fibers in the visual aperture. Incidentally, this is one of the arguments against a capsulectomy. The foregoing, relative to the capsule, is germane to what shall follow when technic is taken up, to the explanation of what changes take place in the interval between capsulotomy and the extraction proper and to the question why, to secure such altered relationship, an ample capsulotomy is necessary. Reference to these will later be made.

A historical review of the operation of primary capsule rupture need not here be made, for Dr. Percy Fridenberg[1] has so exhaustively covered the ground in a paper read before this Section in 1912 that he leaves nothing to be added. I shall, however, avail myself of frequent quotations from this paper to adduce arguments in support of my several contentions.

It is a reasonable assumption that the lens-capsule is more or less adherent to the epithelial layer immediately beneath it; that it is non-elastic; that it is the traction of the reefing lines that causes it to gape when divided, and that, in proportion to the amplitude of such division, it will release itself from the underlying cortex. With no knowledge of the work of earlier investigators I worked out for myself many years ago a method of preliminary capsulotomy which had for its objects a knowledge in advance of the size of the corneal section to be required for an easy exit of the lens and to make certain an ample and sufficient capsulotomy with the maximum of precision and the minimum of risk. At this time the knife-needle of Knapp was being used but, finding with this that the making of the second limb of the crucial incision became next to impossible, because of early loss of aqueous and the obliteration of the anterior chamber, I supplanted it by a miniature scalpel of my own design which obviated this difficulty. A sketch of this is here inserted (Fig. 1).

I have in former papers gone over the matter to follow, but larger experience only makes more certain the truth of the statements therein contained. To restate them: The advantages of a preliminary capsulotomy are many. By the ordinary method some of the difficulties are inherent in the instrument itself, but more and greater ones in the conditions under which it must be used. The straight capsulotome is kept sharp with difficulty. It cuts only when drawn toward the operator; at right angles to this it simply scratches. As soon as the section is made the iris contracts, the lens comes forward and the anterior chamber is abolished. Into this narrow space must be passed a straight instrument between cornea and lens; it is impossible to do this and reach below the anterior pole of the lens without pressing it more or less backward, and at this stage the lens, held only by its suspensory ligament, is mobile and easily dislocated. More than this, the operator in his zeal to make an efficient opening in the capsule is apt to rupture this ligament, and loss of vitreous ensues. There are no means of knowing that the capsulotomy has been inadequately performed until the lens, when pressure is applied to the globe, refuses to come forward. In this event, either the fixation forceps must be reapplied, a difficult and dangerous thing to do on an opened eye, or the cystotome reintroduced without its help, in the trust that the patient will keep still. Narrowing of the pupillary space by the contraction of the iris leaves insufficient room in which to work, and it is a difficult matter not to

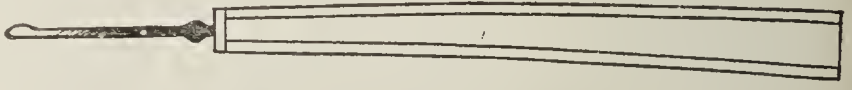

Fig. 1.—The capsulotomy knife.

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[1] Fridenberg, Percy: Preparatory Capsulotomy in Extraction of Immature Senile Cataract, The Journal A. M. A., Sept. 21, 1912, p. 1065.

wound it or entangle it in the tip of the instrument. If the bent cystotome of Knapp is used, these difficulties are enhanced, and not only are there greater obstacles to removing cortical fragments, but a peripheric capsulotomy leaves two thicknesses of capsule in the pupillary space and more often a secondary operation is required. Should blood enter the anterior chamber, the difficulties mentioned before are further increased. None of these difficulties accompanies a preliminary capsulotomy as described in this paper: 1. The knife can be made superlatively sharp, and efficiently cuts the capsule in both directions. 2. Only through the grossest carelessness can the suspensory ligament be ruptured or the lens dislocated, for this is held firmly in place by the vitreous behind and the aqueous in front. 3. Ample space is given through the dilated pupil, and the point of the knife may be kept fully in view during the division of the capsule, and, furthermore, the operator has the satisfaction of knowing that this is adequately performed. 4. The iris cannot be wounded or entangled in the instrument, and there can be no bleeding to obscure the field of operation. In brief, it simplifies and makes certain a step in the operation which is usually fraught with difficulties and dangers. Also when the corneal section comes to be made the iris does not contract so readily, and there is less interference with the extrusion of the lens. It has the further advantage that one can tell in advance of the section just how large this needs to be. If the cut in the capsule is practically invisible, a large nucleus is present. If semigelatinous matter exudes, it is smaller, and if a milky liquid it is smaller still. It is an extremely difficult, if not impossible, task to estimate, with any degree of accuracy, from ophthalmoscopic examination alone, just what is the condition of cortex and nucleus in a cataractous lens, mature or immature. Preliminary capsulotomy reveals the matter and puts us on our guard in some cases. If gelatinous matter exudes we have a soft cortex and probably adherent lens fibers. This is true even if the opacity extends clear up to the anterior capsule and where we would be led to expect, *a priori*, a clean exit of the lens. With an ordinary capsulotomy this means a mushy extraction and much lens matter left in the eye. Even if no operative accident occurs and a nice clear black pupil is secured, the appearance of the eye at the first dressing tells the lamentable tale. Here comes in the advantage of the six-hour interval before the extraction. The action of the aqueous separates the adherent cortical fibers from the capsule, and a clean extraction follows. It is truly marvelous how little pressure is needed to deliver the lens; often it follows the knife on completion of the section. Several operators have written me that this unexpected result was somewhat embarrassing, but it need not be so if it is anticipated. In operating on a morgagnian cataract by the usual method difficulties arise because, on essaying the capsulotomy, the instant the point of the instrument penetrates the capsule the liquid cortex escapes through the puncture, and before this can be extended to an incision, the sac collapses, recedes from the instrument, no further opening is made and there remains in the eye the nucleus in its capsular envelope with an aperture therein too small to admit of its exit. Nothing safely can be done in the way of a more extensive capsular laceration, as the collapsed sac recedes from the point of the cystotome. There is a relaxed zonula, no traction on the capsule, and there remains for further instrumentation only that with the sharp hook or the Daviel spoon. It is not necessary to dwell on the operative difficulties which must then be faced or the dangers to the integrity of the eye. With a preliminary capsulotomy the fluid cortex simply mingles with the aqueous, the sac does not collapse or recede, there is no difficulty in making an ample opening, and at leisure we may observe the size of the nucleus and proportion the extent of the corneal incision for its easy exit. The section may then be made with the angular keratome, and at once if it is so desired. There is no advantage to be gained by waiting in morgagnian cataract, for there is no longer cortex to be dealt with. An operative point is here apropos for such cases and for those in which a primary capsule rupture is to be made instead of the usual capsulotomy. It occasionally happens that sufficient aqueous escapes through the corneal puncture to make the anterior chamber so shallow that section would be difficult. In this event, the tip of the McKeown irrigator is applied to the corneal opening and the anterior chamber filled out with normal salt solution. The operation may then proceed as though this incident had not occurred. It does not need any argument to prove that the smaller the corneal section consistent with an easy exit of the lens, the better are the patient's chances against infection and for an uninterrupted healing of the wound, to say nothing of the larger probability of the surgeon making this in a single plane and with greater facility.

It is conceded that operative difficulties and postoperative dangers attend the removal of a cataractous lens in which there is still much transparent cortex; also, it is certain that a method which would minimize these dangers would be of inestimable value to both surgeon and patient. It is also true that it would be better still if all media could be removed which are opaque or which might become so, provided always that in so doing no greater risks, immediate or remote, are incurred. Given a case in which, from advancing opacity in the lens, there results diminished visual acuity, industrial incapacity and mental distress, several courses are open to us. We may advise, as was formerly the almost universal rule, that the patient wait until complete opacification occurs and the cataract becomes operable. This meant for the sufferer more mental distress, a gradually lessened earning capacity, perhaps even poverty and the loss of all the pleasures of life which are dependent on good vision. To make matters worse, there was the haunting element of uncertainty, for no man could say how long might be the weary waiting, or whether after years of groping in semidarkness, even then operable maturity would result. The second course open would be an extraction after the usual method, with all its attendant dangers, operative and postoperative, and the rather small chance of a final good visual result. The third choice would be artificial induction of operable maturity by Förster's, McKeown's or some other method; the fourth, extraction in the capsule, and the last, safe and speedy extraction by my own method.

It is in the hope that the first shall be last and the last shall be first of these several choices, that this paper is presented for your consideration.

Against the second course the profession is practically united, although it is true that in highly skilled hands, with irrigation to remove cortical débris, with preliminary iridectomy and subsequent needling, a fair proportion of successes may be attained; but no one will deny that the risks are greater, the convalescence more prolonged and the final visual results poorer than would be the case in mature, operable and fully opaque cataract.

The third course is artificial maturation; operations intended for this purpose have not attained success and have fallen into disuse. None of the methods used seem to produce any uniform or decided effect. Puncture of the capsule advised by von Graefe in 1864 and reintroduced by Correnti in 1872 fails for the reason that *punctures* in the capsule do not gape, and there are formed (if any effect is produced) simply insulae of opacity just beneath them and no separation between capsule and cortex. McKeown injected fluid under the lens-capsule. This procedure, though successful, was difficult and dangerous. Does it not seem more rational to bare the lens of its capsule and let the fluids of the eye itself do this effective work?

The fourth course we might follow is extraction in the capsule: against this much must be said. If it could be done with the same proportion of immediate or ultimate successes or with no greater operative risks, this method would be ideal, for it removes in one step every impediment to the clear passage of light into the eye. Unfortunately, the operative risks are appalling and only in hands especially trained under personal tutelage of its one able exponent are these, even then, brought within reasonable comparison of the time-tried classic methods. Barring operative accidents, the immediate results are brilliant; but there are the later ones to be considered. The updrawn pupil (in spite of the large iridectomy) which is later present in these cases points to a dislocation of the vitreous, and I am credibly informed by surgeons of the highest authority in India that there is a slow degenerative change which takes place in these eyes and ultimately leads to much loss of vision. On theoretical grounds the procedure is harsh and unsurgical. To use force sufficient to rupture the zonula, applied from behind (for the resultant force must come from this direction) even if there results no loss of vitreous, is in my opinion a damaging traumatism and a menace to the future integrity of the eye. I have done successful extractions in the capsule, but they were operative mistakes following an insufficient capsulotomy by the usual method. In skilled hands it might possibly be the operation of choice where there was a deep anterior chamber and a tremulous iris, for here one has a weakened zonula; but as a routine measure or for the occasional operator it has my unqualified disapproval. I have had no experience with the manner of separating the lens from its zonular attachment by any of these four methods, namely, suction, traction, lateral pressure or rotation in the patellar fossa; of these the latter appeals to me as more likely to attain the desired result with a minimum of traumatism.

This reviews other methods of dealing with immature cataracts; in my own the capsule is opened by as large a crucial incision as it is possible to make, done as a preliminary measure six hours before the extraction proper. In my own experience, confirmed by that of others, this is sufficient to produce almost invariably a complete separation between capsule and cortex, to make operable cataracts in any stage of maturity leading up to a clean extraction and rarely leaving cortex behind. It has long been my conviction that the extraction of the clear lens in high myopia was feasible by this method, but I had no opportunity to test this personally. In six of the cases analyzed later in this paper it was carried out and all were successful. One could put the procedure to no greater test than this, for surely, if it led up to a facile extraction in these cases, it should not fail if the lens is becoming opaque. No originality is claimed for the preliminary capsulotomy, and whatever merit the method may possess lies in the technic, which is original, and the discovery that immature cataracts may be rendered safely operable in a few hours. If the capsule is inelastic and held taut by the insertion into it of the reefing lines of the zonula, it follows that in proportion as the incision into this is nearer the point of insertion of these lines, the greater will be the retraction; and the more nearly this incision approaches in form an equal-armed cross, the more perfectly will the capsule retract from the lens surface, leaving it open to the imbibition of aqueous. Assuming this to be true, it follows that the technic which will insure this large opening is a matter of importance.

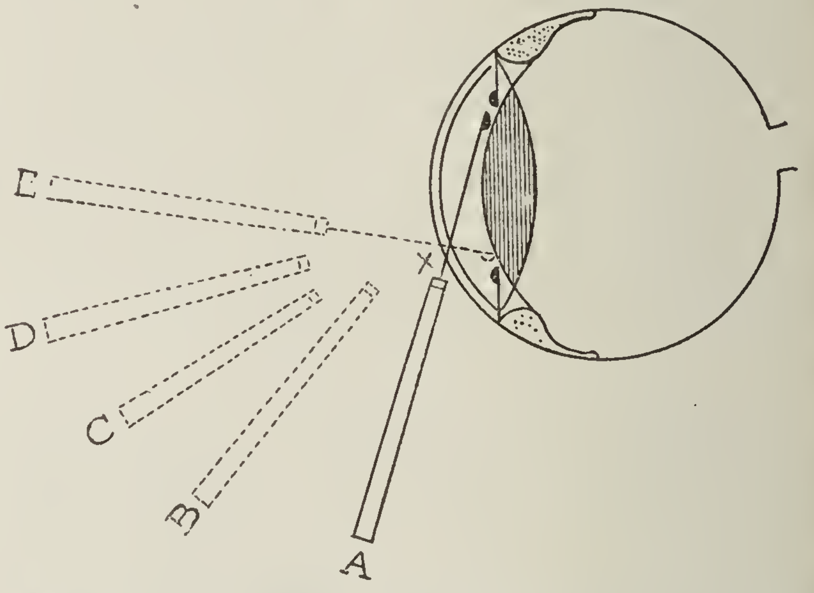

Fig. 2.—Operator standing at patient's head. First plane. Section through right eye on a plane parallel to the long axis of the body. The blade piercing the cornea at *x* is passed down to the lower margin of the dilated pupil and brought successively through positions *B*, *C*, *D* and *E*, thereby effecting a long vertical cut in the lens capsule.

It is a matter of difficulty to convey clearly in words such a description of even the simplest operative procedure that he who reads may run—and do it in like fashion. This has been brought home to me by much correspondence from those to whom my previous descriptions were not clear. To this I have appended illustrations which I trust may help to clarify whatever may be lacking in the written word.

In the first place, the shape of the knife is important if one is to make with it the necessary excursions in the anterior chamber and not get into trouble. The blade length should be 2 mm., the belly rounded, the point obtusely ground and the whole acutely sharp from end to end, for heel, belly and point must successively come into use as the cut progresses.

The pupil having been fully dilated by a 2 per cent. solution of homatropin, the proper preparations of asepsis and cocainization carried out and the speculum inserted, the operator, if for the right eye, takes his place at the head of the patient. Taking a large grasp with the fixation-forceps over the insertion of the internal rectus, with the little and ring fingers resting on the patient's temple, the capsulotomy knife, held as a pen with the cutting edge of the blade downward, is thrust through the middle of the supertemporal quadrant of the cornea, pushed away from the operator through the anterior chamber until the blade reaches the lowest possible point of the dilated pupil and rests on the vertical meridian of the lens; the handle is now raised until the blade penetrates the capsule; the handle is then made to describe an arc of a circle away from the operator, the blade cutting the capsule along the vertical meridian of the lens. To avoid sinking deeply into the lens or producing a dislocation, the shank is gradually withdrawn in describing the arc until at the termination of the cut little more than the blade remains within the eye. The point is now released, the handle brought into its original position, the shank reintroduced and the blade carried over to the margin of the pupil nasalward and onto the horizontal meridian of the lens; the handle is now given a quarter turn toward the operator, thus bringing the cutting surface of the blade against the capsule. Again is the handle made to describe the arc of a circle, this time nasalward, the blade being kept on the horizontal meridian of the lens and the shank gradually withdrawn as the cut approaches completion. The blade is then brought into its original plane of entrance (to avoid enlarging the corneal wound) and withdrawn from the eye. If for the left eye, the operator stands at his patient's left, the corneal entrance is in the tempero-inferior quadrant and the first cut in the capsule begins above on the vertical meridian of the lens, ending below. Otherwise, the technic is the same. The speculum is now removed, a drop of physostigmin (eserin) solution, 1½ grains to the ounce, is dropped into the eye and an antiseptic dressing is applied.

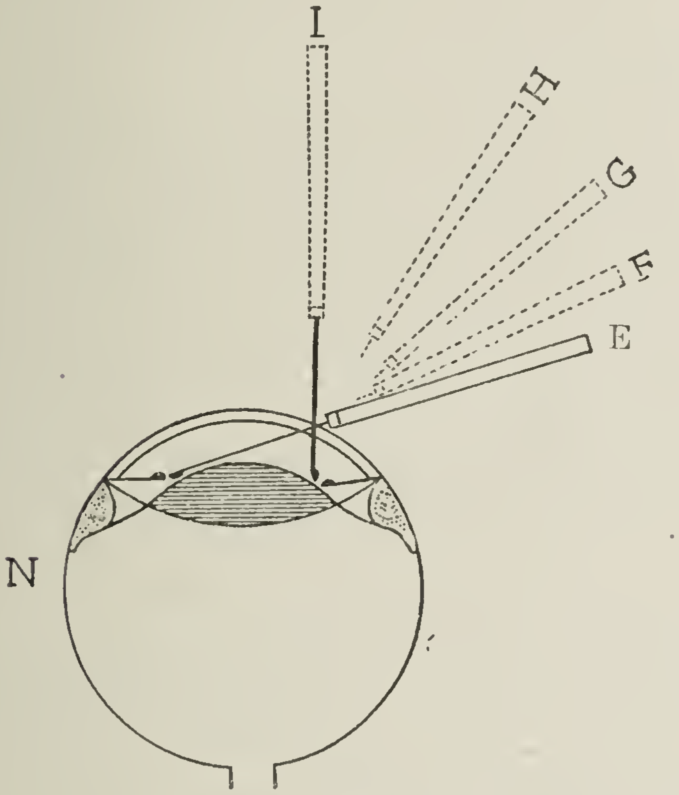

Fig. 3.—Operator standing at patient's head. · Second plane. Section through right eye on a plane at right angles to long axis of body. The blade withdrawn from position at *E* (first plane) is passed to the nasal side (*N*) of the dilated pupil and brought successively through positions *F*, *G*, *H* and *I*, thereby effecting a long cut in the lens capsule at right angles to the first incision.

It is evident that on the spherical curve of the lens surface the cut begins with the heel of the blade, is continued with the belly and ends with the point—hence the shape of the blade and the need for cutting sharpness all along its length. That the blade be short is necessary if the proper maneuvers in the anterior chamber are to be made without enlarging the corneal wound, without dislocating the lens, without having loss of aqueous, without cutting too deeply into the lens substance; it is necessary also to success in making the largest possible capsulotomy.

With the ordinary knife-needle, to escape these dangers, only a small crucial capsulotomy is possible. If aqueous is lost while the vertical cut is being made, the transverse one is impossible. If my assumptions of the mechanism of the rapid operability of immature cataracts and the retraction of the capsule be true, then it is essential that the technic here set forth be accurately followed.

Six hours after the capsulotomy the extraction proper is undertaken. I had formerly advised a twenty-four-hour interval, but I fear that this was more from motives of convenience than of necessity. Moreover I could not see that the lens came out any easier in this than in the lesser interval. On two occasions, with the longer waiting, high tension was a complicating factor in the extraction. This has occurred also in the shorter period to other operators, but, while introducing difficulties, has not resulted disastrously, as the extraction has checked the process. Occasionally, some circumcorneal injection was manifest when the dressings were taken off for the second operation. In these cases, to insure proper anesthesia, the cocain was preceded by a drop of 1 : 1,000 epinephrin solution. The extraction proper is done after the usual method, but the operator now knows just how large a corneal section is necessary. If there has been no escape of semigelatinous lens matter from the capsular cut, then the section should comprise the upper two-fifths of the cornea, as the nuclei of immature cataracts are usually large.

Each operator may elect whether or not he shall make a conjunctival flap. My own preference is for this and a large one. Here, again, is another advantage in preliminary capsulotomy. The flap turned down over the cornea, when an ordinary capsulotomy is next to be done, obscures the operative field. When this has been done, the disposition of the flap is no embarrassment.

The matter of simple versus combined extraction is too complex to admit of review in this place. My own choice is for the former, provided the iris is mobile and dilatable. The cosmetic results are better, and there is no risk of adhesions between cut iris surfaces and tags of capsular membrane. With preliminary capsulotomy there is practically never cortical débris to be reckoned with, and the risk of iris prolapse is minimized by the immediate use of atropin following the toilet of the wound. There are surgeons, however, who prefer the combined extraction as a routine procedure. There is much to be said in its favor, and for the occasional operator who has not the facilities of special hospitals or trained ophthalmic nursing it is perhaps the safer method. That the contentions embodied in this thesis might carry greater weight than would my own unsupported assertions, letters were sent out to members of this Section, whose replies are tabulated here.

RESULTS OF OPERATIONS ON IMMATURE CATARACTS FOLLOWING PRELIMINARY CAPSULOTOMY

	No.	Per Cent.
Total number	180	..
Of these there were successful	164	91
Total failures	5	3
Partial failures	11	6

There were thirty-nine operators who reported cases; of these several reported only one case each. Taking into account unfamiliarity with a new procedure at the hands of many men, and comparing the statistics of results in fully mature and operable cataracts with the percentages here given, in what is admittedly a more difficult and dangerous operation, it will be seen that this method does not suffer by comparison. An analysis of the causes for partial and total failures would make the comparison still better, for of the total failures one had nothing to do with the operation, and the partial failures were tabulated as such irrespective of the final visual results. Of the five total failures, one was due to intra-ocular hemorrhage some days after a successful extraction, with no ascertainable cause; one was due to vitreous prolapse, the nucleus being left in the eye, which was subsequently lost by plastic iridocyclitis; one was due to plastic iritis; the pupil closed in and two cystotomies later failed to keep it open. For the remaining two no cause was given. Of the partial failures eight were due to lens matter left in the eye; in one case the operator failed in technic only, the final visual result being good. No cause was given in two cases. Final results were good in three cases, and not reported in eight. Of operative accidents only three are reported; in two the lens was dislocated, and in the third partially so. There were twelve cases reported of postoperative complications; six of these were iridic inflammations, six of high tension; but while these introduced an embarrassing feature, none resulted disastrously. The intervals between capsulotomy and the extraction varied between six hours and ten days, the largest number being twenty-four hours.

Against the many advantages of a preliminary capsulotomy, irrespective of the maturative process on the partially opaque lens, I advanced the objection that the operation requires more time and trouble, as the technic of asepsis must twice be gone over. Dr. Fridenberg says, "We cannot, however, dismiss all objections in a single sentence unless we close our eyes to the fact that it is the danger of infection even more than the time and trouble of disinfection in a second operation to which we hesitate to expose our patient and which we would not risk unless there was something definite to be gained." I am not aware what is the percentage of infection under modern asepticism in ordinary cataract extractions; but whatever this may be, it cannot be smaller than in the series of 180 cases here detailed, for in this it was zero, there occurring no operative infections at all. This objection therefore *can* be dismissed in a single sentence. Compared with capsulectomy, it is an easier, more effective and a more surgical procedure, not to mention that capsulectomy sacrifices the advantage of knowing in advance how large a section one needs to make. It cannot be combined with capsulectomy if properly performed, nor is there need of this, for there remains no capsule in the pupillary space. In the circular letter sent out criticism was invited. The most serious objection was that high tension followed. This occurred in 3 per cent. of the operations. In such cases it is better not to use a speculum but to employ Angelucci's fixation. Also, the section should end with extreme gentleness, as the lens will almost invariably come out with its completion. The next objection in point of importance was retention of lens matter at the time of extraction. This occurred in less than 5 per cent. of the cases. This, too, compares favorably with the percentage of the same mishap in apparently fully mature lens extractions. It usually can be successfully met by irrigations with McKeown's instrument, using normal salt solution; failing the accomplishment by this, needling should give better vision. There are cases which will always require this, for, quoting Risley, "In this class of cases there is usually some involvement of the posterior capsule as a sequel to the uveal disease which caused the cataract, and secondary capsulotomies are frequently required."

It should not be forgotten that a cataractous eye is a sick eye and perfect visual results the exception and not the rule. Two well-known surgeons have written me that they could not see that the lens comes out any easier or cleaner with a preliminary capsulotomy than without. If this be true, why the many procedures which have been adopted for the artificial maturation of the opacifying lens? Why have surgeons hesitated to operate on immature cataracts? Or why should this paper have been written at all? Many of my colleagues have been so good as to express their commendation. They say:

> "It is a valuable addition to our technic, the best since McKeown gave us the irrigator."
>
> "Approve of it very much and favor it especially after having had some experience with the Indian Smith operation."
>
> "Consider your method, if carefully performed, devoid of danger and superior to other methods of hastening the maturity of unripe cataracts."
>
> "The intracapsular operation is still the thing we most desire, but if the capsule of the lens is to be left within the eye, there is no operation which compares with yours."
>
> "Believe this is one of the best, if not the very best, operation for immature cataracts."
>
> "Have found the procedure very satisfactory."
>
> "A safer operation than extraction in the capsule."
>
> "Think it good practice and expect to use it more."
>
> "Believe it to be superior to Förster's."
>
> "I am much impressed with the great value of your procedure. For immature cataract, especially in subjects under 55 years of age, in conjunction with irrigation of the anterior chamber it appeals to me to be unexcelled."

These opinions, selected from many others equally commendatory, are from men eminent in the profession and known to all of you.

In conclusion, I wish again to emphasize the advantages of a preliminary capsulotomy as against capsulectomy or that immediately preceding the delivery of the lens. When properly performed and an interval of six hours allowed to elapse between this and the extraction proper, a separation between capsule and cortex will result and so make immediately operable cataracts in any state of opacification; and the delivery of the lens, mature or immature, is cleaner and easier than by any other method.

ABSTRACT OF DISCUSSION

Dr. S. D. Risley, Philadelphia: I have been able to demonstrate to my own satisfaction the signal value of preliminary capsulotomy in the several varieties of immature cataract, but have not employed it, as Dr. Smith suggests, as a preliminary step in the extraction of fully opaque lenses. In the extraction of mature cataract I have not experienced the difficulty and danger he describes in performing capsulotomy after the corneoscleral section has been made. The procedure, however, in lamellar cataract, extraction of the lens in high myopia and the amber-colored and posterior polar or capsular cataracts, has proved valuable. In the opaque, milky lenses of the morgagnian type, I doubt its expediency unless the remaining nucleus is extracted immediately. I have been led to fear the deleterious influence of the contents of the capsule of a fluid cataract on the health of the eye if allowed to escape into the anterior chamber and remain there. The eye is liable to ciliary injection, pain and a low form of iritis or iridocyclitis with a tendency to increased tension.

A correct technic for preliminary capsulotomy is important. It is not a discission of the lens. To cut deeply into the cortex is to defeat the purpose of the operation. The second puncture of the cornea to perform the cross-section is an unfortunate detail and introduces additional danger from infection. I have, therefore, in all of my later work, made simply the vertical section of the capsule, being careful not to penetrate the lens cortex. I have used for this purpose my secondary cataract knife described some years ago, a small spear-shaped blade with a thin midrib beaten from a shaft of steel, ground and polished, which can be made very sharp. The opening made by the blade is tightly filled by the shank so that no aqueous is lost. When this blade is drawn across the capsule, it leaves at first only a dark line. This can be seen under artificial illumination to broaden into a vertical, ovoid opening in the capsule which later becomes faintly gray. In twenty-four hours this grayness has passed under the capsule. I have not found it convenient to undertake the subsequent extraction of the lens in six hours after the preliminary capsulotomy but have habitually allowed two days to intervene, unless necessity arose for earlier intervention. In my experience, no untoward results have come from this delay provided the anterior cortex of the lens has not been deeply invaded while cutting the capsule.

At my Wills Hospital Clinic I have to contend with a large percentage of complicated cataracts, that is to say, eyes with uveal disease with vitreous infiltration, irises which do not dilate well, engorged anterior ciliary vessels and opacities of the lens, or opacity of the posterior capsule, often spreading to the cortex at the pole of the lens, with or without spicules emanating from the periphery of the lens and projecting along both the anterior and posterior capsules into the pupillary area. In a considerable percentage of these eyes the lens becomes amber-colored, remains more or less transparent and the opacity does not advance. In these cases I have found the preliminary capsulotomy of advantage. I have not been so fortunate as Dr. Smith seems to have been in extracting these lenses without the necessity for secondary operations. I have been compelled in certain cases to resort to secondary capsulotomy to secure a clear pupil. The procedure is of signal advantage in the extraction of the transparent lens in high myopia and in the lamellar cataracts of childhood. I am convinced that in the entire group of cases which I have designated as complicated cataracts, the preliminary capsulotomy affords better results than can usually be obtained by extraction by our more usual methods.

Dr. Hiram Woods, Baltimore, Md.: I have to relate my experience with three cases of the Homer Smith operation. The first patient was a man with double cataract. He was a railroad man, aged 43, whose central vision was reduced to about 3/200 from nuclear cataracts. He was unable to work. I had read Smith's communication. I obtained his knife, and in my first case did a preliminary capsulotomy on one eye, in the afternoon, Jan. 7, 1913. The capsulotomy was done with the incisions described by Smith. I did not see the patient again until the next afternoon; but at about 10 a. m. that morning I had a message from the nurse at the hospital that the man had a great deal of pain and nausea. In the afternoon I found T+ with the fingers. It was not measured with the tonometer. I made an immediate extraction of the lens. The appearance of the lens had not been changed, but the iris was distinctly bulging forward. The only complication was a rather profuse hemorrhage with the iridectomy. The patient recovered without further incident. The pupil was entirely clear of any remnants of soft substance, and he obtained 20/20 vision in that eye. Two weeks later, preliminary capsulotomy was done on the other eye at 8 a. m. Early in the afternoon, the cataract was removed with an iridectomy. I followed Smith's directions accurately, allowing six or seven hours between the two operations. There was no reaction and no soft substance. When I last saw the patient, he had normal vision in both eyes. The third case was that of a man aged 40, who had lost one eye from a cataract operation in another city, and I wanted to give him every possible chance. He had an opalescent cataract, V.=20/200. I did a preliminary iridectomy Jan. 16, 1913, and waited till February 13, and then did a preliminary capsulotomy in the morning, intending to extract the lens in the afternoon. He felt unwell in the afternoon, but the eye was quiet. He grew worse and apparently had an attack of grip. I had to wait nine days, to February 22, before I could remove the cataract. The eye showed no irritation during this time, and when extraction was done, the lens came away readily, leaving a clear pupil. He obtained almost 20/20 vision. These cases bore out Smith's contention that this operation brings away the entire lens. I want to compare these cases with another operated on recently. A woman with an old central choroiditis wanted an immature, nuclear and probably secondary cataract removed. Owing to circumstances, which I could not control, she did not come in time for a preliminary capsulotomy and I extracted the partially clear lens without the preliminary capsulotomy. I had done a preliminary iridectomy two months before. In this case, there was a lot of soft lens substance which had to be removed by irrigation. The patient did well, but had only 20/80 vision from 20/200.

These cases seem to bear out Smith's statement that preliminary capsulotomy is efficacious in separating soft cortical substance from the capsule, and making it adhere to the lens. In the first three cases I had no cortical matter to deal with. In the case in which the preliminary capsulotomy was not done, there was considerable soft lens substance.

Dr. Allen Greenwood, Boston: I have operated in two of these cases of high myopia with nuclear cataract, and have made, instead of the two punctures, a V-shaped incision with a knife recommended two years ago by Dr. Fridenberg. This can be done without the loss of aqueous, and I can testify to the ease with which the lens can be pressed out after this preliminary capsulotomy. It is my custom to do the preliminary capsulotomy late in the afternoon of one day and to operate the next morning, having an irrigating apparatus ready to use if necessary.

Dr. W. E. Lambert, New York: I have had some experience with the Smith method in cases of high myopia. It is my custom, however, in such cases, to do the ordinary discission, especially in young people. I operated on a woman over 50, with high myopia and immature cataracts, the nuclei apparently rather large. I did a preliminary iridectomy in both eyes and felt justified subsequently in doing a simple extraction in one eye. The result was most satisfactory; but there was so much soft matter remaining that I did a preliminary capsulotomy on the second eye. A peculiar and alarming complication arose. I have never extracted the lens as soon as six hours after the capsulotomy, but usually twenty-four hours—frequently, in cases of myopia, much later. In the case referred to, forty-eight hours elapsed and the lens being somewhat swollen, it seemed advisable to make the extraction; a smear, however, showed a mild infection, and Dr. Dixon, our pathologist, advised waiting. I did wait fortunately, and the next morning the patient had an acute mucopurulent conjunctivitis, tension plus, and circumcorneal injection. I used a 1/20 grain of silver nitrate irrigation. At the end of three days the acute catarrhal conjunctivitis had subsided and I extracted the lens. It came out nicely, with less soft lens matter than in the first case. The patient made an excellent recovery. I think the procedure is useful in high myopia,' especially in older people.

Dr. M. Feingold, New Orleans: I have performed Dr. Smith's operation in about twelve cases, but I had to deviate from the practice advocated by Dr. Smith as to the time of the second operation, for the reason given by Dr. Risley. Another, a theoretical, reason occurred to me for which we should delay the second operation. We all know that bandaging a comparatively sterile eye after it has been handled with any kind of cleaning material such as soap, mercuric chloride or otherwise, may bring about a low-grade conjunctivitis, which, when the wound is closed, is in no way endangering the good result; but should we attempt to operate on the eye during this conjunctivitis, if in any degree purulent, we might run the risk of producing an infection. For that reason I concluded it would be better to make the incision, wait until removal of the bandages, and then to allow the eye to become normal again and in forty-eight hours or later perform the second operation, provided no important indication for delay has occurred. It is interesting that Dr. Lambert's case brought out one of the possibilities which I had determined theoretically. Another reason for delay which occurred to me is that we might make the primary incision with an instrument that has a little thicker shaft and when we attempt the second operation six hours later, we might get emptying of the anterior chamber before we have entered with the knife, should the patient behave badly, squeeze the eye, etc. For these reasons, especially as infection is so important I thought it worth while to delay the secondary operation, and I have delayed as long as ten days, with no untoward symptoms. As to the point of secondary operations, three or four weeks ago I was compelled to perform a secondary discission following one of these operations.

Dr. Otis Orendorff, Canon City, Colo.: Nowadays we seldom have infection after cataract extraction, and those who do the preliminary iridectomy will have few cases of infection, so that it can be almost disregarded. Delaying this operation for several days or weeks or months is a disadvantage, for the patient has to go into the hospital twice, which a good many of them will not like to do; and it is not necessary. I have not used Dr. Smith's knife, but the knife Dr. Risley speaks of. I have tried the operation for morgagnian cataract and am not pleased with it, because the contents of the lens are let out into the aqueous instead of the aqueous into the lens capsule, which is the object of the operation. Formerly, with a patient in middle life with a diagnosis and prognosis of immature cataract, the inevitable waiting, the industrial incapacity and mental distress was much like a sentence of death and victims became depressed, run down and assumed serious physical as well as mental condition. This is now entirely changed, for preliminary capsulotomy brings these cases into the category of the most hopeful of the deeper diseases of the eye. There is not only the hope of good vision, but it is not now necessary to wait for the ripening of the cataract. I have had a few cases attended with more or less success. One especially shows the typical mental aspect in many of these cases and the encouraging result. A railroad mechanic, healthy except for extreme nervousness, who had lost one eye by accident in infancy, had a slowly advancing cataract in the other eye which compelled him to abandon his former more lucrative positions. Oculists whom he consulted advised further delay, but he declared this meant insanity or worse. He could still count fingers at 10 feet and a fairly good view of the fundus could be had. The patient refused to wait further. A crucial incision in the capsule was made with the needle knife and to my astonishment the lens followed the knife out of the wound. One year later vision was 15/10 plus with 9 plus 2, axis 165. He has been on the pay-roll ten months, a contented man. My records show a number of slowly developing cataracts in comparatively young people who have only one eye, and a preponderance of cataracts occur in one-eyed people, due probably to the excessive use of the remaining eye. Persons with immature cataract compose a large percentage of our patients, and if this operation will afford them early relief it behooves us to recognize it.

Dr. John Green, Jr., St. Louis: That six hours may be an insufficient interval between preliminary capsulotomy and extraction to permit of efficient separation of the capsule is indicated by a recent experience. My patient, aged 65, had immature nuclear cataract. A capsulotomy according to Smith was done at 8 a. m. There was moderate gaping of the cut, with extrusion of a little gelatinous cortex. Eight hours later combined extraction was made. A large nucleus accompanied by much sticky cortex was with difficulty extracted. Immediately following the delivery of the lens vitreous appeared in the wound, so that contemplated irrigation had to be abandoned. The ultimate result was fair —vision 6/10.

Dr. W. M. Sweet, Philadelphia: Although I have not performed many preliminary capsulotomies according to Dr. Smith's method, I have had an opportunity of noting the effect of the operation in the twenty-five or thirty cases operated on by Dr. H. F. Hansell. In the earlier cases either the Knapp or Ziegler knife-needle was employed, but later the special knife devised by Dr. Smith was used, made by Tieman. Owing to the somewhat faulty construction of the knife, the blade being much wider than the circumference of the shank, the aqueous escaped after the first incision in the capsule, so that the second cut was made with difficulty. In all the cases the extraction was done twenty-four hours following the capsulotomy, as it was difficult in the hospital cases to arrange to operate six hours later. I was especially impressed in these cases by the different behavior of the cataracts even when the incision in the capsule appeared to be of the same extent. In the majority there was only moderate increase in the opacity and in the swelling of the lens. In a few there was a decided reaction. Even with the preliminary capsulotomy, many of the cases showed retained cortex in the pupillary space that required the use of the irrigator. Whether we operate in unripe cataract by the Homer Smith procedure or by preliminary iridectomy, I believe that many cases of retained cortex in the pupil are the result of an inadequate incision at the time of the final extraction, the angles of an incision wiping off portions of the cortex and leaving it in the anterior chamber.

Dr. F. C. Todd, Minneapolis: The operation has been generally accepted as a distinct advance in this class of cases. I cannot agree with Dr. Feingold that we should wait some days before proceeding with the extraction. It seems to me it is better to operate within a few hours than to wait for reaction. One point was brought to my attention by Colonel Elliot, who was enthusiastic as to the operation— the wisdom of operating in the morning instead of the afternoon as suggested by Dr. Smith, in that glaucoma might occur within the first few hours and there would be opportunity for extraction early during the daytime. I have, therefore, in more recent cases, operated in the morning and done the extraction in the afternoon. There is one more advantage in this operation that has not been mentioned. It is evident that one cannot always make a diagnosis of an immature cataract. I am sure others make this mistake. I have extracted not a few lenses that were entirely hard, that has been postponed because of supposed immaturity by other oculists. This operation enables us to diagnose the consistency of the lens, it is an "exploratory incision," and if we find we have made a mistake and the lens is hard we can extract at once after making the capsulotomy.

Dr. M. Black, Denver: Is the knife made right?

Dr. Homer Smith, Norwich, N. Y.: It is a great pity that those who make the instrument do not have to use it. The blade should be beaten from the shank. The belly of the blade should be acutely sharp so that each portion will come in contact with the incision. If not acutely sharp you will lose vitreous. Each knife should be tested out on a drum to see that the cutting edge of the blade is sharp clear up to the point. On account of lack of this some accidents have occurred. Tiemann makes the best knife. Dr. Risley takes up the point of preliminary capsulotomy as a routine measure in acute cataracts. It is universally adopted in England. In my paper the matter of the immediate extraction of morgagnian cataract is taken up, and I do not allow the six-hour interval because there is no cortex to deal with. If there is loss of aqueous at the time of the capsulotomy there is no trouble following, because the anterior chamber can be refilled by an irrigator with normal salt solution and you can go on with the extraction immediately without further waiting. In all the cases reported, 180, there were no infections whatever, so that matter is a negligible factor. But high tension is another matter. In a number of cases there will be high tension, and the longer the interval between the preliminary capsulotomy and the extraction proper the greater the risks of high tension. The high tension cases require some variation in the technic. A speculum should not be used, but fixation. If the anterior chamber is shallow, then you have three operative courses: The incision can be begun by and continued with the scissors curved on the flat. If the anterior chamber is almost completely obliterated, the section can be made from the outside with a broad-bladed scalpel through the sclerocorneal junction. I have seen that done at Moorfields repeatedly. The scissors may be applied in that case also. In all high tension cases the section can be made full size in the ordinary way, but should be completed with the utmost gentleness on account of the risk to the vitreous. I said in my paper that secondary operations are rare; I did not say they are never required. There is a small percentage of cases in which it does not work.

ACTIVE IMMUNIZATION IN DIPHTHERIA AND TREATMENT BY TOXIN-ANTITOXIN*

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The property of toxin-antitoxin mixtures to produce immunity in animals has long been known. One of us (W. H. P.) published a series of successful results in 1903. Smith suggested the attempt to immunize children, but no one undertook it until 1912, when von Behring made the attempt.

In May, 1913, Behring published the results obtained in human beings. The combined substances were either neutral or slightly toxic to the guinea-pig. Individuals were injected with small doses (from 1/20 to 1/10 c.c.) which were repeated in from seven to ten days. The first injections were made subcutaneously or intramuscularly, while later the intracutaneous administration was favored, since the more distinct local reaction was believed to induce a greater efficiency of vaccination.

The results as reported from different observers have not been uniform and as a rule are not distinctly stated. Hahn reports antitoxin production in thirty-six out of forty treated; as we shall see later, the fact that twenty-five of the forty patients had natural antitoxin already present modifies greatly the favorable nature of this result. Failure to respond was at first attributed to a lowered general condition but now we realize that it was because the susceptibility to the immunizing response to vaccine varies. It seems greatest in young adults. Zangmeister reports the interesting fact that the new-born are nearly a hundred times less susceptible to vaccine than adults. Kleinschmidt and Viereck report the active immunization of twenty-seven cases, but give no definite data. They advise combined active and passive immunization in persons exposed to diphtheria and also suggest the use of the Schick reaction in determining antitoxin content of persons after vaccination. Kissling reports results at Hamburg-Eppendorf in the immunization of 310 patients who were exposed to infection. In the 111 who were injected twice, no diphtheria developed. In the 109 cases injected once, 8 patients developed clinical diphtheria. During an epidemic of diphtheria, Hahn and Sommer vaccinated part of the inhabitants of several villages: of 633 patients considered fully immunized only two developed mild diphtheria, but 10 of the group developed it during the first ten days. The disease continued to spread to some extent among those not vaccinated. Bauer finds that the persistence of the bacilli in carriers is not shortened by active immunization. He believes that not only all patients with antitoxin, but also those without natural antitoxin can be immunized, if sufficient doses and amounts of vaccine are injected.

The interval between the injections of vaccine and development of antitoxin varies in different cases. According to Hahn it is usually not less than three weeks. Kleinschmidt and Viereck found it shorter—even eight days. Patients with natural antitoxin usually show early and considerable antitoxin production. They also generally show a somewhat greater local susceptibility to vaccines. This according to von Behring is due to sensitization from previous infections with the Klebs-Loeffler bacillus.

According to von Behring, the higher temperature of fever will destroy antitoxin at an increased rate so that an amount of antitoxin, which generally protects, fails to do so in measles and scarlet fever. Schick and Karasawa find, however, that no change in antitoxin content is caused by measles. Von Behring considers that 0.01 unit per cubic centimeter is sufficient to protect healthy persons. Much less than this probably suffices except under unusual conditions, as in scarlet fever.

PERSONAL EXPERIENCE

During the past twelve months the attempt has been made to immunize actively against diphtheria the patients in the scarlet fever wards of the Willard Parker Hospital. Owing to the large number of diphtheria-carriers admitted, the conditions in this hospital during the winter were such that on the average about one-quarter of the inmates were diphtheria-carriers.

For this purpose mixtures of diphtheria toxin and antitoxin were prepared, either slightly antitoxic, neutral or slightly toxic to the guinea-pig. A strong diphtheria toxin was used, where the minimum lethal dose was 0.0023 c.c. and L+ dose 0.27 c.c. The mixtures represented B 50 per cent., A 66 per cent., G 66 per cent., F 80 per cent. and E 90 per cent. L+ toxin to each unit of antitoxin. The L+ dose of toxin is the amount which, when mixed with 1 unit of antitoxin and injected into a 250-gm. guinea-pig, will cause its death at the end of four days. One c.c. of Mixture E caused when injected into a guinea-pig at first a slight local induration and then in about twenty-days paralysis.

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* From the Research Laboratory of the Department of Health.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

The injections were made subcutaneously or intramuscularly in doses of from 0.25 to 1 c.c. of undiluted vaccine; a few of the non-immune persons received as high as from 3 to 5 c.c. at each injection. The dose was repeated two or three times at intervals of from three to seven days. The injections were made posteriorly in the intrascapular region, in some over the insertion of the deltoid.

The local reactions consisted as a rule of varying degrees of redness, induration, pain and tenderness; in part they seemed to depend on the size of the dose and in part on the individual susceptibility. Persons with natural antitoxin gave somewhat more frequently the stronger local reactions. The constitutional symptoms were as a rule rather mild; occasional temperature reactions of from 1 to 3 degrees were noted after larger doses of Mixture E.

The results of the active immunization were controlled by determining the antitoxin content before the injection; again three weeks and more after the injections similar examinations were made. The antitoxin content of the serums was estimated by Römer's intracutaneous method on the guinea-pig. As it was not possible to detect less than 1.160 unit in 1 c.c. of serum, anything less than that was considered as absence of antitoxin, although naturally some serums not showing this amount may have had a slight trace.

A group of 68 patients was injected with the various vaccines; of these, 44 had, before the injections, sufficient natural antitoxin to protect them against diphtheria. They all showed a decided production of antitoxin in a relatively short time (in some as early as seven days). The remaining 24 patients had no appreciable antitoxin before the injections; of these, 6 gave rise to distinct antitoxin production while 18 failed to respond.

Five patients of the 18 which did not respond developed slight or moderate clinical diphtheria two weeks or more after the first injection. Four had tonsillar exudates and one nasal diphtheria with visible membrane in the anterior nares. Cultures were positive, and the isolated Klebs-Loeffler organizations virulent.

We thus found that persons with natural antitoxin gave a ready response to active immunization, while those with no appreciable natural antitoxin failed to do so in a considerable proportion of cases. A larger group of susceptible patients was, therefore, selected to determine these results in a greater number of cases. For this purpose the intracutaneous reaction of Schick with diluted diphtheria toxin was used. This reaction depends on the local irritant action of toxin in the absence of antitoxin. A dilution of diphtheria toxin is made of such strength that 0.1 c.c. contains 1/50 minimum lethal dose for the guinea-pig. This amount is injected intracutaneously on the flexor surface of the forearm. A positive reaction appears in from twenty-four to forty-eight hours, and is characterized by a circumscribed area of redness and slight infiltration, which remains for from seven to ten days. After fading, a brownish pigmented area is left for days and weeks which in beginning generally shows superficial scaling. According to Schick, a positive reaction indicates that there is less than 1/30 unit of antitoxin in 1 c.c. of blood. The majority have none at all. Such persons he considers susceptible to diphtheria. Our estimations agree with his conclusion.

The Schick reaction was again employed three weeks and more after the vaccination to indicate clinically whether or not the patients had responded to the immunization. In many, bleedings were taken and tested in addition before and after the injections.

Ninety persons without appreciable antitoxin were thus selected who received full immunizing doses of Vaccines E and F; of these only twenty, or 22 per cent., gave rise to a decided production of antitoxin (1/20 up to 10 units per cubic centimeter). Among the remaining seventy patients a considerable number were found in whom the Schick reaction was fainter, but not obliterated when the tests were made four or five weeks after the injections; the antitoxin produced, however, was too small in amount to be detected in the animal test. Seventeen of the seventy patients who failed to respond developed clinical diphtheria twelve days or more after the first injection of the vaccine; those who showed symptoms before twelve days were not included in the group. Twelve patients had purulent nasal discharges sometimes tinged with blood, four tonsillar exudate, and one laryngeal diphtheria. The cultures were positive, and the isolated organisms virulent.

We note that active immunization in this group of susceptible persons gave rise to decided antitoxin production in 22 per cent. of cases; the interval between vaccination and development of immunity was generally long, as a rule not less than two weeks. Under conditions of exposure about 20 per cent. of those who failed to respond have developed clinical diphtheria.

SUMMARY

Active immunization produced a very decided increase of antitoxin in a relatively short time in all persons who had natural antitoxin. These, however, were immune to diphtheria before the injections were made.

In a series of 700 scarlet fever patients of varying ages tested by us for natural immunity by the Schick reaction, 400 gave a negative reaction. Fifty-seven per cent. were, therefore, naturally protected and needed neither active nor passive immunization. Less than one quarter of the remaining 43 per cent., which were probably susceptible to diphtheria, reacted to active immunization with mixtures of diphtheria toxin and antitoxin to a degree sufficient to immunize them surely. A larger percentage developed a trace of antitoxin which was possibly enough to give a slight protection.

CONCLUSIONS

Those who are definitely exposed to infection should be passively immunized even if the toxin-antitoxin injections have been given.

The use of the Schick test will eliminate the necessity of immunizing about two-thirds of those subjected to exposure, as judging from a year's experience, those not reacting are immune.

Those found to be naturally immune probably continue immune for a considerable period of time, possibly indefinitely.

Active immunization is indicated when there is no immediate danger of infection and when it is desirable to lessen the number of susceptible persons. It is too early to decide whether active immunization should be attempted on a large scale. The lack of a sufficient response of at least 50 per cent. of those susceptible to diphtheria and the fact that the immunity lasts for but one or two years are drawbacks that will probably limit to some degree its usefulness.

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THE USE OF ANTITOXIN IN DIPHTHERIA *

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Conclusions as to the use of any remedy in a disease must be based, in the final analysis, on practical experience. Theory may aid us in finding the remedy and may guide us in its use, but our final judgment must be based on results alone.

Diphtheria antitoxin has been abundantly proved to be a specific for diphtheria, and a cure when used in correct doses at the proper time. With an agent at our service, known for such a length of time, of such acknowledged usefulness, and of such direct and specific action, it is surprising that there should exist even that small percentage of failures which we must constantly face. It is true that the circumstances of general practice and the possibilities of error in diagnosis offer limitations to the immediate and proper use of the serum which make the attainment of ideal results out of the question. Nevertheless, it must be apparent that it should be possible still further to reduce our mortality, reduce it to a much smaller figure than it is at present. If, therefore this result is to be achieved, we must accomplish it by a change in the method of our use of the specific for the disease — general hygiene of the patient and medication being watched always in addition.

This paper is based on personal observation of over ten thousand cases of diphtheria at the Philadelphia Hospital for Contagious Diseases. This series of cases has given me ample opportunity to observe the action of various doses of antitoxin.

The use of antitoxin in diphtheria is so eminently successful because diphtheria is primarily a local disease, exerting its harmful effects through the formation of a toxin by the organism causing the diphtheritic process. This toxin is quickly spread throughout the entire body and attacks early the nervous system, heart and kidneys, all structures of vital importance. The resistance of the body to this toxin is by the formation within of an antitoxin, and this protective action we aid by the introduction from without of an antitoxic serum.

The term "antitoxin" as used in this paper refers to the serum containing antitoxin — the diphtheria antitoxin of the United States Pharmacopeia, officially defined as "blood-serum from horses immunized against diphtheria poison." There is also in use a method for determining the amount of antitoxin in the immune serum. This method, by which the content is expressed in certain definite units, enables us to measure comparatively our doses and in this way is of great aid. But there has been devised no way of estimating the number of such units needed by a particular person suffering from diphtheria. This we can determine empirically only — not entirely by any particular symptom in a given case, but by the observation of a great number of similar cases.

Of course our dose must be determined to a great extent by the size and susceptibility of the patient, the severity and extent of the lesions, the length of time the patient has been ill and perhaps by the virulence of the disease in a particular epidemic.

I am entirely satisfied that diphtheria antitoxin as generally used is given in doses far too small. Our object should be to accomplish by its use the neutralization of all the diphtheria toxin within the body and the giving of a certain excess of antitoxin for the further use of the body in counteracting fresh toxins that may be formed at the focus of infection.

A discussion of the advisability of using larger doses of diphtheria antitoxin must cover three points:

1. Our objects in giving larger doses.
2. The benefits to be derived from such doses.
3. Possible objections to their use.

The object we have in view is the rapid and complete neutralization of the diphtheria toxin by a single dose of antitoxin, if this be possible. Most cases of diphtheria treated by present methods are given numerous doses of serum — small in comparison with those which may be used safely. In a good percentage of cases the patients recover — when finally the toxins have been balanced by repeated masses of antitoxin in addition to the antitoxin elaborated within the body. Why not make the endeavor to give at once as an initial dose such an amount of antitoxin that this neutralization will be accomplished without delay, and that possibly there will be an excess of antitoxin still in the system to combat toxins later elaborated. To give a dose too small invites disaster by causing delay in checking the disease process. To give too large a dose can do no harm and may be a safeguard for the future.

The benefits derived from so-called large doses through the rapid neutralization of toxins are threefold:

1. The patient is rapidly cured of the disease.
2. Complications are minimized.
3. The patient's recovery is hastened and the infectious period shortened.

The rapid action of even moderate doses of antitoxin is often marvelous. Far more certain, rapid and permanent are the effects of large doses. By overwhelming the toxins, recrudescences are rendered less liable to occur. Complications, with few exceptions, result directly from the action of the toxins on the vital structures — the heart, kidneys and nervous system. It must be evident at once that if we rapidly neutralize the toxins and avoid the formation of new toxins or forestall their effects, we must be lessening the probability of the occurrence of complications.

Before proceeding to a discussion of the possible harmful effects of large doses, two points should be carefully noted:

A. The location of the disease process and its extent, the virulence of the infection, the patient's general condition and the duration of the illness must all be considered in arriving at a conclusion as to what a correct dose of antitoxin is in every particular instance.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

B. The following indicates just what I mean by large doses, and what doses I am accustomed to give.

No case of diphtheria, however mild, should receive less than 10,000 units.

Both tonsils well covered with exudate, of one or two days' duration, from 30,000 to 60,000 units.

Both tonsils well covered with exudate, with palate, uvula and nose involved, of three days' duration or thereafter, from 150,000 to 300,000 units.

Nasal cases, simple, 20,000 units.

Nasal cases, with marked symptoms of toxemia, from 50,000 to 150,000 units.

Laryngeal cases, from 30,000 to 45,000 units.

Laryngeal, in combination with other varieties, should mean a corresponding increase in dosage.

The theoretical advantages of large doses have been stated. One practical advantage also is the avoidance of the pain and discomfort of frequently repeated doses. What are the objections which might be urged against the use of large doses?

1. Such an amount of antitoxin might prove harmful to the patient. This is disproved by actual experience. Untoward results from the use of diphtheria antitoxin have followed the use of moderate or even small doses just as often as after the use of large ones. Indeed, it has been shown that such a result is not due to the antitoxic bodies themselves, but to the serum alone. There is then a great possibility that such after-effects might be avoided entirely, certainly minimized, by the higher concentration of the antitoxin.

2. The possibility of anaphylactic shock. In my experience this is extremely rare. Its occurrence is of such great rarity that it cannot be allowed to influence us in the least. Too many lives are lost by too little antitoxin being given to allow a theoretical possibility to keep us from making a cure.

Local sloughing from the bulk of the serum is very rare and will be avoided entirely by further concentration.

My actual results show well in the accompanying table.

RESULTS IN AUTHOR'S CASES

Year	No. of Cases	Deaths	Per Cent.	Dosage
1908	1,426	127	8.55	Very small.
1909	2,153	144	6.69	First year large doses were used.
1910	1,870	120	6.42	Larger doses about as used in 1909.
1911	1,895	130	6.86	Doses smaller than in 1909 and 1910.
1912	1,676	101	6.02	Larger doses used.

The advantages of large doses are really greater than would appear from these statistics, which include deaths from all types of diphtheria.

The benefits to be derived from large doses are less apparent in the treatment of laryngeal diphtheria than in any other form of the disease. This is due to the fact that practically all cases of this variety are sent to the hospital only when far advanced and because the condition then to be combated is not a toxemia, but rather a physical one, due to the location of the membrane. We have to deal with principally a mechanical obstruction to the intake of air resulting in insufficient oxygenation. These deaths are due to asphyxia and exhaustion or to bronchopneumonia, and not to the toxemia of diphtheria.

In our tables this number of laryngeal cases always influences the death-rate. Were we able to show the results of large doses of antitoxin when the toxemia alone must be dealt with, our figures would be even more favorable.

In the septic types, aside from the great satisfaction of feeling that the doubt as to the ultimate outcome has been set aside, we have also the comforting knowledge that by the use of large doses of this specific we have brought to a minimum the chances for the development of that most dreaded of all complications, postdiphtheritic paralysis.

The occurrence of serum sickness and serum rashes is not a bar to the use of large doses. The rashes, however, are frequent, having occurred in 43.4 per cent. of 1,000 carefully analyzed cases.

Of these, 0.3 per cent. were scarlatiniform, and 1 per cent. morbilliform. In 11.2 per cent. no variety was stated, and in 30.9 per cent. the rash was urticarial. The appearance of the rash was as early as a few hours and as late as several weeks. I have never observed dangerous or alarming serum sickness, though a few of the patients have become painfully ill and remained so for as long as a week.

Since, then, there is no bar to the use of large doses, there remains but a summary of my results with their use.

These results are:

1. Prompter local cure.
2. Quicker improvement in the patient's general condition.
3. Permanence of curative action.
4. Avoidance of complications.
5. Reduction of mortality.
6. Harmlessness of large doses.

I doubt, indeed, whether we have as yet used diphtheria antitoxin in doses that give its full therapeutic efficiency.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WILLIAM H. PARK AND SAMUEL S. WOODY

Dr. Lewellys F. Barker, Baltimore: While it is desirable to use enough antitoxin, it has not, in my experience, been necessary to use as large doses as Dr. Park has recommended. I should like to ask Dr. Park if he has seen diphtheria develop in a patient in whom the Schick reaction had been found to be negative? This reaction seems to me very important. Every physician in the country should know about it at once, so that the benefits of this discovery may be widely disseminated.

Dr. John F. Anderson, Washington, D. C.: Dr. Park's first statements in his summary, that those who are exposed to infection should be immunized, should be emphasized. We have been somewhat scared by anaphylaxis. I believe that anaphylactic reactions from a second injection are very rare and they need not be given much practical consideration. In diphtheria the time of injection is important. Ten thousand units is of more value when given early than 100,000 or 200,000 when given later. I believe that we usually get a full effect without the large doses of 100,000 or 200,000 units of antitoxin.

Dr. J. J. Kinyoun, Washington, D. C.: Some years ago we had a number of horses which were not producing the amount of antitoxin they should and we transferred them. They were kept without immunization for four months and then used for other antiserums. In two of these horses, tested four years afterward, not having had any antitoxin during this time, the blood showed 16 units per cubic centimeter of antitoxin. The active immunization of these horses would seem to be of long duration. A careful estimate made of the cost per thousand units, just after the precipitating method was introduced, showed that it ran from 6½ to 8¼ cents.

Dr. P. S. Roy, Washington, D. C.: If we use larger doses of antitoxin we must reduce the price. According to Dr. Kinyoun a $5 package costs the manufacturer 37 cents, and if this is true then we should demand 10,000 or 15,000 units for the price we are now paying for 4,000 units.

Dr. Guy L. Kiefer, Detroit: My results are based on a smaller series of cases than Dr. Woody's, some 882 cases since January, 1913. In the first six months of the treatment of these cases the minimum dose was 5,000 units; 5,000 to 10,000 units were given as an initial dose; beginning last July 10,000 units. The mortality rate up to July 1 was 8.24 per cent., and from July 1, 1913, to May 1, 1914, the death-rate was 4.1 per cent. I wish to emphasize early administration. We had no deaths in patients who received the antitoxin on or before the third day. With regard to the kind of case, the comparison between the smaller dose and the larger dose was on cases of approximately the same type.

Dr. D. L. Richardson, Providence, R. I.: We should give large doses early. I think that Schick's test would be of more value for the community than in an institution. In institutions the patients are more under control and diphtheria carriers can be separated. Relative to treatment, certainly, large doses should be given. In mild cases, of course, it is not necessary. I had one experience, however, which would need some explanation and in which antitoxin seemed to have a limited value. This was in a nurse who was all right at breakfast time. At noon she had two or three patches. At 5 p. m. cultures were found positive and antitoxin was administered. In all she received 150,000 units of antitoxin. In three or four days she was very ill with virulent diphtheria with edema of the neck, and later cardiac complications, etc. This case was seen early and if not so seen would no doubt have terminated fatally. With reference to early administration, we should obtain for the community what is possible in the hospital. In Boston City Hospital for fifteen years there have been many cases of diphtheria in nurses and doctors without any deaths, and if this can be done in hospitals it should be aimed at in the community.

Dr. W. W. Tompkins, Charleston, W. Va.: How long after diphtheria has been in a house would Dr. Park lift the quarantine? If the persons in the house were given an immunizing dose, could they go out earlier than those who had not taken the immunizing dose, and are the latter a source of infection? Does Dr. Park advise the large doses sometimes given in diphtheria? Are they safe or necessary?

Dr. Samuel S. Woody, Philadelphia: Concerning the time of administering antitoxin, as mentioned by Dr. Anderson, it goes without saying that were we to administer the specific on the first day of the disease, and in a dose of 10,000 units, there would be no further need of antitoxin; furthermore, there would be practically no mortality. All experience bears us out in this statement. I stated in the beginning that my paper was based on personal observation alone. I have tried antitoxin in all-sized doses and in all types of the disease, and am firm in my belief that to obtain the best results we must give the serum in massive doses.

Dr. William H. Park, New York: The Schick injection is given with a small hypodermatic syringe with a platinum point and 1/10 c.c. is injected into the skin. A raised whitish spot will be seen over the injection. It covers an area the size of a half-dollar. The injection must go into the skin and not subcutaneously, and the little raised whitish elevation must be obtained. In twenty-four hours it becomes bluish with a slight edema, passes off in forty-eight hours and gradually disappears, but leaves a pigmentation. A false reaction may be found and then a second injection must be given; this is due to the broth and probably happens in only 2 or 3 per cent. of cases. It is perfectly correct to use for four or five weeks. With regard to quarantine—the use of antitoxin does not affect the carrier at all. Carriers need not be prevented from going out. We insist on two negative cultures from the patient before the quarantine is lifted. With regard to Dr. Barker's question: No patient has developed diphtheria after a negative Schick reaction so far as I know. We feel absolutely safe in leaving a case with a negative Schick without immunization. Unquestionably, a patient may receive any amount and in twenty-four hours may develop malignant diphtheria because the process has started, but after two or three days I have found such cases to be usually of syphilis or angina or something else. Dr. Woody stated that we cannot determine by experimentation how much antitoxin is needed in a given case. We try to give enough to neutralize the toxin in the body. We give the antitoxin in amounts large enough to get it from the tissues to the blood and out again to the local tissues where the toxin is generated; it is, therefore, the speed in getting to these various points which counts. It will be found that one-half of the patients have no toxin in the blood whatever. In the local cases a greater amount will be noted so far as the tissues are concerned. I agree with Dr. Woody that only a single dose of antitoxin is required, 5,000 units in mild, 10,000 in severe and 20,000 in malignant cases. So far as the appearance of the patient goes, the single dose has given better results, and so far as the mortality goes also. Mortality has dropped, probably owing to the single large dose. The antitoxin requires two days for 1/3 to be absorbed and another two days for the other 1/3 to be absorbed, so that it seems impossible that any larger amount will do any good. After twelve hours there is little toxin in the body except possibly locally in the tissues. We have kept to the single dose for the last year and we do this by taking a blood-test before the second injection. Ten thousand units intraveneously is worth 100,000 units subcutaneously. We have in every way tested this and we find that larger doses than from 5,000 to 25,000 units make no difference. In the more toxic cases better results are obtained from the intravenous injection, but not so in the others. Forty thousand units will save any patient that 1,000,000 will. I have seen or heard reports of severe shock in a few cases in which large doses have been given, which the small doses would not have caused, but I agree with Dr. Woody that these are few. We have never had a death in our hospital from an injection of serum. I rather feel that a large primary injection coming through safely insures against fatal result from any other injection.

TREATMENT OF UNLOCALIZED INTRACRANIAL INJURIES BY DRAINAGE THROUGH A SUBTEMPORAL APPROACH*

V. P. BLAIR, A.M., M.D.
ST. LOUIS

The emergency service in the City Hospital of St. Louis gives, I believe, exceptional opportunities for the study of intracranial injuries. In the two years, 1910 and 1912 during which I was on the Visiting-Staff, I devoted my spare time to a study of them.

Of course, all cases presenting external or neurologic signs of localized head injury, that can be directly approached, are treated accordingly, but a great many suggest no special point of surgical attack, mostly cases in which the injury is at the base of the brain; these are usually generalized as fractures of the base of the skull. In very few of these is a fracture, if present, the most important lesion, the immediately grave symptoms arising from a concussion injury of the brain and its coverings.

A composite picture of such cases might be presented as follows:

The patient is unconscious or semiconscious, pulse slow, normal or rapid, respiration sometimes stertorous and with more or less disturbance of the reflexes and voluntary movements. The pupillary reflex is the one most frequently disturbed. There may or may not be bleeding from the nose, mouth or ears. Death may follow quickly or recovery may take place. In a running series of eighty patients not operated on it was found that 20 per cent. died in less than two hours and over 50 per cent. in the first twenty-four hours. Of the patients that survived twenty-four hours, about half lingered for several days, being restless and semiconscious; later the pulse became weak and rapid, followed by coma, very high temperature and death.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

At necropsy I have never seen a bony depression that could directly account for death, but there is intradural extravasation of blood, thrombosis of some of the cerebral veins with localized softening of the brain; these changes are most marked above the tentorium. In few of these cases there is interventricular hemorrhage or evidence of deep extensive primary brain injury, for such patients die more quickly. There is, however, not infrequently actual pulpefaction of the under surfaces of the frontal and temporosphenoidal lobes. These necropsy findings are concurred with by Dr. D. L. Harris, who was for six years pathologist of the City Hospital. The general picture of the late fatalities is the one to suggest that death was due to some secondary circulatory change rather than to the primary injury. This has been designated as an encephalitis, but in very few cases is there evidence that there had been an infection.

It is characteristic of all soft tissues, after injury, to become swollen, because of an increased blood-supply and other changes which follow and which seem to be, at least in part, related to repair.

The brain is enclosed in an unyielding case which does not provide for an increase in bulk, and further, there is frequently an extravasation of blood that actually lessens its normal space. On the theory that the subsequent clinical symptoms and necropsy findings might in part be due to a lack of space and a consequent interference with circulation, a means was sought to correct this. Repeated lumbar punctures were tried but, though this brought about a clear spinal fluid, the results were not satisfactory.

It seemed to me that single or bilateral subtemporal decompression and drainage of the subdural space should be helpful for the following reasons:

The operation is easily and quickly performed, leaving the defect in the least exposed position and protected by the temporal muscle. With the finger in this opening a large part of the orbital surface of the frontal lobe, the under surface of the temporal lobe and a fair part of the convexity of the hemisphere and inner surface of the skull can be explored; clots and also pulpefied parts of the under surfaces of the temporal and frontal lobes can be withdrawn so that the drainage prevents a further accumulation of blood and rapidly clears the cerebrospinal fluid.

If a disinfectant such as hexamethylentetramin is used, the drainage of the cerebrospinal fluid insures the dissemination of the disinfectant throughout the subarachnoid spaces.

Finally, the presence of the decompression defect allows for a certain amount of expansion of brain, insuring a freer circulation and possibly accommodation to a hidden clot.

With the help of Dr. A. H. Ryan an effort was made to substantiate or disprove those suppositions by animal experimentation in the physiologic laboratory of the Washington University, with not very conclusive results. These experiments were unsatisfactory for the following reasons:

The concussion injuries of the brain with which we were dealing are dependent on the size of the human brain and the elasticity of the human skull, which is not to be duplicated in any available animal. As a result it is very difficult to administer a concussion injury from which the animal cannot be revived without operation and which, on the other hand, will not be immediately fatal. We used young kittens that have a comparatively thin calvarium; and in dogs we undertook to overcome the skull resistance by freeing an osteoplastic flap in the vertex and after suturing the scalp allowing the wound to heal entirely before applying the injury blow. A machine, fashioned somewhat after a pile-driver, was contrived that would deliver a blow of measured force. The weight was so controlled that it could travel only a measured distance, varying between 2 and 5 mm., after touching the skull. In some cases the blow was applied to the temporal region without previous osteoplastic operation. In all cases a knock-out blow was given; in some cases the animal died immediately and in most instances artificial respiration was required for a time after the blow. All animals were etherized for the preliminary operation. Animals that showed nervousness were etherized before striking the blow. The machine acted with the greatest precision and the animals that were knocked out without previous etherization suffered no more pain than a felled ox.

In about half the animals that survived long enough, an immediate subtemporal opening was made in the skull and dura, this area having been previously shaved and cleaned. The making of the opening required about three minutes.

The points established at operation were, that an animal struck on the vertex, under the proper circumstances, showed at necropsy a basal clot around the cisterna magna and the interpeduncular space and enveloping the pons and medulla. In animals struck in the same way but on which an immediate subtemporal decompression was done, such a clot was either absent at necropsy or at least absent on the side that was drained.

In some animals the blow was applied low down over the temporal region without previous osteoplastic operation. In one of these it was demonstrated that a dog which had an apparently lethal injury, unconscious, requiring artificial respiration, almost totally paralyzed and with a deep and extensive depressed fracture, in which an immediate subtemporal decompression and drainage was done on the opposite side to the injury, could gradually improve until in ten days almost all paralysis had disappeared. For six days this dog had to be fed with a stomach-tube. We have extensive operative and hospital notes on thirty-seven of these animal experiments.

In the City Hospital we found records of forty-two cases in which a single or bilateral subtemporal operation was done in my service for severe unlocalized intracranial injury, during the two years specified. These operations were done by the residents, Drs. Sewing, Hewitt and Hagler, but the majority by myself. During this period the operation was not done indiscriminately but, it being to us a new procedure, it was done, with few exceptions, only in cases of apparently very severe injury. Lumbar puncture was used to determine the presence of free intradural hemorrhage. Of these injuries, five were deep gunshot wounds of the brain.

Besides the behavior of certain individual cases, the most striking observation in this series is that out of forty-two cases in which the injury could not be located before operation, in thirty-one, through a single or bilateral subtemporal operation, pulpefied brain substance, a subdural clot or severe hemorrhage was found and dealt with. In seven others, either an extradural clot or contused brain was exposed.

On account of the diminutive size of this series of operative cases, no statistical conclusions of real value can be drawn, but as a matter of interest I have lately made certain comparisons, between the results in this series, with a running series of eighty basal injuries not operated on in another service. In these eighty cases without operation, there were seventeen deaths within two hours after admittance and for the sake of comparison, these were eliminated, leaving sixty-three injuries not operated on in which there was survival for two hours or more. In the series with operation, seventeen patients were operated on within two hours after the patient was received. The proportion of very early operations would have been much higher if, in the early part of the series, we had not waited to see how the doubtful cases would do without operation. In the latter part of the series, the majority of patients were operated on within two hours after admittance.

In the series of sixty-three patients not operated on who lived more than two hours, 35 per cent. survived.

Of the forty-two patients operated on, 57 per cent. survived.

The time of operation would appear to be important. In half of the successful cases, but in only one-third of the fatal cases, the operation had been done within two hours. Of the patients on whom operation was performed within two hours (and this means that the dura was open within the two hours) 70 per cent. survived. It has already been stated that in sixty-three patients not operated on surviving two hours or more, only 35 per cent. lived.

The significance of time as a factor in prognosis is indicated by the following data:

Of those not operated on who survived twenty-four hours, 58 per cent. ultimately recovered.

Of those operated on who survived twenty-four hours, 75 per cent. recovered.

Of those who survived forty-eight hours, about 75 per cent. in either series ultimately recovered.

Next to disturbance of the sensorium, the most constant single sign of severe brain injury was disturbance of the pupillary reflex. Of patients giving this sign in the series without operation, 27 per cent. recovered; in the series with operation, 57 per cent. recovered.

This comparison between the two series of cases is not presented with the idea of proving a point, but simply as data that are interesting as far as they go. These figures were only lately compiled, but two years ago after watching the operated series here presented, I concluded to open every skull subtemporally of every patient seen early with supposed unlocalized brain injury, and have done this ever since and believe it is a good procedure. The opening of the cerebellar fossa is relatively difficult and shock-producing, and as in most cases the injury is above the tentorium, I have not used this route.

In practice several points have been developed that had not been thought of when the plan was made.

In the presence of an open fracture of the vertex, when on exposing the dura it is demonstrated that the latter has not been punctured but that there is a subdural clot, the latter can be partially removed and drained through a subtemporal opening with less risk of brain infection or of injury to edematous cortex than if the dura is incised at the site of the original injury. We have done this with satisfactory results several times. Further, if the middle meningeal artery is suspected as being the source of hemorrhage, which is comparatively seldom the case, this vessel can be controlled from the subtemporal wound.

The technic of this operation is simple. A fair area of the temple is shaved and iodin is applied. A curved incision, convexity downward, is made from the pterion to behind the upper attachment of the ear, through the skin and temporal fascia. The temporal artery is caught and the flaps forcefully retracted with hooked retractors. The fibers of the temporal muscle are separated with an elevator and these are drawn apart by retractors held by another assistant. The skull is opened to the size of a half-dollar, the dura incised in several directions, the posterior branch of the meningeal artery being tied or caught with a Cushing clip. The neighboring surfaces of the brain are gently explored and clots hooked out with the finger. A piece of rubber glove drain is inserted in the direction of the clot and the muscle and skin-flaps are closed. The drain is removed in twenty-four hours. In severe cases, in injuries in which there is evidence of intracranial pressure but no clot found, or when the respiration is disturbed by the operation, it is repeated on the other side. The operation is usually done on the right side first. If after drainage ceases at the wound, there is any evidence of pressure, repeated lumbar punctures are done. If carefully and gently done, I do not believe that the operation described is ever likely to cause real damage. It may hasten death by a few hours or minutes, in a patient who has a rupture of one of the large cerebral arteries, but such a patient would be unconscious and already doomed.

Metropolitan Building.

ABSTRACT OF DISCUSSION

Dr. Charles A. Elsberg, New York: I agree with Dr. Blair concerning the importance and the value of subtemporal decompression in fractures of the skull with brain injury, with hemorrhage under or outside of the dura in a large number but not all of the patients. One has to individualize, and to watch each patient; only those patients who show either very marked symptoms from the beginning or who show steadily advancing symptoms require operative interference. A sign of value in this respect is the change in the eyegrounds. One can almost foretell the symptoms of pressure that will appear from the changes in the retinal vessels. When the symptoms are very marked or if the symptoms are steadily progressive, decompression on one or both sides with or without opening of the dura and with or without incision of the cortex is required. One point which has been to me, at least, of the utmost value in doubtful cases is puncture of the skull. We know very well that in not a few of these patients with fractures of the skull the symptoms are due, not to the gross hemorrhage in or around the brain or outside the dura, but to numerous small hemorrhages throughout the brain substance. It is this condition which used to be called cerebral shock. Conditions of this kind often give the symptoms of a gross hemorrhage on the surface of the brain; to differentiate between the cases in which there is a gross injury (in which a subtemporal decompression with removal of the clot is indicated) from those with multiple hemorrhages (where operation is not indicated, except for a secondary edema), puncture of the skull is most useful. To illustrate: if the introduction of the needle through a small skull-opening down to the dura is negative, push the needle through the dura and aspirate again. In this way one can differentiate between the cases which need operation and those which do not. There is nothing more disappointing than to open a patient's skull for symptoms and find no marked increase of pressure and realize that you have to deal with a case of multiple hemorrhages in which operation would have been better avoided.

Dr. C. A. Evans, Milwaukee, Wis.: It is apparent that this operation has not met with general acceptance. In order to determine whether or not it is worthy of acceptance I believe it is worth while to report the results obtained. I have operated on twenty-five cases by this method. Most of these were cases of basal fracture, in which the injury itself did not afford sufficient relief from pressure, and lumbar puncture showed bloody fluid. There was a mortality of 20 per cent. Taking the average mortality following such injuries without operation as 50 per cent., this is a reduction in mortality of 30 per cent., approximately what Cushing claims for the operation. The saving of life, however, is not the only consideration, for we must guard against the remote possibilities of the injury. In skull injuries with compound or depressed fractures or when a piece of bone has been removed either by the injury itself or by operation, there is less chance of subsequent trouble than there is in the so-called closed skull fractures. If this is true then surely an opening beneath the temporal muscle, over a mute area of the brain, should lessen the danger of cerebral complications. In two of the cases there was an extradural hemorrhage, and this approach permitted the ligation of the main trunk of the middle meningeal artery and the removal of the clot. I believe that this is the approach of choice in middle meningeal hemorrhage. In two of the cases a primary bilateral drainage was done. Three showed no improvement after unilateral drainage and a later drainage was done on the opposite side with recovery. I do not believe a decompression alone is sufficient. The brain should be elevated and a drain placed in the middle fossa. The whole question of intracranial injuries is one of intracranial pressure. The operation is not one for the open treatment of skull fractures but for the open treatment of intracranial pressure. It matters not what this pressure is due to or whether or not there is a fracture. The important thing is the amount of the pressure and the ability of the brain to withstand it. Trauma to the brain, like trauma to any other part of the body, is followed by the processes of reaction, which is a space-restricting process. Subtemporal drainage relieves this space restriction, absorption takes place, and the circulation is given its best chance to return to normal. There is a large percentage of intracranial injuries that are primarily fatal and the mortality cannot be reduced. Some patients will recover whether operated on or not, either because of the non-severity of the injury, or because of relief from pressure afforded by the injury itself or by lumbar puncture repeated as needed; a large percentage will recover only after a basal drainage, some after unilateral, others only after bilateral drainage.

Dr. C. E. Ruth, Des Moines, Iowa: In 1889 I reported a case of injury to the skull in which a clot formed beneath the dura and the skull in a child who fell 15 feet and struck on its head on a plank sidewalk. He was trephined and the clot beneath the dura and one beneath the skull and external to the dura were found. The child recovered, and in reporting the case I said we can expect this to occur only in young children in whom the elasticity of the skull is such that after having been driven against the soft brain it will spring away and tear the branches of the middle meningeal artery loose. Immediately after this Dr. J. McFadden Gaston of Atlanta, Ga., wrote me that he had a case in a man aged 56, the symptoms disappearing under purgation, without operation, and the patient died from disturbances of a large clot that formed in the middle fossa extending from the base to the vertex, disproving my theory with regard to the liability of fracture. In another case which occurred in my experience, which was immediately fatal, a clot as large as my hand extended from the base to the vertex of the skull over nearly the entire skull on one side with absolutely no sign of checking of the skull showing at any point. I wish simply to emphasize the importance of what Dr. Blair has said in his paper with reference to the possibilities of relief from the use of the decompression operation. I take exception to decompression without opening the dura. I can conceive of no such thing being possible except it be in a case in which the blood is extradural. To do a decompression operation it is imperative that we open the dura.

Dr. Vilray P. Blair, St. Louis: Dr. Elsberg did not mean to make that statement about not opening the dura. These operative cases were of the most severe type. In almost all of them that was determined by lumbar puncture and by getting free hemorrhage along with the symptoms. Further than this, we became convinced that the chance of saving patients decreased with every hour that the operation was put off. Finally, I believe when one has a brain injury without gross hemorrhage the patient may possibly be helped by a decompression, thus giving a freer circulation.

THE TREATMENT OF TABETIC OPTIC ATROPHY WITH INTRASPINAL INJECTIONS OF SALVARSANIZED SERUM

A PRELIMINARY REPORT

GEORGE T. JOHNSON, M.D., L. Z. BREAKS, M.D.
AND
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While one would expect salvarsanized serum to exert about the same influence on the optic atrophy as on the spinal involvement in tabes dorsalis, we deem the observations made in two cases of tabes with optic atrophy treated by intraspinal injections of salvarsanized serum to be of sufficient interest to warrant reporting them. One was a well-marked case of tabes with optic atrophy; the other showed little outside of the ocular findings.

The technic of Swift and Ellis was followed, as described by Hough[1] and McCaskey.[2] At first the blood was allowed to stand over night to separate the serum, but later separation was effected by centrifugalization and the whole operation completed at one time. The neosalvarsan was dissolved in about 10 c.c. of resterilized freshly distilled water in a glass syringe, and the blood was aspirated under 40 mm. negative pressure into a 2-ounce skimmed milk bottle of a Babcock tester, so that there was comparatively little exposure of either to the air. All injections were made in the office.

Case 1.—W. T. C., man, aged 35, married, no children, lineman, with negative family history, had measles when 7 years old, and eruption without sore throat ten years ago, diagnosed as measles. He knows of no chancre. Vision has been gradually failing during the past year. There are no other symptoms. General health is good.

Ocular examination, Jan. 13, 1914, revealed right vision 20/70, left vision 20/200. Tension is normal. Pupils show marked myosis, and react to light but very slightly. Visual field: Right shows slight concentric contraction. Left also shows defect involving upper nasal quadrant. Color sense has depreciated to such an extent that the patient does not distinguish colors in any portion of field. Fundus shows nerve heads grayish-white with sharp-cut margins. Fundus otherwise normal in appearance.

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[1] Hough, William H.: Intraspinous Injection of Salvarsanized Serum in the Treatment of Syphilis of the Nervous System, Including Tabes and Paresis, The Journal A. M. A., Jan. 17, 1914, p. 183.

[2] McCaskey, G. W.: The Autoserosalvarsan Treatment of Syphilis of the Central Nervous System, The Journal A. M. A., Jan. 17, 1914, p. 187.

General examination, Jan. 14, 1914, is negative except for absence of left knee-jerk. There is no anesthesia or incoordination. Wassermann reaction is positive. During the period in which patient was under treatment he was seen frequently and the visual fields were charted many times.

Jan. 23, 1914, 0.9 gm. neosalvarsan intravenously. No reaction. January 24, 30 c.c. 40 per cent. serum in normal salt solution intraspinally. Very little reaction. February 10, 0.9 gm. neosalvarsan intravenously. No reaction. Serum unsatisfactory. February 17, 0.9 gm. neosalvarsan intravenously. No reaction. February 18, spinal injection of 30 c.c. 40 per cent. serum. Little reaction. Subjective improvement in vision. March 14, 0.9 gm. neosalvarsan intravenously. March 15, 30 c.c. 40 per cent. serum intraspinally. March 27, intravenous injection of 0.9 gm. neosalvarsan. March 28, spinal injection of 30 c.c. 40 per cent. serum. April 4, 0.9 gm. neosalvarsan and 30 c.c. 40 per cent. serum. In this case no reactions of any kind followed the intravenous injections of neosalvarsan, and very slight reactions followed the intraspinal injections of serum. These consisted of some pain in head and back of neck. Examination following last treatment showed a slight left knee-jerk. April 24, it was found that while visual acuity, as shown by ability to read test letters, had improved but little, the sector defect in left field had disappeared and patient was beginning to distinguish colors. May 24, vision is: right 20/50; left 20/100. Color fields were mapped with 1.5 cm. test object.

Case 2.—R. W. L., man, aged 37, single, machinist, with negative family history, thirteen years ago had some skin trouble with possible chancre. Patient does not know what diagnosis was made. History otherwise was negative up to two years ago, when vision of right eye began to fail. Vision of left eye began to fail a few months later. For several months right eye has been totally blind. Sight of left has constantly grown worse. Patient had lancinating pains about six months ago.

Ocular examination, February, 1914, revealed right amaurosis. No light perception present. Left vision 20/100. Entire upper half of visual field wanting. Pupils slightly dilated, right does not react to light directly but consensual reaction is present; left reacts to light very slightly. Patient cannot distinguish colors.

General examination, March 2, 1914, revealed absence of knee-jerks, presence of Romberg sign and marked incoordination of both upper and lower extremities.

March 3, 1914, 0.9 gm. neosalvarsan intravenously. Serum obtained was unsatisfactory. March 10, neosalvarsan 0.9 gm. intravenously. March 11, 30 c.c. of 40 per cent. serum in normal salt solution intraspinally. Quite severe pain in head and back lasting several days. Subjective improvement in vision followed subsidence of reaction. March 24, neosalvarsan, 0.9 gm. intravenously, some leakage occurring outside of vein. March 25, 30 c.c. of 40 per cent. serum intraspinally. Infiltration of right arm at site of injection. April 7, neosalvarsan, 0.9 gm. Ulceration present at site of previous injection on right arm. April 8, 20 c.c. of 40 per cent. serum intraspinally. April 21, patient's visual field was practically the same as when first examined but vision had improved markedly. He read 20/40; 0.9 gm. neosalvarsan intravenously and 30 c.c. of 40 per cent. serum intraspinally. Quite a severe reaction followed with pain in back, legs and chest. Right arm improved. April 25, subjective vision worse. May 4, subjective vision improved again. Neosalvarsan, 0.9 gm., intravenously and 30 c.c. of 40 per cent. serum intraspinally. Severe reaction followed in a few days. May 18, arm healed. Examination showed that coordination was noticeably improved. Knee-jerks absent. Practically no reactions followed the intravenous injections in this case. May 20. 1914, patient read 20/30 easily and guessed several letters at 20/20. Patient now distinguished color, and color fields were mapped with 1.5 cm. test object.

This case is especially interesting because of the rapidity with which sight was being lost and the marked improvement which took place following the intraspinal injections.

APPENDICEAL INFLATION

C. C. WALLER, M.D.
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This title is open to criticism, but it serves the purpose of introduction to an interesting observation made by myself and assistants at the Brightlook Hospital, St. Johnsbury, Vt.

Nov. 17, 1913, a girl, aged 8, while at stool was suddenly seized with violent cramps in the abdomen, and in a few moments became unconscious, but rallied soon after; nausea and vomiting followed, relieving her distress. Twenty minutes after this attack, I found her exhibiting exhaustion and pallor. The temperature, 98, was subnormal; the pulse was 100; there was slight tenderness in the right quadrant; the bowels were constipated. Her parents informed me that during the past two years attacks similar to this, though not so severe, had occasioned no anxiety, and that the patient had maintained her usual health though she had complained of slight stomach disturbances more or less during this time. I suspected chronic appendicitis with adhesions, perhaps, involving the ileum to a point of partial obstruction.

Acting on my advice the parents consented to an operation, November 20. At the operation I proceeded in the usual manner, and on delivery of the appendix the patient, not being fully anesthesized, began straining with considerable energy, and to my surprise the apparently inoffensive and normal appendix began to inflate to a degree near bursting. With a gauze pad near-by I grasped with both hands the ballooning member to prevent what I felt surely to be impending disaster, and held it until the patient became relaxed, when to my further surprise, I found it necessary to exert gentle pressure to deflate the 2-inch inflation. After removal, I found within the appendix a No. 6 bird shot. No inflammatory changes were observed adjacent to or within the appendix.

This, to my mind, in an emphatic way accounts for many heretofore puzzling phenomena as observed when on operating we have found so little to account for the intense suffering and apparent seriousness of acute cases of ileocecal colic, the appendix usually containing small concretions or foreign bodies.

That the appendix, under favorable conditions, may become enormously inflated is a fact, as in the case noted above. The shot (a fecal concretion may serve in a like manner) occluded the appendix lumen as a ball-valve, preventing ready deflation and thereby causing intense pain and attending phenomena, all of which were, in this case, under authentic observation.

Enforcing Sanitary Laws.—What is true of laws in general is equally true of sanitary laws. Many so-called sanitary and public health laws now on our statutes are an obstacle to progress in preventive medicine. Many good sanitary laws are not enforced and cannot be enforced because public sentiment is not fully alive to the importance of preventive medicine. The natural result of this apathy is a withholding of proper authority and proper appropriations by means of which laws can be enforced. Hence, laws fail in their purpose. One of the greatest needs in efficient public health work in the United States is a national Department of Health, a great central educational institution for research, for information, for cooperation. There must be a well-organized national health department in which must center every function of the government in any way touching public health. The aid and cooperation of this department must be available to every citizen, every community and every city and state board of health in all public health problems, even as the aid of a national Department of Agriculture is now available to every farmer and every farming community. —W. F. King, M.D. in *Jour. Indiana State Med. Assn.*

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, SEPTEMBER 5, 1914

THE NORMAL AND PATHOLOGIC OCCURRENCE OF CHOLESTEROL

Any one who reads the literature of modern medicine must be impressed with the growing importance of cholesterol and its derivatives. In connection with the problems of hemolysis and other features of immunochemistry and in relation to various aspects of pathology, this lipoid substance has received detailed consideration. Some of the views developed in this connection have found expression in The Journal.[1] In dealing with any component of the organism which is supposed to have importance either in health or disease, it sooner or later becomes desirable to gather statistics concerning the occurrence and distribution of the substance. In the case of cholesterol, few data have been collected as yet by the more recent reliable methods of analysis. From such facts as have been gathered the impression has been gained that the cholesterol content of the individual organs is fairly constant. The newest researches of Thaysen[2] conducted in the Universities at Lund in Sweden and Copenhagen in Denmark, cast doubt on the current belief. The examination of a considerable number of organs and tissues of healthy animals indicates an unexpectedly wide variation in the content of cholesterol and its esters, respectively. The red blood-corpuscles alone furnish an exception with respect to this variability.

It is too early to predict the significance of these unexpected facts. Wide differences in the content of any tissue constituent in conditions of health are sometimes taken as a suggestion that the substance under consideration is an incidental rather than an essential component; otherwise a greater uniformity in the amount present might be expected. The quantity of fat, for example, in the tissues varies widely; whereas the sugar in the blood, the water in the glands, the acid in the gastric juice are instances of the fairly unchanging presence of indispensable physiologic compounds. This mode of reasoning is, however, far from convincing in any attempt to ascertain the significance of a tissue substance. Further data must be awaited.

In another respect, likewise, the cholesterol situation has experienced a change through recent investigations. Certain pathologists, notably Aschoff of Freiburg and his pupils, have classified a group of pathologic fat accumulations under two types: one the glycerol-ester or true-fat type, the other, the cholesterol-ester variety.[3] The conclusions appear to be based largely on the results of purely histologic examinations of tissues. By chemical analyses of a large number of normal and "fatty" organs, however, von Czyhlarz and Fuchs[4] have failed to discover any unique or undue occurrence of cholesterol esters in comparison with the usual fatty substances in cases in which they might be expected to occur on the basis of the reputed morphologic evidence. Until the chemist and morphologist, each using his own suitable procedure of examination, can agree with respect to the alleged existence of the cholesterol types of fatty degeneration or infiltrations we prefer to adhere to the older views regarding the fatty accumulations.

PELLAGRA AND POTABLE WATERS

The belief that there is an etiologic relationship between water and pellagra is not new. Numerous and varied theories have been offered as to the nature of such a possible relation. Quite unique among these hypotheses, however, is the belief that drinking-water, because of the presence of certain chemical constituents, may be of consequence in the causation of pellagra.

A preliminary note on the relation to pellagra of potable waters containing silica in colloidal solution was first presented by Alessandrini and Scala[1] about a year ago. In a recent monograph of nearly two hundred pages[2] their views and work are presented at length. In 1909 Alessandrini[3] began, in Italy, a series of epidemiologic studies on pellagra which led him to regard the disease as etiologically related to potable waters used in pellagrous sections. He first advanced the idea that pellagra was a filarial infection derived from such waters. Subsequent fuller investigation forced him to abandon this supposition, but left him still convinced of the etiologic connection. He associated with himself a chemist (Scala) who, after much investigation, "formulated the suspicion that silicic acid, dissolved in a colloidal state, could produce a chronic intoxication such as is observed in pellagra." The present monograph is an attempt by these two authors to establish the truth of this suspicion or hypothesis.

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[1] Absorption of Fat-Like Substances, editorial, The Journal A. M. A., Sept. 13, 1913, p. 873; The Heterogeneous Lipoids, ibid., Sept. 13, 1913, p. 875; Reflections Regarding Cholesterol, ibid., Feb. 21, 1914, p. 620.

[2] Thaysen, T. E. H.: Beiträge zur physiologischen Chemie des Cholesterins und der Cholesterinester, I. Die Digitoninmethode zur quantitativen Bestimmung des Cholesterins und der Cholesterinester, Biochem. Ztschr., 1914, lxii, 89; II. Der Gehalt normaler Organe an Cholesterin und Cholesterinester, Biochem. Ztschr., 1914, lxii, 115.

[3] Kawara, R.: Die Cholesterinesterverfettung, Fischer, Jena, 1911; also Hanes, F. M.: Bull. Johns Hopkins Hosp., 1912, xxiii, 77.

[4] Von Czyhlarz, E., and Fuchs, A.: Ueber die Bedeutung des Cholesterins für die Vorgänge bei der pathologischen Verfettung, Biochem. Ztschr., 1914, lxii, 131.

[1] Alessandrini and Scala: Communication to Reale Accademia Medica di Roma, May 25, 1913.

[2] Alessandrini and Scala: Contributo nuovo alla etiologia e patogenesi della pellagra, Roma, 1914.

[3] Alessandrini: Nuove ricerche sulla etiologia della pellagra, Policlinico, sez. practica, fasc. 20, May 15, 1910; and fasc. 26, June 26, 1910. Sulla pellagra in Italia, Osservazioni Epidemiologische, Annali di Igiene Sper., 1910, xx (N. S.) Fasc. iv.

Since silicon of whatever form in water must be derived from the soil, the writers discuss the relation of soils to waters and give in detail their method of preparing the colloidal solutions and the gelatinous suspensions of silica used in the experiments. In this study they made use also of potable waters obtained from certain pellagrous sections.

Their experimental work was conducted on guinea-pigs, rabbits, dogs and monkeys. It consisted in the injection and ingestion of the above-mentioned solutions and waters along with numerous variations in the diet of the animals, especially with reference to a diet of maize. In some experiments they made additions to their solutions of certain salts, notably of calcium, sodium and aluminum, for the purpose of testing the action of certain electrolytes on the colloidal silica or of the contemporaneous action of the two (that is, colloidal silica and electrolytes) on the organism. Full protocols with histopathologic findings as well as photographs and charts make the report of their experimental work very complete.

In an analysis and discussion of the results, the authors express the conviction that they have produced in their animals a chronic intoxication which not alone in essential features but even in details closely approximates pellagra as seen in man. This they assert is true not only of clinical phenomena but also of morbid pathologic changes.

Their analysis of the pathogenesis of the condition produced in their experimental animals (and of pellagra as well, of course) consists of an elaborate chemical discussion to which scant justice can be done in limited space. A mere outline must serve to show the basis of their argument. Colloidal silica displays more or less affinity for mineral salts and, from metabolic studies on dogs under experiment, Alessandrini and Scala concluded that "without doubt silica in the animal organism acts by accumulating mineral substances and produces in consequence a destruction of tissues." Tracing farther the various chemical changes and relations which, according to them, the silica undergoes, their next conclusion is, "Therefore it seems to us without doubt that the silica fixes the mineral salts on the proteins of the tissues with a continuous, incessant action quite similar to the action of an enzyme or diastase." Carrying the subject a step farther, they think that "conditions exist in the formation of these compounds of protein substances with mineral salts by which the acids of such salts are liberated, because there is a tendency in said compounds to pass from the state of metallo-acido-protein to that of metallo-protein." By further analysis, argument and experimentation they arrive at their final conclusion, that "pellagra is a malady caused by the forced retention of mineral salts which in turn produces a liberation of acids in excess of the needs of the particular organism; or, in other words, pellagra is nothing more than a mineral acidosis with all of its consequences."

These conclusions, the writers point out, are supported by the metabolic studies made on pellagra by various Italian students, such as Camurri,[4] Nicolaidi and Grillo,[5] Moreschi[6] and others.

Having established to their own satisfaction that "pellagra is a mineral acidosis," the natural treatment would of course be some alkali. For therapeutic use sodium citrate was "selected because it could be used by intramuscular injection without injury, is not caustic, and circulates freely in the tissues, forming by oxidation sodium carbonate, which serves to neutralize the acids present." After preliminary experiments on dogs, several pellagra patients were treated with this substance. Daily injections were given in the gluteal muscles, of 1 c.c. of a 10 per cent. solution. The results were distinctly encouraging in selected cases (that is, comparatively recent cases before permanent damage is done to the tissues).

The prophylaxis of pellagra, if this view is confirmed, resolves itself into the question of supplying communities with suitable potable waters. Some practical suggestions are offered by Alessandrini and Scala for this purpose, the chief of which is that calcium carbonate dissolved in water precipitates the silica which may be present.

Among their general conclusions it may be stated that they lay some stress on the influence of certain electrolytes with which the colloidal silica comes in contact; and they think that alumina, whether in colloidal combination or in a state of simple suspension in water, probably has an action similar to the silica, or at least may aggravate the condition caused by, or reinforce the effects of, the latter. This is of some interest in view of the recent note of Myers and Voegtlin[7] as to the presence of aluminum salts in certain foodstuffs.

Whatever opinion may be entertained concerning this theory, Alessandrini and Scala have certainly brought to its support an apparently arduous and consistent piece of work. This is far more than can be said of many another idea put forward to account for this disease. Moreover, it would seem comparatively easy in this country to gather at least strong presumptive evidence for or against their view by chemical analyses of the potable waters found in sections in which pellagra is prevalent.

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[4] Camurri: Contributo allo studio del ricambio materiale nei pellagrosi, Udine, 1908; abstr., in Rivista Pel. Ital., viii, 4, 64.

[5] Nicolaidi and Grillo: Contributo allo studio del bilancio alimentare nei pellagrosi, Atti del Congresso Pel. Ital., 1912, p. 314.

[6] Moreschi: Le anomalie del ricambio azotato nel pellagroso, Il Morgagni, 1903.

[7] Myers and Voegtlin: U. S. Pub. Health Rep., June 19, 1914, p. 1625.

THE MARINE BIOLOGICAL LABORATORY AND MEDICINE

The dedication of the new buildings of the Marine Biological Laboratory—the gift of the President of its Board of Trustees, Mr. C. R. Crane—at Woods Hole, Massachusetts, July 10, deserves more than incidental notice in medical circles. Louis Agassiz, in America, and Anton Dohrn, in Europe, were among the first to organize seaside laboratories offering opportunities for biologic investigations that are unique. Dohrn's station at Naples has become a Mecca for students from all parts of the world; and the institution at Woods Hole, which is, in a sense, a lineal descendant of Agassiz's original plant at the island of Penikese, founded in 1872, promises to have a usefulness scarcely inferior to that of the European seaside laboratory.

The interrelations of biology and medicine have become so clearly established in recent years that they no longer demand emphasis even before an audience of practitioners. A biologic training has become recognized as one of the indispensable fundaments on which the study of medicine is properly reared. Biology is related not only to the affairs of every-day life, but also to the routine of medicine, in which it furnishes the indispensable foundation. Hygiene and the disciplines of public health rest on biologic factors. One aspect of modern biology—the cell theory—is an adequate illustration of how a single great generalization in this comprehensive science has revolutionized the study of pathology and physiology, the very basis of medicine. For this reason medicine can only look with pride and interest at the development of new places and instruments for biologic research and at the promise of increased benefits and new discoveries which shall contribute to the advancement of our profession. The Marine Biological Laboratory deserves especial mention, furthermore, for the splendid example which it has furnished of opportunities for investigation that shall be unrestricted by the dictates of custom, inherited prejudices, or the unconcealed demands of local interest and sectional factions. Its progress has been an indication of the stability and permanence of a democratic organization in which freedom has been the dominant character—the freedom of a democracy of learning, as it was termed by one of the speakers at the dedicatory exercises. Freedom of organization, he added, is our one watchword. Cooperation is another. Both are vital and they are interdependent. And so we have, at Woods Hole, a union of forces of scientific men, and through them of institutions that they represent, in order to create conditions as ideal as possible for the progress of science.

In the dedicatory address, on "The Needs of Research," Dr. R. S. Woodward,[1] the president of the Carnegie Institution of Washington, called attention to how far the popular mind, and how far many disciplined minds, may depart from the meaning we attach to the term research. Even in medical circles one may find indications of false ideas of what the term comprehends. Although an appreciation of the advantages of the spirit of patient investigation over that of stolid conservatism, on the one hand, or reckless inquiry on the other, is making itself manifest widely, there are still many who look on research as a sort of irrational achievement. We should never forget, says Dr. Woodward, that the investigator lives usually in the presence of majorities which do not understand him and that progress is largely conditioned by these majorities. Thus, to journalists and to their readers it would seem that research is akin to necromancy and that its results are produced chiefly by witches of the male sex, otherwise designated in the polite literature of our day as wizards. Closely akin to this infantile fallacy, Dr. Woodward adds, is the more subtle error entertained by a majority, perhaps, of our highly educated contemporaries, that the more remarkable results of research are produced not by the better balanced minds, but by aberrant types of mind popularly designated by that word of ghostly, if not ghastly, implications, namely, "genius."

Men of science are on trial in these days. Money is being furnished lavishly for the endowment of research institutions and the promotion of investigation. It is important to take advantage of the current favorable attitude on the part of a helpful portion of the public and encourage its enthusiasm for the modern research enterprises. The Woods Hole Laboratory certainly represents the latter worthily.

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[1] Woodward, R. S.: The Needs of Research, Science, Aug. 14, 1914, p. 217.

A NEW SERUM REACTION FOR THE DIAGNOSIS OF GASTRIC CARCINOMA

Recently several serum tests for the diagnosis of carcinoma have been proposed. Among these may be mentioned Abderhalden's test for specific ferments for cancer-cells, Brieger and Trebing's antitrypsin reaction, the miostagmin reaction of Ascoli, Crile's isolysin reaction and von Dungern's complement-binding reaction. In the hands of careful workers experienced in the special technic, each of these methods seems to demonstrate a substance in the serum of cancer patients which reacts more or less specifically on a substance contained in cancer tissue; but none of the methods hitherto proposed has seemed by virtue of its reliability of result and simplicity of technic to merit general adoption as a diagnostic measure. This does not mean that such a method may not be found, or that further improvement in some of these methods may not make them suitable for general use.

Recently Kelling[1] described a test which in the matter of simplicity answers all practical requirements, being essentially much simpler than the simplest modification of the Wassermann reaction. Whether or not it will meet the requirement of accuracy of result must be determined by further tests. While experimenting on heterolytic serums, Kelling observed that the serum of cancer patients possessed the property of dissolving the red corpuscles of certain other species, notably the hen. The presence of an inhibiting substance in some serums and of lysins in some normal serums prevented the use of the test in this form for diagnostic purposes. These sources of error were obviated by diluting the patient's serum 1 : 10 with physiologic salt solution and incubating for twenty-four hours at 37 C. (98.6 F.). Equal parts of this diluted serum and a 5 per cent. suspension of hen corpuscles were then incubated for from twenty-four to forty-eight hours and the hemolysis noted. In what way the incubation of diluted serum eliminates the inhibiting substance, which seems to be the case, the author does not explain. It was found that this modification gave positive reaction in about 90 per cent. of cases of gastric carcinoma. As controls, serum from patients in all conditions which require differential diagnosis from carcinoma were used, and also normal serum. Kelling reports a consecutive series of 250 cases of common diseases of the gastro-intestinal tract tested by this method. Among these are sixty-five cases of carcinoma, of which fifty-eight, or about 90 per cent., are positive. Of the 185 other conditions, six cases, or less than 3 per cent., give positive reactions. These six include suppurating cholecystitis, tuberculosis of the peritoneum, appendiceal abscess, tuberculosis of the intestines, "influenza gastrica" and an anemia in which the patient had repeatedly received normal human blood by transfusion.

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[1] Kelling: Wien. klin. Wchnschr., 1914, xxvii, 927.

Kelling finds that a combination of the serum reaction and the miostagmin reaction of Ascoli is of advantage, as the two do not give errors in the same types of conditions.

Another combination which he recommends and which in his series of cases gives 100 per cent. positive in gastric carcinoma with 0 per cent. positive in controls, is with the test for occult blood in the feces. The test for small quantities of blood in the stools evidently is not specific for carcinoma, but the combination of this with the serum test seems to reduce the percentage of error.

Evidently this test is not etiologically specific; but neither is the Wassermann test, which uses as antigen an extract of non-syphilitic tissue. We are unable to explain the biochemical principles which underlie many clinical tests, but this is not sufficient reason for rejecting them if trial proves their merits. Kelling rightly maintains that, in general, no diagnostic test is expected to give accurate results in 100 per cent. of the cases, and that no single test is sufficient basis for a diagnosis; that any test should be regarded as additional evidence, while the diagnosis rests on the sum of all the evidence. Obviously the lower the percentage of error in a given test the greater is its weight in the sum of the evidence.

A simple laboratory procedure which will be of service in detecting early carcinoma of the stomach will receive a hearty welcome by the medical profession. Further reports on the use of the serum test described by Kelling will be awaited with much interest.

THE PURINS AND ALIMENTARY BACTERIA

One of the experimental difficulties that have been encountered in attempting to explain the transformations of the nucleoproteins and their derivatives, the purin substances, in the organism has consisted in the fact that the total intake of these compounds could rarely be accounted for in the outgo. If, for example, a known quantity of some purin such as hypoxanthin, xanthin, guanin, or even uric acid be ingested, the increased excretion of the supposed end-product of this series ordinarily falls short of what would be expected if the oxidative conversion had been complete up to the uric acid stage in the body. This fact has repeatedly been demonstrated in man. When extract of meat, a product comparatively rich in hypoxanthin derived from muscle tissue, is consumed, the increase in uric acid or other purins in the urine will rarely account for more than about one-half of the purin of the food intake. For this reason it was assumed and taught for a long time that the production and destruction of uric acid proceed simultaneously in the organism. Accordingly the amount found in the urine at any period was believed to represent the balance between these two antagonistic processes.

When, however, it was observed that the introduction of either purins or uric acid into the body parenterally, instead of orally, resulted in a much larger consequent output of uric acid, another explanation suggested itself. Sivén[1] argued that perhaps ingested purins are destroyed in considerable part within the alimentary tract through the agency of bacteria. When taken into the body by way of the mouth, therefore, the quantities that would actually be absorbed after escaping the possibility of loss through microbial degradation might be decidedly smaller than the original intake; hence the output would be correspondingly diminished. Injected purins, on the other hand, would be protected from such destruction and consequently reappear quantitatively as uric acid, their end-product.

Although no serious obstacle has stood in the way of explaining the disappearance of purins taken by mouth in the way just outlined, certain observations have not spoken in its favor, to say the least. It has been known that bacteria can decompose purin compounds, but the evidence has given the impression that

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1. Siven, V. O.: Ueber den Purinstoffwechsel des Menschen, Arch. f. d. ges. Physiol., 1912, xclv, 283.

this change is not easily accomplished[2]. A renewed investigation of the subject by Sivén[3] leaves no doubt that a very considerable amount of purins can undergo prompt destruction through the action of such organisms as *Bacterium coli,* and under conditions such as are believed to exist in the digestive tube. We may safely conclude, therefore, that a liberal proportion—as much as 50 per cent. in some cases—of the purin intake can lose its identity before it has had a chance to be absorbed from the gastro-intestinal tract. Whatever enters the blood-stream, however, doubtless escapes destruction and thus forms the precursor of the exogenous uric acid of the urine.

THE PRICE OF CARELESSNESS

The commonplace gains enormously in impressiveness when familiar and long-recognized facts are collected and tabulated. Fourth of July accidents were regarded as inevitable and of comparatively small importance until The Journal undertook the systematic collection and compilation of the statistics. Presented in the aggregate, they shocked the nation. The American people have long been accustomed to accounts of railroad accidents in the public press. It is only the occasional accident of startling character or unusual magnitude which arouses comment. The public does not appreciate the enormous toll which is paid every year in loss of life and limb because of avoidable accidents on our railroads.

Accident Bulletin 50, just issued by the Interstate Commerce Commission, contains a summary of the accidents resulting in personal injuries caused in the operation of interstate railways during the months of October, November and December, 1913. The facts presented are so appalling that if they were found anywhere else than in a government publication they would be regarded as extreme exaggerations. During these three months, 2,792 persons were killed and 50,776 persons were injured in connection with railway operation. Of these, 191 were killed and 3,726 injured in train accidents; 2,675 were killed and 21,769 injured in accidents other than train accidents, such as fires, floods, landslides and explosions affecting the right of way, and accidents in connection with railroad operation other than those of trains and roadway, while 117 deaths and 29,007 injuries were industrial accidents to employees working on tracks, bridges, stations, enginehouses, shops, wharves or elsewhere. Of the 2,792 persons killed, thirty-four were passengers killed in train accidents, and 137 were employees killed in train accidents. Eighty-five passengers were killed from all causes and 730 employees from all causes, making a total of 815 passengers and employees. The 1,860 other persons killed included trespassers, non-trespassers and employees not on duty, while 117 employees in addition were killed in industrial accidents not connected with railroad operations.

Detailed tables showing the cause and character of the accidents are most interesting and illuminating. For instance, of the 21,769 persons injured through train and other accidents, five persons lost their eyesight, ninety lost arms, forty-seven persons lost their hands, 213 persons lost legs, 143 persons lost feet. Many of those crippled will be incapable of supporting themselves for the balance of their lives and will consequently become dependents. The total loss of working time due to accidents is not shown. With over fifty thousand persons injured in three months, however, the economic loss must be enormous. At this rate there are probably nearly twelve thousand persons killed and over two hundred thousand persons injured every year on our railroads. The majority of these accidents are avoidable either through proper safety devices supplied by the operating company or through care in operation on the part of employees. The price paid for carelessness as shown by the official statement of fact is too enormously heavy to be tolerated.

Current Comment

OHIO IN LINE

One of the most readable and progressive medical journals published by any state organization is the *Ohio State Medical Journal.* It is characterized not only by the scientific value of its articles, but also by the "snap" and "life" which permeate its various departments and especially by the way in which it serves up its state news and matters of interest to the local field which it covers. In fact, the only just criticism that might have been made of this journal was that concerning the standards which governed the admission of advertising matter. This criticism is now removed, for in its August issue the *Ohio State Medical Journal* says in part:

> We will not, in the future, print the advertising announcement of any medicinal product that has not received the sanction of the Council on Pharmacy and Chemistry of the American Medical Association.
>
> In other words, *The Journal* will no longer boost unethical nostrums.
>
> Furthermore, we will not print the announcements of sanatoria that are not operated on ethical lines; or of any product, medicinal or otherwise, that does not make a true statement of its value, or does not offer the intending purchaser a "square deal."
>
> We believe that this will make our advertising columns much more valuable to our readers.

This move speaks well for the Ohio profession. As has been said many times, the immediate result of raising the standard of admissible copy to the advertising pages of any journal is a falling off in revenue. This means that the medical profession of Ohio must give its official publication active, moral and financial support.

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[2] Schittenhelm, A., and Schröter, F.: Ueber die Spaltung der Hefenucleinsäure durch Bakterien, Ztschr. f. physiol. Chem., 1903, xxxix, 203; 1903, xl, 62; 1903, xl, 70; 1904, xli, 284.

[3] Sivén, V. O.: Ueber den Purinstoffwechsel des Menschen, iii, Mitteilung, Zur Frage der Spaltung der Purinkörper im Verdauungskanale, Arch. f. d. ges. Physiol., 1914, xlvii, 582.

There are, to-day, twenty-three state journals and six privately owned medical journals that have adopted the standard of the Council on Pharmacy and Chemistry as regards proprietary medicine advertisements. These journals are proving that the standard of decency is not an impracticable one. May the physicians of Ohio rally to the support of their journal; they can render no more effective service in the fight against medical fraud and in behalf of scientific medicine.

DIPHTHERIA ANTITOXIN

It may be thought by some that the whole question of the use of antitoxin in diphtheria is settled. Nevertheless, it may be worth while to emphasize certain factors that are not always borne in mind in using it. The chief ones are the quantity to be given and the time and method of administration. The average dose is given in the Pharmacopeia as 3,000 units. While probably a sufficient initial dose in many cases, this quantity is not enough to satisfy the factor of safety. Although 3,000 units will neutralize the toxins formed in the human organism in an average case, it must be remembered that some time elapses before complete absorption takes place and hence before all the antitoxin becomes effective. Meanwhile the average case at the time of injection has become a severe if not a fatal one. A severe case terminating fatally might have remained a mild, average case had a larger initial dose been given. There is a daily growing sentiment that the amount necessary to effect a cure should be given in one dose at the earliest possible hour. Woody[1] states that "no case of diphtheria, however mild, should receive less than 10,000 units." His experience covers almost ten thousand cases and shows a reduction in mortality of 3 per cent. when large doses are used as compared with smaller ones. The point is emphasized by Anderson[2] that 10,000 units are of more value when given early than 100,000 or 200,000 when given later. It is safe to say that 10,000 units would be much nearer the average dose used in the large metropolitan hospitals than the 3,000 units stipulated in the Pharmacopeia. Although promptness of administration after the onset of the first signs and symptoms has been proved to be the most important element in the successful use of antitoxin treatment, there must be considered as well the method of injection. Smith[3] and Park[4] have shown that when the subcutaneous route is used, the maximum amount of antitoxin is found in the circulating blood only after three or four days. If antitoxin is given intramuscularly this period is of course shortened. It is still further shortened by intravenous injection, which method has been advised for extremely severe cases. When this extreme method is adopted a much smaller amount of antitoxin is required, as action is immediate. It cannot be too often emphasized that antitoxin must be given early; that with a small patch of membrane a smaller dosage may be required than when a complete laryngeal, pharyngeal and nasal involvement exists, and that the subcutaneous injections are more slowly absorbed than deep intramuscular ones. The authority of the Pharmacopeia, in its forthcoming revision, should be lent to the aid of experience by stipulation of a larger average dose—for example, 10,000 units—and a sliding scale to inform the physician that the great quantities are sometimes essential.

WAR AND PREVENTIVE MEDICINE

Our Paris correspondent has not written since the declaration of war—August 1. The London *Lancet* of August 22 contains a last word from its Paris correspondent, concerning the beginnings of the war as they affected Paris. He writes: "The greater number of medical men, even those of mature age, in Paris have already gone to take their posts in the Army Medical Service, and your own correspondent is writing you this, his last letter for some time to come, only a few hours previously to his departure to take charge of an ambulance corps, as *médecin chef* in the Army of the East." Lists of medical men remaining in Paris, with their addresses, have been posted in each quarter of the city. Many hospitals have been evacuated and their patients assigned to others. The remaining hospitals care for the wounded, who are already beginning to arrive. Most of the wounded will not be taken to Paris, as this city may perhaps be placed in a state of siege, but are being carried to more distant points. The Faculté de médecine has also been converted into an ambulance station, as well as all the lycées and the public and private schools. Great fear has been expressed by Professor Chantemesse lest infectious diseases should break out in epidemic form. A general revaccination of the population of Paris has been ordered, and huge quantities of antityphoid serum have been prepared.

SOME FACTORS AFFECTING FETAL DEVELOPMENT

Some weeks ago we commented[1] on recent experiments of Bailey and Murlin[2] who have shown that the initial loss of weight in the first few days following birth may be prevented by extra feedings of a formula of the same composition as the colostrum. In view of the fact that the infant, during gestation, must be affected by the nourishment of the mother with whose metabolism its own is so closely bound, Evvard[3] has undertaken experiments to show to what extent this influence may operate. A number of gilts (young sows, prospective swine mothers) were fed on different foodstuffs. The basal ration was corn alone, which is quite deficient in protein and calcium. As supplements were used meat-meal, containing about 60 per cent. protein, 15 per cent. ash and 10 per cent. fat, also clover and alfalfa. The latter substances also contain large quantities of protein and calcium. It was found that in every case the supple-

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[1] Woody, S. S.: The Use of Antitoxin in Diphtheria, THE JOURNAL, this issue, p. 861.
[2] Anderson, J. F.: THE JOURNAL, this issue, p. 862.
[3] Smith: Jour. Hyg., 1907, vii, 205.
[4] Park: Boston Med. and Surg. Jour., 1913, clxviii, 73. Collected Studies from the Bureau of Laboratories, Dept. of Health, New York City, 1912-1913, vii, 27.

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[1] The Nutrition of the New-Born, editorial, THE JOURNAL A. M. A., Aug. 1, 1914, p. 404.
[2] Bailey, H. C., and Murlin, J. R.: The Energy Requirement of the New-Born, Proc. Soc. Exper. Biol. and Med., 1914, xi, 109.
[3] Evvard, J. M.: Some Factors Affecting Fetal Development, Tr. Iowa Academy of Science, 1913, p. 325; Nutrition as a Factor in Fetal Development, Proc. Amer. Breeders' Assn., 1912, viii, 549.

mented rations resulted in pigs which were larger and stronger at birth than when an equal weight of corn alone was fed. The character of the coat also was better when oil-meal was used than when meat-meal was given. Thus Evvard states that oil-meal has been noted from time immemorial as a coat producer. On the other hand, meat-meal invariably produced larger-boned offspring than did other types of food. The same experiments were carried out with sheep, and it was again shown that the ration tends to affect in some manner the size and vigor of the offspring although the differences are not so marked as when swine are fed entirely on grain. An outlook for further important conclusions is opened up by these experiments. The possibilities are numerous. The production of a quickly-growing, vigorous offspring will offset to a great extent the numerous attacks made on the struggling infant by the diseases of infancy. The human infant is helpless for a period relatively far longer than that of other mammalia. Any knowledge which will aid to give it a more advantageous start on the difficult road it must travel represents progress in infant welfare.

Medical News

CALIFORNIA

Sanatorium Burned.—Fire starting in a defective flue destroyed the main building of the Pasadena Sanitarium, South Pasadena, with a loss of $30,000.

European Travelers.—Drs. Charles H. Whitman and Orville O. Witherbee, Los Angeles, and Drs. Andrew W. and Ada S. C. Morton, San Francisco, have returned from abroad.——Dr. Aaron S. Green, San Francisco, is believed to be detained in Berlin.

Psychopathic Ward Opened.—The psychopathic building, recently erected at the Los Angeles County Hospital at an expense of $175,000, has been completed and was formally opened August 3. The ward can accommodate one hundred patients, but only thirty have thus far been transferred.

Personal.—Dr. Raymond B. Mixsell, Pasadena, has sailed for Japan.——County Health Officer Edmund C. Sawyer, Los Angeles, was presented with a gold deputy sheriff's badge by the janitors of the county building, recently.——Dr. Alexander S. Kelly has been reelected president of the Oakland Board of Education.

COLORADO

Home from Abroad.—Drs. Frank N. Cochems, Salida; Dr. and Mrs. Leonard Freeman, Denver; Dr. Caleb W. Presnall, Trinidad, and Dr. and Mrs. Daniel G. Monaghan, Denver, have returned from abroad.

Colorado Physicians Abroad.—Dr. and Mrs. Edgemont D. Welsh, Colorado Springs, sailed for Glasgow, August 25.——Dr. and Mrs. Samuel Caldwell, Colorado Springs, are believed to be in Vienna.——Dr. William A. Kickland and family, who have been in Germany, have reached England.

Personal.—Dr. William B. Davis has returned from his post of duty as vice-consul of the United States at Guadalajara, Mexico.——Dr. James A. Rutledge, Woodmen, has been elected medical director and superintendent of the Colorado Sanatorium, Woodmen.

State Association Meeting.—The annual meeting of the Colorado State Medical Association will be held in Boulder September 9 to 11 under the presidency of Dr. Oscar M. Gilbert, Boulder. The sessions of the organization will be held in the Physicians' Building and in the University of Colorado.

FLORIDA

New Officers.—Manatee County Medical Association at Tampa, August 8: president, Dr. John B. Leffingwell, Bradentown; secretary, Dr. Holton.

Bids for Laboratory Building.—Advertisements have been made by the State Board of Health for bids on the public health laboratory building for the board to be erected at Pensacola at a cost of $20,000.

Open Air School.—The Florida Open Air School of which Dr. William M. Stinson, Jacksonville, is vice-president, an institution devoted largely to outdoor sports and exercises, will open in Jacksonville October 1.

Personal.—Dr. Hiram Byrd, Port Orange, formerly assistant state health officer, has been appointed president of the Florida Tuberculosis Sanatorium, Trilby.——Drs. William P. Adamson, John S. Helms and Louis A. Bize, Tampa, have returned from abroad.——Dr. James M. Jackson, Jr., Miami, has been appointed a member of the Malaria Committee of the National Drainage Congress.

GEORGIA

New Officers.—First District Medical Society at Savannah: president, Dr. Herman W. Hesse; secretary-treasurer, Dr. Charles Usher, both of Savannah.

Home from Abroad.—Dr. William L. Davis, Albany; Dr. Marion C. Pruitt, Atlanta, and Dr. George R. White, Savannah. have returned from Europe.

Personal.— Dr. DeWitt C. Gilles of the staff of the Bureau of Animal Industry to the United States Department of Agriculture, as the result of a tentative examination, has been appointed chief food inspector to the Board of Central Commissioners of Savannah.——Dr. Carl C. Aven has been appointed chief of clinics at the Atlanta Medical College.——Dr. Clifford A. Peacock has been appointed medical inspector of the schools of Columbus.——Dr. Sidney Walker has been appointed local surgeon at Dublin for the Wrightsville and Tennville Railroad, succeeding the late Dr. Ezra New.

IDAHO

Personal.—Drs. Clifford M. Cline, Idaho Falls, and Franz H. Brandt, Boise, have returned from abroad.——Dr. Charles L. Gritman, Moscow, and Dr. and Mrs. William F. Howard, Pocatello, have sailed for Europe.

County Society Organized.—The president and secretary of the Idaho State Medical Association met with the physicians of Bonner County at Sand Point, July 6, and organized the Bonner County Medical Association, electing the following officers: president, Dr. Ones F. Page, Sand Point; vice-president, Dr. Leseir J. Stauffer, Bonner's Ferry, and secretary-treasurer, Dr. Charles P. Stackhouse, Sand Point.

ILLINOIS

New Hospital.—A new hospital has been opened by A. W. Chandler in Rochelle as a public institution. It is open to all regular practitioners.

Home from Europe.—Dr. Charles B. Horrell, Galesburg, has returned from Europe.——Dr. George N. Kreider, Springfield, sailed from London on his return, August 22.

Werner Improving.—Dr. Frederick W. Werner, Joliet, who has been critically ill with septicemia at the Silver Cross Hospital, Joliet, is slowly improving although not yet out of danger.

Higher Requirements.—In the schedule of minimum requirements issued by the State Board of Health, August 4, this clause is included, "No medical college shall be considered in good standing for the purpose of the Illinois Medical Practice Act, that does not require after July 1, 1918, of all students, excepting graduates of colleges of arts or science to whom advanced standing is given, in accordance with the requirements of this board as a condition of graduation, an attendance on five full courses of lectures in five separate years."

Chicago

Resigns Professorship.—Dr. W. A. Newman Dorland has resigned as professor of obstetrics in the Bennett Medical College.

Home from Europe.—Dr. Truman W. Brophy and daughter; Dr. Franklin H. Martin and niece; Dr. Samuel Salinger and Dr. James P. Way have returned from abroad.

Chicago Physicians Abroad.—Dr. Oscar T. Roberg, who has been in Berlin, has reached Sweden on his way home.——Dr. and Mrs. Peter C. Schenkelberger are detained in France, and Dr. and Mrs. Frederick Owsley have reached London from Berlin.

IOWA

Personal.—Dr. Percy B. Battey, Farragut, has been appointed a member of the medical staff of the Iowa State Hospital, Independence.——Dr. William H. McClain, has been appointed postmaster of Conrad.

More Land for Epileptic Colony.—It is announced that the State Board of Control intends to dispose of sixty acres of land at the site of the State Epileptic Colony, Woodward, and will purchase 160 acres additional more suitable to the purposes of the colony.

In and From Europe.—Dr. Daniel L. Cole and family, Oskaloosa, are believed to be marooned in Germany.——Dr. Elmer P. Weih, West Liberty; Dr. John E. Brinkman, Waterloo, and Dr. and Mrs. Herman A. White, Clinton, have returned from abroad.

Child Welfare Bureau Established.—A permanent Child Welfare Bureau has been established in Iowa City by the Commercial Club and several local organizations of women. At this bureau, parents may obtain information as to the proper care of children, and any child in ill health, whose parents are indigent, will be examined and treated free of charge.

MARYLAND

Farm Donated for Hospital.—The heirs of T. Harrison Garrett have presented the Maryland Hospital for Consuptives, Eudowood, the Pleasant Plains Farm, consisting of 188 acres of fertile land adjoining the hospital property, which has been leased by the hospital for several years.

European Travelers.—Drs. William H. Welch, Baltimore, is in Bern, Switzerland.——Dr. William S. Halsted, Baltimore, returned from Europe, August 11.——Dr. Grant Ferguson of Johns Hopkins Hospital, Baltimore, sailed for Europe, August 6.——Dr. Frank Martin, Baltimore, is reported to be on the continent.

Graduates of Liberal Art Colleges.—Information from the University of Maryland School of Medicine not received in time for the Educational Number shows that ten of the 1914 graduates of that college also possessed degrees in liberal arts. Of the 3,594 graduates of medical colleges this year, therefore, there were 817, or 22.7 per cent., who also held degrees from standard colleges of liberal arts.

Suit Settled Out of Court.—The case of Mrs. Sallie Sterling Sadler, Baltimore, against Dr. George H. Riggs, Ijamsville, in which she obtained a verdict of $6,000 on March 20, for alleged unlawful confinement in the sanatorium of Dr. Riggs, in which Judge Bond of the superior court of Baltimore granted a motion of Dr. Riggs for a new trial on the ground of excessive damages, has been agreed and settled out of court.

Society to Honor Dr. Beanes.—The Star Spangled Banner Society of Prince George County on September 3 restored, with appropriate ceremonies, the tomb of Dr. William Beanes, located at Marlboro. Dr. Beanes served as surgeon in the General Hospital, Philadelphia, during the Revolution and it was his imprisonment on a British man-of-war which prompted Francis Scott Key to visit him in the hope of securing his relief, and Key's detention during the bombardment of Fort McHenry inspired him to write the Star Spangled Banner.

MASSACHUSETTS

Home from Abroad.—Dr. and Mrs. William E. Chenery, Boston, and Dr. George Van B. Buehler, Cambridge, have returned from Europe.

Pasteur Treatment in Boston.—The State Board of Health announces that the Pasteur treatment for hydrophobia may now be obtained in Boston.

Resigns from Faculty.—Dr. Charles E. Buck, professor in pediatrics in the College of Physicians and Surgeons, Boston, has resigned, following the resignation of two trustees of the institution.

Improvements to Hospital.—The Ladies' Charitable Union of Lawrence has instituted many important improvements at the Lawrence Hospital. At present a children's ward and a new nurses' home are in course of construction and the power house of the institution is being enlarged.

Medical Examiners Appointed.—Dr. Daniel J. Finnegan, Gloucester, has been appointed medical examiner and Dr. Philip P. Moore, Gloucester, associate medical examiner for Essex County.——Dr. A. Vincent Smith, Middleboro, has been appointed associate medical examiner for Plymouth County.

MICHIGAN

State Society Meeting.—The Michigan State Medical Society will hold its forty-ninth annual meeting at Lansing, September 9 to 11, under the presidency of Dr. Guy L. Kiefer, Detroit.

Interest in Health Train.—Record crowds have visited the State Health Special Train during its stay in the copper country. The train has now left for The Soo, Ishpeming, Marquette and other intermediate towns.

New Officers. — Upper Peninsula Medical Society at Houghton, August 13: president, Dr. James G. Turner, Houghton; vice-president, Dr. Richard A. Burke, Diorite. The next meeting will be held at the Soo.

Home from Europe.—Drs. Frank A. Kelly, Alexander W. Blain and Angus McLean, Detroit; Austin F. Burdick, Lansing; Dr. and Mrs. William F. Hake, Grand Rapids; Dr. and Mrs. William G. Bird and son, Flint, and Dr. Charles E. Boys, Kalamazoo, have returned from Europe.

Michigan Physicians Detained Abroad.—Among the Michigan physicians who are compelled to remain abroad on account of war conditions are, Drs. Max Ballin, Detroit; Dr. and Mrs. William G. Young, Grand Rapids; Dr. Eva Rawlings, Kalamazoo; Drs. Alva N. Collins and Samuel C. Hanna, Detroit; Dr. William T. Dodge, Big Rapids; Dr. Charles H. Baker, Bay City, and Dr. Rowland H. Harris and Elizabeth K. Harris, Battle Creek.

NEW YORK

State Hospital Transferred.—The Long Island State Hospital for the Insane, which has hitherto been leased from the city of New York to the state for the sum of one dollar per year, since the state act went into effect in 1893, was transferred by deed from the city to the state of New York, August 10.

Beef Tuberculosis Board.—In accordance with an act of the legislature authorizing the scientific study of bovine tuberculosis, its economic and health effects on the state, and a report with recommendations to the legislature, Governor Glynn has appointed a committee consisting of Drs. Theobald Smith, Hermann M. Briggs, Linsly R. Williams, Philip Van Ingen and Henry L. K. Shaw, together with a number of veterinarians, cattle breeders and other laymen. An appropriation of $5,000 is available to pay the expenses of the commission which, at the governor's request, will meet immediately after the members receive their designations to complete the organization and to put the investigation under headway.

New York City

Must Give Full Time to Work.—The commissioner of health has issued an order prohibiting all heads of bureaus receiving a salary of $5,000 or more, from engaging in any work not connected with the department.

Personal.—Drs. Abr. L. Wolbarst, George Bolling Lee, New York City, and Edward E. Hicks, Brooklyn, have returned from abroad.——Dr. Michael J. Thornton has been appointed chief of staff of the psychopathic ward of the Kings County Hospital, succeeding Dr. William B. Mosely, deceased.——Dr. Jacob Oshlag has been appointed a member of the board of managers of the Manhattan State Hospital.

City Farm for Drug Users.—A committee of city officials of which acting Mayor McAneny is chairman, have decided to ask the Board of Estimate and Apportionment for an appropriation which will enable the city to utilize a part of its Inebriate Farm Colony in Orange County as a sanatorium for drug victims. Practically all the space available in the city hospitals has been given over to this class of patients and it is realized that something must be done to prevent drug victims from crowding out other patients.

Advisory Council of Health Board at Work.—Shortly after taking office the commissioner of health appointed an advisory council in order to effect a closer contact with the public and to secure well informed criticism and suggestions from experts in public health matters. This advisory council consists of representative men and women prominent in various public health activities. At the first meeting of this council suggestions were offered as to new lines of work by the Department of Health. As a result of the discussion at that time seven committees were organized as follows:

Records, Laboratories, Child Hygiene, Infectious Diseases, Foods and Drugs, Sanitation and Public Health Education. All of these committees have held meetings and many valuable suggestions have been presented; these as far as is possible have been acted upon. It is believed that the work of these committees and of the advisory council as a whole will prove of invaluable assistance in the administration of the work of the Health Department.

NORTH DAKOTA

Medical Board of Appointments.—Governor Hanna has reappointed Drs. John E. Countryman, Grafton; Alexander J. McCannel, Minot, and Paul Sorkness, Fargo, members of the State Board of Medical Examiners.

Personal.—Dr. Ralph E. Weible, Fargo, has gone abroad. ——Dr. Gustav F. Ruedeger, formerly director of the State Public Health Laboratory, Grand Forks, has returned from the West and has taken up his duties as director of the Health and Research Laboratory at LaSalle, Ill.

State Hospital Overcrowded.—The State Board of Control estimates that one-half million dollars is required for the construction of new ward buildings for the North Dakota State Hospital for the Insane, Jamestown. The institution at present has 316 more patients than its normal capacity.

OHIO

New Officers.—Morgan County Medical Society at McConnellsville, August 14: president, Dr. Leroy S. Holcomb, Pennsville; secretary-treasurer, Dr. Clarence E. Northrup, McConnellsville.

Swimming Pools Contaminated.—An investigation of the swimming pools of Columbus by the health department revealed contamination with colon bacilli in one case and insanitary conditions in others. Dr. Louis Kahn recommended that the pools be treated with chlorid of lime.

State Institutions Crowded.—Statistics gathered by the State Board of Administrations show that state institutions are not capabale of caring for all the criminal and insane. Nearly 4,000 names are on the waiting lists in the various counties. When the legislature convenes the board will urge additional hospital facilities.

Summit County Health Protective Society.—The headquarters of this society are at Akron, and a campaign has been begun with the object of increasing the membership to 1,500. The society has resolved to better the sanitary conditions in Akron, and with this object in view will endeavor to secure the support of every citizen.

New Officers.—West Side Physicians' Club, Dayton, reorganized August 21: temporary president, Dr. Grant S. Staub; temporary secretary, Dr. Tedd L. Gregg.——Morgan County Medical Society at McConnellsville, August 14: president, Dr. Leroy S. Holcomb, Pennsville; secretary-treasurer, Dr. Clarence E. Northrup, McConnellsville.

In, and Returned from Zone of War.—Dr. James G. Grant, Akron, with his wife and four children, are reported to be in Berlin.——Dr. Max Stamm, Fremont, is reported to be in Bern, Switzerland.——Drs. Colin R. Clark and James A. Sherbondy, Youngstown; Dr. John V. Hartman, Findlay, and Dr. Henry K. Yaggi, Salem, have returned from abroad.

Anti-Tuberculosis Society Districts State.—The representatives of the Ohio Society for the Prevention of Tuberculosis and the Division of Tuberculosis of the State Board of Health, have divided the state into twelve tentative districts, each of which includes from four to six counties, wherein campaigns are to be inaugurated for the establishment of tuberculosis hospitals.

Sanitation and Disease Prevention Campaign Started.—The Canton Board of Health has started an educational campaign on sanitation and disease prevention. A topic will be chosen and discussed at each regular meeting of the board. Topics already chosen for present and future discussion are: "Rats and Their Relation to Human Plague"; "Pure Milk"; "Infant Mortality," and others allied thereto.

Personal.—The Secretary of the Treasury, on recommendation of the Surgeon-General, U. S. P. H. S., has appointed Dr. Eugene F. McCampbell, Columbus, secretary of the Ohio State Board of Health, collaborating epidemiologist, in the United States Public Health Service.——Dr. Edward K. Cook, police surgeon, of Hamilton, has resigned.——Dr. Stanton K. Crawford, Lakewood, has been appointed superintendent of the Five Counties (Columbiana, Mahoning, Portage, Stary and Summit) Tuberculosis Hospital, Springfield Lake, near Akron. The hospital will probably be ready to receive patients early in October.——Dr. Robert C. Paul, Shreve, announces that he will soon move to Wooster, where he will succeed Dr. Kate M. C. Johnson as superintendent of a private hospital.

Cincinnati

Marooned in Europe.—Drs. B. Knox Rachford, Joseph Ransohoff, John M. Withrow and J. Henry Schroeder are among the Cincinnati physicians who are held in Europe on account of war conditions.

Personal.—Dr. J. Stewart Hagen has been appointed city physician, with Drs. Harry M. Box and Joseph W. Hall as assistants.——Dr. Harry T. Summersgill has been chosen as superintendent of the University Hospital, San Francisco.

OKLAHOMA

Personal.—Dr. George A. Boyle, Enid, is taking a trip to Cincinnati, Battle Creek and Chicago, to get new ideas on hospital construction.——Dr. Edward N. McKee, Enid, is taking an automobile trip to Chicago.

Home from Europe.—Prof. Edwin De Barr, head of the department of chemistry of the State University, Norman, has returned from Germany.——Dr. and Mrs. Antonio D. Young, and Dr. and Mrs. Robert M. Howard, Oklahoma City, and Dr. and Mrs. Walter E. Wright, Tulsa, have returned from abroad.

OREGON

New Officers.—Eastern Oregon Medical Society at Pendleton: president, Dr. George W. Tape, Hot Lake; secretary-treasurer, Dr. Thomas M. Henderson, Pendleton (reelected).

Personal.—Dr. Orla B. Miles, Salem, has succeeded Dr. J. Olin Van Winkle, Salem, as health officer of Marion County. ——Dr. Frank E. Boyden, Pendleton, has returned from Europe.

Alumni Meeting.—At the annual meeting of the Alumni Association of the Medical Department of the University of Oregon, held in Portland, more than one hundred were present. The program of the three-day meeting consisted of clinics, the presentation of papers, symposiums and postgraduate works.

PENNSYLVANIA

Home from Europe.—Drs. Arthur H. Bernstein and James F. Saltry, Scranton, and Dr. William J. Winters, Shenandoah.

Fire in Nurses' Home.—Fire destroyed the nurses' home of the Pittsburgh Hospital, August 19, causing damage of about $5,000.

Personal.—Dr. John R. Stein, Shenandoah, is reported to be seriously ill in the State Hospital, Fountain Springs.——Dr. Nathaniel C. E. Guth has taken charge of the baby clinic at Allentown.

Magazine for Anti-Tuberculosis League.—The initial number of the *Out o'Door Magazine,* the official publication of the Anti-Tuberculosis League, has just appeared at Oil City. It contains interesting information regarding Bon Air and Grand View, the two sanatoriums of the organization.

Emergency Hospital Plan.—Dr. George J. Van Vechten, superintendent of the Scranton Bureau of Health, and the mayor of the city, are discussing plans for buildings to be erected at the State Emergency Hospital. Of the $25,000 appropriated by the council last year for this purpose, $7,500 has been expended for a tract of 5 acres on the East Mountain and the balance is to be expended in constructing buildings, laying out roads, clearing underbrush and fencing the property. There is already a nine-room house on the site and it is proposed to erect an administration building, one building for the exclusive use of small-pox cases, and two bungalows, each containing three private rooms, and a ward building with accommodations for from eight to sixteen patients.

Philadelphia

New Hospital Chartered.—A charter authorizing the establishment of a new hospital for the study and treatment of diseases of the digestive system was granted in common pleas court by Judge Ferguson, August 28.

Hospital Corner-Stone Laid.—The corner-stone of the new wing of the American Oncologic Hospital at Thirty-Third and Powelton Avenue, was laid with appropriate ceremonies on August 28. Addresses were made by the president and secretary of the board of officers.

Personal.—Dr. W. H. F. Addison, assistant professor of histology and embryology at the University of Pennsylvania, has made his way to Holland and will return in September. ——Dr. Edward Ledholtz, assistant professor of physiology at the University, who has been working at the University of Bonn, has not been heard from.——Dr. Henry Lowenburg has returned from abroad.

Funds Needed for the Consumptive Hospital.—On August 23 an appeal for funds to carry on the work for the Home for Consumptives at Chestnut Hill was sent out by the Philadelphia Protestant Mission. This institution, which has at present seventy-nine patients, is directed by the mission and is supported almost entirely by voluntary contributions, and the officials have unpaid bills on hands amounting to $5,000.

SOUTH CAROLINA

Greenville Physicians Abroad.—Drs. R. E. Houston, Ernest W. Carpenter, Thomas T. and Curran B. Earl are detained in Europe by war conditions.

New Officers.—The Second District Medical Association at Bamberg: president, J. J. Cleckley, Bamberg; secretary-treasurer, Dr. Vance W. Brabham, Cope.

Antityphoid Inoculation.—Dr. Asbury F. Coward of the State Board of Health reports that more than 10,000 antityphoid inoculations were made in the state during July.

Tuberculosis Camp Open.—The Tuberculosis Camp established by the Associated Charities of Columbia at Ridgewood has been opened. There are at present four tents and more will be added from time to time as may be required.

Professional Building.—A two-story and basement brick building is being erected on Main Street, Greenville, which will be used by physicians and dentists. The building is to be known as the Professional Building.

Personal.—Dr. James H. McIntosh, Columbia, was shot and seriously wounded, July 22. A reward of $5,000 for the arrest and conviction of the man who shot Dr. McIntosh has been offered by J. W. Norwood, a banker of Greenville. ——Dr. Joseph E. W. Haile, Columbia, charged with malpractice, was exonerated when the case was brought to trial.

Gift to Georgia College.—Dr. William J. Young, Barnwell, has given $25,000 to the Medical Department of the University of Georgia, Augusta, to be known as the William J. Young Library fund, and to be devoted to the improvement and development of the library of the college. The conditions of the gift provide that the principal be invested and that the income shall be used by the board of directors of the medical department for purchasing and binding such books, magazines and periodicals as may be designated by the dean.

SOUTH DAKOTA

Personal.—Dr. C. A. Homan, Aberdeen, has returned from abroad.——Dr. Curtis T. Green, Brookings, is reported to be detained in Europe.——Dr. Henry E. Binger, Clark, has accepted a fellowship in the University of Minnesota and will move to Minneapolis.——Dr. Leslie G. Hill, Watertown, has resigned after eight years' service as a member of the South Dakota State Board of Health and Medical Examiners.

WASHINGTON

Home from Europe.—Dr. Saxe W. Mowers, Tacoma, and Walter E. Keehl, Cle Elum, have returned from Europe.

New Officers.—Washington Association for Relief and Prevention of Tuberculosis at Tacoma: president, Dr. Christen Quevli, Tacoma; vice-president, Dr. Wilson R. Johnston, Spokane; secretary, Prof. John Weinzirl, Seattle, all reelected.——North End Medical Society at Seattle: president, Dr. Charles A. Warhanik; secretary-treasurer, Dr. Frederick A. Slyfield.

Personal.—Dr. Joseph M. Audic, Spokane, has started for France, where he will join his regiment, the Eleventh Infantry.——Dr. Harry A. Shaw, Seattle, has been elected physician of the Police Relief Association.——Dr. Frank C. Robinson has succeeded Dr. Lawrence R. Quilliam as physician of the State Prison, Walla Walla.——Dr. Elwin Brown, Tacoma, will open a sanatorium for liquor and drug addiction at Lake Bay this fall.

WISCONSIN

New Officers.—First District Medical Society at Hartland, August 7: president, Dr. Willibald J. Wehle, West Bend; secretary-treasurer, Samuel B. Ackley, Oconomowoc.

European Travelers.—Drs. F. Gregory Connell and Neil Andrews, Jr., Oshkosh, and W. Weber Kelley, Green Bay, have returned from abroad.——Dr. Adolph Roos, Oshkosh, with his wife and daughter, is believed to be in Vienna.

GENERAL

Conference on Tuberculosis.—The Mississippi Valley Conference on Tuberculosis will be held at St. Louis, October 6 to 8.

Osler Urges Typhoid Vaccination.—Sir William Osler has sent a letter to the London *Times*, urging the emphatic necessity of enforcing antityphoid vaccination in the British army.

Missouri Valley Physicians to Meet.—The twenty-seventh annual meeting of the Medical Society of the Missouri Valley will be held at Colfax, Iowa, September 17 to 19. The Hotel Colfax will be the headquarters and meeting place, and on September 19 a clinical session will be held at Des Moines. Dr. Flavel B. Tiffany, Kansas City, is president, and Charles Wood Fassett, St. Joseph, Mo., is secretary of the society.

Sioux Valley Physicians Meet.—At the annual meeting of the Sioux Valley Association in Sioux Falls, S. Dak., the following officers were elected: president, Dr. Robert Evans, Fort Dodge, Iowa; vice-presidents, Drs. Julius A. Hohf, Yankton, S. Dak., and Charles L. Sherman, Luverne, Minn.; secretary, Dr. George S. Browning, Sioux City, Iowa, and treasurer, Dr. Walter R. Brock, Sheldon, Iowa.

Bequests and Donations.—The following bequests and donations have recently been announced:

Boston University School of Medicine, $5,000 by the will of Dr. Alema J. Flint.

For a hospital in memory of his brother, William H. Thorndike, $200,000, by the will of George L. Thorndike, East Boston.

To equip a ward in a hospital in Philadelphia, devoted to contagious diseases, $25,000, by the will of James M. Holt.

Aultman Memorial Hospital, Canton, Ohio, a lot for the endowment fund and a second lot to be applied to the endowment fund after the death of Susan Palmer, by the will of Johnson Sherrick.

Mrs. J. Clark Stewart, a trust fund of $35,000, by the will of Dr. J. Clark Stewart, Philadelphia.

Chester County (Pa.) Hospital, a donation of $6,000 for the endowment of a ward, by Mr. and Mrs. Jackson A. Watt, Oxford.

The New Orleans Plague Situation.—Since the report made last week, two cases of human bubonic plague bacteriologically confirmed have been found in New Orleans. Case 21. Mary Jones, colored, female, widow, aged 84, housewife; residence 1734 Felicity Street; sickened August 26 with left femoral bubo; diagnosis made positive August 28. Case 22. Elmore H. Read, male, aged 30; nativity United States; white; residence 4415 Carondelet Street; sickened August 26; suspicious August 27; positive diagnosis made August 28; right femoral bubo. Cases 65 to 74 of rodent plague have been reported up to August 29. During the week ended August 22, the Outgoing Quarantine Department fumigated 98 vessels with sulphur and 18 vessels with carbon monoxid; burned 5,981 pounds of sulphur; inspected 19,912 tons of outgoing freight and issued 29 clean and 3 foul bills of health. The Department of Overland Freight Inspection inspected 5,889 cars; ratproofed 1,280 cars; condemned 10 cars and killed one rodent in a car. The Department of Field Operations trapped 9,630 rats; fumigated 4 premises; disinfected 92 premises; inspected 3,482 premises; placed 88,316 poisons; served 1,450 notices; made 675 abatements and inspected 117 dead. The Department of Laboratory Operations received 9,329 rodents and examined 7,850; of these 15 were suspicious and in 9 the rats were found infected. Thus far 3 necropsies have been made; 54,885 rodents have been trapped and 51,985 rodents have been examined.——It is reported by the New Orleans papers that the State Board of Health has decided that it cannot add to its appropriation of $10,000 already made and expended in this campaign, and the governor is said to have announced that the state could not provide anything from the $150,000 authorized by the legislature to be borrowed for the fight. It is understood, however, that notwithstanding this action, there will be no abatement of the work as mapped out.——At the outset of the campaign it was suggested by Surgeon-General Blue that the federal government and the city of New Orleans should each bear two-fifths of the expense and the state one-fifth.——It is also reported that in the daily press that the seven plague patients in the North Rampart Street Isolation Hospital have practically recovered from the disease and will be discharged within a week.

CANADA

Canadian Army Medical Service.—There are about 350 medical officers in the Canadian militia and many of these will probably be called on for active duty in the field.

Public Health Meeting Canceled.—Owing to the unsettled conditions due to the war in Europe, it has been decided to cancel the meeting of the Canadian Public Health Association, which was to have been held in Fort William and Port Arthur, Ont., September 10 to 13.

New Health Officers' Association.—The municipal officers of health in the counties of Haldimand, Wentworth, Norfolk, Brant, in the province of Ontario, have organized an association and elected Dr. Thomas A. Bertram, Dundas, president, and Dr. James Roberts, Hamilton, secretary.

Sanatorium Work Suspended.—The Anti-Tuberculosis League of Saskatchewan has had to suspend work on a new sanatorium for tuberculosis being built at Fort Qu'Appelle. The total cost of the building was to be in the neighborhood of $225,000 and of this amount $150,000 has been spent. Those who were to find the balance have been unable to find the funds, hence the suspension of the work.

The Academy of Medicine and the War.—A special meeting of the Academy of Medicine, Toronto, was held August 27. One thousand dollars was voted from the funds of the academy to the Toronto Patriotic Fund to provide for the dependents of those who had gone to the front. It was also unanimously decided to undertake without charge, the professional care of the needy dependents of the volunteers. A committee of past presidents will arrange to look after the practices of the professional members who have departed with their regiments.

Personal.—Drs. Andrew R. Gordon, Toronto, and John M. Elder, Montreal, presented the addresses in medicine and surgery, respectively, at the annual meeting of the Saskatchewan Medical Association of Saskatoon, August 18-20.——Mr. Irving Howard Cameron, professor of surgery in the University of Toronto, has offered his services to the British Government, it is understood in connection with base hospital work.——Dr. Wallace A. Scott, Toronto, will be in charge of the Army Medical Service of the Toronto branch of the first Canadian contingent.——Hon. Dr. Beeand, a former member of the Laurier Government, Canada, early entered the Belgian service.——The assistant superintendent of the Toronto General Hospital, Dr. Alfred K. Haywood, is off to the front with the Queen's Own Rifles of Toronto.——Dr. Duncan N. Maclennan, Toronto, has returned from a trip to the Mediterranean.——Dr. Richard A. Reeve, professor of ophthalmology in the University of Toronto, has secured passage and is returning from England.

LONDON LETTER

London, Aug. 14, 1914.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA

(Concluded from page 794)

Cancer of the Breast

Dr. W. L. Rodman, Philadelphia, opened a discussion on this subject. He said that chronic fibrous hyperplasia with cysts, the result of abnormal involution of the breast, is often mistaken for cancer. It generally occurs about the menopause but may be seen in patients from 20 to 30. It differs from cancer in that it is frequently bilateral and painful (early cancer is not painful). The pain is increased before each period, and the superficial veins become enlarged. Cancer, unlike benign neoplasms, soon becomes fixed, but the fixation at first is so slight as to be detectable only by careful examination. Dimpling of the skin, however slight, indicates cancer unless chronic mastitis had previously existed. Too much attention has been paid to dimpling of the nipple. It does not occur in more than 52 per cent. of carcinomas, and is present in 5 per cent. of benign growths and more often in abnormal involution. There is the difference, however, that in cancer the nipple, as well as retracted, is infiltrated, fixed and immobile, whereas in benign growths the nipple is mobile. We should get away from the old teaching that cancer is a disease after 40; 20 per cent. occur between 30 and 40. The differentiation of benign from malignant cysts is even more difficult than in the case of solid tumors. Thick granular discharge from the nipple is suggestive of carcinoma; in abnormal involution the fluid is fairly sanguineous. Pure blood nearly always means a papillary cystadenoma. In at least 25 per cent. of the cases a skilled diagnostician will fail to make a correct diagnosis. The proper way is exploratory incision. Benign growths are convex on section, pink or pinkish-white; malignant growths are usually concave and creak under the knife and have a gray tint. Though the expert may be able to distinguish benign from malignant growths by inspection, the only safe way is a frozen section at the time of operation.

Mr. Sampson Handley differed from Dr. Rodman in a few small points. Cancer of the breast is not always a fixed tumor and the skin does not always dimple over it. He described his now well-known theory of dissemination by lymphatic permeation. He said that secondary deposits rarely occur at a greater distance than 24 inches from the primary growth.

Intestinal Stasis

Sir Berkeley Moynihan opened a discussion on this subject. The theory of intestinal stasis, he said, asserts that at definite points along the intestinal canal certain membranes, veils or webs are frequently found, which delay the passage of the contents, producing intoxication, which directly causes some diseases and encourages others. He admitted that these membranes are frequently present but believes them to be congenital. As long ago as 1899 he described them in fetuses. Jackson's membrane is commonly congenital, but the bands found at the hepatic and splenic flexures are not seldom congenital. He agreed with Lane's view as to their origin, but he doubted that the bands are responsible for intestinal delay, for the intestine is not hypertrophied. Delay undoubtedly occurs in the typical case of intestinal intoxication, not from obstruction but from inability of the enfeebled intestine to empty itself. The early cases can be greatly helped by massage and paraffin. If operation becomes necessary the lower end of the ileum, cecum and ascending colon are the parts best removed. He condemned ileosigmoidostomy as it nearly always leads to regurgitation back into the colon. The surgeon exceeds his duty if he deals with anything beyond demonstrable lesions. He admitted that he had seen cases of rheumatoid arthritis improved beyond expectation by operative abdominal measures; but it should be remembered that drainage of an infected gall-bladder or removal of a diseased appendix will cure some cases of this disease. Moreover, most of these cases are not benefited by operations for intestinal stasis. He demurred to the wide range of diseases said to be curable by operations for intestinal stasis.

Sir Bertrand Dawson admitted that the successes of colectomy are very striking, but side by side there are great failures. The best results are obtained when the large bowel is definitely diseased. He demurred to the doctrine that the colon is a useless organ just as well removed as left. The mortality of colectomy is considerable, and it is often followed by frequent actions of the bowels at irregular intervals.

Sir Arbuthnot Lane said that in view of the lateness of the hour all he would say was that he was content that his views should be judged by the results.

On behalf of the American surgeons a committee, Drs. Leonard Freeman, Floyd W. McRae and William L. Rodman, drew up resolutions of thanks for the hospitality shown by London surgeons and hospitals to the Clinical Congress of Surgeons of North America.

The Annual Meeting of the British Medical Association

The eighty-second annual meeting of the British Medical Association was held at Aberdeen, unfortunately at the same time as the Clinical Congress of the Surgeons of North America in London. The president, Sir Alexander Ogston, delivered an address on the "Making of a Scottish Medical School." He traced the history of the district from the earliest times, when it was inhabited by the Celts. Later it was invaded by Scandinavians, Teutons and Saxons, who were more maritime races. Their physical differences from the Celts could still be observed. He estimated that 7 per cent. of the population were still of a tolerably pure Celtic type. The newcomers gradually fused with and no doubt in some cases dispossessed the Celts. The university was founded in 1494, a bull for this purpose being granted to Bishop Elphinstone by Pope Alexander VI. The first professor of medicine was James Cuming, who was appointed in 1503.

THE ESTABLISHMENT OF A DEFENSE FUND

At the meeting of the representative body there was an echo of the controversy in connection with the insurance act. A discussion took place on a proposal to establish a special fund for the defense of professional interests chiefly in view of future developments in national insurance, which might be injurious to panel doctors. The object is to make opposition effective by guaranteeing support to those members who otherwise could not afford to resist. The proposal was carried by a large majority. A debate then took place as to whether the fund should be administered by a trust or a trade union. The chief reason in favor of a trade union was that the funds would be inviolable against an action for damages. Several objections were raised. It was pointed out that the case of physicians is widely different from that of railway men or miners. The cohesion of the latter is not possible among physicians who work apart and often in antagonism to one another and not under a common employer. Although a majority report of the council favored the establishment of a trade union, it was decided that the fund should be administered by a trust.

MALINGERING

Sir John Collie, who in consequence of extensive experience with claims for disablement has become an authority on malingering, said that frequently the happening of an accident so perverted the outlook of the victim that he persistently dwelt on and exaggerated all his unusual sensations and in process of time he genuinely believed that he was not fit to work. While labor had become more and more monotonous than it used to be, the stimulus to return to work was much less. Every recollection of an accident brought a further injury to the nervous system and the mind. When confronted with these difficult cases the first and all-important step was to make as certain as possible that no organic disease existed. This was not easy, because certain organic diseases in the incipient stages closely resembled hysteria and neurasthenia. It was often a nice point how much was due to the accident and how much to the patient's own unconscious mental processes. In a railway accident passengers who happened to be asleep or tipsy did not suffer nearly so much subsequently from mental symptoms. It was unfair to insurance companies that physical disabilities should cause incapacity of work for four or six months simply because the patient had not been taken in hand from the mental point of view. He concluded that many of the cases were functional nerve cases and there was less deliberate fraud than might be supposed.

CONFIDENTIAL DEATH CERTIFICATES

Sir Victor Horsley spoke of the need of improvement of the nation's statistics, the importance of which, from the point of view of public health, had, he said, never been realized by the statesmen responsible for preparing them. The association should produce a real "nomenclature of diseases," from which the old loose names, which led to so much inaccurate certification, were expunged. The English and the international lists of diseases were chaotic nonsense. There should be direct confidential certification of the cause of death, and the certificate of death and the cause of death should be separate documents. Among the reforms he advocated was the certification of stillbirths, which would secure for the nation statistics on a subject on which it had none, namely, antenatal conditions, which were to a large extent responsible for infant mortality.

(To be continued)

BERLIN LETTER

[Delayed in Transmission]

Berlin, July 31, 1914.

Personal

Dr. Abel has accepted a call as director of the Hygienic Institute at Jena.

The Strassburg anatomist and anthropologist, Gustav Schwalbe, celebrated his seventieth birthday August 1. He joined the faculty of Freiburg in 1871, but in the same year went to Leipsic as professor extraordinary and in 1873 was called to Jena as regular professor of anatomy as the successor of Gegenbaur. In 1881 he went to Königsberg and two years later settled at Strassburg as the successor of Waldeyer. Among Schwalbe's works on anatomy are especially to be noted his study of the circumvallate papillae discovered by him, and also his studies on the growth of bone and cartilage, on the lymph channels of the eye and on the topography of the brain. Of his anthropologic studies those on the Neandertal skull, his method of measuring the skull and his investigation of the most ancient races of man are to be noted. Schwalbe has published two text-books on the anatomy of the nervous system and of the organs of sense, and he founded the *Zeitschrift für Morphologie und Anthropologie* and the *Anatomischer Jahresbericht*. Schwalbe resigns his position at the end of the summer semester.

Pathology and Therapy of Cancer

Two important addresses treating of the problem of cancer and its treatment were delivered a few days ago in the Berlin Surgical Society by von Hansemann, the pathologist, and Bier, the surgeon. Von Hansemann divided the history of cancer research into a number of periods.

HISTOLOGY OF CANCER

The first is the histologic morphologic period.

This was the beginning of exact investigation by scientific methods. The anatomic structure of cancerous tumors was studied and a number of characters were learned which distinguish them from healthy tissues and from pathologic changes of other sorts. This has the enormous advantage in a practical way that one may operate early on the basis of an early diagnosis of cancer and thus often completely eradicate the malignant disease.

ETIOLOGY OF CANCER

Then followed the etiologic period which, in many places, was not distinguished by an equal scientific character as the first period. This period of investigation had an important result in the development of the irritation theory. This teaches that the origin of a cancerous tumor depends on some sort of irritation, but in such a way that irritants of various kinds may produce the same sort of tumor, or that irritants of the same sort in different individuals may produce different kinds of tumors. Thus we know that the irritation produced by the Roentgen rays may cause cancer. The fine experiments of Fibiger of Copenhagen have shown that such irritation may also be produced by parasites, not in the sense that parasites cause cancer in the same way as the comma bacillus causes cholera, but that the presence of the parasites produces an irritant that in one case may have no consequences; in another case a slight inflammation may be set up; in a third, a benign growth, and in the fourth a genuine cancer may develop.

EXPERIMENTAL CANCER RESEARCH

The third period is that of experimental investigation. On a single occasion it was found possible to transmit a genuine cancer from one rat to another. Then a tumor was found in mice with which experiments were conducted for years almost exclusively. As the work was carried on with great diligence and with abundant means, important scientific results were reached with reference to the biology of cells and to the conditions which favor and hinder the growth of cells; but no results of practical importance for cancer in man have been realized, for this tumor of the mouse differs in important respects from the cancer of man and the observations made on it cannot, as a rule, be transferred to human cancer. Just recently, for the first time, through the researches of Fibiger mentioned above, something can be hoped for from experimental investigation because in his experiments genuine cancer was induced.

TREATMENT OF CANCER

Lastly we come to the therapeutic period. As is well known, the therapeutic results which have been obtained with newly discovered remedies, partly by Wassermann, partly by Neuberg and Caspari, have all been achieved in mouse cancer, but so far the same treatment cannot be employed in human beings. The treatment by radium and the Roentgen rays does not stand in the same class. It is rather to be compared with surgical treatment inasmuch as it destroys the tumor but does not actually cure the disease. An actual curative remedy, like the salicylates in articular rheumatism, is known only in such diseases as those in which occasionally the patients recover without treatment. Hitherto, no case is known in which a genuine cancer became cured spontaneously. Von Hansemann emphasized this most decisively, and repeated it with marked energy in the discussion, saying that in all the cases that have been published as spontaneous cures, the disease either was not true cancer or only parts of the tumor receded and there was no general recovery. Consequently von Hansemann comes to the conclusion that it will never be possible to find a specific remedy for cancer.

ROENTGENOTHERAPY OF CANCER PLUS INJECTION OF BLOOD

Bier's address on this subject indicates that new hopes may be entertained. Some years ago, he made experiments with the blood of healthy animals. Lately he has resumed these in conjunction with roentgenotherapy and in a number of cases he has reached quite remarkable results, at least for the time being. He showed a patient who had been repeatedly operated on for cancer of the throat, and still the tumor had grown anew and of greater extent. The pictures which Bier showed from the time previous to the treatment made it clear to every one that the case was very severe. A deep radiation with the Roentgen rays was applied to the tumor, while at weekly intervals from 8 to 10 gm. of the blood of healthy hogs was injected. No trace of the cancerous tumor can be detected now in this patient. Bier did not venture to say how permanent the result would be or what would be the future fate of this patient and others treated in the same manner, and he would not state even his presumptions. An opinion on the favorable side is not possible until after some years.

EFFICACY OF ROENTGENOTHERAPY

Bumm's address, delivered in the Hufeland Society on the cure of deep-lying carcinoma by the Roentgen ray from the surface of the body, is also calculated like the statements of Bier to overthrow the pessimistic view of Hansemann in regard to the curability of cancer. Bumm regards his experiences as very favorable. With radio-active substances, a curative effect cannot be obtained at a greater depth than 2 or 3 cm. from the surface without injury to the neighboring tissues. But in the case of superficial cancerous growths, a quick and apparently permanent cure is obtained. In advanced cases in which infiltrations in the neighborhood of the primary focus have formed, a cure of the superficial cancerous growth is obtained, but under the cicatrix in the depths of the tissues the carcinoma continues to grow, and physicians who see the patient after six months or a year find a healed primary focus with fresh nodules in the deeper tissues. No success has been obtained by the attempt to act on the deeper lying parts by the use of larger doses of radio-active substances or by prolongation of the radiation. The use of the Roentgen rays produced better results as the Roentgen tubes furnish many thousand times the amount of radiant energy that is obtainable from the available quantity of radio-active substances, if the superficial tissues are protected from the intense caustic action and a sufficient action in the deeper parts is obtained without the danger of severe injury to the tissues. The cure of cancer is a question only of the quantity of rays which can be applied to the pathologic tissues. As the intensity of the radiation diminishes rapidly in proportion to the distance below the surface, only the hard rays can be used. Bumm is of the opinion that the Roentgen rays afford the remedy which alone is capable of checking the growth and thus securing a permanent cure of deep, advanced carcinoma.

Marriages

Alfred L. Fowler, M.D., Atlanta, Ga., to Miss Helen Achenbach of Roslyn Ranch near Rand, Colo., August 12.

Charles F. W. Bove, M.D., Cumberland, Md., to Miss Cecelia H. Flaig, formerly of Catskill, N. Y., August 22.

Hugh Forsythe Lorimer, M.D., Oxford, Ohio, to Miss Sarah Florence Shaw of New Concord, Ohio, August 18.

Alexander Edwin McCornack, M.D., Elgin, Ill., to Miss Josephine Jernstad of Ishpeming, Mich., August 26.

Frederick Johnson, M.D., Eau Claire, Wis., to Miss Augusta Lange of New Freedom, Wis., August 12.

Anne Eunice Cochran, M.D., Brooklyn, N. Y., and Mr. John Emmet Carey of New York City, August 8.

Edwin Van Note, M.D., Hamilton, Mo., to Mrs. C. M. Perry of Pasadena, Cal., at Galena, Mo., July 9.

Calvin Brewster Coulter, M.D., New York City, to Miss Grace Dickey of Iroquois, S. Dak., August 19.

Maurice A. Hanson, M.D., to Miss Alice McCoy, both of Osage, Iowa, at Charles City, Iowa, August 13.

William S. Hector, M.D., to Miss Edna E. Dickens, both of Chicago, at Crown Point, Ind., August 22.

Herbert Rowell Stolz, M.D., to Miss Margaret Post, both of San Francisco, August 8.

Deaths

Haskett Derby, M.D. Harvard University Medical School, 1858; a Fellow of the American Medical Association; known throughout the United States as an ophthalmologist; one of the founders and once president of the American Ophthalmological Society; for more than forty years a practitioner of Boston; a medical officer of the Army during the Civil War; for thirty years consulting surgeon to the Massachusetts Charitable Eye and Ear Infirmary; founder of the eye clinic in the Carney Hospital, Boston, in 1887; for many years lecturer on ophthalmology at Harvard Medical School and trustee of the Public Library and of the Children's Institutions Department of Boston; died at his home in Falmouth Foreside, Maine, August 21, aged 79.

Maynard Gooding Burgess, M.D. College of Physicians and Surgeons in the City of New York, 1898; a veteran of the Spanish-American War during which he served in Cuba as a medical officer on the staff of General Wheeler, being discharged on account of permanent disability; died at his home in Herkimer, N. Y., August 14, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent while despondent on account of ill health, aged 38.

Carrington MacFarlane, M.D. College of Physicians and Surgeons in the city of New York, 1861; assistant surgeon of the Eighty-First and One Hundred and Fifteenth New York Volunteer Infantry, during the Civil War; one of the organizers of the Oswego City Hospital and for many years a member of the staff and board of directors; prominent also in commercial enterprises in Oswego, N. Y.; died at his home in that city, August 12, aged 77.

Edwin Pynchon, M.D. Eclectic Medical Institute, Cincinnati, 1873; Medical College of Ohio, Cincinnati, 1876; a Fellow of the American Medical Association and a member of the American Academy of Ophthalmology and Oto-Laryngology; and professor of rhinology, laryngology and otology in the Chicago Eye, Ear, Nose and Throat College; died at his home in Chicago, August 28, from uremia, aged 67.

Robert P. Marshall, M.D. Miami Medical College, Cincinnati, Ohio, 1873; a member of the Medical Society of the State of Pennsylvania; president of the Armstrong County (Pa.) Medical Association and one of the founders of the Kittanning, Pa., Fair Association; died at his home in Kittanning, August 19, from cerebral hemorrhage, aged 66.

Albert Merritt Cook, M.D. University of Buffalo, N. Y., 1881; Bellevue Hospital Medical College, 1883; for twenty-five years a practitioner of Newcastle, Pa., and a member of the staff of the Shenango Valley Hospital; died at his home in Pasadena, Cal., August 16, aged 59.

James Luther Vail, M.D. Eclectic Medical Institute, Cincinnati, 1899; of Little Rock, Ark.; aged 45; died in St. Vincent's Infirmary, Little Rock, August 17, from the effects of injuries received in a collision between his automobile and another motor car.

Wilmot Frederick Miller, M.D. University of Michigan, Ann Arbor, 1887; of Milwaukee; a Fellow of the American Medical Association, and a specialist in nervous diseases; died in St. Mary's Hospital, Milwaukee, August 14, from diabetes, aged 53.

Charles Betts, M.D. University of Wooster, Cleveland, Ohio, 1890; a Fellow of the American Medical Association; proprietor and superintendent of the Jefferson Hospital, Toledo, Ohio; died at Beulah, Mich., August 16, from heart disease, aged 49.

A. N. Perkins, M.D. New Orleans School of Medicine, 1858; for many years a practitioner of South Texas, and for eighteen years State Quarantine Officer at Sabine Pass, Tex.; died at the home of his daughter in Houston, Tex., August 13, aged 89.

James Robie Wood, M.D. Bellevue Hospital Medical College, 1867; of New Brighton, N. Y.; a Confederate veteran; while returning from a visit to his daughter in the Philippine Islands; died at sea on the U. S. A. Transport *Logan*, August 9, aged 76.

Joseph F. Robertson, M.D. Columbus, Ohio, Medical College, 1881; a Fellow of the American Medical Association, and a practitioner of Steubenville, Ohio, for thirty-five years; died at his home in that city, August 17, from septicemia, aged 62.

Cyrus Ernest Hoover, M.D. Ensworth Medical College, St. Joseph, Mo., 1886; a Fellow of the American Medical Association; and a member of the Medical Society of the Missouri Valley; local surgeon at Hamburg, Iowa, for the Burlington System; died at his home in Hamburg, August 21, aged 56.

William Edward Dillingham, M.D. Denver and Gross Medical College, Denver, Colo., 1903; of Mead, Colo.; while crossing the Mummy Mountains into Estes Park, Colo., August 19, was struck by lightning and instantly killed, aged 35.

William Henry Harrison Gable, M.D. Rush Medical College, 1879; for many years a practitioner of Osage, Iowa; and for four years state physician of the Maccabees; died at the home of his daughter in Boise City, Idaho, August 14, aged 73.

Charles H. Bacon, M.D. Northwestern University Medical School (Chicago Medical College), 1862; surgeon of volunteers during the Civil War; a resident of Lockport, Ill., since 1852; died at his home in that city, August 26, aged 80.

Charles Moman Johnston, M.D. Rush Medical College, 1914; of Idaho Falls, Idaho; formerly assistant in pathology at the Michael Reese Hospital, Chicago; died in that institution, August 15, from typhoid fever, aged 29.

Westley Rogers Wales, M.D. Jefferson Medical College, 1891; a member of the board of health of Cape May, N. J., and formerly physician of Atlantic County, N. J.; died in a sanatorium in Atlantic City, August 11, aged 45.

Frederick F. Chaffee, M.D. New York University, New York City, 1877; a member of the Vermont State Medical Society and Illinois State Medical Society; died at his home in Chicago, August 17, from nephritis, aged 59.

Charley Marion Cunningham, M.D. Starling-Ohio Medical College, Columbus, Ohio, 1909; formerly a practitioner of West Mansfield, Ohio; died in his apartment in Rasacca, Ohio, August 14, from heart disease, aged 32.

Daniel Campbell Rose, M.D. Harvard Medical School, 1869; for thirty-six years town and county health physician of Stoughton and Norfolk County, Mass.; died at his home in Stoughton, August 13, aged 76.

Leonard T. Whaley, M.D. University of Louisville, Ky., 1912; of Winslow, Ind.; was burned to death under his overturned automobile, August 13, while on his way home from the Huntingburg fair; aged 28.

Andrew C. Sheldon, M.D. Cleveland University of Medicine and Surgery, 1876; formerly a practitioner of Des Moines, Iowa; died at his home in Salt Lake City, Utah, August 23, aged 73.

Benjamin Dorr Colby, M.D. Rush Medical College, 1884; a member of the Illinois State Medical Society; died at his home in Austin, Chicago, August 14, from cerebral hemorrhage, aged 64.

Alvin Snyder, M.D. Missouri Medical College, St. Louis, 1873; for forty years a practitioner of Seneca, Kan.; died at his home in that city, August 23, from cerebral hemorrhage, aged 67.

Elmore Ferdinand Arnold, M.D. New York University, New York City, 1885; for many years a practitioner of New York City; died at his home in Londonderry, Vt., August 13, aged 55.

Gwynne Page Harrison, M.D. University College of Medicine, Richmond, Va., 1901; of Blair, W. Va.; was struck by a Chesapeake and Ohio train, August 12, and instantly killed, aged 34.

Frederick Bradford Mitchell, M.D. Wisconsin College of Physicians and Surgeons, 1904; died at his home in Withee, Wis., August 3, from disease of the liver, aged 46.

Alva E. Lyle, M.D. Washington University, St. Louis, 1873; a member of the Missouri State Medical Association; died at his home in Butler, Mo., August 6, aged 66.

Adams Quincy Baird (license, Indiana, 1897); for many years a practitioner of Shelbyville, Ind.; died at his home, August 11, aged 78.

John Lake Roberts, M.D. Atlanta, Ga., Medical College, 1894; died suddenly at his home in Pavo, Ga., June 11, aged 45.

Mark W. Coffee, M.D. Southern Medical College, Atlanta, Ga., 1882; died at his home in Rochelle, Ga., June 30, aged 71.

Ransom F. Rowley, M.D. University of Buffalo, N. Y., 1884; died at his home in Portville, N. Y., August 6, aged 56.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

DIGALEN OMITTED FROM N. N. R.

Report of the Council on Pharmacy and Chemistry

Digalen is a proprietary said to contain a soluble form (digitoxinum solubile Cloetta) of digitoxin, the chief active principle of digitalis. This preparation was accepted[1] by the Council in 1909 for inclusion in New and Nonofficial Remedies. The Council had not at that time determined whether Digalen contained "soluble amorphous digitoxin," as claimed, or not. The product was accepted merely as a standardized soluble and fairly stable digitalis preparation.

After the acceptance of Digalen, the therapeutic claims made for it by the manufacturers increased in extravagance. Meanwhile, evidence was brought forward by various independent investigators which tended not only to show that these therapeutic claims were unfounded, but also to discredit the claim that Digalen contained a principle chemically identical with digitoxin. In view of the obscurity of the whole subject of the chemistry of the digitalis principles, the latter claim (that Digalen was a solution of "amorphous digitoxin") had been an academic issue at the time of the acceptance of the product. When, however, the manufacturers of Digalen sought to mislead physicians by increased and unwarranted therapeutic claims, the Council felt that investigation of the whole matter was imperatively demanded to decide whether or not Digalen should be retained in N. N. R.

The questions at issue were: (1) the presence in Digalen of "amorphous digitoxin"; (2) the constancy of composition and reliability of action of Digalen, and (3) the claim that it causes less gastric disturbance than digitoxin. No satisfactory proof has yet been offered that Digalen contains "amorphous digitoxin." The mass of evidence tends to show that Digalen is not constant in composition or reliable in action, and that, when given in doses corresponding in therapeutic activity, Digalen causes quite as much gastric disturbance as the official galenical preparations of digitalis.

The outcome of protracted negotiations between the Council and the Hoffmann-La Roche Chemical Works may be summed up as follows: 1. The manufacturers promise to hold in abeyance the claim regarding the presence of "amorphous digitoxin." 2. They refuse to concede the variable composition of Digalen. 3. They reassert the claim that Digalen is superior to other digitalis products with respect to liability to cause gastric irritation and consequent vomiting.

In view of the unsatisfactory character of the reply on the second and third points, the Council voted that Digalen be omitted from N. N. R. and that publication of the report on Digalen which appears below, be authorized, as well as of the two reports[2] (A and B) referred to therein.

W. A. Puckner, Secretary.

Referee's Report on Digalen

Because of persistent conflict with Rule 6 (unwarranted therapeutic claims) and Rule 1 (composition) it is recommended that Digalen be omitted from New and Nonofficial Remedies. Also that a copy of the report be sent to the manufacturers, and that publication of this report and the two previous reports submitted to the Council be authorized.

The nature of the problems involved necessitates a somewhat extended discussion of the subject.

Digalen (liquid) is said to contain 1 part of soluble amorphous digitoxin Cloetta in 1,000 parts of glycerin and

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[1] The Journal A. M. A., Sept. 11, 1909, p. 869.

[2] These reports (A, first report on Digalen and B, examination of Digalen Tablets) will be published in the 1914 Annual Council Reports. A reprint of the entire matter dealing with the rejection of Digalen will be sent on receipt of a two-cent stamp.

1,600 parts of water with 7.5 per cent. of alcohol. One c.c. is said to contain 0.0003 gm. of the amorphous digitoxin.

Digalen was accepted by the Council[3] and the following footnote was appended to the description in New and Nonofficial Remedies:

> "The Council has not determined whether digalen contains 'soluble amorphous digitoxin' or not, but accepts it simply as a soluble digitalis preparation."

Tablets of Digalen were accepted by the Council as a dosage form of Digalen. Each tablet is said to represent 0.5 c.c. (eight minims) of Digalen (liquid).

One of the principal considerations which led the Council to accept Digalen was that it was regarded as affording a fairly constant and stable preparation of digitalis suitable for intravenous administration; if Digalen is not fairly stable and of fairly constant composition it has no obvious advantage over an active soluble digitalis preparation, such as digitalein.

The evidence now at hand seems to show: 1. Digalen is not of constant composition or activity. 2. The manufacturers, or their agents, continue to make misleading statements. 3. It is merely a solution of certain digitalis principles, probably of digitalein mainly, in impure form.

COMPOSITION

Cloetta[4] prepared a soluble amorphous substance which he called "Digitoxinum solubile Cloetta," but no information concerning the method of preparation has been published.

Cloetta reported the result of an elementary analysis of his product which he compared to the analyses of digitoxin (crystalline) made by Schmiedeberg and by Kiliani, and stated that there could be no doubt concerning the chemical identity of the two substances.

Kiliani[5] characterized as preposterous, Cloetta's claim that the active constituent of Digalen is chemically identical with digitoxin and stated that Digalen was merely an impure digitalein. Kiliani has recently reiterated the statement that the so-called "amorphous digitoxin" is not identical with Digitoxin[6]

Cloetta's failure to publish his method of preparing Digalen places an additional burden of proof on him (or the manufacturers of Digalen), concerning the identity of the product, and in the face of Kiliani's denial of the correctness of Cloetta's contention we must have strong corroborative evidence of Cloetta's claim before we can accept it as being established.

The difficulties of dealing with the chemistry of digitalis are so well known that they hardly require further mention here, but under the circumstances Cloetta cannot be considered as being wholly unprejudiced, and, while the same might perhaps, be said of Kiliani, such evidence as can be deduced tends strongly to support Kiliani's view, and to disprove the contention of Cloetta.

There is much confusion regarding the names which have been applied to the various principles obtained from digitalis, and while it is undesirable that an established name should be given to a newly discovered principle, one might overlook this if no effort were made to associate the therapeutic actions of the two substances to an extent which the truth did not justify.

While the Council at that time did not challenge the existence of "amorphous digitoxin" and made no attempt to determine the identity with digitoxin of the substance forming the basis of Digalen, the manufacturers of Digalen have sought to show that Digalen and digitoxin were identical so far as their therapeutic actions were concerned, but that Digalen lacked the disadvantages of digitoxin. What was a purely academic question when the acceptance of Digalen was under discussion by the Council becomes a matter of very great practical importance when the manufacturers of Digalen seek to mislead the physician by these claims.

The evidence which lends support to the view that Digalen and digitoxin are wholly dissimilar may be summarized as follows: Digalen differs greatly in its physical properties from digitoxin and in certain of its physiologic actions, as the manufacturers themselves state, Digalen being amorphous, and soluble in water, while digitoxin is crystalline and insoluble in water. The manufacturers state that Digalen differs from digitoxin in certain of its physiologic actions, but the two substances do indeed, differ far more than they admit.

Cloetta and the manufacturers of Digalen lay especial stress on the claim that Digalen is cumulative to a far less extent than digitoxin, and that it has far less tendency to cause gastric disturbance than the latter. The first of these claims is true; the second is the very opposite of the truth, as we shall show.

We know nothing of the structure of any of the digitalis principles, and even though one were to admit (purely for the sake of argument) that Digalen and digitoxin were chemical isomers, that fact could not be taken to lend any support to the contention that the two substances were identical, in the face of the established fact that they differ physically and physiologically in nearly every particular, and agree only in that they both cause standstill of the heart in the same way—an action possessed also by so dissimilar a substance as barium.

The manufacturers of Digalen support the claim of the identity of their product with digitoxin by stating that "Digalen is a solution of the most active glucoside of digitalis."[7] Of course, it is very generally admitted that digitoxin is the most active principle of digitalis, though there is some question concerning its glucosidal nature.

Digalen is in fact far less active than digitoxin, as has been shown by a number of independent observers* (Worth Hale, 1910; Hatcher and Brody, 1910; Neave, 1907; Miller, 1908; the referee; Weis, 1912).

The essential fact which appears from the investigation of Weis is that *Digalen did not behave like digitoxin in any case.*

Hale also found that Digalen gave atypical actions in which the effects on the central nervous system became prominent. The referee can corroborate these observations of Hale's on frogs, but the convulsive symptoms were prominent with some specimens of Digalen on mammals, though not with others, the more recent specimens of the preparation showing the action prominently.

The results of all these biologic tests, as well as of the physical tests made by Weis, certainly lend no support to the contention of Cloetta that the potent constituent of Digalen is identical with digitoxin, but, on the contrary, they show conclusively that the two substances differ widely in many essentials, and the continued claim of the manufacturers that the "amorphous digitoxin" said to be contained in Digalen is the same as digitoxin, or that it is the most active glucosid of digitalis, can be considered only as misleading, and therefore in conflict with the rules of the Council.

CONSTANCY OF COMPOSITION AND ACTIVITY

The manufacturers of Digalen continue to claim that it is of constant and uniform activity,[14] and they imply this even when they do not state it in those words; for example, a substance cannot be considered reliable if it is variable in activity. "Digalen is Absolutely *Reliable.* 'It is *standardized* and consequently *always uniform.* It *does not produce gastric disturbances.*"

That the foregoing is absolutely untrue can be shown abundantly. Hale[15] found Digalen not to be uniformly stable; Weis[12] found very different degrees of activity for Digalen in the liquid and tablet forms, the tablets being but one-third as active as the liquid, and the referee found very great variations in the activity of different specimens of Digalen, one specimen being almost inert. The results obtained by Miller show that Digalen is sometimes very slightly active, or not at all so.

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[3] The Journal A. M. A., Sept. 11, 1909, p. 869.

[4] Cloetta: München. med. Wchnschr., 1904, No. 33.

[5] Kiliani: München. med. Wchnschr., 1907, p. 886.

[6] Kiliani: Am. Jour. Pharm., 1913, lxxxv, p. 224.

* Owing to lack of space a portion of the report is here omitted. A detailed discussion of these results is contained in the full report, contained in the reprint.

[7] Clinical Suggestions and Reports, December, 1912, p. 24.

[14] Advertisement Brit. Med. Jour., April 26, 1913.

[15] Hale: Hyg. Lab. Bull., 74.

The foregoing citations show conclusively that Digalen is not of uniform activity. When *reliability* is claimed for Digalen in contrast to the known variability of digitalis, it must be considered as tantamount to the claim that Digalen is not subject to such variability and it must be held that the manufacturers make misleading statements when they assert that Digalen is absolutely reliable.

The manufacturers claim that Digalen does not produce gastric disturbances (see advertisement cited[13]).

It is quite true that when small doses of Digalen are used therapeutically it fails to produce gastric disturbances because it is of such slight activity, as previously stated, but when it is used in amounts which correspond in activity to such doses of the ordinary galenical preparations of digitalis as commonly cause nausea and vomiting it does cause gastric disturbances quite as readily as the latter.

Among the clinicians who have found that Digalen causes gastric disturbances may be cited: Veiel,[16] Mueller,[17] Eichhorst[18] and Teichmann.[19]

Eggleston and Hatcher[20] compared the emetic and cardiac activity of Digalen and numerous other digitalis bodies and preparations and found that the emetic activity of Digalen was decidedly greater in proportion to its cardiac (or therapeutic) action than was that of digitalis or digitoxin.

In the absence of any evidence to controvert this clinical and experimental evidence, the continued claim that Digalen does not disturb the stomach must be looked on as deliberate misrepresentation.

MISLEADING THERAPEUTIC CLAIMS

The recommendation that Digalen be dismissed from N. N. R. is made with the full appreciation of the fact that the manufacturers of Digalen and their agents have repeatedly stated that they desired to comply with the rules of the Council, and that they have withdrawn several statements to which the Council has taken exception, but the fact remains that despite these reiterations the advertisements of Digalen continue to embody statements which the Council can only consider misleading.

The Council believes that the following advertisements constitute gross therapeutic exaggerations:

> "Digalen a sheet anchor in pneumonia; a strong support to the heart in this deadliest of infectious diseases among adults. The prompt action of Digalen, by intravenous or intramuscular injection makes it possible to save lives which might be otherwise hopelessly lost. The best digitalis preparation which we have at the present time."[21]
>
> "*The* digitalis for children. Because its dosage can be controlled. Endorsed by pediatrists everywhere."[22]
>
> "The myocarditis of Tuberculosis so frequently encountered, especially in the advanced stage of the disease, may be controlled with the aid of Digalen. The standard digitalis preparation."[23]
>
> "Digalen is Absolutely *Reliable*. It is *standardized* and consequently *always uniform*. It *does not produce gastric disturbances*."[24]

Digalen is not a sheet anchor in pneumonia, for there is no drug deserving such a title. Digalen has no action which other digitalis preparations lack, and cannot save lives otherwise hopelessly lost. The dosage of Digalen cannot be controlled any better than that of other digitalis preparations, since its activity is variable. We cannot control the myocarditis of advanced tuberculosis by this, or any other means.

CLAIMED SUPERIORITY

Various digitalis principles, including digitoxin, digitalin (true) and digitalein, have been known for many years. Therapeutically they have been found wanting and there appears to be no basis for the continued claim that Digalen has any superiority over these several digitalis principles. On the contrary, the evidence is accumulating that Digalen has no advantage in any particular over a solution of digitalein, and misleading claims of the manufacturers and their agents certainly interfere with the formation of that calm and unbiased opinion on the part of the general practitioner, which, when applied to the non-proprietary digitalis principles has caused them to fall into disuse.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WATER-GLASS IN THE PRESERVATION OF EGGS

To the Editor:—In The Journal, Aug. 29, 1914, p. 796, C. W. L., Denver, asks for the comparative and practical value of water-glass in the preservation of eggs. During August last year I put down about twelve dozen eggs in a solution of water-glass, one part to ten parts of water. The eggs were used during the winter and by some means half a dozen were left in the jar until this August, when I discovered them on making preparations to put down more. They were in a perfect state of preservation, having remained in the solution twelve months. The water should be sterilized and the eggs strictly fresh when put down, and I doubt if there is any limit to the time they will remain fresh. B. F. Metcalfe, M.D., Greenville, Ohio.

VALUE OF VON PIRQUET REACTION IN ADULTS—RELIABILITY OF BASS-WATKINS TEST

To the Editor:—1. When the von Pirquet reaction for tuberculosis is positively positive in an adult female, is that reaction pathognomonic of tuberculosis either active or latent?

2. Is the Bass-Watkins test for typhoid fever as reliable as the old Widal reaction? S. W. Douglas, M.D., Eudora, Ark.

Answer.—1. A positive result from the von Pirquet reaction indicates the presence of a tuberculous focus but does not distinguish between active and latent tuberculosis. This reaction is given by the majority of adults, and hence is of little value as a test in adults.

2. Yes.

ALCOHOL IN MILK AND URINE

To the Editor:—1. Please give a simple qualitative and quantitative test for the presence of alcohol in milk.

2. What is the reliability and specificity of Anstie's test for alcohol in urine? R. K.

Answer.—1. Probably the best method is to distil the milk, then after adding sodium hydroxid to the distillate, to redistil and test the second distillate obtained for alcohol according to established tests such as the iodoform test or benzoyl-ethyl ester test, etc. It is asserted that the method of E. de Stoecklin (*Compt. rend., Acad. d. sc.*, 1910, cl, 43; abstr., *Chemical Abstracts*, 1910, iv, 886) will detect alcohol in 4 drops of a solution of a strength of 1 part alcohol in 10,000. For the quantitative test the specific gravity of the distillate obtained quantitatively as described above should be determined and the percentage of alcohol in a known amount of milk calculated therefrom (See Bull. 107, Bureau of Chemistry, U. S. Dept. of Agric.).

2. We have no definite information regarding the reliability and specificity of Anstie's reaction. Merck's Report for 1900, p. 112, states that the emerald green color signifies the presence of alcohol *in toxic quantities*. In 1877 F. C. Hewett (*Proc. Am. Pharm. Assn.*, 1877, xxv, 275) called attention to "the fallacy of Anstie's bichromate of potassium test for alcohol in urine, unless the latter be first distilled, the fallacy consisting in the reduction into the green oxid, not by alcohol singly, but by some agent present in the urine of persons who are total abstainers from alcohol. If the test be applied to the distillate in case of the alcohol having been taken in sufficient quantity to permit of its excretion in an unchanged form, the test will hold good, but not otherwise."

BLOOD DETERMINATION OF VARIETIES OF MAN

To the Editor:—Is there any known and positive method of determining whether blood is that of a white person or of a negro?
E. C. Dunning, M.D., Cassopolis, Mich.

Answer.—No.

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[16] Veiel: München. med. Wchnschr., 1906, liii, 2140.
[17] Mueller: München. med. Wchnschr., 1909, lvi, 904.
[18] Eichhorst: Deutsch. med. Wchnschr., 1905, xxxi, 49.
[19] Teichmann: Therap. d. Gegenw., 1907, xlviii, 199.
[20] Eggleston, Cary and Hatcher, Robert, A.: The Emetic Action of the Digitalis Bodies, The Journal A. M. A., Feb. 15, 1913, p. 499.
[21] Advertisement in Am. Med., January and February, 1913.
[22] Advertisement in Merck's Arch., April, 1913.
[23] South. Medical Journal, January to May, 1913, inclusive.
[24] Advertisement in Brit. Med. Jour., April 26, 1913.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alberta: Edmonton, September 15. Registrar, Dr. Cecil E. Race, University of Alberta, Edmonton.

Colorado: Denver, October 6. Sec., Dr. David A. Strickler, Empire Bldg., Denver.

Georgia: Atlanta, October 13-15. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Wallace, October 6. Sec., Dr. John F. Schmershall, Jerome.

Illinois: Chicago, October 6-8. Sec., Dr. C. St. Clair Drake, Springfield.

Iowa: Des Moines, September 10-12. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

Kansas: Topeka, October 13-15. Sec., Dr. H. A. Dykes, Lebanon.

Massachusetts: Boston, September 8-10. Sec., Dr. Walter P. Bowers, State House, Boston.

Michigan: Lansing, October 13-15. Sec., Dr. Beverley D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, October 6-9. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

Missouri: Kansas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, October 6. Sec., Dr. William C. Riddell, Helena.

New York: September 22-25. Chief of Examination Division, Mr. Harlan H. Horner, Department of Education, Albany.

Oklahoma: Muskogee, October 6-8. Sec., Dr. John W. Duke, Guthrie.

Rhode Island: Providence, October 1-2. Sec., Dr. Gardner T. Swarts, State House, Providence.

West Virginia: Clarksburg, October 13. Sec., Dr. S. L. Jepson, 81 Twelfth St., Wheeling.

Kansas February Report

Dr. H. A. Dykes, secretary of the Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 14, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass was 75. The total number of candidates examined was 11, of whom 10 passed and 1 failed. Ten candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Yale University	(1912)	77
Hering Medical College	(1912)	75
College of Physicians and Surgeons, Kansas City, Kan.	(1900)	76
Harvard University	(1908)	82
Kansas City Medical College	(1897)	81
University Medical College, Kansas City, Mo.	(1902)	87
Jefferson Medical College	(1913)	79
University of Tennessee	(1913)	77, 79
University of Edinburg, Scotland	(1912)	82

FAILED

College	Year Grad.	Per Cent.
Meharry Medical College	(1913)	*

* No grade given.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Colorado	(1912)	Colorado
College of Physicians and Surgeons, Chicago	(1906)	Illinois
Kentucky School of Medicine	(1902)	Kentucky
Ensworth Medical College	(1910)	Nebraska
Univ. Medical College, Kansas City (1907) (1911)	(1912)	Missouri
Washington University	(1911)	Missouri
John A. Creighton Medical College	(1912)	Nebraska
Jefferson Medical College	(1889)	New Mexico

Utah April Report

Dr. G. H. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 2-3, 1914. The total number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, of whom 5 passed, including 1 osteopath, and 3 failed, including 1 osteopath; for 1 candidate the name of the college is in doubt. Seven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Denver and Gross College of Medicine	(1905)	80.7
Gross College of Medicine	(1900)	81
University of Pennsylvania	(1911)	85.2
Vanderbilt University	(1900)	82.5

FAILED

College	Year Grad.	Per Cent.
St. Louis University	(1908)	71.1

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Medical College of Indiana	(1905)	Indiana
Ensworth Medical College	(1913)	Missouri
University Medical College, Kansas City	(1906)	Missouri
John A. Creighton Medical College....(1907) Iowa	(1913)	Nebraska
Ohio-Miami Medical College	(1910)	Ohio
University of Pennsylvania	(1912)	Penna.

Book Notices

Die Krankheiten des Neugeborenen. Von Dr. August Ritter von Reuss, Assistant an der Universitäts-Kinderklinik. Spezieller Teil, Enzyklopaedie der klinischen Medizin. Herausgegeben von L. Langstein, C. von Noorden and others. Paper. Price, 22 marks. Pp. 550, with 90 illustrations. Berlin: Julius Springer, 1914.

The thoroughness of this book, its detailed references to the literature, and its mass of detailed information regarding all of the unusual conditions of the new-born make it a splendid reference book. The chapter on the feeding of the new-born is especially good in its recital of the many difficulties that stand in the way of successful nursing and the best way to overcome them. The chapter on breast injuries and diseases of the alimentary and respiratory tracts is very complete. The same can be said of practically all of the other chapters. All the way through one sees the work of an author who has mastered his subject and presented it in a pleasing objective way. The illustrations greatly enhance the value of the book in that they show at a glance unusual conditions which one can understand much more easily by an illustration than by a long description. The book can be very highly recommended to all interested.

Bedside Hematology. An Introduction to the Clinical Study of the So-Called Blood Diseases and of Allied Disorders. By Gordon R. Ward, M.D. Cloth. Price, $3.50 net. Pp. 394, with 42 illustrations. Philadelphia: W. B. Saunders Company, 1914.

Two admirable qualities characterize this work and form a reason for recommending it highly. The first is its practical character. The work deals with clinical relations and facts and as little as possible with questions of pathology. No time is wasted in the description of unnecessary technic for examinations; indeed, the space given to the examination of blood appears at first to be meager, but the reader will find sufficient details for the practical processes. The greater part of the work is devoted to the description of the different forms of disease of the blood-making organs, and incidentally to the changes in the circulating blood. The second point of advantage is the systematic classification. In an introductory chapter the author discusses the question of classification, and while admitting that his scheme is open to various objections and to the charge of inconsistency, he develops an arrangement which is of great aid to the reader. The first disease that is discussed is lymphemia. The symptomatology of this disease is thoroughly worked out and affords a basis for subsequent comparison with the other forms of blood diseases. In reference to etiology, a possible gastro-intestinal origin is suggested, and this is more distinctly recognized with reference to the general forms of anemia. Addisonian anemia or pernicious anemia is said to be almost certainly due to the activities of a micro-organism. The author says: "The exciting cause is the growth and development of the causal organism. There is evidence to suggest this is a denizen of the intestinal tract, perhaps of the whole alimentary canal." The book is well illustrated with numerous figures and especially two colored plates.

Roth's Klinische Terminologie. Zusammenstellung der in der Medizin gebräuchlichen technischen Ausdrücke mit Erklärung ihrer Bedeutung und Abteilung. Bearbeitet von Dr. E. Oberndörffer. Eighth Edition. Cloth. Price, 12 marks. Pp. 484. Leipsic: Georg Thieme, 1914.

This is a new and greatly modified edition of a work little known to American physicians. Naturally a dictionary in a foreign language will be of little service to the English-speaking physician even when it includes, as does the present work, a good collection of the medical terms of German origin. The work included at first only such terms as were used in the field of clinical medicine, terms relating to materia medica, chemistry and allied topics being omitted. These defects have been remedied in the present edition with the result of increasing the size of the book by about half. Terms derived from or current in other languages than German are defined, so that the usefulness of the work is materially increased. This work may be confidently recommended to German readers, and we can only second the hope expressed by the reviser that as Roth's "Clinical Terminology" has maintained its usefulness for thirty-six years, the work in its new form will find many friends.

Leitfaden der Säuglingskrankheiten für Studierende und Aerzte. Von Dr. Walter Birk, Privatdozenten für Kinderheilkunde an der Universität Kiel. Paper. Price 4.80 marks. Pp. 256, with twenty-five illustrations. Bonn: A. Marcus & E. Webers, 1914.

This little book is a reliable and up-to-date presentation of the subject of diseases of infancy. Inasmuch as pediatrics has largely to do with the infant it naturally follows that so concise a book contains little if anything that is not found in the larger standard text-books on diseases of children.

Meningococcus Meningitis. By Henry Heiman, M.D., Professor of Pediatrics, New York Polyclinic School and Hospital, and Samuel Feldstein, M.D., Lecturer on Pediatrics, New York Polyclinic School and Hospital. With Introduction by Henry Koplik, M.D., Chief of Service, Mount Sinai Hospital, New York. Cloth. Price, $2.50. Pp. 313, with 39 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This monograph is founded on the study of cases occurring in the clinic of Henry Koplik at the Mount Sinai Hospital. In his introduction Dr. Koplik calls attention to the fact that in spite of the value of the Flexner serum the results of the disease on those who recover, especially when the patient is less than 1 year of age, is still extremely serious. The physician needs in coping with this disease every aid to diagnosis and treatment available. The authors have added to their personal experience a review of the literature and have produced a satisfactory account of the disease. The laboratory technic described is such as the practitioner can expect to make use of in his daily work; the technic of spinal puncture and injection is given in a way that may be easily followed. The diagnostic aids to be derived from an examination of the spinal fluid are fully described. These are well summed up in a table adapted from Pfaundler and Schlossman giving in parallel columns the findings in various diseases. The book is well illustrated.

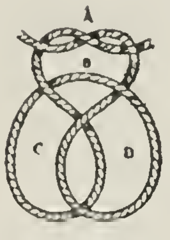
Tuberculosis: Its Cause, Cure and Prevention. A Revised Edition of the "Great White Plague." (A Book for Laymen.) By Edward O. Otis, M.D., Professor of Pulmonary Diseases, Tufts College Medical School. Cloth. Price, $1.25 net. Pp. 326, with illustrations. New York: Thomas Y. Crowell Company, 1914.

The author does not find that in the five years that have elapsed since his book was first issued under the title "The Great White Plague" any startling discovery has been made regarding either the nature or the cure of tuberculosis. Nor have the methods of fighting the disease been materially changed. The fight is more intense and is carried on with greater resources. The disease is steadily decreasing, and past success brings courage and hope. In the revision the form and substance of the book have been retained with only such changes as increasing knowledge have rendered necessary to bring it up to date.

Why Progress is Slow.—In one of his aphorisms Wundt says that "men think very little and very seldom." The truth of this dictum is indisputable. . . . Herbert Spencer walked about London, notebook in hand, listening to and writing down the matter of the conversation of passers-by. He found it to be of the most ordinary character, chiefly personal, such as "And how was Jemmy when you left him?" or, "She never gives more than tenpence a yard for it," etc. And action, like thought, is often of the simplest kind; however difficult at first to acquire, it has become an easy and self-sustaining reflex. When active thought or energy of a new kind is carried on for a long time or under stress people break down under it; the work can be done for only short periods. It is the custom to point to the great age to which scientific and other very busy men live; but when they do it is because they have as a rule an occupation which they are fitted to carry on without strain.—T. Claye Shaw, *Lancet*, London.

Miscellany

Ready-Made Ligature



Ready-Made Surgical Knot

The surgical knot illustrated is made on the forceps, the tip of the forceps being slipped through the superposed loops C and D. The loose knot is then slipped back on the forceps nearly to the handle and the vessel is clamped with the forceps as usual. Then the knot is slipped over the tip of the forceps and on the vessel and the ends drawn tight. No further tying is required. The knot was devised by M. G. Wunderlich of Guatemala, and the various steps of its application are illustrated in the *Cronica Medica* of Lima, Peru, 1914, xxxi, 205.

Ethical Advertising—Hints to Certain Medical Journals

Press dispatches indicate that at the Toronto meeting of the Associated Advertising Clubs of America, the keynote of most of the meetings of the different sections was devoted to the consideration of a higher standard of ethics among newspaper publishers and advertising men. It was stated that one meeting discussed the formation of a publishers' organization with a "clean page" as a standard. Most of the speakers took the position that the publishers could no longer deny their responsibility in safeguarding their readers from false advertisements.

While the medical journals should be the first to clean their pages, in this respect it is, nevertheless, a fact that some of the sheets going to doctors' offices throughout the United States carry advertising of the most untruthful and dishonest type. Responsibility of the medical journals' editors cannot be denied. More than that, their responsibility is much greater than that of an ordinary newspaper man, who may be excused from knowing a great deal about the ethics of the medical matter appearing in his pages.

The writer has rarely ever had the heart to criticize the daily newspapers for carrying "Pennyroyal Pills," "Ladies' Safe and Sure," "Peruna," etc., when his desk is covered up with medical journals advertising a delectable line of fakes. We should not forget that physicians may be influenced to use some of the worthless stuff they read about. Oregon has gone so far through the Oregon Social Hygiene Society to influence the legislature to pass an act prohibiting the publication of any advertisements "intended to imply that the advertiser will restore manly vigor, treat or cure lost manhood, stricture, gonorrhea, chronic discharges, gleet, varicocele or syphilis." We all know this is a sensible thing to do. . . . We should not wait for the people to regulate our affairs. The next step of the Oregon legislature would be to prohibit the advertising of fake remedies in medical journals. This would be, and properly, a stinging rebuke to the medical editor and it should not be necessary. Most of them know when their stuff is not acceptable, but the power to regulate it immediately lies with the individual physician. If he should ask the publisher to discontinue his dishonest advertisements that would settle the matter.—*Jour. Oklahoma State Med. Assn.*

The Influence of Schoolbooks on the Eyesight

The study of this question has been made by a committee of the British Association for the Advancement of Science. The report is published in the Proceedings of the eighty-third meeting of the British Association for the Advancement of Science (London, 1914, p. 268). The committee reports that, while attention is given in British schools to the detection and correction of visual defects in schoolchildren, the influence of schoolbooks on the vision is practically ignored. The committee believes that the influence of books on the immature eye of the child is an important one, and that, hygienically, the later children begin to read from books the better. The suggestion is made that little, if anything would be lost educationally by postponing the use of books in school at least until pupils have reached the age of 7. Oral instruction, wall-charts, blackboards, large pictures and other objects easily seen at a distance are recommended as substitutes for books in school.

The committee suggests a standard of book production, the adoption of which by educational authorities would render unprofitable the publication of books of a lower standard.

Among the hygienic requirements to which schoolbooks should conform the following are enumerated:

The surface of the paper should be neither glossy nor soft. The print of one side should not show through from the other, and the impression of the type on one side should not affect the evenness of the surface of the opposite side.

Books should be stitched with thread, so as to open flat. In books clipped from side to side with wire staples, the convex surface of the page gives rise to eye-strain.

For young children, illustrations from pen and ink drawings are preferable to halftones from photographs and wash drawings. The lettering of diagrams should be large enough to be read easily. Glazed paper may be used for halftone illustrations; it should never be employed for the text.

The ink should be a good black, and evenly distributed. The use of colored inks for reading-matter is strongly deprecated.

Worn stereotypes should be discarded. The ordinary text of schoolbooks intended for continuous reading should not be printed in double columns.

In regard to type faces, the committee expresses no preference between "modern" and "old style," but insists on a clean cut, well-defined type, neither too heavy nor to thin, not elongated vertically, and without excessive contrast between the finer and the heavier strokes. The general form of the letters should be broad and square, with a lateral shoulder on each type so that the letters are distinct. Long serifs should be avoided.

The size of type faces is considered the most important factor in the influence of books on vision. It is of the first importance to induce the young reader to keep a sufficient distance between eyes and book. Specimens of type faces considered acceptable for use at various ages are shown in the report. For children under 7, the smallest type presented has a minimum height of face for the short letters of 3.5 mm. (a little over ⅛ inch). The use of type as small as that of the editorial pages of The Journal is not considered advisable for children under 12.

Very long lines of type necessitate great excursions of the eye and make it difficult to pass from one line to the next. Very short lines demand too frequent a change of direction in the movement of the eyes. A line of 4 inches for the largest type and 3⅔ inches for the other sizes is recommended. Children 8 years old should not have their reading confined to very short paragraphs.

Good margins are restful to the eye and well worth their slight cost. The width of the outer edge in any schoolbook page should not be less than half and inch, and the width of the inner edge not less than three-eighths of an inch.

Copies of exercises, examples and questions produced by the hektograph or other multiplying process should be clear and legible.

It is better to multiply maps than to put much detail into one.

The Labeling Vice

Human vanity eyes all versatility with hostile suspicion. Most of us cannot do even one thing well, and we seldom have sportsmanship enough to applaud the man who excels at two or three. We prefer to label him with the first one of his achievements that attracts our notice. As for anything else he may do, we look it over and then firmly declare "None genuine without the original label."—R. H. Schauffler, *Century.*

Medicolegal

Death from Non-Abortive Anesthetic

(State vs. Tippie (Ohio), 105 N. E. R. 75)

The Supreme Court of Ohio holds that whoever, with the intent to procure the miscarriage of a woman by the use of an instrument or other means, administers to her a non-abortive drug as an anesthetic preparatory to the use of such instrument or other means of procuring an abortion, and the woman dies in consequence of the administering of such drug before the use of instruments or other means by such person to produce such miscarriage, and it does not appear that such contemplated miscarriage is necessary to preserve her life, or that the procuring of such miscarriage was advised by two physicians to be necessary for that purpose, is guilty of a violation of the provisions of Section 12412 of the Ohio General Code. Under such circumstances every act done and performed in furtherance of such unlawful purpose is an integral part of the whole unlawful transaction, and the fact that death ensues before the final act in the contemplated crime can be accomplished is not a defense to an indictment charging a violation of this section.

If it appears, however, that a non-abortive drug is administered to a woman as an anesthetic to enable a duly authorized and practicing physician fully and carefully to examine into the woman's actual condition for the purpose of determining if it be necessary to produce a miscarriage in order to save her life, and the woman dies from the effect of the drug so administered, and no miscarriage is produced, nor intended to be produced unless the examination discloses that it is necessary to preserve the woman's life, no offense has been committed within the provisions of Section 12412.

Evidence tending to show that no secrecy is maintained in the transaction, that a second physician is called in to administer the anesthetic, that while the woman is in a state of anesthesia the attending physician makes an examination for the purpose of determining whether the fetus is alive or dead, and on such examination does determine that the fetus is still alive, and that it is not necessary to procure a miscarriage in order to preserve the woman's life, and, having so determined, makes no use of any instrument or other means to procure a miscarriage, but immediately desists from further efforts in that direction, and directs that the woman be restored tò consciousness, is proper evidence to be admitted for the purpose of showing the absence of criminal intent in administering the anesthetic.

Accident Deemed Cause of Death Notwithstanding Organic Weakness

(Moon vs. Order of United Commercial Travelers of America (Neb.), 146 N. W. R. 1037)

The Supreme Court of Nebraska holds that it could be said that the death of the insured in this case was caused by external, bodily injury when, while going up the steps leading into his yard, he accidentally slipped and fell with force and violence, striking his external body near the region of the heart on a large stone with such force as to cause a rupture of the left auricle of his heart, from which he immediately died. The jury were warranted in finding that the accident was the proximate cause of the death, although the condition of the heart and other organs of the body of the assured may have the more readily permitted the rupture, it not having been shown that death would have ensued at the time it did but for the accident. The fact that a person of 50 or 55 years of age would be likely to have a normal hardening of the arteries in parts of the body, which might tend to bring about a rupture of the heart in case of a violent accident of the kind occurred in the instant case, is not sufficient to show that the accident was not the proximate cause of the death of the assured. If insurance is to be defeated because of the fact that the walls of the heart grow thinner by advancing years, or the arteries become sclerosed, or the valves of the heart act improperly, and this condition is the result of age, then the collection of the insurance money may nearly always be defeated by the effect of increasing years, which change the condition of the assured. The court does not believe this to be the policy of the law.

Proof of Illegal Practice of Medicine

(Hathaway vs. State (Ga.), 81 S. E. R. 260)

The Court of Appeals of Georgia holds that, in a prosecution for practicing medicine illegally, the state is required to prove that the accused, with intent to receive compensation therefor, performed services such as are defined in Section 1683 of the Civil Code of 1910, without registering in the county of his residence as required by Section 1684. The burden is on the state to prove, as a material fact in the case, the residence of the accused as alleged in the indictment; but the prosecution may rely on the failure of the accused to attack prima facie or presumptive proof as to residence which is sufficiently strong to compel the production of affirmative proof in order to rebut it. The court says that, according to the record, the volume of practice done by the accused in this case was exceedingly small. He made a poultice from herbs, which he gathered in the suburbs of Atlanta, and applied it to the arm of the keeper of the hostelry where he was boarding, and he supplied one of the chambermaids with a bottle of "Klondike Kidney Cure," which appeared to have relieved her of a severe case of stomach-ache. The real point in this case was whether the services rendered by the accused were humanitarian on his part, and purely charitable, or whether they were performed with the intent to receive compensation. The evidence in favor of the prosecution on this point was weak and unsatisfactory, but it was sufficient to authorize a verdict of guilty, if the jury believed the witnesses for the state. The court does not think the jury would have been authorized to convict the accused on the complaint of the maid who had "awful" pains in her stomach, and who had her employer to pay the accused 50 cents for the medicine, which "did her good right away," for that showed nothing more than a sale of a patent nostrum. The testimony of the prosecuting witness, however, who, after detailing the services rendered and that he was benefited by the treatment, testified that: "He made some poultices and bandaged them on my arm, and gave me some pills, . . . and for his services we agreed that I should give him credit for $2.50 on his board at my house, which I did. He took the $2.50 on his board," came clearly under the terms of Section 1683 of the Civil Code, and there was positive uncontradicted testimony that the accused had not complied with the requirements of Section 1684. The evidence authorized the verdict of guilty.

Society Proceedings

COMING MEETINGS

Amer. Academy of Ophthal. and Oto-Laryn., Boston, Oct. 19-21.
Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Association of Railway Surgeons, Chicago, Oct. 14-16.
American Electro-Therapeutic Association, Battle Creek, Sept. 15-17.
American Roentgen Ray Society, Cleveland, Sept. 9-12.
Association of Military Surgeons of the U. S., Cincinnati, Sept. 29-Oct. 2.
Colorado State Medical Society, Boulder, Sept. 8-10.
Delaware State Medical Society, Wilmington, Oct. 13-14.
Idaho State Medical Association, Boise, Oct. 8-9.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Michigan State Medical Society, Lansing, Sept. 11-12.
Minnesota State Medical Association, St. Paul, Sept. 30, Oct. 1-2.
Mississippi Valley Med. Assn., Cincinnati, Oct. 27-29.
Nevada State Medical Association, Reno, Oct. 13-15.
New Mexico Medical Society, Albuquerque, Oct. 5-7.
Oregon State Medical Association, Portland, Sept. 10-11.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Vermont State Medical Society, Rutland, Oct. 8-9.
Virginia Medical Society, Washington, D. C., Oct. 27-30.
Washington State Medical Association, North Yakima, Sept. 21-23.
Wisconsin State Medical Society, Oshkosh, Oct. 7-9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal Diseases of Children

August, VIII, No. 2, pp. 113-184

1 Primary Pulmonary Actinomycosis in a Child Aged Ten, with Post-Mortem Examination. F. Huber and S. Berkowitz, New York.
2 *Casein in Infant-Feeding. A. W. Bosworth and H. I. Bowditch, Boston.
3 Presence of Lactic Acid in the Urine in Cyclic Vomiting of Childhood. F. P. Underhill and H. M. Steele, New Haven, Conn.
4 Clinical Study of Typhoid in Children. H. D. Chapin, New York.
5 *Diagnosis of Whooping-Cough by Complement-Deviation Test. A. Friedlander and E. A. Wagner, Cincinnati.
6 Artificial Cooling of Sick-Rooms. H. Heiman, New York.
7 *Circumcision in Masturbation of Female Infants; Report of Six Cases. R. G. Freeman, New York.
8 Middle-Ear Complications of Measles in Immigrant Children. H. C. Cody, Ellis Island, N. Y.
9 Case of Tuberculous Meningitis Complicated by Influenzal Meningitis. H. K. Faher, New York.
10 Active Immunization against Diphtheria by Means of Von Behring's Vaccine, and the Diphtheria Toxin Skin Reaction. B. S. Veeder, St. Louis.
11 Digestive Disturbances of Artificially Fed Babies. I. M. Snow, Buffalo.

2. **Casein in Infant-Feeding.**—A method is given by the authors for preparing dry powdered paracasein for use in infant-feeding. It is shown that this paracasein is very easily digested and absorbed, and judging from the elimination of creatinin and creatin, it seems possible to maintain normal nitrogen metabolism by its use in infant-feeding. It is shown further that disturbances (fever, toxic symptoms, etc.) do not result from feeding this paracasein in exceptionally large quantities for seven days, even if fed with only the small amount of whey carried in 68 c.c. of 32 per cent. cream.

5. **Diagnosis of Whooping-Cough by Complement-Deviation Test.**—The authors' results lead them to the opinion that the complement-deviation test is of the greatest possible value in the diagnosis at all stages. Eighteen cases tested during the paroxysmal stage gave positive reactions: 3 + in each case. Nine of the cases were in the first week of the cough and 3 early in the second week. In no case did a normal give a positive reaction. This series included several cases of bronchitis. Of the 12 early cases, tested in the catarrhal stage, 11 gave positive reactions, and in each instance the definite whoop appeared later, thus confirming the serologic diagnosis clinically. The one case that gave a negative reaction was tested at the very beginning of the cough. The sister had given a positive test. Two weeks later the child with the negative test began to whoop. The one case giving a positive test that never whooped, occurred in a child with paroxysmal cough and vomiting lasting over a period of four weeks, evidently an atypical pertussis. The technic of the test employed is described in detail.

7. **Circumcision in Masturbation of Female Infants.**—Freeman is convinced that the masturbation of female infants occurs in nervous children, the stimulating cause being adhesions about the clitoris such as exist in practically all female infants. The treatment of this condition by braces alone is palliative and not curative. The only curative treatment is by separation of the adhesions and circumcision, and the result of such operative interference is often satisfactory.

American Journal of Obstetrics and Diseases of Women and Children

August, LXX, No. 440, pp. 173-328

12 *Polypoid Chondrofibroma of the Fallopian Tube, Associated with Tubal Pregnancy. G. W. Outerbridge, Philadelphia.
13 Cesarean Section Necessitated by Pelvic Chondrosarcoma. D. Nathan, Norristown, Pa.
14 Pathogenesis and Differential Diagnosis of Perirenal Abscess Complicating the Post-Partum Period. C. G. Cumston, Geneva, Switzerland.
15 Plea for More Uniform Use of Murphy Button. J. W. Kennedy, Philadelphia.
16 Application of the Ninhydrin Reaction to the Urines and Urine Dialysates of Pregnant Women. L. Berman, New York.

12. **Polypoid Chondrofibroma.**—In a tube removed on account of early tubal pregnancy, Outerbridge found a small, somewhat papillary growth practically filling the lumen just proximal to the placental area. Microscopic examination of the tumor showed this to be a somewhat degenerated fibroma, covered on the surface by tubal epithelium, and containing extensive areas of interstitial hemorrhage, numerous engorged capillary blood-vessels, small areas of fatty degeneration, and an island of hyaline cartilage. No connection between the tumor and the tube wall was demonstrated, although this had undoubtedly existed in the form of a narrow pedicle. The growth appeared to be essentially a fibroma, with a small area of cartilaginous metaplasia, and not an embryonic mixed tumor. Outerbridge suggests that the little tumor, almost blocking the tube lumen near the uterine end, may have been a factor in the arrest of the ovum, and the consequent development of the tubal pregnancy.

American Journal of Physiology, Baltimore

August, XXV, No. 1, pp. 1-147

17 *State of Vasomotor Apparatus in Pneumonia. W. T. Porter and I. Newburgh, Boston.
18 Compensatory Phenomena in Distribution of Blood during Stimulation of Splanchnic Nerve. D. J. Edwards, New York.
19 *Independence of Lobes of Liver. F. K. Bartlett, H. J. Corper and E. R. Long, Chicago.
20 Viscosity of Laked Blood. R. Burton-Opitz, New York.
21 *Vasomotor Center. Effects of Hemorrhage and Reinjection of Blood and Saline Solution. J. D. Pilcher and T. Sollmann, Cleveland.
22 *Id. Effects of Intravenous Infusion of Normal Saline Solution. J. D. Pilcher and T. Sollmann, Cleveland.
23 *Venous Blood-Pressure in Man. D. R. Hooker, Baltimore.
24 Outflow of Blood from Liver as Affected by Variations in Condition of Portal Vein and Hepatic Artery. J. J. R. MacLeod and R. G. Pearce, Cleveland.
25 *Oxygen Pulse and Systolic Discharge. Y. Henderson and A. L. Prince, Boston.
26 Systolic Discharge and Pericardial Volume. Y. Henderson and A. L. Prince, Boston.
27 *Ovarian Extirpation and Vasomotor Irritability. R. G. Hoskins and H. Wheelon, Chicago.
28 Nature and Causes of Respiratory Pressure Variations in Pulmonary Artery. C. J. Wiggers, New York.
29 *Clotting of Blood as Seen with Ultramicroscope. W. H. Howell, Baltimore.

17. **Vasomotor Apparatus in Pneumonia.**—Experimental evidence obtained by Porter and Newburgh proves that the vasomotor center is not impaired in fatal pneumonia.

19. **Independence of Lobes of Liver.**—The authors' experiments show that there is a physiologic independence of the lobes of the liver in dogs, depending on the fact that the blood flowing into the portal vein from each of the smaller veins of the portal system, does not blend diffusely into a common current, but remains individualized to a considerable degree, streaming in thread-like currents, for distances varying up to 10 cm.

Depending on this principle it is found by injection of emulsified fat in the various portal tributaries, and by the absorption of copper from the various isolated intestinal segments, that: (1) the blood from the stomach, spleen, duodenum, first part of the jejunum, and from the rectum, flows mainly to the left lobes of the dog's liver and least to the right lobes; (2) blood from the lower jejunum, ileum and first part of the large intestine, flows principally to the right lobes of the liver and least to the left lobes; (3) this independence is not entire, but overlapping, due to an intermixing of the portal currents; (4) the currents of blood from the splenic and rectal veins, are, at the hilus of the liver, more sharply defined than the currents of blood from the ileal veins which must flow a greater distance in the portal vein to reach the hilus of the liver, and consequently become more mixed and less independent.

21. **Effects of Hemorrhage and Reinjection of Blood and Saline Solution on Vasomotor Center.**—Pilcher and Sollmann found that hemorrhage progressively stimulates, depresses and paralyzes the vasomotor center. The period of stimulation is somewhat variable, but usually persists during a total hemorrhage of about 25 c.c. per kilogram when the blood-pressure has fallen to about 90 to 100 mm. A period of vasodilatation follows the stimulation; the perfusion flow may remain below the normal, return to the normal, or increase somewhat above the normal flow. The center becomes paralyzed when about 35 to 40 c.c. per kilogram has been withdrawn and when the blood-pressure has reached a low level (approximately 30 mm.). Reinjection of blood or saline solution before the onset of paralysis may restore the vasomotor tone. The low blood-pressure (shock) level depends chiefly on the amount of blood lost and not to an important degree on the rapidity of the hemorrhage. The relation of the fall of blood-pressure to the amount of blood lost varies in each animal; however, the median type is approached more or less closely by each experiment.

22. **Intravenous Infusion of Normal Saline.**—In normal animals Pilcher and Sollmann noted that the intravenous infusion of saline solution (10 to 40 c.c. per kg.) slightly stimulates the vasomotor center or leaves it unchanged. Occasionally, when the saline causes a maintained rise in blood-pressure, there may be considerable stimulation of the center. This variation is probably due to hypersensitive center. Above a 60 mm. level, the original blood-pressure seems to have no influence on the response of the vasomotor center.

23. **Venous Blood-Pressure in Man.**—According to Hooker the venous pressure exhibits a distinct diurnal rhythm, rising throughout the day from 10 cm. to 20 cm. and falling again during the night. Alterations in intrathoracic pressure produce an effect on the venous pressure which cannot be compensated. When the intrathoracic pressure approaches atmospheric pressure, the venous pressure rises, and vice versa. The data gathered by Hooker indicate that the normal venous pressure varies very considerably, averaging in the day time, under normal conditions, about 15 cm. of water. In sleep, at night it may fall to 7 to 8 cm. The pressure measured in the veins of the hand is not influenced by local changes in vascular tone or by changes in pulse-rate. The capacity of a vein may vary without affecting the internal pressure. In sleep the veins exhibit a pulse of peripheral origin. Normal venous pressure is independent of changes in peripheral arterial resistance. The suggestion that an hypothetical venomotor mechanism may function to maintain a constant feeding pressure to the heart is supported.

25. **Oxygen Pulse and Systolic Discharge.**—During bodily rest and with such slightly accelerated heart rates as are involved in merely walking about a room, Henderson and Prince found (in agreement with Murlin and Greer) that the quantity of oxygen consumed tends to be proportional to the pulse. The oxygen pulse under such conditions is, therefore, uniform at values ranging for different individuals between 2.5 and 6.5 c.c. With heart rates such as are induced by a distinct exertion and on up to hard muscular work, that is, rates from 80 to 100 per minute up to 130 or 140, the relation between oxygen pulse and heart rate prevails which is altogether different from that above stated. With some exceptions and variations the absolute augmentations are now proportional in such a relation that an increase by a definite amount in the oxygen pulse per minute, varying between 10 and 40 c.c. in different individuals, corresponds to an acceleration of one heart-beat per minute. The oxygen pulse at these heart rates, therefore, increases rapidly with acceleration of the rate. In most cases it reaches maximal values of 11 to 17 c.c. at rates of 130 to 140 per minute. With further cardio-acceleration it increases only slightly if at all; and it may even tend to decrease.

From these figures the authors infer that, if no considerable amount of oxygen is consumed in the lungs, the systolic discharge of the left ventricle of a well developed man working hard and with a pulse rate of 140 per minute is not less than 100 c.c. of blood. If the normal human heart obeys the principle of "superimposability of the volume curve" the systolic discharge at slow rates of beat is probably 150 c.c. or more. In men of poor physique it is probably not more than two-thirds as much. These figures are, however, considerably larger than those which most previous work has indicated.

27. **Ovarian Extirpation and Vasomotor Irritability.**—Hoskins and Wheelon found that ovarian extirpation in dogs results within six to eight weeks in a marked augmentation in the vasomotor reaction to a standard dose of nicotin. The reaction to epinephrin is not similarly increased. These results in conformity with clinical evidence indicate that the operations cause a heightened irritability in the sympathetic nervous system.

29. **Ultramicroscopic Clotting of Blood.**—Howell gives a description of the phenomena observed under the ultramicroscope when solutions of thrombin are added to oxalated blood-plasma or to solutions of fibrinogen. The essential point is that the fibrin formed is deposited not as a network but as separate well-formed needles of crystalline appearance which are massed to produce a mesh. Under certain conditions the process is incomplete, giving rise to the production of threads or rods of different lengths in place of the needles.

Bulletin Johns Hopkins Hospital, Baltimore

August, XXV, No. 282, pp. 223-254

30 *Significance of the Thymus in Exophthalmic Goiter. W. S. Halsted, Baltimore.
31 Summary of Studies of Loco-Weed Disease of Sheep. H. T. Marshall, Charlottesville, Va.
32 Behavior of Amebic Dysentery in Lower Animals and Its Bearing on the Interpretation of the Clinical Symptoms of the Disease in Man. W. A. Baetjer and A. W. Sellards, Baltimore.

30. **Thymus in Exophthalmic Goiter.**—It has been Halsted's practice of late in his strumectomy operations to investigate the contents of the space between the trachea and the manubrium with the object of determining the possible presence of an enlarged thymus. Only twice has he found it enlarged. The thymus symptoms predominated (attacks of dyspnea, diarrhea, no tachycardia, not much enlargement of the thyroid and not very definite eye symptoms). That the thymus plays an important part in Graves' disease, has been demonstrated beyond question by the results which have followed thymectomy. From the post-mortem examination of cases of exophthalmic goiter which have died of intercurrent disease it has been ascertained that the thymus gland is persistent in about 82 per cent. of them; and in those cases which have died of heart failure after operation enlargement has been found in about 95 per cent. At the Johns Hopkins Hospital there has been only one opportunity to make a necropsy on a patient with Graves' disease who died after operation. In this instance a long thick thymus gland was found tapering out from near the top of the manubrium sterni to the auricles of the heart.

From the facts gleaned at the autopsy table, from experiments on animals, and above all, from the results following primary thymectomies. Halsted has convincing evidence that the thymus gland may play an important part in exophthalmic goiter, and in some cases assume the title rôle. Some of the most puzzling features of the disease are made possible of interpretation by the discovery of the influence which the thymus may exert. Primary thymectomies uncomplicated by strumectomy and secondary thymectomies in cases not sufficiently relieved by resection of both lobes of the thyroid, Halsted says, would be the operations of choice for those searching for the essence of the Basedow symptoms. The combined operation would be avoided by them as much as possible until it became more definitely known how profoundly and in what particulars the thymus may influence disease.

California State Journal of Medicine, San Francisco

August, XII, No. 8, pp. 303-356

33 Study and Prevention of Tuberculosis. R. A. Peers, Colfax.
34 Id. G. E. Tucker, Riverside.
35 Earliest Manifestations of Tuberculosis and Treatment. G. E. Enright, San Francisco.
36 Why Are Better Results Not Being Obtained in the Prevention and Treatment of Tuberculosis? F. M. Pottenger, Monrovia.
37 Some Laboratory Aids in Diagnosis of Tuberculosis. G. H. Evans, San Francisco.
38 Prognosis of Pulmonary Tuberculosis. W. R. P. Clark, San Francisco.
39 Treatment of Pulmonary Hemorrhage. R. S. Cummins, Los Angeles.
40 Bureau of Tuberculosis, Its Work and Plans. B. F. Howard, Sacramento.
41 Arequipa Sanatorium; Sociologic and Economic Experiment in Care of Tuberculous Wage-Earning Girls. P. K. Brown, San Francisco.
42 Social Insurance in Its Relation to Tuberculosis. J. N. Force, Berkeley.
43 Induced Pneumothorax. E. von Adelung, Oakland.
44 Diagnosis, Significance and Treatment of Bronchial Lymph-Nodes in Infancy and Childhood. W. P. Lucas, San Francisco.
45 Indication for Labyrinth Operation, with Report of Eight Cases Not Operated. C. F. Welty, San Francisco.
46 Uterine Replacement with Particular Attention to Buteau Suspension. C. A. Dukes, Oakland.
47 Buttermilk and Green's Treatment of Three Cases of Grave Secondary Anemia. J. Jackson, Pasadena.
48 Dangers of Vaginal Examinations during Labor. A. Miller, Porterville.
49 Intraspinous Treatment of Tabes. Preliminary Report. S. J. Gardner, W. B. Coffey and W. T. Cummins, San Francisco.

Canadian Medical Association Journal, Toronto

August, IV, No. 8, pp. 661-756

50 Relation of Theory and Practice in Operative Treatment of Genital Prolapse. H. Jellett, Dublin, Ireland.
51 Surgical Teaching. R. Morison, Newcastle-upon-Tyne.
52 Infant Mortality. A. Brown and G. Campbell, Toronto.
53 *Cardiac Hypertrophy. T. F. Cotton, Montreal.

53. **Cardiac Hypertrophy.**—One hundred and fifty hypertrophied hearts were examined by Cotton. Of the kidney cases the greater number were of the interstitial type with hypertension and cardiac enlargement. In all the increase in weight of the whole heart was constant; the values of the relative weights of the ventricles, however, varied within wide limits. In some there was a marked hypertrophy of the left ventricle, in a few right hypertrophy predominated, while in many the normal relationship of the two ventricles was maintained. Microscopic sections showed myocardial degeneration in many; this was difficult to establish in a few. Cotton suggests that the altered state of the heart muscle may play an important rôle in the development of hypertrophy in the different chambers of the heart, while in many cases of hypertrophy associated with aortic valve lesions the hypertrophy was borne by the left ventricle. Cotton not uncommonly found a general hypertrophy, and in some a right hypertrophy, and this distribution seemed to bear no relation to the severity of the valvular lesion. He believes that here, undoubtedly, the back flow of blood during diastole into the left ventricle must increase the work of that chamber, and will explain in part the resulting hypertrophy.

Cotton would not look on the valvular defect as the essential factor in the production of the hypertrophy. If so, he says one should expect to find in those hearts with a general or right-sided hypertrophy, a greater incompetency of the aortic valves. In his case he did not observe any difference in the valvular lesions corresponding with the hypertrophy present. He did, however, note that a greater or less degree of muscular degeneration was generally present. Therefore, he would, as in renal cases, look on the degenerated myocardium as playing an important rôle in the development of the hypertrophy. In those hearts with mitral insufficiency, hypertrophy of the left ventricle was not a constant finding. In the majority of hearts hypertrophy was more developed in the left chamber, but in many the hypertrophy was general, the relative weights of the two ventricles being within normal limits, while in a few hypertrophy of the right ventricle predominated.

Only in one group of cases did Cotton's results corroborate the back pressure theory as an explanation of the hypertrophy associated with valvular lesions. In those hearts with mitral stenosis uncomplicated by any other valvular lesion, he found in every instance hypertrophy of the right ventricle predominating. Of those hearts with degeneration of the myocardium but with the valves quite intact, where the leaking or narrowed valve could not be a factor in embarrassing the heart's action, the results in the main corresponded with renal hearts. The hypertrophy was oftener of the left ventricle, not uncommonly the whole heart was increased in size, and occasionally the ratio of the ventricular weights was below 1.77, which he found to be normal.

Delaware State Medical Journal; Wilmington

June, V, No. 7, pp. 1-26

54 Appendicitis Mistaken for Right Pyosalpinx. H. J. Stubbs, Wilmington.

Illinois Medical Journal, Chicago

August, XXVI, No. 2, pp. 77-152

55 Relation of Precordial Pain to Heart Disease. J. M. Patton, Chicago.
56 *Some Psychic Factors of Surgical Anesthesia. R. H. Ferguson, East Orange, N. J.
57 Case of Tumor of Hypophysis with Operation. E. Hill, Chicago.
58 Problem of the Stammering Child. E. L. Kenyon, Chicago.
59 Radium; Some of Its Uses in Skin Diseases. F. E. Simpson, Chicago.
60 Experience with Milk Sickness. A. J. Clay, Hoopeston, Ill.
61 Imperforate Anus; Report of Two Cases. M. H. Smith, Sherrard, Ill.
62 Further Advancement in Studies of Syphilis. B. C. Corbus, Chicago.
63 Bone Transplantation for Cure of Tuberculous Spine Disease, with Report of Cases. C. M. Jacobs, Chicago.
64 *Specific Treatment of Hay-Fever by Active Immunization. K. K. Koessler, Chicago.
65 A Booster Sermon. C. W. Carter, Clinton, Ill.

56. **Psychic Factors of Surgical Anesthesia.** — Ferguson considers in detail the psychic phenomena of patients awaiting anesthesia and which the successful anesthetist must have clearly before him. Except under certain special circumstances, he does not believe in controlling the mind of the patient by drugs. He says it is always best to guide or subdue psychic phenomena by psychical technic. The endeavor of the anesthetist should be to have his patient believe that he knows his business and that he has perfect confidence in his patient taking the ether well. The method should be by action not words. Keep from the senses of the patient to be anesthetized anything and everything that could disturb him or impress on him undesirable ideas. Everything, even to the most trivial circumstances should make for tranquility of mind, and the leaving of pleasing impressions on the sensorium of the patient. If perfect trust in the anesthetist is wanting the patient will try to control the induction, thereby disturbing it, particularly when coordination of the senses is wanting. This negative condition, a lack of confidence, becomes positive distrust if anything that may be interpreted as deception occurs and early in the induction the patient antagonizes the anesthetist. Ferguson discusses all phases of this subject in detail.

As to the preliminary use of morphin, Ferguson objects to it because patients differ so in their idiosyncrasy to morphin that a correct dose is difficult to determine. It does away with the anesthetist's two most important waymarks, the character of the respiration and the light reflexes of the pupils. Unless administered in undue quantity, morphin prolongs the induction and necessitates more ether to be used, since it diminishes both the number of respirations per minute and the amount of tidal air at each respiration. Morphin prevents the patient clearing the larynx if necessary. Morphin favors sudden respiratory arrest with a slow, intermittent respiration after it has been restored. Morphin favors postoperative nausea and vomiting. Morphin may allow asphyxia during recovery. The three classes of case in which Ferguson demands its use are these: 1. Nervous cases with marked physical manifestations. 2. Pronounced alcoholics. 3. Young or middle-aged men of a marked athletic type or build.

64. **Specific Treatment of Hay-Fever by Active Immunization.**—In the last four years Koessler had treated 41 hay-fever patients by active immunization with pollen extracts, made by his method. Five of these had the early spring variety of the disease, and all these began treatment after the disease was already developed. The remaining 36 had autumnal catarrh. Seventeen of these patients had prophylactic treatment, whereas, 19 were treated while symptoms of hay-fever were present. Four of these patients had been completely free from hay-fever, though remaining in their usual place of abode. Of these 4 patients, 3 had treatment during two years, and one during three years—for two to three months. The supreme test in patients who are apparently free from the disease, is a railway or an automobile journey through flowering fields. Only these 4 patients of the 41 could stand this experiment; 2 of them have so far remained free for two years, and 2 for one year. Of the other 37 patients, 29 were markedly improved subjectively as well as objectively. The remaining 8 are considered objectively not improved, though 5 of them feel subjectively benefited. The marked improvement consists in later, milder and shorter attacks, in the possibility of remaining in town and at work for the first time in years, in a diminution or disappearance of troublesome cough and constitutional symptoms. Twenty-three of the 41 patients had previous asthmatic attacks during the day and night in the critical season. Of these 16 experienced an undoubted amelioration of this most distressing feature of the disease. Six of these hay-fever asthmatics had no asthmatic symptoms, though 5 of them still retained other symptoms of hay-fever. Others had only 2 or 3 attacks during the whole season, were little disturbed in their sleep during the night, while emphasizing the improvement experienced.

Indiana State Medical Association Journal, Fort Wayne

August, VII, No. 8, pp. 357-396

66 Local Manifestations in Ear, Nose and Throat, Associated with Disease of Nervous System. J. D. Heitger, Bedford.
67 Stricture of Male Urethra. F. G. McCarthy, Terre Haute.
68 Tinted (Light Gray) Operating-Rooms. J. R. Eastman, Indianapolis.
69 Early Diagnosis of Ruptured Ectopic Pregnancy. C. Sudranski, Greencastle.

Journal of Experimental Medicine, Lancaster, Pa.

August, XX, No. 2, pp. 93-200

70 *Studies in Experimental Atherosclerosis. I. Adler, New York.
71 *Relation of Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. Supposed Regulatory Influence of Spleen in Formation and Destruction of Erythrocytes. E. B. Krumbhaar and J. H. Musser, Jr., Philadelphia.
72 *Id. Influence of Spleen on Iron Metabolism. J. H. Austin and R. M. Pearce, Philadelphia.
73 Effect of Variation in Osmotic Tension and of Dilution of Culture Media on Cell Proliferation of Connective Tissue. A. H. Ebeling, New York.
74 *Cultivation of Human Sarcomatous Tissue in Vitro. J. R. Loose and A. H. Ebeling, New York.
75 *Removal of Calcium from Blood by Dialysis in Study of Tetany. W. G. MacCallum, R. A. Lambert and K. M. Vogel, New York.
76 Experimental Production of Necrosis of Liver in Guinea-Pig. M. S. Fleischer and L. Loeb, St. Louis.
77 *Effect of Intravenous Injection of Substances Affecting Tumor Growth on Cyclic Changes in Ovaries and Placentomata. M. S. Fleischer and L. Loeb, St. Louis.
78 *Circulation of Kidneys Following Ligation of One Ureter. A. A. Ghoreyeb, Boston.

70. **Experimental Atherosclerosis.**—Although he does not arrive at any definite conclusions as the result of his experiments, Adler states, that in all probability the theory which bases atherosclerosis on a purely mechanical etiology will not prove tenable. Whether mechanical factors come into play at all, and if so, to what extent, remains to be seen. It seems almost certain, at least in our present state of knowledge, that chemical influences, subject possibly to more or less nerve control are dominant factors in the etiology of atherosclerosis. Perhaps it may be discovered also that cholesterin and its various modifications and combinations, while undoubtedly an element of importance in atherosclerosis of the rabbit and human beings, may not be the sole predominant etiologic factor. If it should turn out that so simple a procedure as adding a certain proportion of hydrochloric acid to the food of dogs is sufficient to produce lesions of the blood-vessels closely analogous, if not wholly identical with human atherosclerosis, a revision of our present theories will become necessary.

71. **Spleen, Blood-Destruction and Regeneration, Hemolytic Jaundice.**—Krumbhaar and Musser conclude that the slight differences between the arterial and venous blood of the spleen are within the limits of error inherent in the methods of blood examination and are not be explained by a peculiar action of the spleen. In some instances peculiarities shown by the splenic venous blood are common to the venous blood of the general circulation. Banti and Furno's observation concerning the presence of free hemoglobin in the blood of the splenic vein is not confirmed.

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STATE UNIVERSITY,

They also found that fresh extracts of spleen are devoid of definite hemolytic action. Occasional trivial and irregular results, not to be explained, are found, but these occur likewise in the control extracts of liver and mesenteric lymph-nodes. Twenty-four-hour extracts prepared at low temperature, show little or no increase in hemolytic activity. Boiled splenic tissue, extracted in the cold for twenty-four hours, is inert.

Intraperitoneal injection of saline extracts of fresh spleen constantly causes a sharp increase in red cell count and hemoglobin content. The rise is evanescent, lasting but one or two days, and may be followed by an equally evanescent drop below normal. Similarly prepared extracts from other organs fail to give this rise. No noteworthy change is found in the resistance of the red blood-cells to hypotonic salt solution, or in the number of skeined or reticulated erythrocytes, after the injections of the various organ extracts. A temporary increase of polymorphonuclear and transitional leukocytes usually follows the use of spleen extract, but may occur also, though less frequently, after the injection of liver and kidney. The constant increase of red cells in the peripheral circulation after injection of spleen, in view of the tendency to anemia following splenectomy, suggests that the spleen normally may exert a stimulating effect on the formation of red cells in the bone-marrow. The feeding of fresh raw spleen to splenectomized dogs has no clearly defined influence in preventing the anemia which usually occurs after splenectomy.

72. **Influence of Spleen on Iron Metabolism.**—Austin and Pearce's studies give evidence of increase in the iron elimination in three of five dogs during a period of two weeks following splenectomy, but not in two other dogs. The occasional increased output of iron may have some relation to the anemia which occurs in the early weeks after splenectomy and which varies in degree in different animals. No evidence was secured of an increase in the iron output at one, nine and twenty months after splenectomy. From their own studies and from examination of the literature of the subject the authors conclude that the spleen does not exercise a constant and important influence on the iron metabolism of the body.

74. **Cultivation of Human Sarcomatous Tissue in Vitro.**—Two experiments were made by Losee and Ebeling in which fragments from human sarcomatous tissue were cultivated. It was possible to keep cultures of such tissue in a condition of active life *in vitro* for several generations. One culture was stained which was growing actively in its twelfth passage (twenty-one days). One other culture was carried through for twenty-four passages, that is, fifty-two days. It was possible to divide this culture in its fifteenth passage, making two, and after forty-eight hours incubation one of these cultures was fixed. Sarcomatous tissue grew as well during a few days as normal connective tissue. Afterward the rate of growth became less rapid and the tissue could not be kept alive for more than fifty-two days, while normal human tissue could be kept for sixty-eight days.

75. **Removal of Calcium from Blood.**—It was found by the authors that one may devise a fluid containing practically all the inorganic diffusible constituents of the blood except calcium, and use it to dialyze normal blood in such a way as to remove from it a large part of its calcium. The dialyzed blood when perfused through an isolated extremity produces an extreme hyperexcitability of the nerves quite like that observed in tetany. Since perfusion with blood dialyzed in precisely the same way against a fluid of the same composition, but containing calcium in the proportion found in the normal blood, causes no hyperexcitability of the nerves it is evident that the hyperexcitability is due to the lack of calcium. This effect can be attained in only a slight degree by replacing the blood of a whole animal with the dialyzed blood, since under the conditions of the experiment the tissues cannot be sufficiently depleted of their calcium. It seems probable that the parathyroid secretion is not removed by dialysis, but is returned to the body with the dialyzed blood.

To bring this result into relation with the condition in tetany following parathyroidectomy, animals in tetany were bled and the blood was replaced in one case with normal blood, in the other with dialyzed blood poor in calcium. The normal blood immediately relieves the tetany and lowers the excitability, while the dialyzed blood does not. The authors believe, therefore, that this is a further proof that in the tetany of parathyroidectomy also the twitching and hyperexcitability of the nerves is due to lack of calcium in the blood and tissues.

77. **Intravenous Injection, Tumor Growth and Cyclic Changes in Ovaries.**—If six to seven days after copulation incisions are made under ether anesthesia into the uterus, and on the day following this operation one or several injections of hirudin are given, Fleisher and Loeb noted that changes set in the ovaries which correspond to those found at the time of ovulation; namely, a degeneration of all the follicles with the exception of the small ones. These degenerative changes are followed by the same developmental changes as in the normal cycle. This represents a second method of altering experimentally the periodicity of the sexual cycle, the first consisting in the early extirpation of the corpora lutea.

Under the same conditions intravenous injections of hirudin destroy, in the large majority of cases, the greater part of experimental placentomata through hemorrhages, and they prevent the remaining placentomatous areas from active proliferation, probably as a result of interference with the circulation. These injections may also cause abortion in pregnant animals. Intravenous injections of hirudin produce a tendency to hemorrhage at various places in the body, and these hemorrhages are prone to occur, especially in rapidly growing tissues, in which the blood-vessels are less resistant, as in tumors and in placentomata, also in the neighborhood of necrotic areas. In the stomach the hemorrhages may be followed by digestion of the tissues through the gastric juice. It is probable that there is a connection between the action of hirudin on the blood (coagulability and viscosity) and the tendency to hemorrhage. Withdrawal of blood, intravenous injections of distilled water, colloidal copper, nucleoproteid, or casein have no marked effect on the cyclic changes in the ovaries or on placentomata.

78. **Circulation of Kidneys Following Ligation of Ureter.**—During the first week following ligation of one ureter there is found an impediment to circulation which is removed on opening the distended pelvis and reducing the intrapelvic pressure. This impediment, therefore, is probably due to the compression of the blood-vessels within the kidney brought by dilated tubules and unyielding capsule, and also possibly to disturbance of circulation produced by the distention of the pelvis. The venous and arterial branches passing over this may be either compressed or in various ways distorted.

During this period the anemia produced by the impediment together with pressure and other factors gives rise to changes in kidney tissues which reveal themselves microscopically as a swelling and degeneration of the epithelial cells. At the end of one week following ligation of one ureter there is an impediment to the circulation other than due to intrapelvic pressure. This impediment is probably due to cicatricial changes in the organ, which tend to maintain the tubules dilated and in a position of encroachment on the space normally allotted to blood-vessels, and which manifest themselves microscopically as a connective tissue cell infiltration into the interstitial tissues of the kidney, and an increase in vascular cells of the tufts diminishing the caliber of the tuft capillaries. The increased amount of work thrown on the control kidney produces no lesions other than a hypertrophy, which permits a greater and more rapid circulation through its vascular system.

Kentucky Medical Journal, Bowling Green

August 1, XII, No. 14, pp. 453-474

79 Acute Dysentery. F. M. Sherman, Lewisport.
80 Our Armor-Plate. E. D. Burnett, Anchorage.
81 Medical Progress in the Past Thirty Years. R. Lockhart, Owensboro.
82 Medical Doxology. J. A. Freeman, Crestwood.

83 Cancer of the Breast, with Particular Reference to Certain Phases of Diagnosis. N. Evans, Murray.
84 Uncinariasis. J. A. Frantz, Russell.
85 Gonorrheal Arthritis and Tenosynovitis; Report of Two Cases. S. E. Vidt, Russell.

Missouri State Medical Association Journal, St. Louis

July, XI, No. 1, pp. 1-60

86 Prevention Rather than Cure. E. H. Miller, Liberty.
87 Professional Reminiscences and Plea for Medical Unity. T. F. Lockwood, Butler.
88 Practical Points for General Practitioner Compelled to do Eye-Work. J. W. Charles, St. Louis.
89 Medical Libraries. R. E. Schlueter, St. Louis.
90 History of Missouri Medical College, from 1840 to 1861. A. B. Barbee, St. Louis.
91 House-Fly. S. Lambeth, Verona.

August, No. 2, pp. 61-112

92 Dispensary Treatment of Diabetes Mellitus. R. H. McBaine, St. Louis.
93 Medical Legislation. C. P. Emerson, Indianapolis.
94 Congenito-Mechanical Dilatation of Colon. F. W. Bailey, St. Louis.
95 Early Recognition of Clinical Significance of Gastric Disturbance. A. J. McNees, Clinton.
96 Cervical Ribs. C. Potter, St. Joseph.
97 Case of Renal Calculus. G. D. McCall, Fulton.
98 Some Chemical and Germicidal Properties of Antiseptics and Disinfectants. R. Cross, Kansas City.
99 Splenopexy and Right-Sided Nephropexy Simultaneously. W. F. Grinstead, Cairo, Ill.
100 Pellagra in City Hospital. A. H. Fortner, St. Louis.
101 Advisability of Prematrimonial Medical Examination from Standpoint of Woman. M. H. McLean, St. Louis.

New Jersey State Medical Society Journal, Orange

August, XI, No. 8, pp. 379-430

102 Conservation of Child Life. M. J. Synnott, Montclair.
103 Infancy of Migraine and Arteriosclerosis. D. E. English, Summit.
104 Treatment of Pertussis. C. H. Finke, Jersey City.

New York Medical Journal, New York

August 15, C, No. 7, pp. 301-348

105 National Quarantine. L. E. Cofer, Washington, D. C.
106 Value of Skimmed Milk and Its Dilution in Fever. L. Fischer, New York.
107 Effects of Caffein and Nicotin on the Activity of the Intestinal Musculature. W. A. Frankland, Washington, D. C.
108 Campaign against Pulmonary Tuberculosis. A. Robin, Wilmington, Del.
109 Value of Renal Functional Tests to the Surgeon and the Limitations of These Tests. J. T. Geraghty, Baltimore.
110 Pyloric and Duodenal Obstruction. F. Buckmaster, Effingham, Ill.
111 Further Development of the Usefulness of the Sanatorium. C. B. Slade, New York.
112 Treatment of Diabetes Mellitus with Bacillus Bulgaricus. P. Horowitz, New York.
113 Sputum Trap for Lung Examinations. G. E. Barnes, Herkimer, N. Y.

Surgery, Gynecology and Obstetrics, Chicago

August, XIX, No. 2, pp. 131-300

114 Fractures Near Joints. H. M. Sherman. Fractures into Joints. H. M. Sherman and D. Tait, San Francisco.
115 Tumors of Neck. F. E. McKenty, Montreal.
116 Case of Common Ileocolic Mesentery with Torsion. C. Tage-Hansen, Copenhagen, Denmark.
117 Tuberculosis of Kidney: with Special Reference to Its Diagnosis. G. E. MacKlem, Detroit.
118 *Operative Treatment of Aneurysm of Aorta. H. Kümmell, Hamburg-Eppendorf, Germany.
119 Essential Dysmenorrhea. T. J. Doederlein, Chicago.
120 Calcified Fibroma Uteri Compressing Sigmoid Colon. G. de Tarnowsky, Chicago.
121 Traumatic Periosteal Bone and Callus Formation. O. J. Fay, Des Moines, Iowa.
122 Infraction of Second Metatarsal Bone. Report of Six Cases. A. H. Freiberg, Cincinnati.
123 Congenital Contractures of Fingers. Report of Case of Familial Type. H. Neuhof and E. D. Oppenheimer, New York.
124 Modern War Surgery. R. J. Behan, Pittsburgh.
125 *Contractured Psoas Parvus Tendons. Report of Two Cases. T. L. MacDonald, Washington, D. C.
126 Sarcoma of Round Ligament of Uterus. F. J. Taussig, St. Louis.
127 *Repair of Accidental Injuries to Rectum. C. G. Heyd, New York.
128 Technic of Intrathoracic Operations. A. Carrel, New York.
129 Avulsion of Scalp. A. A. Law, Minneapolis.
130 Anterior Choledojejunostomy. Report of Case. R. H. Jackson, Madison, Wis.
131 *New Method of Circumcision. W. L. Thornton, Birmingham, Ala.
132 Further Development of an Apparatus for Transfusion of Blood. H. S. Satterlee and R. S. Hooker, New York.
133 *Use of Pituitary Extract in Labor. D. G. Madill and R. M. Allan, Dublin.
134 *Axillary Sup. G. S. Foster, Manchester, N. H.

118. **Operative Treatment of Aneurism of Aorta.**—The plan of operation adopted by Kümmell in one case cited was to lay bare the aorta as much as possible retropleurally and retroperitoneally, and after compressing it to remove the sac and close the opening in the artery by suture. Therefore several ribs (the fourth to sixth) were resected at the spinal column, care being taken to spare the pleura, and a large enough opening produced in the wall of the thorax so that the hand could easily be inserted. The pleura, which was somewhat thickened, was not injured, so that it was not necessary to use the positive-pressure apparatus that was held in readiness. The pleura was pushed forward and the thoracic aorta laid bare without difficulty as far as the sac of the aneurism, which was found to lie above the diaphragm. A rubber tube was laid under the thoracic aorta in order, if necessary, to utilize it for a temporary closing of the artery. Kümmell did not have to use it, but produced the necessary compression with the fingers. The thoracic aorta was compressed between the thumb and index finger of an assistant at the diaphragm and the upper boundary of the pulsating tumor that was now covered only with a thin skin; the sac of the aneurism was laid bare with a long incision, the tear which was already present enlarged, and masses of clot removed. In order to be able to see the lower part of the normal aorta at the edge of the sac, Kümmell split the diaphragm and laid bare the upper part of the abdominal aorta retroperitoneally, so that there was a free view of the field of operation, including the thoracic and abdominal aorta and the sac of the aneurism. The sac of the aneurism was larger than the fist and the original tear in it was 10 cm. long. Kümmell passed his index finger into the normal lumen of the aorta above and below the aneurism from the inside of the sac and trimmed the latter so that a vessel corresponding to the normal lumen of the aorta was formed. The aneurism had caused a bulging chiefly of the posterior wall of the aorta, and had left the part of the artery lying immediately behind the spinal column comparatively unaffected. The 10-cm.-long slit in the new-formed aorta, that was now freely exposed, was closed with a continuous suture and the digital pressure somewhat relaxed. As a little blood still emerged from some places, a second continuous suture was applied over the other without any special difficulty. During the compression the blood-pressure had risen to double its normal height from the exclusion of the greater part of the circulation.

The digital compression of the aorta had lasted about twelve minutes. As it was gradually relaxed and finally withdrawn altogether, the suture was found to be sufficient. Not a drop of blood exuded from the line of suture. The pulsation in both femorals was strong and the pulse in the dorsalis pedis could be distinctly felt. The operation had taken about an hour, and after its completion the patient was in comparatively good condition, which is attributed to the fact that he was anesthetized by the intravenous administration of ether, and the heart was kept strong by the continuous influx of salt solution and ether. But he gradually grew weaker and weaker, and finally died of heart failure.

125. **Contractured Psoas Parvus Tendons.**—In the cases of moderate contracture, McDonald says, complete thigh extension may be possible but painful. Restriction is definite. In the suppurative cases of appendicitis the contractured tendon may readily be overlooked because of the importance of terminating the operation at the earliest moment, of indulging in the least possible intra-abdominal manipulation, and because bowel and omental adhesions supervene. The cardboard-like edge of the shortened tendon is capable of damming—to a most troublesome degree—the cecal current, the relief of constipation after tenotomy being quite noteworthy, even while the patient is lying in bed. At present the stripping up of the peritoneum from the outer edge of the abdominal wound, as though to expose the ureter, seems satisfactory and feasible for exposing the tendon for tenotomy, when the abdomen is opened through the oblique incision. Prompt relief to the symptoms may be expected

after complete tenotomy. In the postoperative cases the leaning attitude of the patient may well suggest adhesions. The persistence of thigh flexion under anesthesia is characteristic. McDonald's patients were inclined to be neurotic.

127. **Repair of Accidental Injuries of Rectum.**—A colon tube is introduced into the anus and passed up the rectum to a point 1 inch above the injury. Through the anterior rectal wall and the portion of tube above the injury a transfixion suture of number two chromic gut is passed which firmly anchors the tube to the upper portion of the anterior wall. The peritoneum on each side of the defect and parallel with the rectum is incised for a distance of about two and a half inches. By this maneuver the upper rectum becomes mobilized, after the manner of Kocher for mobilizing the duodenum. By gentle traction on the tube protruding through the anus the two lips of the rectal defect are brought together and approximated by three or four interrupted mattress sutures.

Two Allis clamps, one on each side, are placed about one-half to three-fourths inch below the suture line for the purpose of fixing the lower segment. Traction is made on the tube and as a result the upper segment of the anterior rectal wall is "telescoped" into the lower rectal segment. There is thus produced an artificial intussusception of the anterior rectal wall. The original defect or injury is carried down into the lower bowel and by the rolling in of the anterior rectal wall a peritoneal approximation is assured. A right-angle Cushing suture of Pagenstecher thread is passed along the site of peritoneal contact, completing the repair of the rectum. The lateral peritoneal defects are closed and the tube sutured to the anal margin with silkworm gut, thereby making gentle but firm traction on the upper rectal segment.

131. **New Method of Circumcision.**—In Thornton's method the prepuce is slit dorsally between two artery clamps. By passing a fine needle, threaded with silk, through the skin and around the superficial vessels they may be lightly ligated near the line of incision. The ventral margin of the prepuce is grasped by a clamp. At intervals of about three-sixteenths of an inch, number nine milliners' needles threaded with fine black silk are placed through mucosa and skin in a line around the penis about one-fourth inch from the corona of glans penis. The redundant prepuce is removed by cutting with scissors around the line marked by the needles. Each suture is then drawn through and tied. Since all incised tissues are included in the sutures, hemorrhage should be controlled when sutures are tied. However, if there should be a bleeding point, an additional suture is placed.

This method of circumcision is said to have the following advantages: The line of incision in skin and mucosa is accurately marked off and held in place by the needles, preventing unevenness and loss of bearings. Complete hemostasis. Prevention of retraction of subcutaneous tissues. Prevention of dead space and subsequent hematoma. Prevention of exposure of subcutaneous tissue to infection. Less traumatism. Less pain and priapism following operation.

133. **Use of Pituitary Extract in Labor.**—Madill and Allan report the results of 147 cases, studied at the Rotunda Hospital. They found pituitary extract undoubtedly increases the strength of the uterine contractions. These strengthened contractions maintained their physiologic character. The best results were obtained when given during the second stage. Its use reduced the number of forceps operations, with consequent lessening of morbidity in these cases. It is safe for the mother, and at least as safe as forceps for the child. It gives improved results for both mother and fetus in cases of placenta praevia, if used in combination with version. The puerperium is normal.

134. **Axillary Sup.**—Under this title Foster describes Lane's method of giving free fluid to the support of the circulatory system. He reports his observations on fifty cases of general surgery. The fluid used is normal saline solution which is placed in a reservoir to which is connected a "Y" rubber tube with glass connections. The single tube of this "Y" is sufficiently long to permit it to be coiled within a porcelain enamel basin filled with hot water kept at 110 degrees. The saline solution is also poured into the reservoir at this same temperature. Such an arrangement allows of a drop of from five degrees to ten degrees before reaching the hypodermoclysis needles. The reservoir is placed at a proper elevation so that sufficient column pressure is exerted to easily force the saline into the subcutaneous tissues. The hypodermoclysis needles are always kept very sharp that they may pierce the skin with ease. They are three inches long, with the lumen large enough to permit a free stream of the fluid.

After the patient is fully under the anesthetic the chest is laid bare. A section of the skin area just inside of the external border of the pectoralis major muscle over its most prominent part and above the mammary gland is cleansed with antiseptic soap. The suds is then wiped away and the skin perfectly dried with sterile gauze. This skin area is then painted with full-strength tincture of iodin. While the fluid is running the needles are introduced piercing the pectoralis muscle in a direction outward and slightly tilted downward until the needle point is seen to push the loose skin of the axilla before it. The point is then moved about slightly to make sure it is properly situated and free. The amount of fluid supped during any operation depends on the time consumed in operating. No case has supped less than 40 ounces and some cases have taken as high as 140 ounces during an operation. The average operation on an average sized individual will require between 75 and 90 ounces. At the completion of the operation the needles are withdrawn and the skin apertures sealed with collodion and sterile cotton.

Tennessee State Medical Association Journal, Nashville

August, VII, No. 4, pp. 143-186

135 Suggestions for Change in State Law Concerning Expert Testimony. S. T. Rucker, Memphis.
136 Bone Transplantation. Report of Cases. E. T. Newell, Chattanooga.
137 Pistol Wounds of Brain. Report of Two Cases. J. L. Crook, Jackson.
138 Necessity of Wassermann Reaction in Controlling Treatment of Syphilis. H. Spitz, Nashville.
139 Pneumonia. A. D. Walker, Friendship.
140 Pain in Abdomen. E. W. Mabry, Gainesboro.
141 School Hygiene. T. J. Coble, Shelbyville.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

August, XI, No. 128, pp. 337-384

1 *Auricular Flutter in Acute Rheumatic Carditis. G. A. Sutherland.
2 Familial Case of Splenomegalic Anemia with Infantilism. F. P. Weber.
3 *Associated Movement of Jaw and Upper Lid: Jaw-Winking Phenomenon. D. A. Cockayne.

1. **Auricular Flutter in Acute Rheumatic Carditis.**—Auricular flutter is often latent and unsuspected. As practical points for further investigation Sutherland suggests that attention be paid to the following possible indications of the presence of this abnormal form of rhythm: (1) Attacks of cardiac asthma (great dyspnea) occurring suddenly and without accompanying variations in the cardiac condition. In one case cited by Sutherland, there were two such attacks preceding the acute illness, and they were at the time diagnosed as asthmatic in origin. (2) A triple or galloping or cantering rhythm heard on auscultation. In two cases cited there was a triple rhythm present, heard both at the apex and in the neck. In Dr. Morison's case of jugulo-embryocardia, which was the first example of auricular flutter recorded, each auricular contraction was audible in the right supraclavicular region, the auricular rate being 240, while the ventricular was 114. (3) Pericarditis without effusion and with great respiratory distress. The inflammatory changes in pericarditis are usually earlier and more marked about the

auricles than the ventricles, and a disturbed auricular rhythm may follow from the active effusion in and around the auricular walls. (4) Dyspnea, cyanosis and enlargement of the liver out of proportion to the physical signs of disease of the heart. (5) The presence of the pulsus alternans. Further investigations will be required to determine whether in cases of acute carditis a disordered rhythm of this nature is often present.

3. **Associated Movement of the Jaw and Upper Lid.**—Cockayne's case occurred in a baby girl first seen at 6 months of age. The movements were first noticed when she was about a month old. The right eyelid went up and down as the baby sucked at the breast. The baby was fat and healthy looking, but there was a slight ptosis of the right upper lid, such that the lid fell as low as the level of the upper edge of the pupil. As far as one can tell in so young a baby, voluntary movement of the levator was good, and also of the other ocular muscles. The pupils were equal and reacted to light; there was no facial asymmetry, and no difference in size of the tarsal plates. As the baby sucked the right lid was raised synchronously with the movements of the jaw so that a little sclerotic was shown each time above the right cornea. As the jaw was moved away from the side of the lesion, as in grinding the teeth, the lid was raised. An almost imperceptible lateral movement was sufficient. The left lid was not moved, and the right eye itself remained stationary. Slight sucking movements produced no movement of the lid. When the baby yawned or laughed the lid was retracted to an extreme degree and showed a large extent of sclerotic. The movements are diminishing in frequency and in extent. There is no history of a similar condition or of ptosis in the family.

British Medical Journal, London

August 8, II, No. 2797, pp. 277-320

4 Vis Medicatrix Naturae. J. A. Thomson.
5 The Responsibility of the State in Connection with Venereal Disease. A. K. Chalmers.
6 Public Measures Against Venereal Disease in Denmark. E. Pontoppidan and L. McIlroy.
7 Essential Preventives of Prostitution. L. Grant.
8 State Medical Service vs. A Panel System. J. Collie, H. H. Mills, R. C. Buist and M. Dewar.

Dublin Journal of Medical Sciences

August, No. 512, pp. 81-156

9 Clinical Value of Staining Urinary Deposits. E. S. Johnson.
10 Clinical Report of Rotunda Hospital for One Year, Nov. 1, 1912, to Oct. 31, 1913. H. Jellett, D. G. Madill and R. M. Allan.
11 Two Cases of Pseudo-Hypertrophic Muscular Dystrophy. A. F. B. Shaw.

Edinburgh Medical Journal

August, XIII, No. 2, pp. 97-192

12 New Route of Inquiry as to Nature and Establishment of Typical Sex-Ensemble in Mammalia. H. D. B. Hart.
13 Anaphylaxis and Status Lymphaticus; Their Relation to Intensified Types of Disease in Infancy and Childhood. II. C. M'Neil.
14 Habit as Pathological Factor. A. J. Brock.
15 Intratracheal Insufflation of Ether. H. T. Thompson.
16 Roentgen Ray and Bismuth Meal Method as an Aid in Diagnosis of Some Alimentary Diseases. E. Price.

The Glasgow Medical Journal

August, LXXXII, pp. 81-160

17 Gangrenous Appendicitis with Coprolith, Abscess, Septic Peritonitis, Intestinal Obstruction, Rupture of Intestine, and Fistula: Complete Recovery. S. Mort.
18 The Western Medical School, Glasgow. J. N. Morton.

Lancet, London

August 8, II, No. 4745, pp. 359-434

19 Cancer of the Uterus. Charles Ryall.
20 Nature of Peritoneal Adhesions. Arthur Keith.
21 *Osteo-Arthritis of the Hip; Diagnosis in Its Early or Preosteophytic Stages. R. L. J. Llewellyn.
22 After-Care of the Consumptive. H. W. McConnell.
23 Treatment of Yaws by Intravenous and Intramuscular Injections of Neosalvarsan and Salvarsan. P. Harper.
24 Pneumosan in the Treatment of Pulmonary Tuberculosis. A. E. Carver.

21. **Osteo-Arthritis of the Hip.**—Llewellyn and Jones comment on the extreme slowness with which the condition of osteo-arthritis of the hip is established and emphasize the extreme length of time that may elapse before bony outgrowths can be detected. From their consideration, therefore, of the clinical features, supplemented by the results of roentgenography, they are led to postulate two stages in the life history of osteo-arthritis: 1. A primary or preosteophytic phase, often of prolonged duration, whose clinical characteristics are those of villous hypertrophy. 2. A secondary or terminal stage in which bony and cartilaginous outgrowths make their appearance.

Their presumption as to the villous nature of the disorder is based on the occurrence of attacks of pain with pseudo-locking sensations which come and go in the same erratic fashion that we are familiar with in the case of the knee. In addition, too, there is in some instances accessory evidence in the shape of villous overgrowths in the knees, which, of course, in this articulation are more easy of detection by palpation. In support of their contention the authors remark that if in so-called osteo-arthritis of the knees roentgenography be resorted to after routine fashion the same absence of bony outgrowths will be ascertained with striking frequency save in the more advanced cases. They are led, therefore, to the conclusion that this condition of osteo-arthritis, whether of the hip or knee, is invariably preceded by a long period during which the only local signs and symptoms clinically appreciable are those of villous hypertrophy. In other words, the villous overgrowths being more obstrusive mask as it were the early beginnings of fibrillation in the diseased cartilage.

Diagnosis of osteo-arthritis of the hip in its terminal stages presents no difficulty, but unfortunately at this period in its life history treatment is of little avail. The authors therefore urge that in all cases of so-called sciatica investigation of the movements of the hip should invariably be undertaken, for during the early or preosteophytic phases of the disease there is good reason to believe that the march of the morbid process may be arrested if care be taken to remove any sources of strain on the affected articulation. They indicate the importance of a reduction of body-weight if obese, as undue corpulence is undoubtedly an aggravating factor. Coincidently any static deformity in the lower limb, whether in the direction of flat-foot or possibly inequality in length of extremities, either congenital or acquired—viz., shortening from malunited fracture—should, as far as possible, be corrected so as to diminish any mechanical strain. For the diseased joint itself, when painful or irritable, absolute or relative fixation by some form of ensheathing apparatus is indicated pending the decline of acute symptoms. It should be discarded only during the night and reapplied in the morning after massage, passive movements, and hyperemia or hydrotherapy, with or without thermal douches or hot-air applications, have been practiced.

Practitioner, London

August, XCIII, No. 2, pp. 157-300

25 *Rigor. F. Taylor.
26 *Leukoplakia. A. E. Barker.
27 Dislocations of the Hip. E. M. Corner.
28 Nearthrosis in Ankylosis. A. H. Tubby.
29 Intermittent Pulse. B. T. P. Smith.
30 Review of Tropical Diseases. R. T. Hewlett.
31 *Ringworm of Scalp and Beard. D. Freshwater.
32 Treatment of Rodent Ulcer by Roentgen Ray. C. Kempster.
33 *Advantages of Intubation of Larynx over Tracheotomy in Laryngeal Diphtheria. W. S. Thomson.
34 Treatment of Diphtheria. J. J. Jervis and V. C. Martyn.
35 Cystic Hygroma. L. C. Panting.
36 Perforation of Bladder from Chronic Ulceration, with Secondary Appendicitis. J. B. Pike.

25. **Rigor.**—Occurring in the course of apparent health, if there is no psychical disturbance, Taylor says, rigors suggest the onset of acute illness, as pneumonia or influenza; occurring in the course of a local inflammation, they suggest suppuration; occurring in the course of an apparently general infection, they suggest, but are by no means conclusive of local foci of suppuration. Their occurrence in typhoid fever, and in some cases of malignant endocarditis, shows that the

suppuration need not be there. In cases of gall-stone and renal calculus they are incidental, and have no significance other than that they point to the presence of a source of irritation. They may coincide in time with the maximum of irritation, which just precedes the final passage of the obstructing body. That psychical rigors have some relation to the type of individual is highly probable. The treatment of a rigor is purely symptomatic.

26. **Leukoplakia.**—Barker urges that every patch of this affection should be watched closely, especially if it does not improve under treatment. On the slightest sign of activity in it, free excision should not be deferred. The first sign of cancerous change in such a patch is usually seen in the more advanced degrees. It generally begins as a crack in the white covering or at its ragged border. This fissure exudes blood or serum, and causes pain on movement of the part. It may break under washes, but in any case must be under suspicion whether it does or not. There is usually a feeling of stiffness in the area affected. It has lost its softness and pliancy. In this state it may remain an indefinite time, but sooner or later the neighborhood of the fissure will become indurated; then the crack deepens and widens, and the pain and discomfort increase. On finding this induration around a crack in an old leukoplakia there should be no hesitation in resorting to free local excision. The state of the glands is no criterion. It is a fact based on long experience, that carcinoma starting in leukoplakia has little tendency to spread along the lymphatics; that it is one of those forms of cancer which remain for a considerable time purely a local disease. On the whole it appears to Barker that the very pessimistic views held in some quarters, as to the inevitable transition of leukoplakia into carcinoma, have perhaps been overdone. It is a condition to be watched carefully, and one which justly excites uneasiness; but it is another thing to take it for granted that it is always the precursor of cancer, and to attack it at once by wide-reaching excision of the part itself and of the glands likely to be involved.

31. **Ringworm of Scalp and Beard.**—There are two main methods for the treatment of ringworm: 1. Old method, by means of the local application of a parasiticide. 2. New method, by Roentgen rays. Old method.—The hair should be cut as short as possible for at least 2 inches around the infected area. A better plan is to shave the head all over. The head should be washed daily with green soft soap, or an antiseptic shampoo wash, such as,

		gm. or c.c.		
℞	Thymolis	1		gr. xv
	Saponis mollis		or	
	Sp. Vini. Rect. ana	30		℥ i

This is allowed to remain some ten to fifteen minutes on the scalp before rinsing off. The hair around the edges of a patch, for at least 1 inch should be pulled out; this prevents spreading by continuity. A good ointment to apply before and during the period of epilation, is

		gm. or c.c.		
℞	Cupri Oleatis	4		ʒ i
	Hydrarg. Oleatis	1	66	gr. xxv
	Lanolini			
	Ol. Olivae ana	30		℥ i

The following prescriptions Freshwater has proved to be efficacious, and, he says, if persevered with, will ultimately lead to a cure:

		gm. or c.c.		
℞	Acid Salicylic		66	gr. x
	Sulphur. Praecip.	2		gr. xxx
	Adipis ad	30	or	ʒ i
	Fiat ung.			

		gm. or c.c.		
℞	Sulphur.	4		ʒ i
	Acid. Salicylic			
	Naphthol.			
	Hydrarg. Ammon. ana		66	gr. x
	Lanolini			
	Paraffin Liq. ana	30		℥ i
	Fiat ung.			

		gm. or c.c.		
℞	Sulphur	4		ʒ i
	Acid, Carboli	2	or	ʒ ss
	Lanolini	20		ʒ v
	Paraffin Liq.	12		ʒ iii
	Fiat ung.			

The following lotions are also serviceable:

		gm. or c.c.		
℞	Liquor formaldehydi, 40 per cent.	8		ʒ ii
	Aquam	30		℥ i

		gm. or c.c.		
℞	Acid. Salicylic	2		gr. xxx
	Spt. Lavand.	30	or	℥ i
℞	Acid. Sulphurous	8		ʒ ii (fresh)
	Aquae	24		ʒ vi
℞	Acid. Picric.		5	gr. viii
	Camphor.	120	or	℥ iv
	Sp. Vini. Rect.	180		℥ vi

The lotion should be applied with a brush twice daily for a month, when in favorable cases the stumps will have fallen. In small chronic patches and in the small widely spread patches of a disseminated ringworm, the application of croton oil is a valuable form of treatment. It is best combined with phenol (carbolic acid) or creosote.

Phenolis (Acidi Carbol)	1	Creosoti	ʒ ii
Ol. Croton	9	Ol. Croton	ʒ vi

		gm. or c.c.		
℞	Acidi Salicylici	66		gr. x
	Ol. Lavandulae			
	Ol. Bergamoti ana		33 or	♏ v
	Ol. Olivae ad	30		℥ i

Since the introduction of the treatment by means of epilation by Roentgen rays, the cure, even in obstinate cases, has been shortened to a few weeks.

33. **Intubation in Laryngeal Diphtheria.**—Thomson considers that intubation is the better operation because, in the great majority of cases, it is much more easily performed than tracheotomy, no preliminary preparation is needed, no anesthetic is required, skilled assistance is not essential; as there is no cutting, and no subsequent scar, the consent of the parents is readily obtained, the operation can be very rapidly performed, even with the patient in bed, and without good light; in the majority of cases it entirely relieves dyspnea; in those cases in which relief is not perfect it may allow a sufficiency of air to enter. If dyspnea is not relieved, no harm is done. Tracheotomy can then be performed. The after-care, so important in tracheotomy, is a simple matter.

Annales de Médecine, Paris

March, I, No. 3, pp. 253-352

37 The Milk Question in Human Tuberculosis. (Rôle de la tuberculose bovine dans la contamination de l'homme.) A. Calmette.
38 Experimental Research on Transfusion of Blood. E. Bardier and D. Clermont.
39 *Test Induced Diuresis with Abnormally High Blood-Pressure. (Epreuve de la diurèse provoquée chez les sujets atteints d'hypertension artérielle.) J. Cottet.
40 Reinfection with Tuberculosis. E. Rist, M. L. Kindberg and J. Rolland.
41 The Fundamental Clinical Forms of Diabetes. F. Rathery.
42 The Luetin Reaction. E. Joltrain.

April, No. 4, pp. 353-468

43 Modification of the Circulation in Course of Cirrhosis with Ascites. A. Chauffard and D. Routier.
44 *Lesions of the Thyroid with Basedow's Disease. G. Roussy and J. Clunet.
45 Sleeping Sickness. (Etude clinique de la trypanosomiase humaine africaine.) H. Darré.

39. **Test Diuresis with High Blood-Pressure.**—Cottet expatiates on the clinical importance of induced polyuria, viz., the diuresis which follows drinking a pint (600 c.c.) of a mild mineral water in the morning, fasting, and on the clinical importance of the proportion between the amount of urine voided during the night and the day. The normal proportion is about ⅓. He regards this "rhythm" of the proportional output day and night as of great diagnostic value. Other conditions being equal, this rhythm persists unmodified in the individual case; the amount of urine may vary widely at different times, but the proportion keeps up unchanged. Good effects from a course of mineral waters are possible only when the induced diuresis test shows that the way through the kidneys is open. With a high blood-pressure, neglect to ascertain this may lead to great harm from a course of mineral waters. Persons with arteriosclerosis and kidney disease often drink unusually large amounts of fluids, hoping thus to "wash out the system." If the kidneys are

below par this excess of fluids is not eliminated properly and it gorges the vessels and may do direct mechanical injury. Cottet cites Janeway's statement that 79 of 100 patients with high blood-pressure died with symptoms suggesting chronic kidney disease. Impending uremia is a superposed danger with high blood-pressure, and unless it can be warded off the prognosis is grave indeed. Tests for induced polyuria throw light on the conditions. The special features of the technic and findings of the test were given in The Journal, 1913, lx, 90.

44. **Lesions of the Thyroid Gland in Exophthalmic Goiter.**—Roussy and Clunet give an illustrated description of the changes they found constantly in the thyroid gland in twelve cases of exophthalmic goiter and never in ordinary goiter or in mere thyroiditis. These lesions are so characteristic, they say, that microscopic examination of a single scrap will serve to differentiate the disease without further data. The changes found suggest that drugs to combat infection, sodium salicylate, quinin, arsenic, mercury, may be useful at first. When the lesions are once established, palliative organotherapy or removal of the thyroid or thymus is indicated unless radiotherapy is given the preference. This acts more like a gradual natural process, and has the advantage that it acts on both thymus and thyroid.

Annales de Médecine et Chirurgie Infantiles, Paris

July 15, XVIII, No. 14, pp. 465-500

46 The Luetin Reaction Less Reliable than the Wassermann in Inherited Syphilis. G. Blechmann, M. Delort and A. Tulasne.
47 *Meningeal Complications of Scarlet Fever. P. Mauriac and P. Philip.
48 Blue Disease with Negative Auscultation. (Cyanose congénitale.) M. Grandjean.

47. Already summarized in The Journal, Aug. 22, p. 710.

Archives des Maladies du Cœur, etc., Paris

August, VII, No. 8, pp. 497-560

49 *Certain Varieties of Pulsus Alternans. (Variétés du pouls pseudo-alternant. Couples extrasystoliques et alternance. Changement de sens spontanés de l'alternance.) L. Gallavardin and L. Gravier.
50 Technic for Dissection of the Heart to Avoid Injury of Node and Bundle of His. (Techniques autoptiques du cœur.) S. Argaud.
51 *Hematology of Scorbutus in the Adult. J. Heitz.

49. **False Pulsus Alternans.** — Gallavardin and Gravier expatiate on the remarkable light thrown on pulsus alternans by electrocardiography. It has shown that pulsus alternans is produced sometimes by the respiratory movements alone or by extrasystoles. This of course does not have the clinical significance of true pulsus alternans. He gives tracings from a case of false pulsus alternans from what he calls auricular bigeminism and another due to "extrasystolic trigeminism"—both exceptional cases. The tracings from another patient show two or three weak systoles occasionally in the midst of an apparently regular pulsus alternans. This spontaneously upsets the regular alternation. He encountered this in only one case out of fifty examined with electrocardiography and it did not recur during the later examinations in this case. When it happens that the respiration-rate is exactly one-half of the heart-beat, the tracing shows that each second peak is lower than the first; this regular depression of every second peak runs through the tracing unless the breath is held during a few heart-beats. When the respiration is thus shut off, the peaks run regularly at the same height.

51. **The Blood in Scorbutus in Adults.**—Heitz tabulates the blood-findings in a woman who developed scorbutus after prolonged errors in diet. They confirm the findings of the Japanese in thirty-five Russians taken at the fall of Port Arthur, De Albertini's in ten Italians and those of Austregeliso at Rio de Janeiro in thirteen insane persons with scorbutus. The blood-picture does not seem to be much modified by the scorbutus; there is merely a tendency to anemia, with whites somewhat below normal and slight polynucleosis.

Journal de Médecine de Bordeaux

July 26, LXXXV, No. 30, pp. 501-514

52 *Large Trapezoidal Resection of Knee Contracted at Acute Angle. (Ankylose osseuse complète tibio-fémoro-rotulienne.) H. L. Rocher.
53 Habits of Ducks Render Duck Eggs More Liable to Infection Than Hens' Eggs. (Toxicité des œufs de cane.) P. Carles.

52. **Correction of Crippled Knee.**—The stiff knee formed an angle of 55 degrees, but by cutting the tibia and femur nearly straight across, the limb was straightened with merely a shortening of 7 cm.

Presse Médicale, Paris

July 22, XXII, No. 58, pp. 557-564

54 *Radium as Supplement to Operative Treatment of Cancer. (La radiumthérapie métachirurgicale.) F. Jayle.

July 29, No. 60, pp. 577-584

55 *Acute Osteomyelitis of Upper Jaw in the New-Born. A. Broca.
56 Determination of Albumin Content of Urine by Aufrecht's and Tsuchiya's Technics. V. P. Semionov.

54. **Radium as Adjuvant to Operations for Cancer.**—Jayle reports two cases of extensive malignant disease of both ovaries or the uterine cervix in women of 32 and 33 in which he applied radium treatment at once after radical operation and there has been no sign of further trouble during the five and a half and three years since. These were among the first gynecologic cases in which radium was applied. He cites further two cases from Desjardins' service in which over five and three years have elapsed without signs of further trouble although the operative removal of the organs involved was far from complete. In a recent case an absolutely inoperable cervix cancer was modified by seventy hours' exposure to 11 cg. radium sulphate so that it could be safely removed.

55. **Acute Osteomyelitis of the Jaw in the New-Born.**—Broca describes a couple of typical cases of acute osteomyelitis in the upper jaw in quite young infants. He has encountered ten such cases in the hospital and one private case and five died. The swelling and inflammation start in the upper jaw but spread so rapidly to involve the orbit that the trouble is often mistaken for ophthalmia. The bloody-purulent nasal discharge and the signs of severe intrabuccal inflammation and fistulas soon clear up the diagnosis. This is facilitated by the non-involvement of the upper lid in the process and by the serous character of the conjunctival secretion and absence of gonococci. Erysipelas may be suspected at first but the intrabuccal swelling and fistulas and the involvement of the three surfaces of the upper jaw soon render erysipelas less probable. The osteomyelitis in these cases affects the germinal tissue of the two temporary molars. He thinks it is of blood-borne origin, from some general infection, possibly traceable to the umbilicus. The osteomyelitis was installed by the third day after birth in one of his cases, and in Fürst's case a bloody purulent nasal discharge was noted by the eighth day. Nine of his eleven little patients were boy babies.

The septic reaction varies within a wide range and the outcome depends in large measure on the promptness with which the abscess is incised and the posterior portion of the jaw scraped out, bringing away the germinal tissue involved. If there is a suborbital fistula he curets and drains between the skin and the vestibule of the mouth. The child must not nurse for a few days; it is better to draw the breast milk and feed it to the infant. He generally operates under a little chloroform if he deems any anesthetic necessary. In one case the trouble kept up until after a few months a sequester was curetted out. The osteomyelitis of the upper jaw is less tenacious than when the lower jaw is involved. Healing, once started, proceeds rapidly but the destruction of the germinal tissue of the teeth may affect dentition, and it is irreparable.

Berliner klinische Wochenschrift

July 27, LI, No. 30, pp. 1397-1444

57 *Defective Respiration in Children. (Manifeste und latente Insuffizienz der Exspiration im Kindesalter.) F. Göppert.
58 *Morbid Dread of Blushing. (Ereuthrophobie.) M. Bernhardt.
59 *Sterilization of Vaccines, etc., by Ultraviolet Rays. III. E. Friedberger.
60 Identical Serologic Findings in Twins. (Serologisches Verhalten eines Paares eineiiger Zwillinge.) F. Schiff.
61 Auxo-Action of the Serum. (Auxowirkungen und gebundene Aminosäuren des Blutserums.) M. Jacoby and N. Umeda.
62 *Recovery after Removal of Large Brain Tumor. (Heilung eines bemerkenswerten Grosshirntumors.) W. Alexander and E. Unger.
63 *Friedmann's Treatment for Tuberculosis. (Wissenschaftliche Vorstudien und Grundlagen zum Friedmannschen Mittel.) F. F. Friedmann.
64 *Early Diagnosis of Pulmonary Tuberculosis. E. Stern.

57. **Insufficiency of Expiration in Children.**—Göppert calls attention to a group of cases among children with a chronic or recurring cough in which the lower margin of the lungs is found continuously below the normal level, although neither the clinical manifestations nor the auscultation findings suggest this. By pressing on the ribs to aid in expiration the diaphragm rises to the normal level, showing that there is no mechanical obstacle to normal expiration. The children thus affected are generally of the pronounced exudative diathesis type, that is, with an inborn predisposition to chronic swelling of mucous membranes. Lichtwitz has noticed a similar tendency to insufficient expiration in young adults with constitutional eczema. The cause is probably some impediment in breathing which is overcome in inspiration but hinders expiration, probably some congestion and catarrhal secretions plus possibly a tendency to spasm of the bronchi. A tendency to catarrhal oversecretion plus congenital subnormal elasticity of the lung tissues are probably the main factors involved.

The deficient expiration is fraught with various dangers and must be combated. This can be done only by training the muscles to expel the breath effectually. Even children of 4 or 5 can exercise the muscles in this way, taking a short breath and expelling it slowly and emptying the lungs. Under these exercises extra quantities of sputum are expelled, and frequently a previously intractable cough may be cured by this means. This confirms the existence of catarrhal conditions and shows that such persons are particularly prone to emphysema, etc., and should be watched over with special care. He has the exercises repeated two or three times a day, three deep expirations and then a pause of two or three minutes, repeating this three or four times. At first the expiration must be aided by compression of the chest from the rear by the hands of an adult, also impeding inspiration.

58. **Abnormal Fear of Blushing.**—Bernhardt gives the confessions of two men who suffered so intensely from a tendency to blush on the slightest excuse that one even spoke of suicide. Both were evidently the prey of neurasthenia and were psychopathic. Treatment in such cases, he says, must be mainly psychic, possibly with hypnosis, as adjuvant to drugs to steady the unstable nervous system and physical measures to tone it up in general.

59. **Sterilization by Ultraviolet Rays; Especially after Spraying with Stain.**—Friedberger's further research, he states, has confirmed his previous announcement that vaccine can be sterilized in thirty minutes, without impairing its potency, by exposure to the ultraviolet rays. He also reports tests of the influence of these rays on amboceptor, complement and antigen separately. Bacteria in urine and blood seem to be protected against the ultraviolet rays unless sensitized by 1 to 100,000 or 1 to 1,000,000 eosin solution. This same favoring influence from eosin sensitization was observed also in experimental infection of the interior of the mouth treated by exposure to the ultraviolet rays or direct sunlight. The bacteria in the mouth were killed off so promptly and constantly that he thinks this method of radiotherapy after sensitization with a stain offers an encouraging prospect for treatment of throat affections in human beings and to sterilize bacillus-carriers. During the exposures he sprayed the region repeatedly with the eosin or fuchsin 1 to 100,000 solution.

62. **Recovery after Removal of Brain Tumor.**—Alexander and Unger report a case of a large encapsulated tumor in the upper half of the posterior central convolution removed at one sitting under local anesthesia with complete recovery for the six months to date. At the age of 22 the previously healthy young man began to have epileptic seizures but the aura was usually long enough to permit him to stuff a handkerchief in his mouth to protect his tongue. He was under specialist medical care for four years and not until after this interval did symptoms develop pointing to a brain tumor. Even then the symptoms were mild in comparison to the size of the tumor; it was shown up well by the Roentgen rays. It extended into the lateral ventricle and the only defect left from its removal is a pure stereognosis, that is, loss of power to recognize objects by touch. Otherwise there seems to be complete recovery. The tumor must have grown very slowly and it already showed signs of calcification when exposed. The young man was conscious during the entire operation, even for a whole minute during which respiration was arrested, but he suffered no pain. A photograph shows the excised tumor implanted in a brain taken from a cadaver.

63. **Friedmann's Remedy for Tuberculosis.**—Friedmann devotes nearly nine pages to his description of his preliminary experimental work and the bases for his method of treating tuberculosis. He reaffirms that it should be used as a protecting vaccine for children in a tuberculous environment, and reiterates that its harmlessness for man is shown by the case-histories that have been reported.

64. **Early Diagnosis of Pulmonary Tuberculosis.**—Stern emphasizes the importance from this standpoint of a tendency to anemia, dyspepsia, diarrhea, tachycardia, especially paroxysmal tachycardia, and slight enlargement of the heart dulness toward the right; also pains in the shoulder or abdomen may suggest primary or secondary pleurisy of tuberculous origin. Another significant finding is a paresis of the vocal cord on the side of the lung lesion, associated with slight chronic laryngitis. He calls this the larynx sign of early pulmonary tuberculosis and advises direct visual inspection to detect it when there is a sensation of vague oppression in the chest, a tendency to rheumatic pains, slightly irregular breathing, or dyspepsia. The entrance to the throat is moderately red and the paralyzed vocal cord is also red. There is always more phlegm on the paretic cord than on the other, and its inner margin is usually irregular in outline. There is slight hoarseness, particularly at night, and the patient hawks often but raises very little sputum and tubercle bacilli cannot be found at this early stage. As the pulmonary process progresses or subsides, the throat findings become modified to correspond.

The pupil of the eye on the side affected is often more dilated than the other and the reaction to light is more sluggish. The musculature on this side is often less well developed, but this is not a consequence of but merely a predisposing factor to the tuberculous focus. The lagging behind of one-half of the chest in the excursion of the thorax is a sign of trouble within, usually involving the pleura. Nearly all the foregoing symptoms can be traced to pressure on nerves by enlarged bronchial lymph-glands. By heeding these signs we can recognize the tuberculosis even before the lung has become involved in the process to any extent.

Deutsche Zeitschrift für Chirurgie, Leipzig

June, CXXX, Nos. 1-2, pp. 1-224

65 *Meningitis After Subcutaneous Injuries of the Skull and Spine; Two Cases with Recovery. F. Markull.
66 *Operative Treatment of Wandering Kidney. H. Tichy.
67 *Primary Round-Cell Sarcoma in Both Kidneys in Girl of 8. H. Schwers and A. Wagner.
68 *Fibrous Ostitis with Intra-Uterine Fracture. E. Stierlin.
69 *Crushing of the Wrist. (Der Kompressionsbruch und die traumatische Erweichung des Mondbeines.) G. Guye.
70 *Operative and Mechanical Treatment of Pulmonary Tuberculosis. (Die 1911 und 1912 mit der Wilmsschen Pfeilerresektion behandelten Lungentuberculosen.) A. Meisel.

65. **Meningitis After Contusion of Skull or Spine.**—Markull summarizes from the literature several typical cases of serous, purulent or tuberculous meningitis developing apparently in connection with a trauma. He follows them with two cases from his own practice in which purulent spinal meningitis set in about the sixth day after a fall injuring both skull and spine and followed by unconsciousness for a time. The skin was not broken in either case but one of the men had had a boil on the neck incised about two months before. No streptococci or staphylococci could be cultivated from the spinal fluid in either case. A few Jaeger's cocci were found in one. The purulent meningitis in this case subsided under lumbar puncture twice repeated; 15 c.c. and 10.5 c.c. of the fluid were evacuated with a fifteen-day interval and relief was apparent at once. The pains and hyperesthesia were so intense in this case that morphin was required. The fever was intermittent, reaching 38.7 C. at times; pulse down to 64, but no paralysis. The other patient had fractured his skull but the meningitis seemed to be limited to the spinal region. Only briefly transient relief was obtained by lumbar puncture and laminectomy was then done with excellent outcome, complete recovery soon following. Laminectomy solely to drain the subdural space has only rarely been done, but the success in this case encourages resort to it when the symptoms persist practically unmodified by lumbar puncture and the at first merely serous or seropurulent exudate becomes more exclusively purulent.

66. **Movable Kidney.**—Tichy reviews the various methods for correction of a wandering kidney, citing 461 articles bearing on the subject. His conclusions are in favor of suspending the kidney from the twelfth rib by means of a ring formed from its periosteum. This proliferates to form an adequate support which interferes less with the functioning of the kidney than any other material that can be used for the purpose. He found it far superior to fascia for the purpose.

67. **Sarcoma of Both Kidneys.**—A few months after measles, diplococcus pleurisy and scarlet fever in quick succession, a tumor developed in each kidney without fever or spontaneous pain and no blood in the urine until toward the last. There were scarcely any signs of uremia and the rapid debility suggested malignant disease, as also the rapid growth of the tumors followed by a subsidence in size as part of the tumor broke down.

68. **Congenital Fracture.**—Stierlin reports a case in which the bones of the right leg at one point were of defective structure at birth and fractured in the uterus. The experiences with similar conditions as reported by others are not encouraging, but Stierlin succeeded in healing the fracture and producing an apparently normal limb by a plastic operation with pedunculated flaps of periosteum and a long ivory peg sharpened at both ends run up into the bone marrow of each stump of the two bones. The microscope showed that the bone marrow participated in the fibrous transformation and thus its removal was called for. Consolidation was not complete until the child was in its second year and plaster dressings and splints had been perseveringly applied. Roentgenoscopy three years after the operation confirms the perfect healing. This leg now is only 1 cm. shorter than the other.

69.—**Traumatic Softening of Semilunar Bone of the Carpus.**—Guye has encountered seven cases of contusion of the wrist in which the symptoms were at first those of an ordinary sprain, pain, swelling and inability to use the joint. Only the tedious persistence or frequent recurrence of these symptoms suggests that anything is seriously wrong. When the pain is localized in the dorsal side of the semilunar bone there is reason to suspect isolated traumatic injury of this bone with changes in its structure, permanently crippling the hand. The semilunar bone was broken into two or more pieces in two of his cases and he removed them. The after-care had to be scrupulously vigilant to ward off deformity of the wrist, but excellent final results were attained in these cases. In others, the bone softened, without actual fracture. With this no operation is required, merely measures to stimulate the repair of the bone, massage, hot air treatment, and possibly injection of 1 or 2 c.c. of a 1 or 2 per cent. solution of phenol. Only when the disturbances progress under these measures should operative treatment be considered; it should always be followed by prolonged and systematic after-care.

70. **Resection of Ribs to Immobilize Tuberculous Lung.**—Twenty-four patients with pulmonary tuberculosis have been treated by Wilms' method of resecting ribs over a long vertical stretch so that the chest wall retracts and sinks in. Judging from the experiences related, no other method to induce the collapse of the lung is as effectual as this "pillar resection." The bacilli disappeared permanently from the sputum in the five cases with positive findings at first.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 23, XXXV, No. 88, pp. 921-928

71 Agglutination in Jaundice a Sign of Complicating Typhoid. (La sieroreazione di Grueber-Vidal negli itterici.) S. Mazza.

July 26, No. 89, pp. 929-944

72 *Infantilism, Fat Deposits and Genital Dystrophy with Tumor of Hypophysis. (Infantilismo e sindrome di Fröhlich da tumore dell' ipofisi.) C. Viscontini.

72. **Tumor in Hypophysis.**—Viscontini operated solely to relieve pressure from a tumor in the pituitary body of a young man of almost dwarf-like stature with symptoms suggesting trouble in this region. In the last few months there had been convulsions, intense headache and loss of vision. Viscontini thinks that this is the first case published of extensive resection of the skull for this trouble, and it was successful far beyond his highest anticipations. The trouble evidently was not malignant but otherwise he knows nothing of its nature beyond the Roentgen findings of enlargement of the sella turcica and the signs of pressure. He did not attempt a preliminary test thermoreaction with hypophysis extract fearing to aggravate the febrile condition, high blood-pressure and abnormally slow pulse. His aim was merely to relieve the pressure which he accomplished by cutting a 12 by 15 cm. horse-shoe flap in the skull, extending from the temporofrontal to the temporo-occipital region, the convex margin two finger-breadths from the axial line. Turning back the bone-periosteum flap, he cut out an oval stretch of the dura and as the cerebral fluid escaped the protruding brain subsided. After careful hemostasis he replaced the flap and sutured the skin, the total operation requiring only thirty-two minutes. By the third day vision was much improved and by the tenth the young man was reading the newspaper. In the five months since he has grown 2 cm. in height and increased by 2 kg. in weight and is free from all disturbances.

Policlinico, Rome

July 26, XXI, No. 30, pp. 1073-1108

73 *Operative Treatment of Purulent Pericarditis. M. Francini.

73. **Purulent Pericarditis.**—Francini reports a case in a previously healthy woman of 18; the acute pericarditis was well under way when symptoms of acute articular rheumatism developed, contrary to the customary sequence. High fever, dyspnea and cyanosis had developed in the course of a few days, suggesting pneumonia until the signs of a large effusion in the pericardium became evident. Puncture revealed pus and the fifth costal cartilage was then resected, permitting access to the pericardium. Fully a pint of pus was evacuated and the wound was drained with a tube; this soon became obstructed and was replaced with a capillary drain which answered ideally the desired purpose. The patient was discharged completely cured by the end of a month. The diagnosis was facilitated by the shifting about of the fluid in the pericardium on change of position. The operation was done under a few whiffs of ether, Francini dreading possible complications with local anesthesia.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 11 | Chicago, Illinois | September 12, 1914

FOCAL INFECTION

ITS BROADER APPLICATION IN THE ETIOLOGY OF GENERAL DISEASE *

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Circumscribed and confined infection, commonly expressed as focal infection, has long been recognized as an important etiologic factor in systemic disease. Yet as a principle it has not received sufficient attention from practitioners. In my opinion focal infection is very frequently related to local and general disease. Apparently it is an important factor in some systemic diseases, heretofore unsuspected.

For several years, the medical clinic of Rush Medical College and the Presbyterian Hospital has furnished a large number of patients suffering from chronic infectious endocarditis of the malignant type (*Streptococcus viridans*), arthritis deformans, rheumatic fever, nephritis acute and chronic, myocarditis chronica, exophthalmic goiter, cholecystitis, ulcer (peptic) of stomach, diabetes mellitus, etc. In addition to the usual clinical and laboratory investigations by the members of the clinic, collective and cooperative research has been carried on in connection with the workers of the Otho S. A. Sprague Memorial Institute and the Memorial Institute for Infectious Diseases. The "team work" has been truly cooperative and the results thereof have been published from time to time (Billings,[1] Davis,[2] Jackson,[3] Rosenow[4]).

The patients too, have cooperated by voluntary submission to slight operative measures to secure material, like localized exudates, bits of muscle, lymph-nodes, fibrous nodes, synovial membrane, erythematous nodes, etc., for histologic and bacteriologic study. Cultural and other blood-studies have been made. Functional tests have been carried on. In this way a more definite knowledge has been obtained of important principles relating to (*a*) the location and the nature of the infectious organisms of the focus; (*b*) the method of systematic infection, and the resulting morbid anatomy, and (*c*) the wider application of the etiologic importance of focal infection.

THE FOCUS OF INFECTION

The focus of infection may be located anywhere in the body. The usual site is in the head, in the form of alveolar abscess, deep tonsillar or peritonsillar abscess and chronic sinusitis. Cholecystitis, acute or chronic appendicitis, submucous abscess anywhere, salpingitis, vesiculitis seminalis, prostatitis, etc., are examples of the local conditions. Furthermore, secondary foci in lymph-nodes proximal to the primary focus and to systemically infected joints, muscles, etc., become additional sources of continued and more general infection. "Overdentistried" teeth may cause or prolong alveolar disease. Tonsillotomy may add a sealing scar to the infected tonsillar stumps.

An investigation may reveal more than one apparent focus of infection, an important fact, inasmuch as the source of infection must be removed as the first step in treatment. Patients much reduced from long illness may suffer from alveolar or other local infection, as a secondary process. These conditions must not be mistaken for the cause of the primary systemic disease. Such secondary local infectious foci may serve as adjuvants to further prolong and intensify systemic disease.

A study of the tissues and exudates of the focus usually yields various bacteria. Of the pathogenic bacteria, streptococci, pneumococci and staphylococci are most commonly found. Gonococci may be found in infected fallopian tubes, seminal vesicles, etc. Occasionally the tubercle bacillus is found in tonsillar and peritonsillar tissues. Colon mixed infection may occur anywhere. The *Bacillus aerogenes capsulatus* is not infrequently found in pathologic tissues and exudates. A study of the streptococcus group so obtained shows, in many instances, a pathologic specificity for certain tissues when injected into rabbits or other animals. Strains obtained from cultures made from tissues and exudates of patients suffering from chronic arthritis produce arthritis in the inoculated animal; strains obtained from the focus of patients with hemorrhagic nephritis, cause nephritis in the inoculated animal; strains obtained from the focus in the patient with rheumatic fever, endocarditis and pericarditis result in pancarditis and acute arthritis in the inoculated animal, etc. (Billings,[1] Davis,[2] Jackson,[3] Rosenow[4]). Furthermore, the brilliant work of Rosenow proving the transmutability of the micro-organisms of the streptococcus-pneumococcus group has helped to a better understanding of the changing pathogenic specificity of these bacteria. Apparently transmutation of a strain of this group may occur in the focus of infection. The oxygen supply of the tissues about the focus seems to be an important factor in the transmutation of the micro-organism. In consequence it may take on characteristics which render it pathologically specific in the infection systematically of joint-tissues or of muscles including the myocardium, or of tendons and aponeuroses or of endocardium and pericardium or of gall-bladder or of mucosa of stomach and intestine or of pancreas, or of kidney, respectively. Apparently strains with an affinity for joint-tissues and muscles, or for joint-tissues, endocardium and pericardium may develop in the primary focus. Inoculations with strains obtained from patients suffering from chronic arthritis, rheumatic fever, with endocarditis and pericarditis, myositis, peptic ulcer (surgically excised), cholecystitis (surgically operated), chronic infectious endocarditis (blood-culture), have resulted in the production of the respective lesions in the experimental animal. The interesting experiments proving the transmutation of the streptococcus-pneumococcus group by Rosenow,[4] and the positive results obtained by him in making cultures by new and ingenious methods, from tissues and exudates, in the various diseases named, have made clear many clinically obscure conditions. The transmutation of the strains in growth and specific pathologic characteristics explains, too, the varying and often contradictory results of various research workers in inoculation experimentation with animals.

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Billings, Frank: Chronic Infectious Endocarditis, Arch. Int. Med., November, 1909, p. 409; Chronic Focal Infection as a Causative Factor in Chronic Arthritis, The Journal A. M. A., Sept. 13, 1913, p. 819; Chronic Focal Infections and Their Etiologic Relations to Arthritis and Nephritis, Arch. Int. Med., April, 1912, p. 484; Clinical Aspect and Medical Management of Arthritis Deformans, Illinois Med. Jour., 1914, xxv, 11; Focal Infection in Relation to Systemic Disease in Forchheimer Therapeusis of Internal Diseases, New York, D. Appleton Company, 1914, v, Chap. iv.

[2] Davis, D. J.: Bacteriological and Experimental Observations on Focal Infection, Arch. Int. Med., April, 1912, p. 505; Chronic Streptococcus Arthritis, The Journal A. M. A., Sept. 6, 1913, p. 819.

[3] Jackson, Lelia: Experimental Rheumatic Myocarditis, Jour. Infect. Dis., 1912, xi, 240; Experimental Arthritis in Rabbits, ibid., 1913, xii, 364.

[4] Rosenow, E. C.: The Study of Pneumococci from Cases of Infectious Endocarditis, Jour. Infect. Dis., 1910, vii, 410; The Etiology of Articular and Muscular Rheumatism, The Journal A. M. A., April 19, 1913, p. 1223; The Production of Ulcers of the Stomach by Infections of Streptococci, ibid., Nov. 29, 1913, p. 1942; Transmutation Within the Streptococcus = Pneumococcus Group, Jour. Infect. Dis., 1914, xiv, 1; Preliminary Note on the Etiology of Arthritis Deformans, Tr. Chicago Path. Soc., 1914, ix, 115; The Journal A. M. A. April 11, 1914, p. 1146.

METHOD OF SYSTEMIC INFECTION AND RESULTING MORBID ANATOMY

Probably the infective agent passes from the focus to other tissues through the blood-stream. Histologic examination of joint structures, heart-valves, muscles and other tissues of inoculated animals shows embolic bacterial masses in the terminal arteries. Endothelial proliferation at the site of the embolus closes the vessel lumen. Muscle and joint-capsule show embolism, local hemorrhage and endothelial proliferation closing the lumen of the vessels. The same process takes place locally in the submucosa of the stomach and intestine and of the fundus of the gall-bladder. Anemic necrosis and rupture into the gall-bladder is a cause of cholecystitis, acute or chronic, and if the latter, gall-stones may form. The specific streptococcus may invade vessels of the pancreas. Acute severe pancreatitis may result, or a lesser degree of infection may so diminish the blood-supply of the organ as to disturb its function, and temporary or severe glycosuria supervenes. Lessened nutrition and oxygen of the infected tissues due to the mode of infection bring about characteristic results. The anatomic changes in capsule, cartilage and bone of joints, in muscles, tendons and aponeuroses which are characteristic of chronic arthritis may be produced by ligation of some of the nutrient arteries of joints, muscles, etc. (Oxhausen[5]). Furthermore, the strains of streptococci which apparently cause chronic deforming arthritis and myositis grow best in a low oxygen tension and even grow anaerobically. The method by which they invade the tissues produces a condition of the tissues in which they thrive. The peculiar characteristics of the mode of infection, the diminished blood-supply to the tissues, the resulting morbid anatomic change and the suitable mediums for continued viability and growth of the infectious agent, explain, in part at least, the progressive nature and the difficulty of successful management of arthritis deformans.

A characteristic directly opposite of this is evident in chronic infectious endocarditis due to the *Streptococcus viridans.* Here the infection is undoubtedly hematogenous. The scar of healed endocarditis and valvulitis is often predisposing. This infectious agent grows best in a high oxygen content. The circulating blood furnishes this in abundance. It causes an abundant vegetative growth on the valves and endocardium. In this nidus, swimming in oxygen it multiplies, becomes immunized against the host and resists every method of treatment.

Acute rheumatic fever is of undoubted focal origin. The newer methods of bacterial culture (Rosenow[4]) have proved the presence, usually, of the infectious organism in the joint-fluid, and it may always be found in the synovial membrane and proximal lymph-nodes during the height of the disease. The strain of the streptococcus which produces these acute lesions also has an affinity for the endocardium and pericardium and often for the myocardium and some groups of the skeletal muscles. Apparently the micro-organism has other affinities. One of the clinical group (Woodyatt) called attention to an apparent thyroiditis in some of the patients suffering with acute rheumatic fever. The thyroid gland was palpably enlarged and tender on palpation. There was moderate tachycardia, tremor of fingers, unusual nervousness, excessive sweats and diminished carbohydrate tolerance. Of five patients then in wards, suffering with acute rheumatism, three showed this evidence.

Case 1.—A. X., man, aged 35, married, porter, Greek, admitted, April 1, 1914. Diagnosis: Rheumatism, acute; tonsillitis acute; thyroiditis. Complaint: March 30, 1914, illness began with soreness of throat, chilliness, pain in lumbar muscles and left heel and swelling and much pain in knees. Profuse sweats at night. Anorexia, thirst and constipation. Had rheumatic fever in 1900 and several minor attacks since then. Examination: Well-nourished; teeth good; tongue, slight whitish fur; tonsils very large, red and infected; thyroid, palpably enlarged and tender; heart and lungs normal; spleen palpable; knee-joints hypersensitive but not swollen; profuse sweating; fine tremor of fingers; temperature from 102 to 104 F.; pulse 90 to 100; blood-pressure 125 systolic; blood, reds 4,440,000, whites 13,500, hemoglobin 70 per cent.; urine scant, 1.028, acid, albumin trace, casts 0. April 2, 7 a. m., glucose, 50 gm., given before breakfast. Urine voided and examined each hour. Glucose present only in specimen voided at 9 a. m. Treatment: Compound pills of rhubarb, as necessary; sodium salicylate and bicarbonate 1 gm. every three hours; oil of wintergreen and bandages applied to joints. April 18, discharged, recovered. Tonsillectomy advised and refused. April 19, readmitted for slight recrudescence. No joint-swelling and no fever. April 22, discharged; tonsillectomy refused. May 30, readmitted for tonsillectomy. Cultures from depths of tissue of excised tonsils yielded almost pure cultures of a green-producing streptococcus.

Case 2.—P. K., man, aged 25, single, laborer, Greek, admitted, April 12, 1914. Diagnosis: Rheumatism acute; endocarditis; thyroiditis; tonsillitis acute. Complaint: Acute inflammation of many joints; began nine weeks ago with sore throat, fever, sweats, etc. In Francis Willard Hospital two weeks. Apparent recovery. Recrudescence three weeks ago with sore throat, pleurodynia and polyarthritis. Denies venereal disease. Examination: Well-nourished; sweating and hypersensitive skin; tonsils large, red and infected; teeth negative; thyroid gland palpable, enlarged and lobes tender to touch; heart, left border, dulness 13 cm.; systolic murmur at mitral area; second pulmonic tone accentuated; rate 100 to 110; many points swollen, hypersensitive and painful to movement; fine tremor of hands; fever, remittent 99 to 101 F. Reds 5,260,000, whites 10,300, hemoglobin 70 per cent; blood-pressure 135 to 145 systolic; urine scant, 1.022, acid, albumin 0, sugar 0, casts 0. April 14, 50 gm. glucose given before breakfast at 7 a. m. At 8 a. m. urine=sugar 0. At 9 a. m. urine=sugar present. At 10 a. m. urine=sugar 0. Treatment: Cleansing mouth- and throat-washes; sodium salicylate and bicarbonate each 1.3 gm. every three hours; oil of wintergreen and compresses of cotton applied to joints. April 17, joints still swollen and painful. Fine tremor of fingers, systolic murmur at mitral area. April 29, convalescent. Tonsils reduced in size and no visible infection. Thyroid gland comparatively smaller and not sensitive to palpation. Systolic murmur at mitral area. May 5, discharged recovered. Tonsillectomy advised.

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[5] Oxhausen, G.: Ueber Einfache aseptische Knochen und Kurrpelenkrose, Chronditis desiccans und Arthritis deformans, Verhandl. d. deutsch. Gesellsch. f. Chir., Berlin, 1912, xlii, Part 1, p. 40, Part 2, p. 446.

Case 3.—P. X., man aged 27, single, laborer, Greek, admitted, May 10, 1914. Diagnosis: Rheumatism acute; tonsillitis acute; thyroiditis. Complaint: Six days ago acute sore throat, which was followed in two days by painful swollen fingers and wrists and later all joints of extremities involved except hips and shoulders. Much sweating, headache and nervousness. Anorexia and constipation. Fever for six days. Similar attack six years ago. Denies venereal disease. Examination: well-nourished and developed. Face flushed. Skin sweating and hypersensitive. Tongue tremulous and coated, grayish-white. Teeth, sound. Tonsils large, red and infected. Thyroid, palpably enlarged and tender. Heart and lungs normal. Polyarthritis acute of all joints of extremities excepting shoulders and hips. Temperature 100 to 102.4 F. Pulse 100 to 120. Urine, 1.028, acid, trace of albumin and a few hyaline casts. Blood: Reds 5,020,000, whites 17,800, hemoglobin 70 per cent. Blood-pressure 110 systolic. May 12, 7 a. m., given glucose, 50 gm. In three hours voided in urine glucose, 1.34 gm. Treatment: sodium salicylate and bicarbonate, each 1.3 gm. every two to four hours; oil of wintergreen and compresses of cotton applied to joints. May 28, discharged recovered. Tonsillectomy advised.

A review of the foreign literature of the last seven years shows the recognition of enlargement of the thyroid gland in acute articular rheumatism as a frequent occurrence. Vincent[6] was apparently the first to note the fact. During 1906 and 1907 he made several reports to the Sociéte médicale des hopitaux de Paris. Nov. 21, 1907, he reported that of 186 patients suffering from acute articular rheumatism he observed swelling and tenderness of the thyroid gland in 86 patients. In another communication he states that thyroiditis occurred in 66 to 68 per cent. of his patients who suffered with acute articular rheumatism. Eleven patients with acute rheumatism presented thyroid enlargement with tenderness, with acute symptoms of intoxication; tremor of fingers, tachycardia, extra cardiac murmurs and throbbing of vessels, profuse sweats, etc. Vincent observed a subsidence of the thyroid swelling, tenderness and overfunction coincidently with convalescent stage of the rheumatism. Vincent apparently interprets the thyroid enlargement and overfunction to a reciprocal reaction of the body in defence of the rheumatic infection. He observes that in obstinate acute rheumatism with complications the thyroid may be only moderately enlarged and may quickly subside. He believes this explains the value of iodids in obstinate cases. He also thinks that the salicylates are of value in reducing this type of thyroiditis. He reports the continuation of the thyroid enlargement with all the phenomena of exopthalmic goiter in several patients and in a few patients with rheumatic thyroiditis subsequent atrophy of the gland with the development of scleroderma and other symptoms of hypothyroidism. Sougues[7], Albertin[8] and Weintrand[9] report similar observations of thyroid enlargement, tenderness and symptoms of hyperthyroidism in acute rheumatic fever.

None of these reporters mentions the probability of the thyroid enlargement and tenderness being due to the same rheumatic infectious agent of focal origin.

These reports and the meager personal experience noted in the cases cited aroused the interest of the clinic as to the possibility of focal infection as a cause of goiter. The following case-reports are interesting and seem to show that there is an infectious type of goiter with and without symptoms of exophthalmic goiter, which seems to be of focal origin. The rapid subsidence of the goiter and the symptoms after removal of the foci of infection in the jaws and tonsils was a surprise. Bacteriologic examination of the tissues and alveolar pus revealed mainly streptococci. Autogenous vaccines were used with one exception in all the patients. No drug treatment with the exception of iron, for one, was used.

Case 4.—Mrs. C. F., married, aged 49, U. S., admitted April 30, 1914. Diagnosis: Exophthalmic goiter; tonsillitis chronica; abscesses alveolaris. Complaint: Frequent sore throat; goiter for two years; muscular tremor for one year, much worse recently; tachycardia for more than a year; dyspnea of exertion; nervous and emotional; gradual loss of weight; lessened strength and endurance. Menopause at 47. Examination: Skin pale, pseudoscleroderma of hands, forearms and forehead; eyes normal; no lymphadenopathy; large goiter, partially cystic; heart, left border dulness 11 cm., tones pure, rate 96 to 100; muscular tremor, fingers; many carious teeth with alveolar infection (roentgenograms); tonsils enlarged, fissured and infected; blood: reds 4,700,000, whites 7,800, hemoglobin 65 per cent.; urine, normal; blood-pressure, 130, systolic. Treatment: Tonsillectomy; extraction of all teeth; rest and plentiful food. Result: May 12, 1914, discharged much improved. Goiter diminished more than half; symptoms of hyperthyreoidea practically nil.

Case 5.—Miss J. L., aged 18, telephone operator, U. S., admitted May 2, 1914. Diagnosis: Exophthalmic goiter; tonsillitis chronica; abscesses alveolaris. Complaint: Goiter, nervousness and emotion; muscular tremor; tachycardia; dyspnea of exertion; loss of weight and strength; headache; hot flashes and profuse perspiration; tonsillitis and confinement to house for a week every winter. Duration of symptoms six years. Examination: Well-nourished and good color. No exophthalmos; tonsils large and infected; six molar teeth show alveolar infection (roentgenograms); a moderate symmetrical, firm goiter; heart normal, pulse 80 to 110; temperature subfebrile; tremor of fingers; blood, normal; urine, normal; blood-pressure 100 systolic. Treatment: tonsillectomy, extraction of teeth with infected roots, autogenous vaccination with strains of streptococci obtained from tonsils and dental canals. May 18, 1914, discharged to family physician. Goiter has disappeared. Symptoms of hyperthyreoidea much improved. June 18, 1914, the family physician reports the patient in good condition of health.

Case 6.—Miss M. W., aged 20, telephone operator, U. S., admitted May 12, 1914. Diagnosis: Exophthalmic goiter; tonsillitis chronica. Complaint: Goiter for unknown period:

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[6] Vincent, H.: Sur la reaction thyroïdienne dans la rhumatisme aigu, et sur l'origine rhumatismale de certain cas du goitre exophthalmique, Compt. rend. Soc. de biol., 1907, lxiii, 389; Rapports de la maladie Basedow avec le rhumatisma aigu, Bull. de la Soc. méd. de Paris, 1907, xxiv, 1286; Semaine méd. March 20, 1907, p. 143; ibid., Nov. 21, 1907, p. 575; ibid., Jan. 1, 1908, p. 47; ibid, Oct. 28, 1908, p. 527.

[7] Souges, A.: Goitre exophthalmique et rhumatisme articulaire aigu, Semaine méd., Jan. 26, 1910, p. 47.

[8] Albertin, André: Le corps thyroide et le rhumatisme articulaire aigu, Thèse de Paris, 1911; Arch. de méd. 1911, iv, 260.

[9] Weintrand, W.: Der akute Gelenk rheumatismus, Spezielle Path u. Ther. inner. Krankheit., Berlin, Kraus und Brugsch, 1913-1914, ii. Part 2, pp. 128 and 148.

rapid increase in size recently; tachycardia for year or longer; dyspnea of exertion; nervous and emotional; frequent subjective flashes of heat; prominence of eyeballs for a few weeks; loss of 15 pounds in weight in last few months; frequent sore throat; tonsillotomy three years ago. Examination: General pallor; moderate exophthalmos and lagophthalmus; tonsil stumps large and infected; teeth good, some dentistry; thyroid enlarged, symmetrical and firm; heart normal size, rapid, 100 to 120, somewhat irregular, tones pure, but snappy; tremor of extended fingers; reds, 3,300,000, whites 8,300, hemoglobin 60 per cent.; blood-pressure 125 systolic; urine, normal. Treatment: Tonsillectomy; rest; hematinics and plentiful food. May 20, 1914, discharged to family physician, much improved. June 18, 1914, family physician reports the patient much improved. Goiter much diminished in size. General condition excellent.

Case 7.—Miss M. K., aged 24, telephone operator, U. S., admitted April 18, 1914. Complaint: Chronic arthritis of joints of fingers; frequent tonsillitis; goiter; occipitofrontal headache, fainting attacks and nervousness. Examination: Well-nourished; good color; tonsils large, fissured and infected; four lower teeth show alveolar infection (roentgenograms); swelling, soreness and stiffness of many joints of fingers; heart, lungs, urine and blood normal. No symptoms of hyperthyreoidea. Treatment: Tonsillectomy, extraction of teeth with infected roots, autogenous vaccination with streptococci (*S. viridans* and *S. hemolyticus*) obtained from tonsils and dental canals. May 10, 1914, discharged much improved. June 6, 1914, returned and reported ability to return to work. Goiter practically disappeared. June 18, 1914, patient at work. Goiter about one half original size. General condition good. Arthritis of fingers much improved.

Case 8.—Miss M. M., aged 21, telephone operator, U. S., admitted May 18, 1914. Diagnosis: Goiter; tonsillitis chronica. Complaint: Frequent sore throat, hoarseness; goiter of unknown duration, intermittent enlargement of lymph-nodes of anterior triangles of neck; nervous and emotional; lessened strength and endurance. Examination: Moderate exophthalmos and lagophthalmus; tonsils enlarged, fissured and infected; teeth, no visible infection, much dentistry; thyroid enlarged, chiefly the isthmus and right lobe; a few palpable submaxillary lymph-nodes; heart normal, 68 to 80; slight tremor of extended fingers; reds, 4,800,000, whites 10,300, hemoglobin 75 per cent.; blood-pressure 120 systolic; urine normal. Treatment: Tonsillectomy and rest. May 25, 1914, discharged to family physician much improved. June 18, 1914, family physician reports condition improved with the thyroid almost normal size.

Case 9.—Miss E. S., aged 23, U. S., admitted May 19, 1914. Diagnosis: Exophthalmic goiter; tonsillitis chronica; impacted molar teeth. Complaint: At 17 became nervous and emotional, had tachycardia, loss of weight and strength, muscular tremor, moderate goiter, sweating, diarrhea, etc. Diagnosis of exophthalmic goiter and operation advised by home physician. Instead took rest cure. Improvement. Since then invalid with periods of improvement alternating with relapses. Now has tachycardia with irregular beating; nervousness, with hot flashes, insomnia and varying emotions; muscular tremor, generalized; profuse perspiration; diarrhea; occasional nausea and vomiting; weakness; loss of weight; exophthalmos and goiter. Had acute rheumatism at 12; sore throat on rare occasions. Menses irregular. Examination: Fairly nourished. Moderate exophthalmos; teeth, no caries, impacted molars (roentgenogram); tonsils large, buried, smooth exposed surfaces; thyroid visibly and palpably enlarged; heart, left border dulness 11 cm., rate 100 to 120, rhythm, somewhat irregular, tones pure; tremor marked; temperature range 98.6 F.; carbohydrate tolerance to glucose gm. 50.0 normal; urine normal; blood-pressure 140 systolic; reds 4,500,000, whites 9,000, hemoglobin 80 per cent. Treatment: Tonsillectomy. Removal of impacted teeth. Rest. June 3, 1914, discharged to family physician. Goiter and symptoms of hyperthyroidea practically disappeared. June 16, 1914, a letter from the patient's sister states marked condition of general improvement. She says patient expresses surprise at the disappearance of uncomfortable sensations which had existed so long that she had thought them natural phenomena.

Case 10.—Miss G. O'B., aged 23, telephone operator, U. S., admitted May 20, 1914. Diagnosis: Exophthalmic goiter; tonsillitis chronica; abscess alveolaris; anemia secondary. Illness began one year ago with severe tonsillitis. Soon noticed goiter with extreme nervousness, muscular tremor, tachycardia and a complete nervous collapse in March, 1914. Examination: Well-nourished; pale; nervous; marked muscular tremor; no exophthalmos; symmetrically enlarged thyroid gland; three carious teeth with alveolar infection (roentgenogram); infected faucial tonsils; subfebrile temperature; pulse 96 to 130, heart-tones normal; blood: reds 2,580,000, whites 13,600, hemoglobin 40 per cent.; blood-pressure 125 systolic; urine normal. Treatment: Tonsillectomy; extraction of teeth with alveolar infection; hematinics; rest and good food. Result: Rapid improvement in goiter and symptoms of hyperthyreoidea. June 18, 1914, patient continues to improve in a general way. Anemia less. Goiter still palpable, but symptoms of overaction of thyroid practically gone. This patient is the only one of the series of women who has not received vaccines.

No thyroid gland tissue was examined. Dr. E. C. Rosenow has recently made cultures from the deep tissues of many goiters, removed surgically in the treatment of exophthalmic goiter. Without exception he has been able to isolate and grow a streptobacillus of characteristic qualities. He is making experiments with the organism by animal inoculation and will make a report soon.

Farrant[10] has investigated the pathologic changes of the thyroid in disease. He finds that certain micro-organisms and certain toxemias may cause either a chronic hyperplasia with colloid or a complete acute hyperplasia. In the acute type the *B. aerogenes capsulatus, B. diphtheriae, B. dysenteriae* (Asylum, Shiga and Flexner types), *B. anthracis, B. tuberculosis, B. mallei,* bacillus of tetanus, *Micrococcus catarrhalis, Spirochaeta pallida, Plasmodium malariae,* chronic nephritis, cirrhosis of liver and toxemias due to abrin, ricin and diphtheria toxin produced rapid hyperplasia. Animal inoculation and examination of animal and human thyroids were the basis of the report.

In the chronic type, the coliform bacillus (chr.) tuberculosis, chronic, Malta fever, syphilis, actinomycosis, acute poliocyelitis, rheumatic fever, scarlatina and pernicious anemia were associated with thyroid enlargement. Involution of the thyroid followed the subsidence of the systemic disease.

That Farrant should not find acute hyperplasia in rheumatic fever is probably due to the absence of clinical observation.

THE WIDER APPLICATION OF THE ETIOLOGIC IMPORTANCE OF FOCAL INFECTION

To the now well-known relation of focal infection as a chief factor in the etiology of acute rheumatism, chronic deforming arthritis, gonorrheal arthritis, malignant endocarditis, myositis, myocarditis, septicemia of various bacterial types, tuberculosis, nephritis and visceral degeneration, we may add certain infectious types of thyroiditis, with or without hyperthyroidism, pancreatitis acute and chronic, with or without resulting glycosuria, peptic gastric and duodenal ulcer and cholecystitis.

With the defenses of the body diminished by overwork, exposure to cold, dissipation, insufficient or improper food, unhygienic surroundings, injuries from former disease, (valvular scar) or trauma, the individual may suffer from acute rheumatic fever, chronic arthritis, myositis, chronic infectious endocarditis, pneumonia, ulcer of stomach, cholecystitis or pancreatitis, respectively dependent on the phase of mutation in pathogenicity, and affinity of the strain of the streptococcus-pneumococcus group in the focus of infection. These principles are important because proper management may (*a*) prevent the systemic disease and (*b*) guide one in the proper treatment of the systemic disease. The recognition and removal of chronic foci anywhere in the body is imperative as a prevention of progressive ill health. Emphasis should be made of chronic alveolar abscess, often unrecognized by the patient. Film roentgenograms of the jaws is often the only means of recognition. A pathologic tonsil is a menace and should be wholly removed. Chronic cholecystitis and chronic appendicitis should be promptly treated surgically. Chronic sinusitis may exist for years and finally be an important factor in the development of systemic disease. Following the removal of the focal infection, adequate individual and general hygiene will improve the body defenses and health will be maintained.

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[10] Farrant, Rupert: The Pathological Changes of the Thyroid in Disease, Brit. Med. Jour., Feb. 28, 1914, p. 470.

The removal of the focus of infection is demanded as a fundamental principle, in the treatment of the systemic diseases especially of the chronic type. Thereafter the management must be individual, based on the character and location of the infection. The attempt to immunize the patient against the infection must be attempted by restorative measures—food, pure air, passive and active graduated exercise, hematinic and other tonics, optimistic surroundings, etc. Autogenous vaccines may be used with rational reservation.

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THE NEWER BACTERIOLOGY OF VARIOUS INFECTIONS AS DETERMINED BY SPECIAL METHODS *

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CHICAGO

The bacteriology of most infections as worked out heretofore is largely the bacteriology of the fluids of the body and semifluid exudates. In acute infections a bacteriologic study of the fluids commonly yields trustworthy results, but in many chronic conditions the cultures are usually sterile and demonstration of bacteria in the tissues usually fails.

In this short paper I wish to describe methods for making cultures particularly from excised tissues and from the blood and other fluids in which due regard is paid to the question of oxygen pressure, particularly in the primary culture, and to detail very briefly the results obtained by their use in various infections.

PREPARATION OF THE EMULSION FROM THE TISSUES

The tissues are excised with strict aseptic precautions usually under local anesthesia and cultures made at once, a portion being reserved for microscopic study. In addition to the great care used to avoid contamination from skin or air the surface of the part used for cultures is sterilized by dipping it into boiling water, or even better, into a vigorous Bunsen flame, or seared with a hot blade, then rapidly cooled in sterile salt solution and emulsified in the specially devised sterile air-chamber or "tissue-crusher" shown in the accompanying illustrations. The amount of heat used is determined by the size of the tissue at hand. Whenever possible, pieces of tissue at least 2 to 3 cm. in diameter are used for cultures.

The chamber (Fig. 1) is somewhat similar to the one already described[1] except that it contains a larger mortar and a small-sized meat-chopper.[2] It consists of an air-tight tin can (19 by 23 cm.) containing a large (10 cm.) hole on one end with a flanged rim to which is tied a long-sleeved, heavy, fleece-lined canvas glove; there is a smaller side opening (3 cm.) which is plugged with cotton and a large opening (8 by 12 cm.) at the top which is covered with mica and held in place by circular wires and surgeons' adhesive plaster. The meat-chopper is held in place through a hole at the farther end through which the shaft extends and a hole at the bottom through which a thumb-screw fits whereby it is clamped to a wood extension, fastened to a semicircular wood board nailed to the end. On the inside is fastened a suitable-sized tin can which serves as the mortar holder. The container without the meat-chopper answers very well for small or relatively soft tissues, such as the lymph-glands in arthritis, while the one containing the meat-chopper is preferable for emulsifying larger and firmer tissues such as the thyroid gland, cystic ovaries and the glands in Hodgkin's disease. Sterilization is done in dry heat at 160 C. (320 F.) for one hour. For actual use the right hand and forearm are thoroughly scrubbed with soap and water and soaked in 1 : 1,000 mercuric chlorid and then introduced into the container and glove. Alcohol should not be used in sterilizing the hand because the vapors are apt to ignite with explosive violence when the side opening is flamed after removing the cotton plug; the mouth of the tube or bottle containing the tissue is flamed and held near the small opening in the side and the tissue grasped with long sterile forceps, and with the least possible exposure to the room air, inserted into the container and either cut into small pieces with the scissors or passed through the meat-chopper. Great care is exercised at all times not to move the gloved hand in or out of the container while the cotton plug is removed.

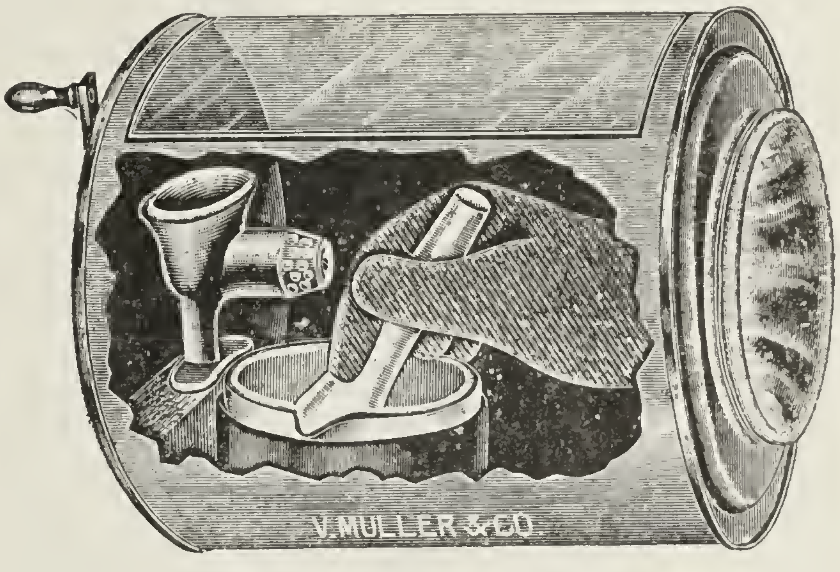

Fig. 1.—Sterile air chamber. The right hand is used inside the apparatus.

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Memorial Institute for Infectious Diseases.

[1] Rosenow: Centralbl. f. Bakteriol., Orig., 1914, lxxiv, 366.

[2] The meat-chopper is an inexpensive commercial article designated the "Baby Masticator," and manufactured by the Enterprise Manufacturing Company, 176 North Dearborn Street, Chicago.

After grinding the tissue in the mortar for a time, sterile quartz-sand and the emulsifying fluid, usually dextrose broth, are poured into the mortar through the side opening from thoroughly flamed test-tubes. The cotton plug is reinserted and the emulsifying process is continued. The emulsion when completed is poured into a thoroughly flamed test-tube or graduate of suitable size, inserted through the side opening.

In attempting to simplify as much as possible the emulsification of tissues and to check up the results obtained with the sterile air-chamber, the "tissue-crusher" (Fig. 2), a modification of the method used by Hirschfelder to obtain tissue juice, was devised. It consists of two close-fitting threaded metal tubes; the outer tube is fitted with an air-tight removable bottom, the inner surface being made rough, and a four-sided rim, while the inner tube is fitted with a removable disk containing numerous very small drilled holes and a handle which serves as a wrench. The inner tube is plugged with cotton and placed inside the other and the instrument sterilized in hot air. In order to prevent leakage the thread of the inner tube should be covered with hot sterile paraffin or petroleum oil just before using. The tissue is placed in the outer tube and the inner tube turned in the outer, using the necessary force until the tissue is crushed and expressed into the inner tube. The instrument is now held slantwise, the cotton plug flamed and removed, the emulsifying fluid added and the emulsion transferred to a sterile test-tube with a sterile pipet.[3]

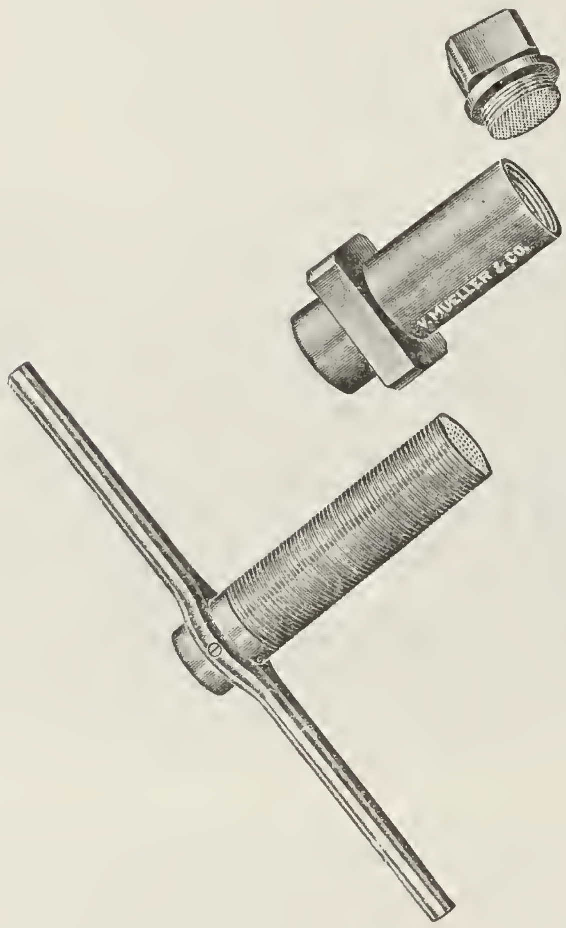

Fig. 2.—Tissue crusher.

METHOD OF PREPARING THE BLOOD-CULTURES

In order to furnish bacteria from the blood and other sources a gradient of oxygen pressure, the following method for making blood-cultures has been used with good results: From 15 to 30 c.c. of blood are withdrawn from the vein at the bend of the elbow in the usual way and decalcified, by adding it to a solution of 2 per cent. sodium citrate in sodium chlorid solution in the proportion of 5 c.c. of blood per 1 c.c. of solution. Control tests have shown that the bacteria contained in the blood from a wide range of conditions live in this solution for at least seventy-two hours. The citrate solution is kept in a tube of suitable size closed by an aluminum screw-top containing a rubber disk and sealed with paraffin. This may be used at the bedside and then sent to the laboratory for cultures in case, for some reason, it is not convenient to make the complete culture at the bedside. In my work a portion of the citrated blood has been at once planted and the remainder added by means of a sterile pipet to sterile distilled water contained in bottles which serve as centrifuge tubes, there being at least 10 parts of water to 1 part of citrated blood. This is centrifuged at once and the supernatant hemoglobin containing water is poured off or the sediment removed with a sterile pipet, and planted. The sterile water serves as a means of getting rid of the hemoglobin and the serum. Control tests with the serum after the corpuscles have separated by gravity show that in the aerobic cultures the inhibiting action of the hemoglobin is more marked than that of the serum; in fact, the serum is a desirable constituent in streptococcal cultures. Hence in suspected streptococcal infections the serum and the sediment of the dissolved corpuscles may be planted separately. In some instances the hemoglobin has been converted into methemoglobin by passing carbon monoxid (illuminating gas) through the decalcified blood by means of a sterile pipet containing a long sterile cotton plug.

THE PREPARATION OF THE CULTURES

The emulsion of the tissues or the sediment of the dehemoglobinated blood is inoculated in the way best suited for the particular case at hand. Shake-cultures in tall columns (10 to 20 cm.) of ascites dextrose (1 per cent.) agar and plain agar (0.5 to 0.8 per cent. acid to phenolphthalein) with or without serum have yielded the best results. The ascites fluid is collected in a sterile manner and heated on successive days to 60 C. (140 F.) for one hour or for twenty-four hours and used only after the sterility has been determined. To 9 parts of 0.5 per cent. agar, prepared from Liebig's extract of beef and Witte peptone, 1 part of ascites fluid is added with a sterile pipet after the agar is either thoroughly boiled in a bath or steamed in an Arnold sterilizer for at least fifteen minutes to drive off molecular oxygen, and cooled to 60 C. The emulsion or other material is added to the agar when cooled to 39 C. (102.2 F.) by inserting the mouth of the pipet to the bottom and forcing out its contents while the pipet is withdrawn. After the cotton plug is flamed and replaced in the test-tube the further mixing is accompanied by partially inverting the tube once or twice. Care is exercised not to blow bubbles of air through the agar.

Owing to the oxygen-consuming power of living cells the bottom of the tubes is rendered anaerobic while the top necessarily remains aerobic, and the space between represents a gradient of oxygen pressure between the two extremes. In order to bring about a still greater range of conditions in view of the consideration that the emulsion or tissue juice may be bactericidal or may favor the growth of the bacteria, only a small amount of emulsion is added to some tubes and a large amount to others. In the case of the blood-sediment or joint fluid when only a small amount is at hand, pieces of sterile rabbit or guinea-pig tissue are added to the bottom of the tube if strict anaerobic conditions are desired. A gradient of H and OH ions in the mediums, obtained by superimposing a plus 1 agar or a minus 1 agar and vice versa has also been found useful in some conditions.

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[3] The sterile air-chamber may be made in the laboratory, while the tissue-crusher requires a well-equipped machine-shop for its construction. Both may be purchased from V. Mueller & Co., 1779 Ogden Avenue, Chicago.

Plain serum or ascites, agar and broth, ascites-dextrose-broth in tall tubes, enriched ascites fluid, with or without sterile tissue the surface of Loeffler's serum, plain and dextrose blood-agar slants and plates, kept under aerobic and anaerobic conditions, and at times litmus-milk and ox-bile, and in Hodgkin's disease Dorset's egg mediums are also inoculated. These, while not as favorable culture mediums, have yielded positive results in isolated instances when the shake-cultures in agar were negative. The cultures are incubated at 37 C. for ten to fourteen days before they are discarded. The tubes of dextrose-agar are carefully examined for colonies in a strong light. Smears are made from the water of condensation of the Loeffler's serum and blood-agar slants, of the liquid cultures if turbid and of the sediment always, and from the bottom of the tube of agar even though no colonies are found. Colonies in the depths of the dextrose-agar are examined by breaking the tube crosswise by means of a glass cutter and a red-hot bead at the end of a glass pipet, the surface of the tube being sterilized in the flame just before breaking it. If a positive result is obtained, at least one of the subcultures is made in such a way as to reproduce as nearly as possible the conditions under which the original growth was obtained. This point is particularly important with those strains which show a preference for anaerobic conditions. Search for unknown bacteria was made in smears stained in various ways from the cut surface of the glands and various emulsions and from the depths of the cultures both by staining and with the aid of dark-field illumination.

RESULTS

By this method, which is similar to those employed by Theobald Smith and Noguchi but in which there is afforded not only aerobic and anaerobic conditions but a gradation of oxygen pressure between these two points, a gradation of H and OH ions, and a wide range of nutrition, positive cultures have been obtained frequently while cultures made in the usual way remained sterile.

Thus certain non-hemolyzing streptococci have been isolated from the blood repeatedly when the usual method failed or showed much fewer colonies; in leukemia this has happened as long as four months before death; in rheumatic fever during the height of the disease in 5 of 9 attempts; in peliosis rheumatica in 2 cases, and occasionally from arthritis deformans. Hemolytic streptococci were obtained from three cases of puerperal sepsis; the *Streptococcus viridans* in two cases of chronic infectious endocarditis, while the results of the usual cultures suggested the "bacteria-free stage" (Libman) of the disease. Diphtheroid-like organisms have been isolated from the blood during the febrile period in four cases of Hodgkin's disease, and the same organism from the blood as from the nodes in two of three cases of erythema nodosum in which blood-cultures were made. Diphtheroid bacilli have been isolated from the blood in four cases of severe infections resembling rheumatism; the *Bacillus aerogenes capsulatus* (*B. welchii*) from the blood in one case of bronchopneumonia, one case of acute rheumatism, and in leukemia.

Streptococci corresponding to those which I have isolated previously from the joints have been isolated from glands draining the involved joints in twelve cases and *B. welchii* alone or in conjunction with streptococci in four of twelve cases of acute articular rheumatism.

In 54 cases of arthritis deformans one or more glands draining the joints have been examined in each case. Non-hemolyzing streptococci producing usually no distinct green on blood-agar plates and often showing a marked preference for anaerobic conditions in the primary culture but otherwise resembling *Streptococcus viridans* have been isolated 32 times; staphylococcus 5 times; an organism resembling *B. mucosus* 3 times, *Micrococcus catarrhalis* and the gonococcus once each, *B. welchii* in 14 cases, and diphtheroid bacilli in 5 cases. In 7 cases the cultures remained sterile. In both rheumatic and deforming arthritis the same organisms have been isolated simultaneously from the fluid or capsule of the joints and the excised gland.

A diphtheroid bacillus showing a wide range of preference for oxygen in the different cases has been cultivated in all of some 40-odd cases of Hodgkin's disease; a staphylococcus in 17; *Streptococcus viridans* in 7; *B. welchii* in 14, and an unidentified Gram-negative motile bacillus in 6 cases.

A non-hemolyzing, sometimes green-producing (blood-agar) streptococcus has been obtained from the depth of the tissue in 16 of 21 chronic indurated duodenal and gastric ulcers, and from the small glands adjacent to the ulcer in 4 of 5 cases. A staphylococcus-like organism was present usually in smaller numbers in 16; *Staphylococcus aureus* only once. The base of the ulcers was either entirely sterile or contained only a small number of bacteria and yeast-cells. The number of colonies of streptococci was roughly proportionate to the gross or microscopic evidence of inflammation. Only one perforating ulcer was examined and this showed the largest number of colonies of streptococci. The negative results obtained were in ulcers which seemed to be practically healed. *B. welchii* was isolated from the ulcers in 6 cases and from the adjacent glands in 3. Three ulcers showed diphtheroid bacilli, 4 yeast-cells, and in a number there were found a few colonies of a large Gram-positive aerobic bacillus, probably belonging to the *subtilis* group. The colon bacillus was found only once in the simple ulcers excised at operation, but was present in large numbers in one examined shortly after death and in small numbers in two out of three ulcers the seat of carcinoma.

Streptococci quite similar to those from the ulcers have been isolated in pure culture from the excised tissue of the gall-bladder in cholecystitis in one case and from the center of gall-stones in 4 of 7 cases. *B. welchii* and *B. coli* were found together with the streptococcus in the gall-stones in one case and a bacillus resembling closely the typhoid bacillus in another.

A polymorphous, sometimes clubbed, diplobacillus was obtained in pure culture from excised nodes in each of 7 cases of erythema nodosum; from a cervical lymph-gland draining an infected tonsil in one case and in mixture from the focus of infection (tonsil and superficial ulcer on anterior pillar) in 2 cases of erythema nodosum.

An anaerobic Gram-positive diplobacillus-like organism has been isolated from the thyroid gland removed at operation in 25 out of 32 cases of goiter (mostly exophthalmic goiter) in man, from the blood on two occasions in a severe case of exophthalmic goiter, and in conjunction with Dr. Moon, in 8 of 12 dogs having goiter. We failed to obtain the organism from the gland in six of seven dogs showing apparently normal-sized thyroid glands, while one showed a few colonies. *B. welchii* was found in all but 6 of the thyroid glands examined. Three of these were normal glands in dogs. A staphylococcus which usually produces hemolysis on blood-agar and grows unusually well anaerobically was found in most of the goiters in those from both man and dog. It is as yet impossible to state whether or not this coccus comes from the skin, although it perhaps does not. Non-hemolyzing streptococci have been isolated in 3 goiters from man and in 2 goiters from dogs.

Cystic ovaries from 25 patients have been examined by this method. Streptococci, often good green-producing, have been found in pure culture in 14, in some instances, both from the cyst fluid and the emulsified tissues; but the cyst content is usually sterile. A partially anaerobic diplobacillus resembling quite closely the organism from the thyroid gland has been found in 4; staphylococci in small numbers in 3; *B. welchii* in all but 5 cases.

SIGNIFICANCE OF THE FINDINGS

The common localization and lesions produced on intravenous injection of streptococci soon after isolation from acute rheumatism, from arthritis deformans, from ulcer of the stomach and from the tissue of the gall-bladder in cholecystitis and the center of gall-stones, together with other facts, suggests strongly that they are not secondary invaders but the important etiologic factor in each of these conditions because the strains from rheumatism commonly produce arthritis, endocarditis, myocarditis and pericarditis; the strains from arthritis deformans, arthritis and myositis but rarely endocarditis or pericarditis; the strains from the depths of ulcers of the stomach often show a striking affinity for the mucous membrane of the stomach and duodenum (dogs and rabbits); while those from the gall-bladder and the center of gall-stones commonly produce cholecystitis. The bacillus isolated from erythema nodosum when injected as isolated showed a marked affinity for the subcutaneous tissue in dogs, rabbits and guinea-pigs, producing localized hemorrhages followed by infiltration resembling the nodes seen in man, the lesions often being symmetrically placed usually near a relatively large blood-vessel. On artificial cultivation and on animal passage the strains lost this peculiar property. In both instances the organism tended to become a streptococcus and on passage it acquired an affinity for the joints, fascia, muscles and endocardium. This fact would seem to afford an explanation of the common occurrence of arthritis and sometimes endocarditis in erythema nodosum and allied conditions.

The almost constant presence of diphtheroid organisms in the glands and their demonstration in the blood in Hodgkin's disease in conjunction with the results of experiments on monkeys by Bunting and Yates and by Negri and Mieremet, and the good results obtained in some cases by the use of autogenous vaccines suggest strongly that these organisms play at least a prominent rôle in this disease; but the fact that other organisms are commonly found also and that diphtheroid bacilli indistinguishable from some of the strains from Hodgkin's disease are found in many other conditions compels one to wait for more experimental evidence before concluding that these bacilli are the real cause of Hodgkin's disease.

The etiologic rôle of infection in goiter is becoming more apparent; enlargement of the thyroid gland has been noted in various infections, particularly in rheumatism; and the peculiar distribution of endemic goiter, and other clinical facts, suggest that the cause of simple and exophthalmic goiter may be due to an infection. The symptoms and the enlargement of the gland, however, have usually been considered toxic in nature and not due to localization of the bacteria in the gland. No one, as far as I can learn, has isolated an organism from the thyroid in a series of cases. The fact that the same organism has been isolated from goiters in both dogs and man, and in the latter apparently in proportion to the degree of symptoms and from the blood, the absence of this organism in normal thyroid glands in dogs, the fact that it lives longer in the thyroid gland than in the kidney and other tissues of dogs following intravenous injection, and that goiter has appeared in two dogs after intravenous injection of this organism, suggest that goiter may be due not only to toxins produced in other regions of the body but to an actual localization in the gland of bacteria. Studies of the chief organism found show that it is probably closely related to the streptococcus group and this may explain why thyroid enlargement is observed commonly in rheumatism and in cases having foci of infection in which the predominating flora is streptococcal.

The significance of the findings of the streptococcus in cystic ovaries is not yet clear. Further experiments on animals are necessary and the immunologic reactions in the various conditions, particularly in goiter and cystic ovaries, need to be worked out before definite conclusions can be drawn. It may be that the organisms isolated are merely secondary invaders. The rather frequent occurrence of diphtheroid-like organisms in the tissues and blood during life is, I believe, significant. They are probably not wholly secondary or harmless invaders.

Altogether the *B. welchii,* or an organism closely related, has been isolated from various tissues in man 103 times and from the blood or joint fluids six times. It has frequently been found in various tissues, such as the thyroid, muscle and kidney of dogs and occasionally in livers of rabbits and guinea-pigs. On account of this surprising finding and because the organism is an anaerobe and spore-bearing, every possible source, especially the serum and ascitic fluids, other than the tissue inoculated has been excluded by control-tests. The common presence of this organism in the tissues of man and the dog (carnivorous animals) and its absence in the rabbit and guinea-pig (herbivorous animals) is, I believe, of significance. It exists in the tissues probably chiefly in the spore form and the growth usually does not result except when the oxygen pressure has reached a certain grade. The fact that the strains grow readily at a certain grade of oxygen pressure without production of gas and that they produce the characteristic growth with gas formation only under strict anaerobic conditions suggest that under special circumstances (a lowered oxygen pressure, increased virulence or growth in symbiosis with other bacteria perhaps) *B. welchii* may not be an entirely harmless invader.

Finally, whatever the ultimate significance of these findings may prove to be, the common isolation of bacteria from tissues which have been considered sterile is of definite importance, lends support to the contentions of Adami and others that certain ill-understood conditions are due to a low-grade infection and not merely intoxication and calls for an extensive study of the whole question by this or similar methods.

I wish to express my very great appreciation to the numerous physicians, particularly Dr. Billings, who have supplied me with material. The more complete reports are to appear in the *Journal of Infectious Diseases.*

629 South Wood Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BILLINGS AND ROSENOW

Dr. **William S. Thayer**, Baltimore: There has been no one circumstance in the last fifteen years that has so changed the aspect of the practice of medicine as the recognition of the influence of local foci of infection on the production and course of a variety of general processes of previously uncertain etiology. In the discussion on cardiac disease, Dr. Cabot, in his classification, referred to the "rheumatic" cases, stating that although the term was rough and general, it yet covered those infections which are commonly associated with arthritis as well as cardiac disease. It is well to emphasize this association. When one meets to-day a mitral stenosis or insufficiency he proceeds in a very different way from that in which he did twenty years ago. One's first thought now should be to search for a focus of chronic infection by the removal of which the probability of progression of the malady may be greatly reduced. The proportion of cases of valvular disease of uncertain origin that show old chronic affections of sinuses, of teeth, especially of the tonsils, is very large. I would emphasize also that in tonsilar operations it is most important that the operation be complete. In a very large number of patients who come to me with the statement that their tonsils have been removed, it is easy to demonstrate that most of the lower pole of the tonsil is still present, the crypts often sealed by cicatricial tissue and more dangerous perhaps than before operation. Even in the hands of men whose technic is very good it is not uncommon to see in young people a hyperplasia of small islands of lymphoid tissue which remained after operation. These little islands may later be infected and give rise to all the symptoms formerly experienced.

Dr. **A. C. Griffith**, Kansas City, Mo.: It has been my good fortune since the discovery of the diphtheroid bacilli to see a few cases of Hodgkin's disease. One case in particular occurred in an elderly lady who had been suffering for six or seven years with glandular enlargement. We removed one of these glands and developed the diphtheroid bacillus; also a coccus. Dr. Rosenow has described their clinical characteristics. These organisms are mostly of the aerobic type. The patient was put on autogenous vaccines made from the growth of the organism. The treatment was given in gradually increasing doses until the swelling of the glands began to disappear and the patient was doing nicely. She, however, was persuaded to take up Christian Science. Two weeks later I was called in when she was dying from overinfection or intoxication as a result of the activity of the glands. Necropsy showed that the changes in the glands were those characteristic of Hodgkin's disease; there was the degeneration and softening in the center and the outer harder portion. We used the vaccines three hundred millions to the cubic centimeter. I started in with 0.5 c.c. and increased the dose to 2 c.c. I gave first a dose every three or four days and toward the last 2 c.c. every other day, and the glands were disappearing when the patient left me to follow one of the cults.

Dr. **Frank Smithies**, Chicago: In the study of the histories of nearly ten thousand cases of gastro-intestinal trouble I have been struck by the fact that aggravations of the disturbances were quite common in the spring and the fall. It will be especially noted that this happens in the case of peptic ulcer. It will also be recalled that these seasons of the year include the periods during which epidemic infectious diseases are most prevalent. In view of Dr. Rosenow's investigations, infection of the gastric mucosa by microorganisms might occur at these periods during the course of the disease. In the case of ulcers already existing, reinfection may occur and the process be lighted up. The acid reaction of the stomach is no criterion of its bacterial cleanliness. I have shown this by my study of the findings in more than 7,000 consecutive test-meals. In the majority of the gastric-ulcer cases, there is a possibility of finding foci of infection elsewhere. Studying 1,500 peptic ulcers, I find that in more than 60 per cent. coincident or earlier infection of the gall-bladder or appendix could be noted. In cases of cholecystitis, with or without stones, there was pancreatitis in 12.5 per cent., and in common-duct obstruction, pancreatitis was noted in more than 28 per cent. of instances. It should be emphasized that cleaning up a local focus, as in the mouth, does not guarantee that patients will recover from damage that has already been done in the extensive area of the gastro-intestinal tract.

Dr. **E. Libman**, New York: The occurrence of exacerbations in cases of duodenal ulcer following so-called colds has been particularly emphasized by Hershell of London. In trying to establish a diagnosis between duodenal ulcer and cases of functional disturbance a history of such occurrence is of value. I was interested in Dr. Rosenow's statement that he is not willing definitely to accept the organism described in connection with Hodgkin's disease as being the cause of the disease. Dr. Celler has made a study of a number of cases of various forms of diseases of lymph-nodes and has found the bacillus not only in cases of Hodgkin's disease, but also in other diseases of the lymph-nodes, and particularly in two cases of typical tuberculosis. Apart from that, the *Streptococcus viridans* has been found in lymph-nodes in cases of Hodgkin's disease as well as in other lymph-nodes. Complement-fixation tests made by Dr. Olitsky in cases of Hodgkin's disease have proved to be absolutely negative in all instances. These findings lead us to be careful before accepting the organism as being the etiologic factor in the disease and make us keep in mind the question of latent microbism. There is no doubt that Dr. Rosenow has produced definite mutations in the streptococcus-pneumococcus group. As regards Dr. Rosenow's statement that the organisms from a certain type of infection cause, at least for a time, the same lesions in animals as in man, some work done by Drs. Rothschild and Thalhimer indicate that exceptions occur. They succeeded in 50 per cent. of the inoculated animals, in producing arthritis with recently inoculated strains obtained from cases of subacute endocarditis in man. Pericarditis has been found in animals inoculated with the same organisms and this is a very unusual phenomenon in the disease from which the organisms are obtained.

Dr. **James M. Anders**, Philadelphia: These two papers rivet the attention of the profession especially on the head as the seat of infective foci. It has long been well understood that in the case of acute miliary tuberculosis invariably an old focus exists somewhere in the body, most frequently in the lungs, from which the tubercle bacilli come. These papers emphasize the importance of a careful inspection of the mouth and throat as a part of our routine examinations of patients. If foci of inflammation are found there, they should, of course, be energetically attacked without delay. It is important to recollect that if removal of such focal infections fail to bring about a cure of the condition from which the patient may be suffering, it is not evidence to the contrary, but means, as pointed out by Dr. Billings, that hematogenous metastasis has already taken place. The American Medical Association has its Section on Stomatology, and it would be entirely proper, it seems to me, for the Section on Practice of Medicine to urge, through the House of Delegates the establishment of chairs of Stomatology in our medical colleges.

Dr. De Lancey Rochester, Buffalo, N. Y.: I wish to speak of focal infections especially of the teeth and tonsils. In three cases having teeth infections accompanied by endocarditis in which there were no manifest symptoms in the mouth, but in which the Roentgen ray showed an abscess at the roots of the teeth, when the abscess was removed the symptoms subsided and the patients improved clinically. The organism found was the ordinary streptococcus pyogenes. I have had four cases which have impressed on me the importance of having the tonsils completely removed in cases of infection. The danger of an incomplete operation is illustrated in one case in which the toxic process had gone too far before the trouble was recognized. The patient was a woman who gave a history of rheumatism, multiple arthritis and endocarditis which had been treated in the hospital for two weeks. She improved under the salicylates and got up. Later she had a recurrence, ushered in with a temperature of 104.5 F. and her pulse was uncountable. She gave a history of having had a tonsil operation ten years before. There was also a history of sore throat and an exudate over the tonsils. The condition of the patient was so serious that she could not be operated on. She died of severe systemic toxemia, in all probability due to infection from the tonsils.

Dr. Alfred Stengel, Philadelphia: Dr. Rosenow's statement with regard to the cause or the part played by the organism in Hodgkin's disease was very conservative. He said that we are not sure of the relation of the diphtheroid organism to Hodgkin's disease, but it seems to me that we are sure that this organism is the specific organism of Hodgkin's disease. I have only four cases of such infection to report: one of endothelioma; chronic simple inflammation of the glands; one of lymphoid enlargement in a patient with rheumatoid arthritis, and lastly another rheumatoid case not easily classified.

Dr. J. Birney Guthrie, New Orleans: Has Dr. Rosenow applied his technic in finding the cause of the short fevers of obscure origin in children, which are accompanied by lymphatic enlargement—the so-called glandular fevers? These symptoms of unexplained fever and lymphatic enlargement are quite common in children and it would be interesting to have this method applied to their investigation.

Dr. Harvey D. Wood, Fayetteville, Ark.: Owing to the rapid progress that has been made in our knowledge of the cause of inflammation and infection, I believe the time has come when the definition of the termination "itis" should be made to include infection as well as inflammation. Since listening to Dr. Billings' paper and the following discussion I have been more than ever fully impressed with the need of a more comprehensive definition of this termination. The phenomena of seasonal recurrences and exacerbations of ulcer, due to infection, have been so clearly set forth in this discussion that it gives us a better understanding of many pathologic processes. The infection that comes from the bite of the infected bedbug is now thought by some, who are doing special work on this line, to be the cause of pellagra. This disease has its period of exacerbation in the springtime, when this pestiferous insect begins to get busy. Should this prediction prove to be the true source of the pathology of this disease, there are many persons whose minds will be relieved from the fear of having this malady.

Dr. Frank Billings, Chicago: In our group of workers we know that Dr. Rosenow is dependable. He has an opportunity to study disease clinically. The diphtheroid bacillus has been successfully cultivated from the enlarged lymphnodes of about forty, and from the blood of five patients with Hodgkin's disease. These five had fever. The histology of the glandular tissues varied from typical Hodgkin's to simple lymphocytomas, lymphosarcoma and tuberculosis. In one lymphosarcoma the organism could not be cultivated. Many of these patients have received the autogenous vaccine subcutaneously in the dosage of 10,000,000 to 1,500,000,000, usually repeated once a week. Two have received the vaccine in large doses intravenously. Used subcutaneously there is no recognizable general reaction. Intravenously, general reaction has been noted; fever, rapid pulse, general discomfort, headache, etc. Practically all patients have also been treated with efficient roentgenization. In the chronic nonfebrile cases the vaccines and roentgenotherapy seem to produce better results than the Roentgen ray alone. We are now preparing a report on the series of patients. Dr. L. Hektoen will report the histopathology of the glands, Dr. Rosenow will give the bacteriology and I shall prepare the clinical data. We are now attempting to immunize a horse with mixed strains of the diphtheroid bacillus. If successful we shall add the serum to the treatment.

Dr. E. C. Rosenow, Chicago: One word as to the importance of foci of infection other than those of the mouth. I recently saw a patient in Dr. Billings' service who had a rheumatic endocarditis, pericarditis, etc., which apparently was the result of an infected ingrowing toe-nail. The toe was operated on, the streptococcus isolated and the disease reproduced in dogs and rabbits. Another patient had a severe rheumatism including pericarditis and endocarditis which began ten days after a crushing injury of the thumb. Again the disease was reproduced with the streptococcus isolated from the wound on the thumb. I am sorry that I am not prepared to say what the cultures of the glands show in the short fevers in children with glandular enlargement. I believe that the glands in these cases contain bacteria which are the cause of the disease. Streptococci were isolated from the glands in seven of the cases of Hodgkin's disease. It is quite well known that ulcers heal more quickly in the cardiac end of the stomach than in the pyloric end or duodenum. This is generally believed to be due to mechanical causes, but if streptococci play a rôle in the etiology of ulcer, as seems likely, why might not this be due in part to a greater bactericidal power of the mucous membrane of the former because acid-secreting, than that of the pylorus and duodenum in which no acid cells are present? The infectious nature of ulcer would best explain the seasonal exacerbations and the recurrences which come without known cause, the recurrences taking place when the immunity of the blood from a previous attack has disappeared. The most important factor in the management of ulcer of the stomach—the recognition and removal of various foci of infection—has been overlooked in the past. Proper regard of this point should reduce the incidence, percentage of recurrences and earlier healing of ulcer of the stomach and duodenum.

Good Roads Prevent Disease.—Few persons, on first thought, would see any possible connection between good roads and good health. Yet the State Board of Health of Kansas says that good roads can and will prevent disease. How? By the removal of weeds and trash. Weeds and trash prevent the prompt evaporation of moisture and promote retention of ground water. These make ideal breeding spots for mosquitoes, flies and other disease carriers. . . . Good roads also prevent disease by providing good drainage. Many farms have no means of drainage except by ditches along roadways. Open ditches, clear of brush and debris, with hardened surface and proper fall, afford these farms the opportunity of ridding themselves of many a stagnant pool. . . . Road-oiling in itself is destructive of insect larvae, especially mosquitoes—a well-known fact. Dry roads offer pedestrians and notably children who are compelled to walk to and from school, dry shoes and feet. . . . Good roads are active disease prevention agencies, aside from their financial and commercial value.—*Monthly Bull. Ohio State Board of Health.*

GASTRO-INTESTINAL STUDIES

II. THE FRACTIONAL STUDY OF GASTRIC DIGESTION WITH A DESCRIPTION OF NORMAL AND PATHOLOGIC CURVES*

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AND
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PHILADELPHIA

For years the experiments of Pawlow[1] and his school seemed to be the last word in the study of digestion, and the results which they obtained on dogs with fistulas and lesser sacs were unqualifiedly applied to man. With the exception of comparatively isolated instances such as that of Alexis St. Martin and others, the only information regarding the human stomach was obtained by means of the stomach-tube and Roentgen-ray examinations.

Owing to the bulk of the stomach-tube and the marked discomfort occasioned by its use, it was impossible to follow the whole cycle of digestion and estimate step by step the exact changes which took place in the stomach after the introduction of a definite stimulus such as various foods. It is true that Hayem[2] was tireless in the application of the tube and attempted to remove specimens at intervals; but the irregularity of these periods and the inability to obtain subjects who would submit patiently to the repeated introduction of the tube were not the least among its objections. The wonder is that he accomplished as much as he did.

Fundamentally we have accepted Pawlow's statements until most of them have become unquestioned, but there is much to be said against results obtained by his procedures. Bourget,[3] the French clinician, is not the only one who protests energetically against the application *sans question* of the results of animal experimentation to man. He says that the physiologist has a tendency to forget that the results which he registered are due to a function perverted or impaired by operative trauma such as fistulas or diverticula. The clinician should take them seriously into consideration, and study them with care, but by no means conclude that they are to be accepted unquestioned. Says Bourget, furthermore, "The physiology of digestion will not make any real progress from a clinical aspect until we have learned to use the sound to determine digestion under the most diversified conditions, but always with the stomach non-traumatized." Much can be said on the basis of this work to support that contention.

We have used a method which one of us[4] devised and which has been described elsewhere by which it is possible to follow the entire cycle of gastric digestion with practically no discomfort and by which it is possible at any given moment to draw off any or all of the juice secreted in sufficient quantity to perform the necessary chemical examinations. We have already discussed[5] the inadequacy of the ordinary stomach-tube and substantiated the statements of Harmer and Dodd[6] that the stomach-tube does not remove completely the gastric contents. The principle of our tube is entirely that of gravity and the tip is sufficiently heavy to seek the lowest portion of the stomach. Furthermore, it is slotted in such a way as to permit the aspiration of a representative sample of the gastric juice. These perforations represent the maximum bore of the rubber tubing. The instrument is inserted[7] and left in the stomach for hours until the gastric cycle is completed.

We commenced our studies on healthy medical students and later performed the same test on hospital patients. Our studies represent in all over 100 cases. We used the straight Ewald meal consisting of two pieces of toast and 10 ounces of tea, 2 ounces of which were reserved to wash down the tube, although this was not necessary. The tube was introduced at the close of an Ewald meal and specimens collected every fifteen minutes. (During the first fifteen-minute period, specimens were collected at five-minute intervals.) This collection at fifteen-minute intervals was continued until the close of digestion, which was marked as pointed out elsewhere[5] by (1) the failure to aspirate any further material; (2) the character of the preceding specimens; (3) the character of the murmur elicited by inflating through the tube and auscultating over the stomach, and (4) lavage, which enabled us to determine the presence of any food residues and their quantity. At first 10 c.c. specimens were obtained, but unless this material was thick, it was found that from 6 to 8 c.c. were sufficient for analysis.

Our method of analysis was that of Bourget's.[8] The filtered material was collected and 1 c.c. measured off with an Ostwald graduated pipet. Titration was performed with hundredth-normal sodium hydroxid, phenolphthalein being used as an indicator for total acid and dimethylaminoazobenzene and the Sahli iodin method[9] for free acid. The pepsin determinations were made by diluting 1 c.c. of each sample with 9 c.c. of 0.2 per cent. hydrochloric acid in a test-tube and adding Mette tubes prepared by the Christiansen[10] method. The entire series of tubes was placed in the incubator for twelve hours, and the quantity of albumin digested was read off with the aid of a steel scale graduated in millimeters, and a dissecting-microscope.

Medical students absolutely free from any general or gastro-intestinal manifestation were selected as subjects and curves constructed from the data obtained as indicated above. It soon became evident that there was no such thing as a specific isolated curve, deviation from which indicated some pathologic condition. The following phases were considered of importance in the interpretation of the curve:

1. The period of "ascension." This usually occupied the first thirty minutes and indicated the rapidity and intensity of the response to a known stimulus.
2. The character and height of the high point or "acme," whether (*a*) accelerated or (*b*) retarded, and whether (*a*) abrupt or (*b*) sustained.
3. Period of descent or decline.
4. The character and modification of the food residues.

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* From the Laboratory of Physiological Chemistry of Jefferson Medical College.

[1] Pawlow: The Work of the Digestive Glands, 1910.

[2] Hayem: Maladies de la tube digestive, Brouardel and Gilbert, 1905.

[3] Bourget: Maladies de l'estomac, 1913, Ed. 1, p. 3

[4] Rehfuss: Am. Jour. Med. Sc., June, 1914, p. 848.

[5] Rehfuss, M. E.: Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies: I. The Question of the Residuum Found in the Empty Stomach, The Journal A. M. A., July 4, 1914, p. 11.

[6] Harmer, T. W., and Dodd, W. J.: Sources of Error in the Use of the Stomach-Tube for Diagnosis, Arch. Int. Med., November 13, 1913, p. 488.

[7] Rehfuss: New York Med. Jour. (to appear).

[8] Bourget: Maladies de l'estomac, 1912, p. 57.

[9] Sahli: Diagnosis, Ed. 1913.

[10] Christiansen: Ztschr.. 1912. xlvi. 257.

The significance of all these points can be developed only in the course of a large number of cases, and the importance of many points is still obscure. We can simply go on record as registering facts which we observed and attempt to interpret them to the best of our ability.

We found that healthy medical students reacted to the Ewald meal in one of three ways:

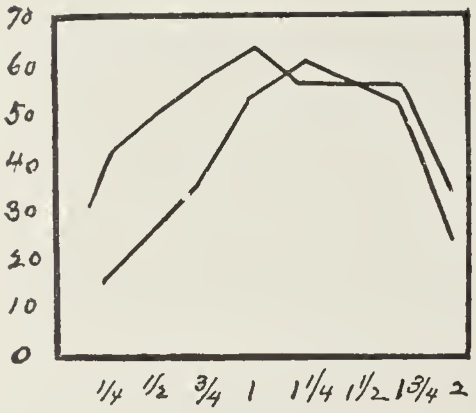

Chart 1.—Isosecretory curves.

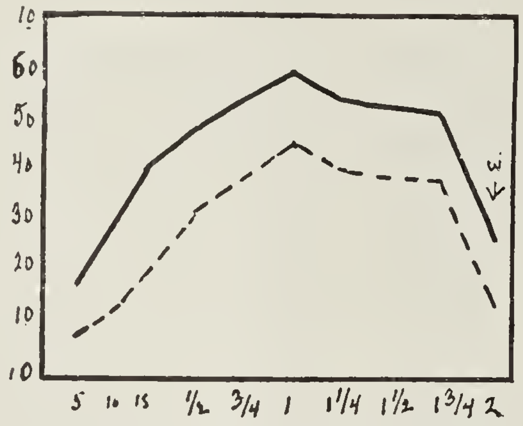

Chart 2.—Isosecretory curves. Solid line, total acidity; broken line, free acidity.

TABLE 1.—ANALYSES IN TWO CASES OF THE ISOSECRETORY TYPE

Case 1

Time	Total Acidity	Free Acidity	Mette
5 min.	20.0	10.0	2.2
10 min.	30.0	15.0	2.25
¼ hour	44.0	....	....
½ hour	50.0	34.5	....
¾ hour	57.0	39.0	....
1 hour	62.5	47.5	3.24
1¼ hours	55.0	41.5	3.24
1½ hours	34.5*	23.5	....
1¾ hours	56.5	40.5	4.41
2 hours	30.0	19.5	2.56

Case 2

Time	Total Acidity	Free Acidity	Mette
20 min.	14.5	6.5	0.04
30 min.	41.5	31.5	3.24
¾ hour	40.0	29.5	4.00
1 hour	53.5	42.5	5.76
1¼ hours	51.5	38.5	4.84
1½ hours	48.5*	38.5	5.60
1¾ hours	....	....	....
2 hours	42.0	29.0	7.84
2½ hours	39.5	21.5	7.29

The asterisk (*) indicates passage of the tube into the duodenum which had to be controlled.

1. The "isosecretory" type shows a steady rise, high point, in terms of tenth-normal sodium hydroxid, 60, usually sustained for from half an hour to an hour, and then a gradual decline with total disappearance of the food residues in from two to two and one-half hours.

This curve is usually steady and unbroken; its high point is usually rounded and not abrupt, and is to be found in the neighborhood of one hour. Charts 1 and 2 represent such cases. The results of the analysis of two cases are given in Table 1.

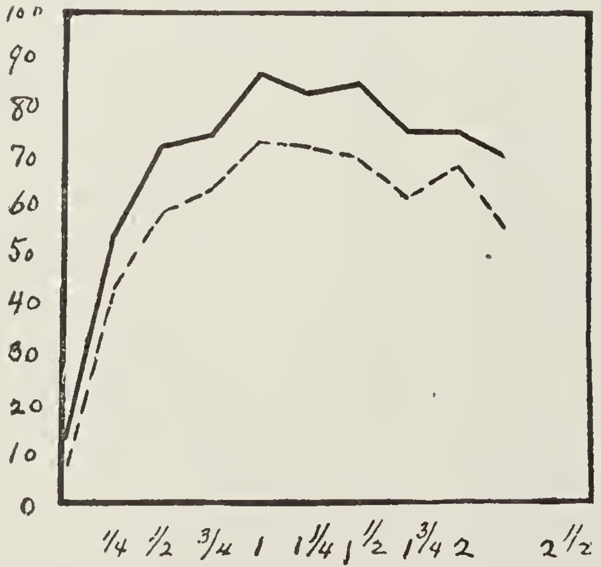

Chart 3.—Hypersecretory curve.

2. The "hypersecretory" type shows a rapid response to stimuli, often a marked change in the acidity even of the five-minute samples, rapid increase in acidity, high point from 70 to 100 or over, either sustained or abrupt, and a slow decline or none at all in the usual time. The food left the stomach in normal time from two to two and one half hours, but even after the passage of all food material there was often encountered an outpouring of pure gastric juice for half an hour, one hour, or even several hours. This finding, which was obtained in many cases, is so pronounced and distinct that we call it a "continued digestive secretion" in contradistinction to "hypersecretion," because it occurs in normal symptomless persons. This type we call the "hypersecretory" type because of the general tendency of the acidity to assume exaggerated proportions.

Charts 3 and 4 are representative of this type, and the results of the analyses of two cases are given in Table 2.

These represent but two of a series of such curves in which the tendencies described were pronounced and the "continued" secretion was quite prominent. Several cases in which the acidity approached that seen in the isosecretory type likewise showed this phenomenon.

3. The third or "hyposecretory" type is similar to the first, but there is usually a slower ascent, slower response to stimuli, and a high point from 40 to 50. Digestion is usually completed in two and one-half hours. This is the type least frequently encountered. Instances are given in Chart 5 and Table 3.

A consideration of the curves from the examination of normal persons indicates that there is no normal curve which will hold for all cases. We believed that there might be such a curve but found that men in every way free from gastro-intestinal disorders reacted in one of these three ways. Two of the hypersecretory type never had a day's illness in their lives, and but one of the entire series, a hyposecretory case, was somewhat prone to constipation. Two of the hypersecretory type were rather heavy meat-eaters, and several of the other two types indulged rather heavily in carbohydrates, but all were healthy, symptomless and free from any such disorder; furthermore, there was no marked variation from the regulation diet.

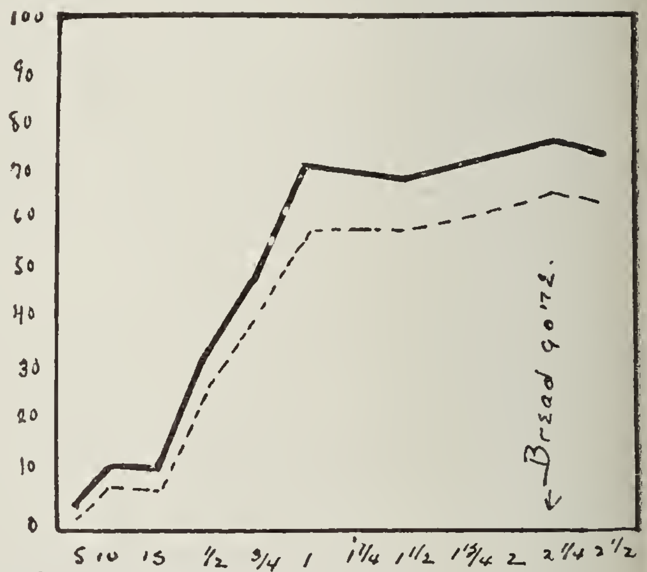

Chart 4.—Hypersecretory curve. Solid line, total acidity; broken line, free acidity.

It will be noted, and study of cases which have not been reported seems to demonstrate, that while normally there are marked variations in acidity, there is little variation in the motor power in health. Even high acidity may occur without any depreciation in motor tone. These facts are of the greatest importance and contrast strongly with the findings in disease. Furthermore, figures are frequently obtained indicating the strongest acidity (100 and over) when there were absolutely no subjective symptoms. This is worthy of further investigation inasmuch as it is questionable whether hyperacidity *per se* is to be blamed for all the harmful effects credited to it. We are engaged in a study of this problem and hope to report further results along this line. The continued secretion is still more difficult of explanation and we believe that we are the first to have demonstrated that this phenomenon is associated with a certain group of individuals, by no means small, who have every right to be described as normal. Alimentary hypersecretion as described by Elsner, Strauss, Boas, Zweig and others is a pathologic state attended usually with definite symptoms, loss of weight, constipation and a great variety of neurotic symptoms and is different from that which we have described which occurs in strictly normal persons. Chronic hypersecretion nearly always, at least in the minds of a great many practitioners points to an irritative lesion of the mucosa, most frequently ulcer. This continued secretion, however, occurs usually after the passage of food-material from the stomach, and further aspiration reveals the presence of an almost pure juice containing little or no food particles but often of high acid values. We believe that this condition is intimately linked with "alimentary hypersecretion" and "chronic hypersecretion," and it is probable that in a person showing the continued secretion, the addition of an associated organic lesion can produce the pathologic secretory states.

TABLE 2.—ANALYSES IN TWO CASES OF THE HYPERSECRETORY TYPE

Case 3

Time	Total Acidity	Free Acidity	Mette
5 min.	16.5	11.5	1.21
10 min.	31.0	23.0	1.69
15 min.	53.5	41.0	2.80
½ hour	73.5	58.5	5.76
¾ hour	75.0	62.0	6.25
1 hour	86.0	72.0	....
1¼ hours	82.0	71.0	7.84
1½ hours	83.0	69.0	6.25
1¾ hours	74.5	62.0	6.25
2 hours	74.0	68.0	9.00
2¼ hours*	69.5	55.0	11.56
2½ hours	74.0	60.0	4.41
2¾ hours	82.5	66.0	5.29
3 hours	78.0	65.0	6.76
3¼ hours	80.0	64.5	6.76

Case 4

Time	Total Acidity	Free Acidity	Mette
5 min.	6.0	3.5	.6
10 min.	12.5	9.0	.7
....	....	....	....
½ hour	35.5	29.5	1.5
¾ hour	51.0	29.5	1.5
1 hour	74.0	43.0	2.0
1½ hours	72.5	61.5	2.4
2 hours	49.0†	43.0	2.3
2¼ hours	79.5	68.5	2.7
2¾ hours	97.0	83.0	2.9
3 hours	99.0	88.0	2.7
3½ hours	74.5	66.0	2.5

† Bile present, indicating the passage of the tube into the duodenum.
* All food has left the stomach.

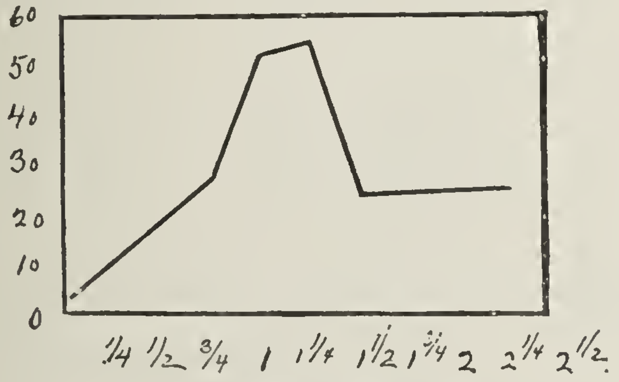

Chart 5.—Hyposecretory type.

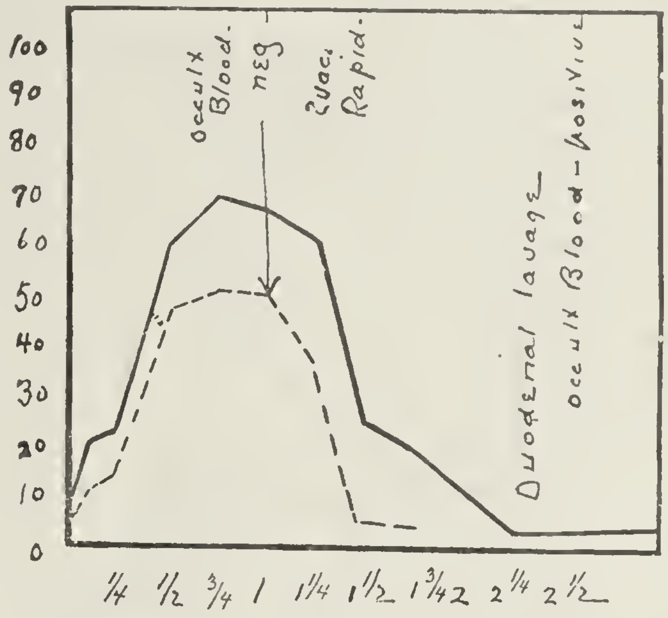

Chart 6.—Curve in a case of duodenal ulcer.

TABLE 3.—ANALYSES IN TWO CASES OF THE HYPOSECRETORY TYPE

Case 5

Time	Total Acidity	Free Acidity	Mette
5 min.	4.5	1.5	0.1
10 min.	6.5	....	....
15 min.	8.5	3.5	.25
½ hour	21.5	15.0	1.21
¾ hour	28.0	21.5	1.69
1 hour	51.5	44.0	5.29
1¼ hours	54.0	45.0	9.0
1½ hours	24.0	11.5	6.25
1¾ hours	26.0	14.0	....
2 hours	26.0	18.0	9.00

Case 6

Time	Total Acidity	Free Acidity	Mette
5 min.	0.00	0.00	....
10 min.	0.00	0.00	....
15 min.	6.5	2.5	1.44
½ hour	34.5	24.5	2.89
¾ hour	43.0	31.0	2.25
1 hour	47.5	33.5	4.0
1¼ hours	46.5	30.0	4.84
1½ hours	58.5	39.0	5.76
1¾ hours	55.0	35.0	6.25
2 hours	49.0	33.5	6.25
2¼ hours	35.5	21.0	3.61

An important question might be asked: Can we obtain the same curve on succeeding days in the same person under the same conditions? Our experiments have demonstrated that there are many complex factors regulating the human gastric secretion. That physical condition, occupation, diet, environment, mental condition, tobacco, all play a part we are convinced. We find that an Ewald meal if it will not give the exact figures obtained on the preceding day, will show identically the same type of curve, and it is the establishment of the type which is the important thing. This type persists whether the stimulus be an Ewald meal, water or meat, and the resultant curve shows the same general tendencies in the secretory output. This holds for the different stimulating substances which we used. We can therefore account for the variations in acidity figures obtained by clinicians on different days; but if the entire cycle of digestion is followed, the same type of curve will be obtained. We cannot emphasize the importance of this fact too much, inasmuch as we believe that these types indicate certain tendencies. The pepsin content seems to increase up to a certain point, usually with the increase in acidity. That it is not directly proportional to the acidity is evident from the tables given under the hypersecretory type.

In the analysis of the curves many points must be considered. This method not only gives us a complete picture of secretory activity, but it also enables us to follow the evacuation of the material from the stomach and obtain an accurate index of its motor tone. Pathologically we can obtain an exaggeration or diminution of any or all the phases. We see likewise a prolongation of certain phases, particularly the descent out of all proportion to the normal. Furthermore, the character of the specimens is different, and added factors come into play such as mucus, blood, bacteria, food stagnation from previous meals, presence of organic acids, and distortion of the normal total and free acid ratio, each of which can be followed through the separate specimens. Our studies in pathologic cases are necessarily incomplete. To obtain data of value, many cases must be observed and compared. We feel the necessity of extended study along these lines, but wish merely to indicate the results obtained in certain conditions:

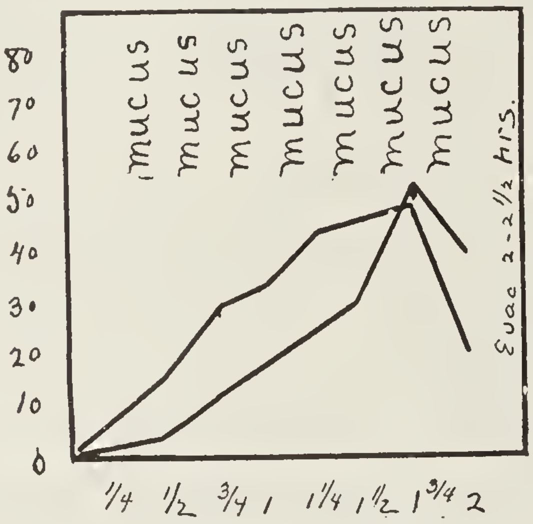

Chart 7.—Curves in two cases of chronic gastritis.

1. Two cases of duodenal ulcer: one undoubted, tender point, hunger-pain, persistent occult blood in the movement, the other with the same symptoms, tender point less pronounced, occult blood in the movements and in the duodenal lavage, not found in the stomach contents. The findings were as follows (Chart 6): (*a*) a rapid rise in half an hour; (*b*) distinct rather abrupt hyperacidity; (c) rapid decline; (d) rather rapid evacuation of food in one and three-fourths hours; (*e*) In one case hypersecretion, and (*f*) no occult blood in the gastric contents. The rapid evacuation is in keeping with the Roentgen findings in 40 per cent. of the cases. These cases are too few to judge the type of curve, but further work should yield interesting findings.

TABLE 4.—ANALYSES IN A CASE OF DUODENAL ULCER

Time	Total Acidity	Free Acidity
5 min.	8.5	4.0
10 min.	21.0	11.0
15 min.	25.0	17.0
½ hour	60.0	48.5
¾ hour	70.0	51.5
1 hour	69.5	51.5
1¼ hours	52.0	36.5
1½ hours	23.5	9.0
1¾ hours	20.0	7.5

2. Eight cases of gastroptosis which seem to indicate that there is no one type of curve or a single tendency in the elaboration of the secretion. On the hypersecretory, isosecretory and hyposecretory conditions are found engrafted depending on the inherent tendency, the acquired and associated pathologic states of the mucosa. In the true Stiller type with generalized myasthenia there is a tendency to a late high point and impaired motility. Frequent small meals and tonic measures, including systematic exercises and a sea voyage, resulted in a total disappearance of subjective symptoms and an improvement in the curve as shown in the following case: The first curve showed a total acidity of 38 at one hour, 58 at one and three-fourths hours, a delay in motility to over three hours and hypersecretion. After the sea voyage, hypersecretion was still present, but the curve had practically reached its height in one hour, with a total acidity of 61, and remained sustained until the cessation of digestion in two and one half hours. There was still present, however, a hypersecretion. We believe that the study of the curve in these cases is of the greatest value from a therapeutic point of view, inasmuch as it enables us to appreciate the tendencies at work.

3. Four cases of chronic gastritis, with mucus in all samples, particularly the later ones, figures within normal range but usually low, evacuation normal, curve unbroken, high point late and slow in appearing (Chart 7 and Table 5).

TABLE 5.—ANALYSES IN TWO CASES OF CHRONIC GASTRITIS

Case 7			Case 8		
Time	Total Acidity	Free Acidity	Time	Total Acidity	Free Acidity
10 min.	1.5	.0	10 min.	2.0	.0
15 min.	7.5	4.0	20 min.	4.0	.0
½ hour	16.5	7.5	½ hour	5.5	trace
¾ hour	32.0	29.0	¾ hour	12.5	3.0
1 hour	36.0	27.5	1 hour	....	....
1¼ hours	46.0	36.0	1½ hours	30.0	13.0
1½ hours	48.0	37.5	1¾ hours	54.0	32.0
1¾ hours	49.5	40.0	2½ hours	41.5	28.0
2 hours	21.5	....			

In Chart 8 and Table 6 is given the record of a case of hypo-acidity, atony and gastric catarrh showing distinct impairment of motility with very slow and retarded elimination of acid. There was outpouring of little acid and there were no previous food residues.

TABLE 6.—ANALYSES IN A CASE OF HYPO-ACIDITY

Time	Total Acidity	Free Acidity
10 min.	6.0	2.5
20 min.	6.5	4.0
30 min.	6.5	4.0
40 min.	8.0	5.5
50 min.	9.5	6.5
60 min.	10.5	8.5
70 min.	13.5	9.5
80 min.	17.0	11.0
2½ hours	20.0	16.0
3 hours	17.0	14.0

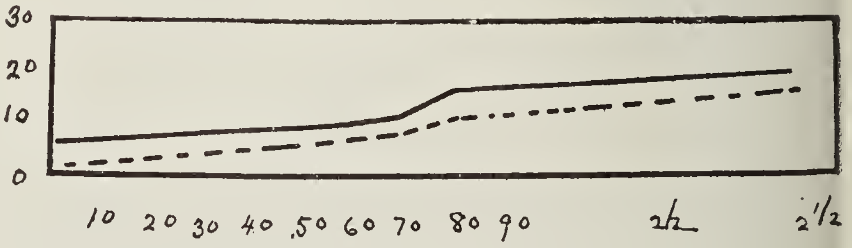

Chart 8.—Curve in chronic gastritis marked by hypo-acidity with impairment of motility.

4. Three cases of cholelithiasis with typical history, in which the attacks were followed by jaundice, one patient was operated on for gall-stones with recurring symptoms. The findings (Charts 9 and 10 and Table 7) were: (*a*) a late hyperacidity; (*b*) normal evacuation; (*c*) rapid decline; (*d*) no microscopic or chemical evidence of stagnation or inflammation, and

(*c*) occult blood negative in different gastric samples and in feces. These findings, together with the anamnesis, should enable one to make the diagnosis.

TABLE 7.—ANALYSES IN TWO CASES OF CHOLELITHIASIS

Case 9, Hypersecretion			Case 10		
Time	Total Acidity	Free Acidity	Time	Total Acidity	Free Acidity
5 min.	5.0	.0	5 min.	5.5	3.0
10 min.	7.0	2.0	10 min.	5.(saliva)	....
15 min.	12.5	8.5	15 min.	25.0	13.5
¾ hour	45.0	23.0	½ hour	28.5	22.5
1 hour	65.0	40.0	¾ hour	51.0	36.0
1½ hours	72.0	46.0	1 hour	70.0	45.0
2 hours	73.0	57.0	1½ hours	75.0	59.0
			2 hours	58.0	44.0

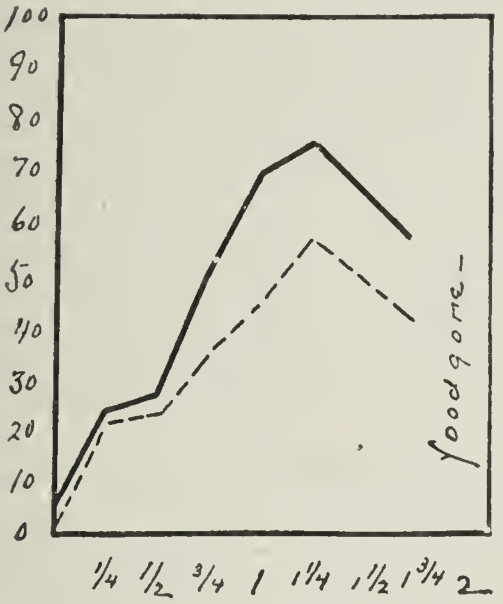

Chart 9.—Curve in cholelithiasis.

The tenderness over the gall-bladder region, the rapid evacuation, lack of gastric findings, symptoms, and pain independent of food, together with jaundice after the attack, enabled us to make a diagnosis in one of the cases. Diagnosis was unconfirmed by operation. In another case, old, operation was performed with removal of stones; drainage was employed, but there was recurrence of symptoms (adhesions?). Tetrachlorphthalein test in one case, although not conclusive, seemed to indicate some hepatic insufficiency.

5. Two cases of suspected neoplasm.

Case 11.—There were pain, some epigastric tenderness four months in duration, loss of appetite and loss of weight, and no palpable tumor, in a woman past 50. This case showed no free acid, a total achylia without presence of pepsin or rennin, no lactic acid, no Oppler-Boas, doubtful occult blood reaction which on subsequent examinations was absent, negative Wolff reaction, albumin was found only in dilutions up to 1 : 80, and antipyrin reaction of the blood-serum was negative. Roentgen examination was absolutely negative as well as a physical examination, and on the basis of these findings the case was not considered one of malignancy. Pain has subsequently disappeared and the patient has gained 6 pounds by treatment. In this case is shown (Table 8, Chart 11) the rapid evacuation of the stomach in achylia.

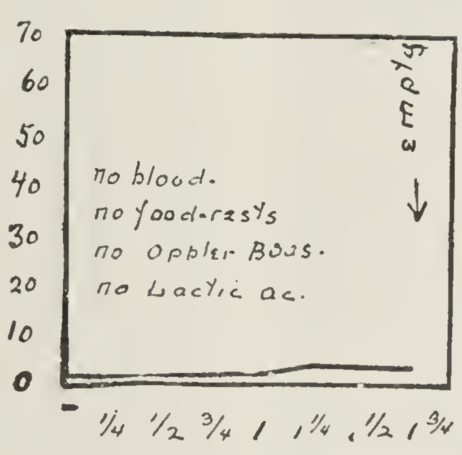

Chart 11.—Curve in achylia gastrica

Case 12.—There was marked subacidity; there was no free hydrochloric acid; enzymes were present, bile was persistently found in lavage, and there was a slow loss of weight, but of several years' duration. The distinct curve, undiminished pepsin content, absence of residue or occult blood indicated absence of neoplasm. Intestinal adhesion was the likely diagnosis, and fluoroscopy by Dr. Pancoast showed an adhesion probably from the old gall-bladder scar to the duodenum.

Subsequent examinations have proved the correctness of the diagnosis, there being a constant reflux of bile in the stomach from adhesions right below the bile-duct.

TABLE 8.—ANALYSES IN CASE 11

Time	Total Acidity	Free Acidity
20 min.	1.0	.0
30 min.	3.0	.0
¾ hour	2.5	.0
1 hour	1.0*	.0
1¼ hours	4.0	.0
1½ hours	4.0	.0

* Saliva in sample.

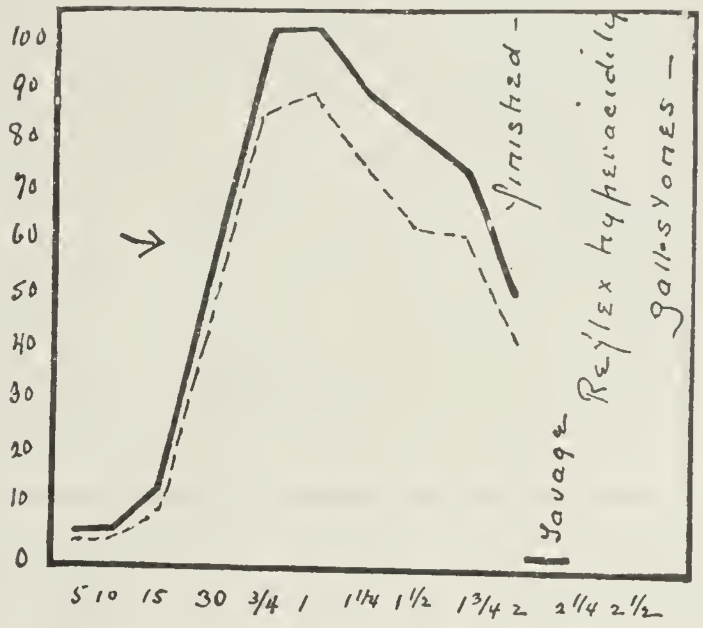

Chart 10.—Curve in reflex hyperacidity with gall-stones.

TABLE 9.—ANALYSES IN CASE 13

Time	Total Acidity	Free Acidity
5 min.	1.0	.0
10 min.	32.0	trace?
15 min.	2.0	.0
½ hour	15.0	.0
¾ hour	29.0	.0
1 hour	6.0	.0
1½ hours	15.0	.0

6. Two cases of carcinoma.

One (Case 13) operated on for annular carcinoma of the pylorus by gastro-enterostomy showed the very irregular results given in Table 9 probably due to the irregular working of the enterostomy. There was a trace of free acid in the second specimen but it could not be titrated. Throughout all the specimens were found blood, lactic acid and Oppler-Boas bacilli in large numbers as well as a variety of other organisms. Wolff test was positive at a dilution of 1 : 320.

The other case was a tumor on the lesser curvature, only partially obstructive, producing slight dilatation, and a gradually increasing curve up to 55; occult blood was distinctly positive.

7. A case (Case 14) with ulcer history and hyperacidity, symptoms improved on medical treatment. This case shows a typical hypersecretory curve, with hypersecretion with delayed motility, fat and vegetable residues from a meal ingested twelve hours previous to examination. Occult blood was negative. The case was probably one of healed contracted ulcer.

A study of this case alone is most interesting as it exemplifies what can be demonstrated by the fractional method. The individual in question had an old ulcer history which was cleared up by medical treatment. At times he has outbursts of hyperacidity. The administration of an Ewald meal at 2 o'clock in afternoon six hours after a small breakfast gave the curve demonstrated in Tables 10 and 11 and Chart 12. At five minutes there is a distinct free and combined acid. This is not due to newly formed acid but to the hypersecretion which was present in minor degree. A new curve commences, rapidly attaining its maximum, indicating excessive irritability of the glandular mechanism, and the specimens obtained, very liquid, show the excessive amount of juice poured out. Toward the end of the first curve every specimen shows large amounts of free fat ingested at the meal six hours before, and microscopic examination shows many vegetable fibers ingested about eighteen hours before. The curve falls, but the specimens preserve their appearance with a lessening amount of food débris and the outpouring of pure acid. Although the stomach was not empty at two and one half hours, it was of interest to see what effect the ingestion of water had in such cases. A new curve commences immediately, having the same general characteristics as the former curve.

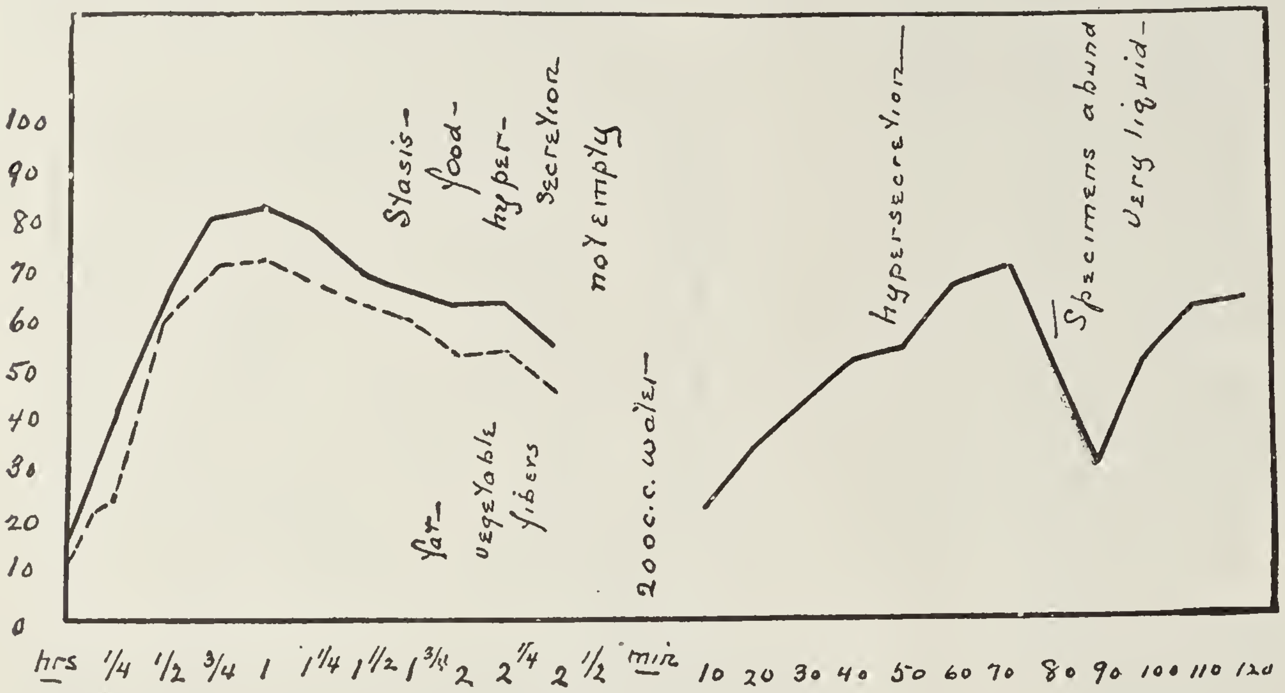

Chart 12.—Curve in healed ulcer.

TABLE 10.—ANALYSES IN CASE 14

Time	Total Acidity	Free Acidity	Mette
5 min.	17.5	13.0	1.00
10 min.	26.5	21.0	....
15 min.	42.0	26.0	1.40
½ hour	67.5	61.0	2.00
¾ hour	82.5	72.0	2.50
1 hour	83.0	74.5	2.50
1¼ hours	79.0	....	....
1½ hours	70.5	64.5	2.20
1¾ hours	67.0	60.0	2.00
2 hours	65.0	54.0	2.30
2¼ hours	64.5	56.0	2.70
2½ hours	56.0	49.5	2.10

TABLE 11.—ANALYSES IN CASE 14 AFTER THE INJECTION OF 200 C.C. OF WATER

Time	Total Acidity	Free Acidity	Mette
10 min.	21.0	19.0	1.50
20 min.	35.0	30.0	1.80
30 min.	32.5*	26.0	2.30
40 min.	51.0	42.5	3.50
50 min.	53.5	45.0	....
60 min.	68.0	58.0	....
70 min.	70.0	60.0	....
80 min.	47.5	39.0	....
90 min.	28.5	23.5	....
100 min.	54.5*	46.0	....
110 min.	62.5	53.5	....
120 min.	63.5	54.5	....

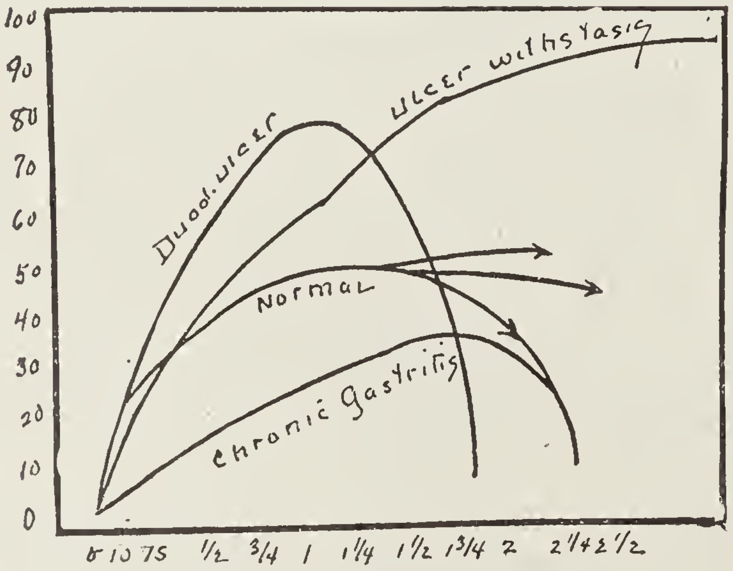

Chart 13.—Tendencies in curves.

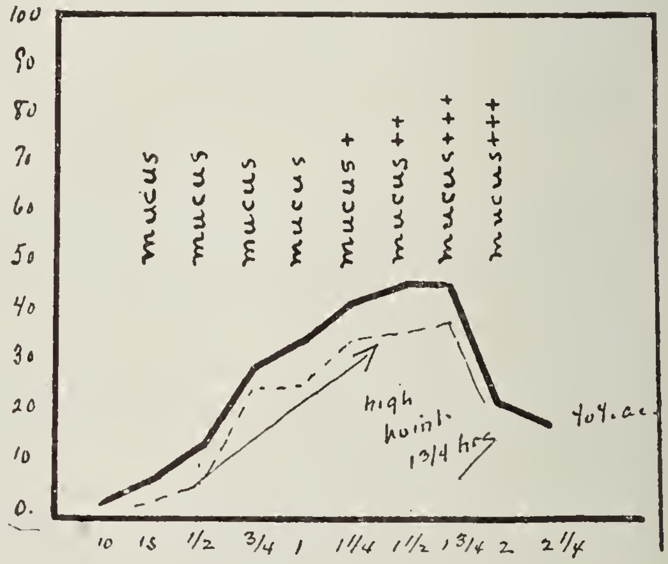

Chart 14.—Curve in chronic gastritis.

Space does not permit us to give examples of the many interesting findings in functional conditions, the significance of which we are still in ignorance. One point was repeatedly emphasized and that was the fact that the ordinary technic yields little information of value compared to this method. In the first place, it by no means records the high point in every instance, and secondly, it yields absolutely no information as to what has preceded or followed that point; in other words, it represents but one point in the ever-changing phases of the gastric cycle (Chart 13).

CONCLUSION

1. By means of the modified gastric tube, we can study the entire cycle of gastric digestion, recording both the secretory and motor activity.

2. We can construct a curve which graphically records the entire course of digestion.

3. Information as to the amount of the secretion can be obtained at any point by complete aspiration and by the character of the specimens which are obtained.

4. There is no specific curve for the normal person, but three types of curve can be found depending on

the rapidity of reaction to a given stimulus, the height of the curve and the descent of the curve.

5. These types may be termed, respectively, the hypersecretory, hyposecretory and isosecretory types, depending on their respective reaction to such stimuli.

6. Figures approximating those commonly regarded as hyperacidity are to be found in some period of the curve in a large number of normal persons.

7. A "continued" secretion is described in normal persons which is intimately linked with alimentary and chronic hypersecretion, but can be distinguished from them.

8. The value of this method in various pathologic states is emphasized and a limited number of cases are reported together with their findings.

9. The technic commonly employed for estimating gastric function is entirely inadequate, inasmuch as it indicates but one phase in a constantly changing cycle, and that phase is by no means always the high point in the digestive curve.

10. We would insist on the great advantages of this method which, correlated with the various tests performed on different samples as well as the special tests described elsewhere, enables us to make a more perfect study of the digestive cycle than has hitherto been possible.

We wish to thank Drs. McCrae, Hare and Cohen of the medical staff of the Jefferson Hospital, as well as Drs. Livingood and Wayland, the resident physicians, for their interest and cooperation in this work.

EXPERIMENTAL RESEARCHES IN METHYL ALCOHOL INHALATION *

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AND

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Notwithstanding the earnest efforts of the ophthalmologists and the various committees for the prevention of blindness, to disseminate the knowledge of the poisonous qualities and effects of methyl alcohol, it is still a lamentable fact that many members of the medical and legal professions and the vast majority of the laymen, especially the workers using it, are either ignorant of or do not acknowledge the truth. The effect on the eyes and general health from drinking wood alcohol has been proved experimentally in animals, and has been corroborated in clinical practice; but the effect from its inhalation alone on the eyes has never heretofore been demonstrated experimentally.

Although many clinical data have been collated tending to show an effect similar to the one obtained from its imbibition, many doubt and some dispute its power to affect the human organism deleteriously through inhalation alone. The wish to prove this fact, coupled with a desire in the interest of humanity to lessen the number of the blind and to conserve life, by advocating proper preventive or precautionary measures for workers using it, induced us to undertake these experiments.

Before giving them in detail, it may be of interest briefly to refer to the importance of the subject to the body politic.

We have found that there have been about one hundred cases of amblyopia and death from inhalation of wood alcohol recorded in the literature to 1912, and we are of the opinion that this constitutes a very small percentage of the total number of cases which have actually occurred, as a great many either have not been recorded, or have gone unrecognized. Of those that have appeared in the literature, the question whether inhalation alone produced the condition, has usually arisen. In conducting our investigations, we have endeavored to exclude all possibility of the entrance of the wood alcohol into the system except by inhalation, and we feel sure that we have succeeded in producing amblyopia and death in that manner, as we contemplated at the beginning of these researches.

In 1880 about 400,000 gallons of wood alcohol were manufactured, while in 1910 the amount had increased to over 8,000,000 gallons; consequently it appears that the industry has become firmly established. That being true, it is for the chemists and medical profession so to arrange for its use or composition that, while it may serve its purpose in the arts and industries, it shall not levy too heavy a toll on the artisans, and indirectly on the state by causing blindness or death. Its use is extensive, about 2,000,000 people working in trades are using it in the United States alone, and as the foregoing figures indicate, its use in increasing annually.

According to the 1904 United States Census, the following industries and trades were using wood alcohol.

Painters, glaziers and varnishers...	278,000 workers
Launderers	386,000 workers
Boot and shoemakers..............	208,000 workers
Barbers	131,116 workers
Printers and lithographers.........	155,000 workers
Woodworkers—piano, furniture, etc.	112,000 workers

About 500,000 workers divided among dye-work operators, brass-workers, cabinet-makers, gold and silver workers, harness-makers, hat-makers, leather-workers and tanners, metal-workers, photographers, book-binders, chemists, etc.

The subject is one of increasing importance on account of the new employers' liability law in New York and other states. At present it is not even mentioned specifically as a hazard, but when the importance of the effect of its inhalation is realized, cognizance of this omission must surely follow.

The manufacturers assert that even admitting that commercial wood alcohol is poisonous, the refined product known as Columbian Spirits is not. We have proved conclusively that the refined spirit is quite as dangerous as the unrefined; and indirectly more likely to destroy vision and life on account of the absence of the disagreeable odor to warn one of its presence.

Our original intention was to note the effect of methyl alcohol inhalation in chronic cases, that is, in those which had been exposed to its influence in small quantities over a long period. But the time allowed in which to prepare our paper for the meeting was most inadequate to conduct our investigations along these lines, so we were obliged to confine our attention principally to the more acute phases of the matter under consideration.

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* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in The Journal by the omission of several experiments. The complete article appears in the Transactions of the Section and in the authors' reprints.

The apparatus used in our investigations consisted of a wooden box which was 32 cm. wide, 47 cm. long and 63 cm. deep (high) with an opening on each end about 1 cm. in diameter. In one end a mica valve was very delicately adjusted, allowing air to pass out. At the other end was an attachment for tubing which could be connected with an air-tank, or copper coil, and which acted as an inlet for fresh air. The top, in which were two square glass windows, could be fastened down by eight thumb-screws. The temperature of the air in the box for the experiments averaged about 68 F., while the hygrometric readings indicated an average of about 60 per cent., thus to a certain extent constituting conditions similar to those in which some of the workers with methyl alcohol use it, for example, varnishers in beer-vats, etc.

The wood alcohol used in the experiments consisted of both the commercial and the Columbian Spirits, and they were obtained from Eimer and Amend, chemists of New York City.

RESEARCHES IN METHYL ALCOHOL INHALATION IN ANIMALS

Experiment 1.—Acute poisoning in dog. Dec. 3, 1913: A dog, male, weight 4 kg., 700 gm. (about 10 pounds), fed one hour before experiment. At 4:15 p. m. was placed in the box with 2 ounces of wood alcohol on a sponge; inlet and outlet of box open for fifteen minutes during which time dog jumped and barked, then openings were closed. Room temperature 64 F. Interior of box temperature 70 F. Dog at 4:50 p. m. was lying quietly on his side. At 5:30 p. m. box was opened, dog appeared intoxicated; fell on attempt to walk. Moved his head from side to side.

December 5: Breakfast: meat and bread, at 11:30 a. m. At 4:30 p. m. dog was placed in box with 4 ounces wood alcohol on two sponges and box closed. At 4:40 p. m. dog was lying down, abdomen up, breathing heavily. At 4:50 p. m. dog's mouth was slightly open, tongue projecting and body in a position of opisthotonos, abdomen upward, animal moving fore feet feebly. At 5:05 p. m. dog unconscious, respiration 50 per minute. At 5:25 p. m. box opened; dog taken out apparently dying.

December 8: Dog recovered in thirty-six hours, and whereas on the 5th he was dull, he now appeared lively and well. Was placed in box with 5 ounces wood alcohol; box closed at 5:10 p. m. At 5:50 p. m. dog was taken out intoxicated, breathing heavily.

December 9: Dog appeared lively and well, and remained so.

December 30: Dog was placed in box with 5 ounces wood alcohol at 1:50 p. m. At 5:10 p. m. was observed lying on right side with tongue protruding and twitching of fore legs; was taken out of box. Examination: Temperature 90 F.; eye tension, Schiötz tonometer 26 mm. Hg, although its palpation seemed much lower, tonometer reading possibly little higher due to pressure of eyelids and to contraction of lid muscles; respiration 29 per minute, labored; blood-serum not alkaline to phenolphthalein; slightly alkaline to litmus; aqueous humor not alkaline to phenolphthalein; slightly alkaline to litmus; twitching of eyelids; cornea only slightly hazy; pupils 3 mm., no light reaction; fundus of eye, optic disk congested with edema; veins dark and dilated, arteries small.

December 31: Dog apparently dying; respiration 10.

Jan. 2, 1914: Dog found dead in morning.

Remarks.—This dog had four exposures to wood alcohol inhalation, spread over a period of one month. He died after the fourth exposure. It is interesting to note the continuous movements of the head from side to side, which we venture to attribute to an irritation of the semicircular canals of the internal ear.

Experiment 5.—Effect of methyl alcohol inhalations, with and without ventilation. Dec. 18, 1913, at 4:05 p. m., a dog, weight 3,980 gm. (about 9 pounds), lively, eyes normal, was placed in box with inlet and outlet working. Through inlet air is pumped in at rate of 28 pumpings per minute under 2 pounds pressure. The air passes through a Woulfe bottle, which contains 3 ounces of Columbian Spirits. The vapor is thus forced through a copper spiral or coil placed in a pail of water, under which is a Bunsen burner to heat water and coil. After passing through coil it enters box warmed. At 5:05 p. m. dog was taken out of box lively and apparently unaffected.

December 20: Dog placed in box for twelve minutes. Experiment as before, allowing vapor to pass directly from Woulfe bottle into box without being warmed. Air-pressure 2½ pounds—26 pumpings per minute. At 5 p. m. hygrometer in box, 40. After remaining in box 5⅔ hours dog was lively, showing no apparent effect of vapor.

December 22: Condition as before. Dog in box from 12 m. to 3:30 p. m. having had 5 ounces of Columbian Spirits pumped in with no apparent effect.

December 27: Placed in box at 11:55 a. m. with 2½ ounces wood alcohol pumped in under 2½ pounds pressure; taken out at 5 p. m. lively; no apparent effect.

December 29: Through error of attendant, dog placed in box with 5 ounces wood alcohol without free ventilation. Examination at 4 p. m. found dog lying on right side, with tongue protruding, frothing at mouth, hair moist; was taken out of box. Respirations 20 per minute; deep reflexes absent; unable to stand; comatose.

December 30: Dog still comatose, lying on right side. Respiration shallow, irregular 50 per minute. Temperature 90. Eyes: tension from 6 to 8 mm., both corneae only faintly hazy; sensibility slightly diminished; pupils 3 mm. light reaction; aqueous humor not alkaline to phenolphthalein, neutral to litmus; fundus, optic disks red and edematous; arteries small, veins dark red and dilated. Blood-serum not alkaline to phenolphthalein, slightly alkaline to litmus.

December 31: Dog found dead in morning by attendant.

Remarks.—This experiment is a striking illustration showing the diminished resistance to the inhalation of Columbian Spirits when a very free ventilation was abolished. Moreover, we believe that the repeated exposures to the inhalation of Columbian Spirits (even with free ventilation) did have some effect on the dog, and that the last exposure had a quick fatal effect on account of the previous exposures.

Experiment 6.—Acute poisoning in rabbit. Dec. 13, 1913, a rabbit, weight 1,600 gm. (3½ pounds), was placed under a large bell jar with 5 ounces Columbian Spirits, and three minutes later was rubbing its nose. Respirations 50 per minute. Every seven or eight respirations spasmodic contraction of diaphragm resembling hiccup. At 4:55 p. m. respirations 32 per minute, with occasional convulsive rapid shortening of the body. Hygrometer 80. Taken from under jar at 5:05 p. m.

December 20: At 4:45 p. m. animal was placed under large jar with 5 ounces Columbian Spirits. At 5:45 p. m. respirations 40 per minute; hygrometer 70; taken out from under jar, not much effect shown.

December 23: At 3:40 p. m. animal under jar with 3 ounces Columbian Spirits. At 4:45 p. m. respirations 38; hygrometer 70; temperature in jar 68. Taken out in good condition.

December 27: At 11:55 a. m. animal under jar with 5 ounces Columbian Spirits. At 12:55 p. m. hygrometer 55; at 1:35 p. m. respirations 57. At 2:30 p. m. respirations 50. At 4 p. m. animal lying on side quietly; breathes regularly and deeply, 22 per minute. At 4:40 p. m. respirations 16;

at 4:45 p. m. respirations 4. Taken out from under jar; cornea hazy; no lid reflex; no light reflex; nose and ears cold. Temperature by rectum 90 F.

December 29: Found dead in morning. Eyes preserved in formaldehyd solution.

Remarks.—The rabbit appeared to be more resistant to the Columbian Spirits than the dog was. Coma and death came only after the fourth exposure, although relatively larger amounts of Columbian Spirits were used. The same spasmodic contractions of the body and diaphragm were noticed as in former experiments.

EXPERIMENT 8.—Acute poisoning in dog. Jan. 3, 1914, a dog, male, weight 5½ kg. (12 pounds), was placed in box at 12:55 p. m., inlet and outlet closed; 5 ounces methyl alcohol commercial. At 1:50 p. m. animal staggered about, frothing at mouth, and at 2:50 p. m. was unable to stand; at 4:10 p. m. lying on right side; respirations 25, deep and labored. Dyspnea at 4:55 p. m.; respirations 24; pulse 150; eyes, cornea clear, sensibility diminished; pupils 2 mm. contracted; no light reaction; fundus, optic disks hyperemic, with edema; arteries small, veins dark, slightly dilated. Tension, left 18.5. Aqueous humor slightly alkaline to litmus, not alkaline to phenolphthalein. Respirations short; inspiration prolonged, expiration about as one to four. Hygrometer 55; temperature in box 66 F. Dog remained in comatose condition from January 3 to 5; was found dead the morning of the 5th, lying in same position as when examined on January 3 and 4.

Remarks.—Death was produced by one prolonged exposure (four hours). The intra-ocular pressure was not low January 3, soon after the exposure, and the animal lived more than twenty-four hours, a fact which confirms previous conclusions, namely, that when the tonometer shows a normal intra-ocular pressure, the animal, though in an apparently dying condition, will live at least twenty-four hours or more, and an intra-ocular pressure below 5 mm. Hg is a sign that death will follow within twenty-four hours.

EXPERIMENT 10.—Changes in the electroconductivity in the blood of a dog produced by methyl alcohol inhalation.

Jan. 17, 1914: Dog, weight 5 kg., 570 gm. (11¾ pounds). Under ether anesthetization 15 c.c. of blood were obtained to which was added 5 c.c. of a 1 per cent. aqueous solution of ammonium oxalate. The electroconductivity was measured by Edelmann's Universal Widerstands Brücke: see technic.[1]

(1) Sample of dog's blood mixed with ammonium oxalate 3 to 1; (2) bridge reading, 39.4; (3) resistance out, 100; (4) temperature 9 C. (48.2 F.) = 65.017 ohms resistance at 9 C.; = 54.615 ohms resistance at 17 C. (62.6 F.).

January 20: Dog kept in box three hours with fumes from 5 ounces wood alcohol. Respirations 42, labored; at end of time lies on right side unconscious. Temperature below 94 F. Eyes: cornea slightly hazy; corneal and pupillary reflex abolished; fundus, edema of disks with dark veins; arteries small.

Blood was obtained from which the bridge reading was 34; resistance out 100; temperature 17 C. = 51.515 ohms resistance at 17 C. Dog killed with chloroform; eyes and optic nerves were enucleated and preserved in formaldehyd solution.

Post-mortem Examination.—Pericardium contained large amount of colorless transparent fluid which spurted out as if under pressure when it was incised; macroscopically heart appeared normal; stomach and intestines were dilated; interior of stomach and pylorus very markedly congested; cupful of frothy mucus found in stomach; spleen very dark indigo blue.

Remarks.—This experiment showed that the electroconductivity of the serum was increased after the inhalation of wood alcohol. The difference of 3.1 ohms resistance obtained in testing the electroconductivity of the blood showed a change which might result from the breaking up of the corpuscles, from an increase in H-ion content, or from any increase in the inorganic salts. An increase in the H-ion content will produce an increase in the acidity of the blood and also conduces to an edema of the tissues. As we find evidence in the blood of acidosis, and a tendency to edema of the ocular tissues, we think that the increase of its electroconductivity, following methyl alcohol poisoning, is due to an increase in the H-ion content of the blood.

EXPERIMENT 11.—Acute poisoning by inhalation in a monkey. Jan. 22, 1914: Female monkey in good health, weight 4 kg. (8.8 pounds), 1 per cent. solution of atropin instilled into eyes. Apparently did not like the bitter taste, as it evidently passed through nasal duct into mouth. It kept expectorating and washing out its mouth; gagged several times as if nauseated. Eyes: pupils dilated quickly and at maximum; fundi, periphery very dark, uniformly pigmented, no abnormalities; disks appear normal and are oval, long diameter vertical.

January 29: Temperature 102 F. per rectum. Monkey placed in box with 3 ounces methyl alcohol spread over sides of box. At 4:25 p. m. air pumped in under 2½ pounds pressure thirty times per minute. Monkey sat in one corner opposite air inlet and no apparent intoxicating effect was produced whatever; at 5:10 p. m., wood alcohol, 1 ounce additional introduced into box; at 5:25 p. m., taken out; monkey acts normally.

February 3: General condition good. At 5 p. m., in box with 3 ounces wood alcohol; same condition; temperature 100.6; at 5:50 p. m., taken out, temperature 100.2 F.

February 4: At 1:35 p. m., in box; temperature 101.4; out at 3:15 p. m., temperature 102; staggering gait, acted dazed and slightly intoxicated. Three ounces wood alcohol used, box with open ends.

February 5: At 2:55 p. m., in box; temperature 102; out at 4 p. m., temperature 100.6. Three ounces wood alcohol used. At 3:35 p. m., animal winking; slight watery discharge from nose.

February 6: At 2:45 p. m., in box; temperature 101.6; out at 3:45 p. m., temperature 101.6.

February 7: At 3:05 p. m., in box; temperature 102; out at 4:30 p. m., temperature 102; 3 ounces wood alcohol placed on cotton, high up, near top of box; monkey not affected apparently by vapor.

February 9: At 3:15 p. m., in box; temperature 102; out at 4:15 p. m., temperature 102; no effect. Wood alcohol 3 ounces.

February 10: In box at 2:55 p. m., temperature 102; out at 4:40 p. m., temperature 100; pulse 160; optic disks hyperemic as compared with first examination; veins dark; pupils dilated, sluggish to light, acts sleepy. Wood alcohol 3 ounces.

February 11: At 3 p. m., in box; wood alcohol 3 ounces; temperature 102; out at 4 p. m., temperature 101.6; staggering gait, weak hind legs; eyes red and watery; drowsy, falls forward in attempting to walk.

February 12: At 10:20 a. m., in box; temperature 101; out at 11 a. m., temperature 99. Wood alcohol 3 ounces.

February 12: At 4:10 p. m., in box; temperature 103; out at 4:20 p. m., temperature 102; vomited, much affected, scarcely able to walk; hygrometer 65.

February 13: At 9:45 a. m., in box with 5 ounces wood alcohol; temperature 100.4; out at 10:45 a. m., temperature 100; drowsy; much affected; very weak, nausea, vomiting. At 4 p. m., temperature 98.8; acts ill, face, gray pallor, refused to eat chocolate, of which was very fond. Keeps quiet; eyes red, pupils dilated, surface of body cold;

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[1] Centralbl. f. Electric., 1887, p. 115.

wrapped up in covers, sits with head down between fore legs; placed in room by warm radiator.

February 14: At 8 a. m. found dead; body warm, apparently just died. No evidence of painful death. Head removed, eyes enucleated. Necropsy at 5 p. m. macroscopically. Pancreas and adrenals normal; kidneys slightly congested; liver slightly darker than normal, uniform color, no apparent degeneration; uterus and ovaries normal. Heart, pericardium slightly congested; empty; no blood clots nor fluid. Lungs normal, crepitate and float; spleen small, indigo color characteristic of wood alcohol cases; preserved in formaldehyd solution. Large intestines very much inflated containing also mass of feces and a thrombus in the intestinal mucosa. Small intestines not much bloated; empty of fecal matter but in upper part sections or links bloated with occasional dilatation of vessels; stomach contains yellowish-green tenacious semifluid homogenous mass of mucus with small pin-point hemorrhages along vessels, with dilated veins; dura markedly and pia mater slightly congested; spinal cord appeared normal.

Remarks.—The shortness of time of inhalation with free ventilation, and the small amount of wood alcohol used, explain the lack of effect on the monkey during the first two exposures. But this lack of effect was only apparent, as the animal began to show weakness of hind legs, loss of appetite, diarrhea and vomiting after the subsequent exposures. That death followed the last exposure, in which 5 instead of 3 ounces of wood alcohol were used, is very significant. We are convinced that a latent debilitated condition which was not recognized, existed, and the last dose acted fatally as an overdose. The pin-point hemorrhages on the gastric mucosa is one of the characteristics of wood alcohol poisoning.

Experiment 13.—Acute poisoning in dog by inhalation of Columbian spirits, with marked ocular hypotension. Feb. 28, 1914: Dog, weight 5 kg., 900 gm., male. At 8:35 a. m., in box with 10 ounces Columbian Spirits; temperature 102.6; out at 11:15 a. m. In box at 12 m., out at 3:20 p. m, temperature 96. In box six hours; during first hour frothed at mouth; required about one hour to be intoxicated, then comatose; at 4 p. m., respirations 28; auscultation showed short inspiration with long expiration; pulse 88 by stethoscope; temperature below 93. Some fibrillary contractions of muscles of face, mouth, neck, nose and tongue. Intra-ocular pressure less than 3.5 mm. Hg with Schiötz tonometer. Not much bleeding during enucleation, but more than when commercial wood alcohol was used; bleeding stopped readily (viscosity increased, coagulation time reduced). Died one hour later as expected, using the marked hypotension as an indication of the proximity of death. The examination of the ocular fluids showed a marked reduction in alkalinity.

Experiment 14.—Changes in chemical reaction of serum and aqueous humor. March 3, 1914: Female dog, weight 5 kg., 800 gm. Aqueous humor withdrawn by aspiration under cocain anesthesia. Four-tenths c.c. obtained from left eye. Alkaline: 48 — 47.90 = 0.10; acid: 28.10 — 28 = 0.10; result, neutral to phenolphthalein.

March 5, 1914, 10 a. m.: In box; temperature 101; out at 12:30 p. m. In box 12:45 p. m., with 5 ounces Columbian Spirits; out at 4 p. m., temperature 95. Eyes: pupils 3 mm.; 5 p. m.—O. D., tonometer = 3.5; O. S. = 3.5; (blood examination morning and evening). Died next day as indicated by very low hypotension.[2] Right eye, aqueous 0.4 c.c. Titrated with phenolphthalein as an indicator. Alkaline: 32.4 — 29.5 = 2.90; Acid: 31.10 — 29.95 = 1.15; Alkaline: 2.90 — 1.15 acid = 1.75 alkaline = 4 · c.c.; 4.48 tenth normal sulphuric acid to 1 c.c. Normal blood-serum 0.1 acid = 1 c.c. Blood normal 0.5 c.c. Twenty c.c. water. Alkaline: 33 — 32 = 1.00; acid: 31.95 — 31. = .95; alkaline 1.00 — acid 0.95 = .05 alkaline. One c.c. = 0.1 blood tenth normal sulphuric acid to phenolphthalein. Serum taken in morning.

Blood after exposure to Columbian Spirits vapor: Alkaline: 23 — 22 = 1.00; acid 32.85 — 32.00 = .85; alkaline 1.00 — acid .85 = .15 alkaline. One c.c. blood-serum[3] = 0.15 tenth normal sulphuric acid.

Remarks.—As we see, the serum of the dog before inhalation was 0.10 tenth normal sulphuric acid; aqueous humor was neutral; serum after inhalation was 0.15 tenth normal sulphuric acid; aqueous after inhalation was 4.48 tenth normal sulphuric acid. It is very significant that the aqueous shows more acidity than the blood.

Experiment 15.—Control. Feb. 3, 1914: Male dog, weight 3 kg., 300 gm., was placed in box as control with inlet and outlet open (no methyl alcohol vapor added). Animal was kept in box four hours. No apparent effect; was active and lively when taken out.

February 7, 9:55 a. m.: In box, temperature 103.4; out at 1:15 p. m., temperature 102.6; box closed tight, no ventilation; when taken out box contained bad (close) odor. Dog showed no bad effect.

Experiment 16.—Acute poisoning with Columbian Spirits showing acidity of aqueous humor and increased viscosity of blood. March 7, 1914: Male dog, weight 6 kg. (about 12 pounds), in box with 10 ounces Columbian Spirits. At 9:30 a. m., in box; temperature of dog 104; out at 1:45 p. m., temperature 97. At 2:45 p. m., in box; temperature 95; out at 4:15 p. m., temperature 94. Pupil contracted to 2 mm.; no reaction to light; dog comatose; aqueous withdrawn with needle, 0.7 c.c. Alkaline: 24.00 — 23.00 = 1; acid 34.85 — 34.00 = 0.85; alkaline, 1.00 — acid .85 = .15; 0.7 c.c. = 0.15. One c.c. = 0.21 tenth normal sulphuric acid to phenolphthalein as indicator.

Remarks.—As normal aqueous showed neutral reaction, this test is interesting on account of acid reaction as determined.

March 9, 9:30 a. m.: Temperature 96.4; animal comatose; pulse 20; respiration 6. Pupils 2 mm., contracted; no light reaction. Corneal reflex abolished, anesthetic; O. D., fundus hyperemic and edema of optic disk; arteries small, veins not altered in size. At 4:30 p. m., temperature 95 F.; respiration 6; pulse 20. O. D. enucleated and placed in 5 per cent. formaldehyd solution for microscopic examination, no bleeding during operation until optic nerve was severed, then slight hemorrhage occurred, about 1 dram dark viscous blood which coagulated readily. Surface of body cold; respirations slow and deep; eyes closed; tongue dry and protruding; animal comatose; pupil, no light reaction—tonometer 3 by palpation, all reflexes abolished; animal in moribund condition.

March 10: Found dead at 8 a. m. Necropsy: Brain reddish; meninges and substance of brain (white and gray matter) congested. Lungs, pleural cavity contains about 2 c.c. sanguineous fluid, surface of left lung shows numerous small hemorrhages; lung substance slightly edematous and floats on the surface of water. Trachea, normal, not congested. Heart, full of dark blood-clots. Spleen, dark indigo-blue throughout. Liver and bile both darker than normal. Kidneys, bluish-red, very dark, much congested. Adrenals. and pancreas darker than normal. Stomach, empty; numerous small punctate dark purple hemorrhages along lesser curvature. Intestines, bloated and empty, purplish-red, similar to lining of stomach.

Remarks.—The symptoms, chemical reactions of the aqueous and post-mortem findings we consider typical of acute poisoning with methyl alcohol.

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[2] When tension is less than 5, dog usually dies within 24 hours.

[3] Blood-serum 1 c.c. = 0.05 increased acid in case after Columbian Spirits.

BLOOD-COUNT IN DOG WITH ACUTE POISONING BY INHALATION OF METHYL ALCOHOL

Before inhalation:	
Erythrocytes	5,700,000
Leukocytes	11,800
Hemoglobin	90 per cent.
Polymorphonuclears	79 per cent.
Lymphocytes	21 per cent.
After inhalation (2½ hours):	
Erythrocytes	7,800,000
Leukocytes	28,600
Hemoglobin	100 per cent.
Polymorphonuclears	99 per cent.
Lymphocytes	1 per cent.

Remarks.—Besides the increase in the erythrocytes, leukocytes, hemoglobin and polymorphonuclears, the very marked decrease in the lymphocytes is of decided interest.

MICROSCOPIC FINDINGS IN EYES OF DOG WITH SUBACUTE POISONING

HEMATOXYLIN EOSIN AND VAN GIESON

1. Choroid gives the impression of hyperemia.
2. Tapetum normal. Retina: rods and cones and the external nuclear layer normal.
3. Outer reticular layer slightly edematous.
4. Inner nuclear layer, normal.
5. Inner reticular layer, slight edema.
6. Ganglion cells swollen and surrounded by clear areas, the nuclei being displaced far toward the periphery.
7. Inner layers of the retina show some edema.

WEIGERT

1. The medullary sheath of the optic nerve takes Weigert's stain rather weakly.
2. A few vacuoles show at the ends of the rods and cones.

The Marchi and Nissl specimens have not been finished, the report of these will be published later.

We consider methyl alcohol to be a true hematotoxic. It has a decided effect on all tissues, producing degenerations, and under certain conditions amblyopia or death. In the eye it produces first a toxic edema of the tissues, which, with the increased viscosity of the blood, interferes with its free circulation. The tissues, being deprived of their nutrition and oxygen, succumb to the effect of the toxin, and degeneration of the ganglion cells and nerve fibers ensues. Acidosis occurs as indicated by the results of the titration of the aqueous and serum, and by the determination of the electroconductivity of the blood.

The tension of the eye in methyl alcohol coma may be a guide as to the immediate outcome of the case, and with more study a scale might be formulated giving exact points at which, as regards life, one could prognosticate complete recovery or death.

Hypotension of 5 mm. Hg or less indicates death within twenty-four hours, while with tension over 5 the animal lived longer; and in these cases a question arises whether or not, if proper treatment was instituted early, the animal would recover.

SUMMARY

Effects of experiments with methyl alcohol inhalation were the following:

1. In nose and mouth copious discharge and frothing.
2. Temperature: marked fall, varying from 1 to 10 degrees according to amount used, method and time of exposure to vapor.
3. Respiration: rate increased, then decreased below normal, being very low just prior to death and ceasing before heart.
4. Blood: increase in electroconductivity due to an increase in H-ion content. Increased acidity, with phenolphthalein as an indicator. Coagulation time reduced, specific gravity increased. Viscosity increased. Erythrocytes, leukocytes, hemoglobin and polymorphonuclears increased and lymphocytes decreased.
5. Necropsy findings: Stomach: empty, mucous membrane congested, punctate hemorrhages. Trachea: pale. Lungs: few minute hemorrhages on surface. Heart: muscle dark, in some cases cavities, empty. Liver: dark. Kidneys: dark purple, congested. Adrenals: hemorrhage in one case. Spleen: dark indigo-blue. Intestines: bloated, small punctate hemorrhages. Brain: marked congestion of the meninges.

Effects on the eyes were: Slight irritation producing blinking, slight haziness of cornea and no inflammation of conjunctiva. Corneal reflex retained in some animals after others had disappeared. Fundus: Hyperemia and edema of the disks, with dilated, dark veins and arteries. Pupil: Moderate contraction in coma, with loss of light reaction. Tension varies with intensity of toxemia, in mild recoverable cases being normal, and in profound coma showing marked hypotension, which when less than 5 mm. Hg by tonometer, indicated a rapid and fatal termination within about twenty-four hours.

Aqueous by titration (with phenolphthalein as an indicator) showed an acid reaction.

In one dog (Experiment 9) blindness was noticed, judging from the animal's collision with objects when attempting to walk, as he could not see to get around them.

Microscopic findings indicate an edema of the tissues with very early signs of beginning degeneration of the ganglion-cell layer of the retina.

In reviewing the results of these experiments, attention is directed to the similarity with those obtained through experimental researches and clinical observations, in the internal administration of methyl alcohol; thus demonstrating its fatal and profound toxicity irrespective of the method of its entrance into the animal organism.

The contentions of the manufacturers that the refined methyl spirits are absolutely harmless are untenable and may cause many sad results among workmen by rendering them careless in taking proper precautionary measures while working with it. Many consider its inhalation harmless under ordinary ventilation. We take exception to that supposition. Most of our inhalation clinical cases result from its toxicity under what are considered by the workmen ordinary conditions. While ventilation will diminish the intensity of the toxicity, the inhalation will not be rendered absolutely harmless thereby. Not ordinary ventilation, but the very best obtainable is required for workers using wood alcohol. At least three times the ordinary air-space allotted per person should be allowed to each workman using it. Placards warning of the poisonous properties of wood alcohol should be posted in conspicuous places about premises where it is used, and hours of labor should be so arranged as to allow for exercise in the open air at frequent intervals. In our subacute cases while the exposure to the vapor for an hour or two daily had not much apparent untoward effect at the time, it certainly did have an effect which manifested itself later by subsequent weakness, trembling and unsteady gait in the intervals between expos-

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ures. We are inclined to agree with M. L. Poincaré,[4] who found, after exposing animals to small quantities of vapor of methyl alcohol over a period of from eight to sixteen months, that considerable fatty degeneration of tissues occurred, especially in the liver, heart, muscle, epithelial cells of the uriniferous tubules, some cells of the lungs, and with congestion and slight inflammation of the meninges, and of some nerve centers. He concluded that the vapor of methyl alcohol in small quantities was dangerous.

Physicians often fail to recognize industrial and occupational diseases because of the fact that they are often masked under the form of chronic disorders, which show themselves in obscure diseases of the digestive tract and nervous system, and are attributed by patients to other causes. A number of cases of methyl alcohol poisoning, to our knowledge, have occurred in which the causes of death were given as pneumonia, meningitis, heart-disease, etc. Many of the milder cases have been treated for chronic gastritis, hepatitis, etc. It is not surprising that these unfortunate persons travel from one physician to another searching for relief, when we consider the unfortunate but sad truth that many physicians fail to grasp the true etiology of the cases.

That a difference in susceptibility to methyl alcohol exists in animals and man cannot be denied, and this can be partly explained by the rate of oxidation which takes place in the animal or person. Those in which it is rapidly oxidized experience the least effect, while those with slow oxidation feel the greater toxic effect. Harnack[5] concluded that methyl alcohol in slow oxidation formed formic acid, while in rapid oxidation carbon dioxid and water were formed. Hence when it is rapidly oxidized, it is comparatively (?) harmless, while in slow oxidation, which usually occurs in man, it is exceedingly toxic, as the action of the formic acid thus produced in the animal organism was much stronger than that of the pure formic acid introduced into the body, as in the latter case the organism attempts to convert it with bases and thus gives rise to formates.

In 1869 Richardson[6] suggested that methyl alcohol be inhaled as an anesthetic. He stated that 2 ounces required one hour to produce anesthesia, and pointed out that reflex irritability was not abolished by small doses, that the temperature of the body was reduced 3 degrees and that the danger from its use was practically nil; but when inhalation was forced, death was produced by simultaneous cessation of respiration and circulation. We do not know the time required for him to gain the knowledge contained in the last sentence, but trust that it was during his very early use of methyl alcohol.

It is a well-recognized fact in pharmacology that poisons which affect the highly differentiated nerve-structures very powerfully are proportionately more dangerous the more highly developed the nervous system of the animal is, hence it would be expected that man would be relatively more susceptible to such a poison as methyl alcohol than would the dog or rabbit.

The results of the experiments with the titration method agree with the conclusions formed by Gregnolo,[7] who determined, after the ingestion of methyl alcohol, that there was an increase in the concentration of H-ions in the aqueous and serum, and who stated that these changes go parallel with the morphologic changes in the tissues of the eye. His experiments show, as do ours, that the substances produced in the body by poisoning with methyl alcohol are extremely diffusible and penetrate the eye readily. Our microscopic specimens having been obtained from acute cases show only the stage of edema with an indication in the ganglion cells of one of the first signs of degeneration, the location of the nucleus being far toward the periphery of the cell and most of the cells showing this change. As to the fate of methyl alcohol in the human body, Pohl[8] found that it underwent the same change as in that of the lower animals, its administration leading to the appearance of formic acid which is slowly excreted in the urine.

R. Hunt[9] states that experiments on the physiologic action of methyl alcohol show conclusively that, however pure the preparation may be, it is totally unfit for use as a substitute for grain alcohol in any preparation which is to be taken internally or used externally, or, we add, which may be inhaled in a concentrated form.

USE OF SPECIALLY DENATURED ALCOHOL RECOMMENDED

Only those who have had experience realize the power and intensity of the opposition encountered in endeavoring to obtain proper protective legislation for the regulation of the sale and use of methyl alcohol. When it is possible for one or two members of a legislative body working in the interests of methyl alcohol manufacturers to be able to thwart the wishes of the vast majority of the inhabitants of a great state for a just protective law regulating the safe and proper labeling of methyl alcohol, it is a most unjust and deplorable state of affairs. If the law regulating the sale of specially denatured alcohol could be amended so that manufacturers might be permitted to sell this alcohol to the individual trades using it in the various industries, which would allow them to prepare their own varnishes, etc., obtaining the consistency desired, one of the objections to its present use would be overcome. The variety of denatured alcohol which the law now compels them to use contains a denaturing agent which renders the varnish of soft consistency, and after having dried it scratches very easily, leaving a white mark. If the trades could obtain the denatured alcohol without the objectionable denaturing agent (benzin, pyradin, etc.) it would in a short time supplant the methyl alcohol to a great extent, as it is only one-tenth as dangerous, and if it is used in an exceedingly well-ventilated space, the fatal results due to the toxicity of methyl alcohol would be reduced to a minimum.

The laws relating to methyl alcohol should be enforced with a jail sentence as a penalty attached. Until the gravity of the situation is realized by our law-makers and the judges in our courts, a certain number of manufacturers who value human life cheaply will continue to be a menace to society by disregarding the law and thus causing blindness and death.

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[4] Poincaré: Compt. rend. Acad. d. sc., 1878, p. 682.

[5] Harnack: Deutsch. med. Wchnschr., xxxviii, 358.

[6] Richardson: Med. Times and Gaz., 1869, p. 703; London Med. Rec., 1875, pp. 62-77-93.

[7] Gregnolo: Klin. Monatsbl. f. Augenh., 1913, p. 157.

[8] Pohl: Arch. f. exper. Path. u. Pharmakol., 1893, p. 181.

[9] Reid, Hunt: Bull. Johns Hopkins Hosp., xiii, Nos. 137-138.

TREATMENT

While heretofore treatment, except in a very small proportion of the cases of methyl alcohol poisoning with amblyopia, has been considered rather hopeless, the few patients who have improved or recovered, should stimulate us in our efforts to go forward with renewed vigor in search of a plan of medication which shall yield better results. A plan of treatment based on our findings might be summed up in two words, eliminate and stimulate. Eliminators of all varieties should be used, namely, emetics, hydragogue cathartics, diuretics and diaphoretics, calomel, jalap, pilocarpin hypodermatically, hot saline baths or packs, saline infusions and high saline enemas. Stimulants such as strychnin, caffein and theobromin would produce stimulation with diuresis. Ammonia and oxygen inhalation may be used to supply the alkalines and to aid in oxidation. Sodium iodid and alkaline waters would aid in reducing viscosity of the blood and the medicinal treatment may be supplemented by applying heat to the body and extremities.

Credit is hereby given and our sincere thanks extended to Professors Lee, Scott and Pike for their kindly assistance and advice tendered in these researches, which were made in the physiological laboratory of the College of Physicians and Surgeons, Columbia University, New York, also to Mr. Edward Burchell, for his kind assistance in preparing and mounting the microscopic specimens and to Drs. Dixon and Holden for their kindness in examining our specimens.

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ABSTRACT OF DISCUSSION

Dr. Ward A. Holden, New York: The clinical symptoms following the inhalation of wood alcohol are so identical with those following its imbibition that it was to be expected that laboratory experiments would give the same results in each. The defense in a recent suit for damages was based on the fact that there was in the literature no experimental proof that the inhalation of wood alcohol could cause blindness. The proof has now been supplied by this painstaking investigation, and an inspection of sections of the retinas of animals so poisoned reveals the same degeneration of the ganglion cells that I found a dozen years ago in animals after the imbibition of wood alcohol. When hundreds of thousands of dollars are invested in an industry it naturally is difficult to bring about safeguards and restrictions that might in any way diminish the sales of the product. The New York Committee for the Prevention of Blindness of which I am a member, believes that in time something may be accomplished. The subject was studied at some length and then a campaign of education was started in the lay press which it was hoped would render it easier to secure the legislation we desired. Hundreds of newspapers took up the matter and many trade journals treated it editorially. The varnish trade and the brewers especially were favorable. We were attacked chiefly by the perfumery-trade journals, which was to be expected, since the great majority of perfumes and toilet preparations are made up with wood alcohol. The National Brewers Association asked us to furnish them an exhibit for their last annual meeting and they sent out to the brewers of the country some thousands of reprints of our literature. For several years past suits for damages for blindness or death in varnishers in the brewery vats have been uniformly successful, and in the last case of which I have knowledge a man in Brooklyn whose eyesight had been impaired received $12,000 from a brewing company in settlement of his claim because they feared to have the case go to a jury. Our efforts to have wood alcohol and preparations containing it labeled poison have failed in the New York state legislature and in the New York City Board of Aldermen. The New York Department of Health, however, of whose advisory council I am a member, is about to add an ordinance to the sanitary code to prevent the use of wood alcohol in any preparation intended for internal or external use by man, and to have wood alcohol and its preparations bear the regulation poison label. The suggestion has been made in the paper that a specially denatured grain alcohol, without benzin or pyridin, be permitted to be used in the preparation of varnishes. This would seem to be a good suggestion. The denatured grain alcohol statute has almost entirely failed of its intended purpose. Denatured alcohol has not come into general use as a cheap and relatively harmless solvent, because of the restrictions thrown about its sale and of the necessity of using denaturing agents which render it more or less unfit for use in certain industries, so that the more expensive and more toxic wood alcohol, sold everywhere without restrictions, is generally used.

Dr. Hiram Woods, Baltimore: The difficulty in securing the conviction of persons selling wood alcohol is great everywhere. This past winter I had an experience with a man blind from wood alcohol. There was no difficulty in procuring the liquor and showing that it contained 30 per cent. of wood alcohol, sold as Sherwood whiskey. The man who sold it was arrested. The Maryland law provides that anyone who sells wood alcohol to be used as a beverage is guilty of a misdemeanor. The Italian liquor-dealer said he bought it from a jobber and had not himself put the wood alcohol in. Then the judge decided that since the saloonkeeper had said he had not done it, it was up to the State Board of Health to hunt up the jobber and trace it back. This was impossible. The man was acquitted. We should have the legal department of the American Medical Association prepare us a model law. It is a state matter, of course, but it is extremely difficult to get a law fixed without some flaw that leaves these rascals out.

Edgar B. Burchell, New York: On Dr. Schoenberg's suggestion I made an investigation of the blood-count of a rabbit at various intervals after it had been given 8 c.c. of methyl alcohol subcutaneously. The results are shown in the accompanying table. You will see there is quite a difference between the blood picture of the rabbit and the dog. There was no ocular effect at all in the rabbit. By careful physical examination of the rabbit there were no discernible changes in the physical signs. The findings are based on cell-counts of 500 in each instance.

DIFFERENTIAL LEUKOCYTE COUNT

	Normal, Per Cent.	1½ Hrs. after, Per Cent.	2½ Hrs. after, Per Cent.	17 Hrs. after, Per Cent.	20 Hrs. after, Per Cent.	25 Hrs. after, Per Cent.	38 Hrs. after, Per Cent.
Sm. mononuclear	42 4	68.4	66.4	74.8	55.2	77.4	80.0
L. mononuclear..	2.0	4.4	1.6	2.4	3.6	2.8	0.6
Transitional	0.0	0.0	0.6	0.2	0.8	0.2	0.0
Polynuclear	54.8	22.8	28.2	18.4	32.4	16.4	18.0
Eosinophil	0.2	2.0	3.0	2.2	6.2	2.0	0.8
Mast cells	0.6	2.4	0.8	2.0	1.8	1.2	0.6

Dr. M. J. Schoenberg, New York: We have observed in our animals continuous movements of the head together with uncertain gait which we think are due to some changes in the internal ear, and for that reason I think it would be worth while in a case of such poisoning for some otologist to examine the function of the internal ear, which has never been done before. Another point is that rabbits exhibit greater resistance than dogs to wood-alcohol poisoning by either inhalation or imbibition, which agrees with the findings of Reid Hunt. The findings of Dr. Burchell would explain this somewhat. A dog placed in a box with 5 or 10 ounces of wood alcohol will become unconscious and remain so from twenty-four to forty-eight hours or more. A rabbit resists this. The changes in the blood of the dog compared with those in the blood of the rabbit explain partly why the dog is more sensitive than the rabbit. I think the most important point is the post-mortem findings in animals as compared to human beings after wood-alcohol poisoning. I had the fortune to be present at a post-mortem on a girl who had drunk liquor containing wood alcohol and died thirty-six hours later. The post-mortem findings were almost exactly the same as in the animals—dogs and a monkey—namely, congestion of the brain, some meningeal hemorrhages, empty heart, hemorrhages in the pleura and pericardium, congestive patches and hemorrhage in the stomach. The patient also complained of impaired hearing several hours before she died.

The examination of the intra-ocular pressure might also help in the prognosis of these cases. We found in the dog that whenever the intra-ocular pressure, after the administration of wood alcohol, is below 5 mm. mercury, the dog died within twenty-four hours. I think that is a point to be considered in wood-alcohol poisoning.

There are two and a half million men working in industries which make and use wood alcohol and I think that there are quite a few of them suffering from the consequences of daily inhalation of wood alcohol. The clinical picture of this occupational disease has not yet been worked out. Judging from our experiments, the clinical symptoms would be nausea, vomiting of blood, headaches, disturbance of vision produced by slight toxic edema of the retina and optic nerve, and they ought to be looked for, together with some changes in the blood. I do not know any one who has made a systematic examination of the blood in such patients.

The greater acidity of the aqueous humor, as compared with that of the serum, after inhalation of wood alcohol is of considerable interest, since this apparent contradiction throws some light on the secretory function of the ciliary body. In view of the facts brought out by this paper, the sale of wood alcohol must be prohibited entirely for the external as well as for the internal use on the human body. I see no reason why wood alcohol should be kept and sold in drug-stores, where people buy it in good faith that it is a "tonic" when used as a rub.

A STUDY OF THE ARNETH FORMULA*

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Since Arneth[1] in 1904 suggested his classification of polymorphonuclear neutrophils as a guide in the prognosis of infectious diseases, while there have been a number of contributions by other authors, their work in applying the classification has been largely confined to tuberculosis, although Kagan[2] has reported his findings in cases of sepsis. In the Arneth classification the polynuclears are divided into five classes depending on the number of nuclei contained within the cell. Taking the blood from a large number of healthy persons he determined that in the normal person a fairly constant relative percentage of the cells was found in each of the five columns (Table 1). An increase in Columns 1 and 2 with a corresponding decrease in Columns 3, 4 and 5, he termed a shift to the left, the normal Arneth index, comprising the totals of Columns 1 and 2, being 40.

TABLE 1.—THE ARNETH CLASSIFICATION

Column	1	2	3	4	5
Percentage	5	35	41	17	2

Bushnell and Treuholtz[3] adopted the method of adding one half of the number contained in Column 3 to those in Columns 1 and 2. In the series which I now report I have preferred to take as an index the number in excess of the normal count in Columns 1 and 2; thus, a total of 50 in these columns is reported as plus 10. In classifying the neutrophils I have adhered to the rules set by the majority of previous investigators, nuclei being joined by a thread being counted as two, while those connected by a distinct isthmus were counted as a single nucleus. The greatest care has been maintained to avoid the counting of superimposed nuclei, which would result in causing a false shift to the left; when it was extremely difficult to determine with any certainty the column in which to place a cell, it was discarded. In making the differential counts, two hundred cells have been counted, and a similar number of polynuclears used in arriving at the Arneth formula. Wright's stain has been used in all instances with satisfactory results. To facilitate the technic in securing the differential count and Arneth index at the same time, a pad ruled as in the accompanying blank form was used.

1	2	3	4	5

Polys.	Large Lymp.	Small Lymp.	Large Mono.	Eosin.	Baso.	Trans.

Blank form used in recording differential count and Arneth index.

As the white cells are counted a check is placed under the proper heading, the polynuclears put in their respective columns, according to the number of nuclei, with a total of 200 cells counted, the differential count determined and a sufficient additional number of polynuclears counted to bring their number to 200, thus arriving at the Arneth index.

In Series A (recorded in Table 2), consisting of thirty-one unselected cases taken from the surgical service of Dr. Raymond C. Turck at St. Luke's Hospital, a total and differential white cell-count is not recorded. Cases 2, 5, 6, 9, 12, 13, 14, 18, 19, 20, 21 and 27 all showed decided shifts to the left. All of these were septic cases excepting Cases 6, 14, 21 and 27, Case 6 being a case of trifacial neuralgia in an unhealthy person, Case 14 one of exopthalmic goiter, Case 21 a compound fracture of the tibia accompanied by severe shock, and Case 27 a clean hernia, the latter showing a very decided eosinophilia; but the patient escaped from observation before further investigation of a possible causative factor could be conducted. In Case 18, epithelioma of the lower jaw with a plus index of 7.50, the patient succumbed a few weeks after admittance. The other nineteen cases in this series showed practically normal indexes, all of them clean surgical cases excepting Case 4 with a superficial sepsis recovering in two weeks, Case 8, a case of multiple fistulas recovering in three weeks, and Case 22, a case of cancer of the penis showing no recurrence eight months later. In contradistinction to the pictures in these cases attention is called to Cases 2, 5, 9, 12, 13 and 20, all of which had decided plus indexes and a slow convalescence.

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Arneth, Joseph: Die neutrophilen weissen Blutkörperchen, Jena, 1904.

[2] Kagan, S. H.: Nuclear Classification of the Neutrophil Leukocytes and Its Relation to Disease, Boston Med. and Surg. Jour., 1910, clxii 709.

[3] Bushnell, G. E., and Treuholtz, C. A.: Arneth's Method in the Clinical Study of Pulmonary Tuberculosis, Med. Rec., New York, 1908, lxxiii, 471.

TABLE 2.—RECORD OF CASES IN SERIES A

Case No.*	Age	Diagnosis	Treatment	Disposition	Arneth Count					
					1	2	3	4	5	Shift
1	7	Fracture of femur.	Lane plate; primary union........	Cured	4.5	36.5	42.0	14.5	2.5	1.0
2	33	Septic cholecystitis.	Cholecystectomy, followed by infected wound in adipose tissue.	Cured; convalescence 2 months.	11.5	36.0	40.5	11.0	1.0	7.5
3	41	Ventral hernia ...	Intestinal resection; end-to-end anastomosis; repair of hernia.	Cured	8.0	27.0	50.0	12.0	3.0	...
4	50	Multiple stab-wounds, head, face, back and pleura; several infections.	Repaired by suture; drainage......	Discharged cured in 2 weeks.	5.5	34.0	44.0	13.5	3.0	...
5	27	Ruptured appendicular abscess; general peritonitis.	Drainage; proctoclysis	Discharged cured in 6 weeks.	10.0	38.5	37.0	13.5	1.0	8.5
6	65	Facial neuralgia...	Deep injection of alcohol..........	Discharged improved in 4 weeks.	14.0	32.0	46.5	5.5	2.0	6.0
7	25	Varicocele	Radical operation	Cured	7.5	28.0	43.5	16.5	4.5	...
8	52	Multiple fistulas...	Internal and external urethrotomy; prostatectomy.	Discharged cured in 3 weeks.	7.0	31.5	37.5	21.5	2.5	...
9	45	Rectal fistula; ischiorectal abscess.	Radical treatment on 4 occasions..	Discharged cured in 8 weeks.	14.5	34.5	38.0	12.0	1.0	9.0
10	7	Fracture of femur clavicle.	Splints and plaster dressings......	Cured	8.0	27.0	46.0	15.0	4.0	...
11	40	Hemorrhoids	Radical operation	Cured	8.5	28.5	46.0	12.5	4.5	...
12	38	Left inguinal hernia; appendicular abscess.	Radical operation for hernia; drainage of abscess.	After draining pus 5 weeks, discharged cured.	20.5	29.0	37.5	11.5	1.5	9.5
13	33	Multiple urethroscrotal fistulas.	Incision, resection, drainage, etc....	Discharged cured in 5 weeks.	19.0	34.0	32.5	9.0	5.5	13.0
14	42	Exophthalmic goiter.	Radical operation; primary union..	Cured	14.0	37.5	37.0	9.5	2.0	11.5
15	33	Fracture of femur.	Splints and plaster dressings.......	Cured	9.0	28.0	47.0	12.0	4.0	...
16	35	Appendicitis; Lane's kink.	Appendectomy; adhesions broken..	Cured	6.5	34.0	41.0	12.0	6.5	.5
17	43	Fibroid uterus....	Hysterectomy	Cured	8.0	28.5	48.0	12.0	3.5	...
18	35	Epithelioma superior and inferior maxillaries.	Curet and cautery..............	Died 4 weeks later........	10.5	37.0	41.0	9.0	2.5	7.5
19	33	Gangrenous appendix.	Radical operation	Cured	15.0	34.0	41.5	7.0	2.5	9.0
20	36	Empyema gallbladder.	Cholecystectomy	Discharged cured in 3 months.	21.0	39.0	34.0	5.0	1.0	20.0
21	20	Compound fracture tibia; multiple superficial injuries.	Lane plate	Cured	19.5	28.5	37.5	10.5	4.0	8.0
22	68	Cancer of penis..	Amputation	No recurrence 8 months later.	7.0	28.0	48.5	13.0	3.5	...
23	35	Ventral hernia and fecal fistula.	Intestinal resection, 7 feet 5 inches of intestines.	Improved	6.0	23.5	44.5	19.0	7.0	...
24	2½	Fracture of humerus.	Splints and plaster dressings.......	Cured	9.5	33.5	48.5	6.0	2.5	3.0
25	24	Compound fracture of tibia.	Bone graft; primary union.........	Cured	17.5	27.5	45.5	7.0	2.5	5.0
26	12	Hypospadia	Plastic operation.................	Cured	9.0	30.5	45.5	12.0	3.0	...
27	12	Inguinal hernia; hydrocele cord; scrotal hydrocele.	Radical operation	Cured	16.0	44.5	34.0	5.5	.0	20.5
28	53	Inguinal hernia...	Radical operation	Cured	13.5	26.5	50.5	7.5	2.0	...
29	30	Perineorrhaphy and trachelorraphy.	Radical operation	Cured	7.5	29.5	51.5	9.0	2.5	...
30	11	Lacerated hand..	Repair of tendons................	Cured	6.0	32.5	45.5	12.5	3.5	...
31	34	Fibroid of uterus.	Hysterectomy	Cured	9.5	31.0	46.0	10.5	3.0	.5

* In Case 13 the patient was colored; all the others were white persons.

Series B also consists of forty-two cases from the surgical service of Dr. R. C. Turck. The clean surgical cases only serving as a control were not used after a sufficient number had been obtained for this purpose. This series is, then, largely from selected cases. Table 3, the record of cases in Series B, in addition to giving the Arneth index, records the total white cell and the differential counts. Cases 2, 7, 8, 11, 13, 17, 19, 20, 22, 23, 25, 28, 29, 30, 31, 32, 35, 36 and 37 all show decided shifts to the left. All of them were septic cases excepting Cases 20 and 22, Case 20 being an inguinal hernia in an infant 2 years old, and Case 22 a carcinoma of the stomach, the patient deserting and being lost to observation. In the series, Cases 7, 24, 31 and 35 with plus indexes of 38, 3, 30 and 18.5, and Case 42 with a normal index, succumbed shortly after operation. Cases 1, 6, 18, 27 and 40, in which there was no shift, were of a nature that would lead us to expect one. It is significant, however, that three of these are in children, which, together with the blood-picture in Case 20, an infant, indicates that the Arneth formula, like the general blood-picture, is subject to a wide variation in infants and young adults.

In a further series of twenty-five cases of pulmonary tuberculosis I have been able to confirm the findings of Arnold C. and Henry Klebs,[4] Minor and Ringer[5] and Cummings,[6] in which they found a decided shift to the left in unfavorable cases.

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[4] 4. Klebs, Arnold C., and Klebs, Henry: Hematological Studies in Tuberculosis, Am. Jour. Med. Sc., 1906, cxxxii, 538.

[5] 5. Minor, C. L., and Ringer, P. H.: Arneth's Method of Blood-Counting—Its Prognostic Value in Pulmonary Tuberculosis, Am. Jour. Med. Sc., 1911, cxli, 638. Ringer, Paul H.: A Further Study of the Prognostic Value of Arneth's Leukocytic Blood-Picture in Pulmonary Tuberculosis, Based Upon 729 Counts in 475 Patients, Am. Jour. Med. Sc., 1912, cxliv, 561.

[6] 6. Cummings, R. S.: The Arneth Blood-Count in Pulmonary Tuberculosis, a Report of Eighty Cases, California State Jour. Med., 1913, xi, No. 7, p. 286.

TABLE 3.—RECORD OF CASES IN SERIES B

Case No.*	Age	Diagnosis	Treatment	Disposition	Differential Count								Arneth Count					
					Total White-Cell Count	Polys.	L. Lymph.	S. Lymph.	L. Mono.	Eosin.	Baso.	Trans.	1	2	3	4	5	Shift
1	10	Compound fracture of left femur; closed fracture right femur; laceration on back with infected urinary fistula.	Abduction frame; late operation on left femur.	Complete cure in 7 months.	12,000	78.0	2.0	6.5	3.5	8.0	2.0	.0	7.0	30.5	47.0	12.0	3.5	...
2	10	Osteomyelitis of both tibiae; extensive superficial ulceration; positive Wassermann.	Curettage and antisyphilitic treatment.	Very much improved; nearly healed; still under treatment.	12,500	63.0	7.5	20.0	2.0	5.0	1.5	1.0	9.5	37.0	40.0	10.0	3.5	6.5
3	30	Fracture of fibula	Lane plate	Cured	8,000	68.0	3.0	19.5	2.5	6.0	1.0	..	8.0	30.5	47.0	11.0	3.5	...
4	9	Double talipes; equinovarus	Tenotomy; osteotomies	Cured	9,000	47.5	3.0	40.5	2.5	5.5	.0	1.0	4.5	28.0	55.5	9.0	3.0	...
5	35	Acute appendicitis	Radical operation	Cured	19,000	69.5	18.0	8.5	3.0	1.0	.0	0.0	7.0	29.5	45.5	10.5	7.5	...
6	40	Rectal fistula; ischiorectal abscess	Radical operation	Cured in 4 weeks	8,000	56.0	8.5	30.0	1.5	2.0	.0	2.0	7.0	33.5	46.0	8.5	5.0	...
7	38	General peritonitis	Laparotomy; drainage	Died 12 hours later	18,000	24.5	14.5	28.0	3.0	.0	.0	30.0	30.5	47.5	19.0	2.5	.5	38.0
8	36	Septic cholecystitis	Laparotomy; drainage	Cured in 7 weeks	22,500	79.0	5.0	13.0	2.0	.0	.0	1.0	22.0	46.0	29.0	2.5	.5	28.0
9	39	Endocervicitis; lacerated perineum	Trachelorrhaphy and perineorrhaphy	Cured	7,000	67.5	5.0	26.5	1.0	.0	.0	.0	5.0	34.5	39.5	14.5	6.5	...
10	42	Luetic necrosed tibia	Curettage; specific treatment	Cured	7,500	72.0	3.0	19.5	2.5	2.0	1.0	.0	7.5	36.0	38.5	12.5	5.5	3.5
11	35	Infected ununited compound fracture of tibia.	Resection of necrotic bone	Still under treatment	8,500	77.0	6.0	15.5	1.0	.5	.0	.0	10.5	38.0	39.0	8.5	4.0	8.5
12	33	Chronic appendicitis and prolapse of uterus.	Appendectomy and fixation of uterus.	Cured	9,000	53.5	6.0	26.0	3.5	7.5	2.5	1.0	9.5	29.5	44.0	12.5	4.5	...
13	35	Double salpingitis	Radical operation	Cured	10,000	66.0	6.0	21.5	2.5	2.0	.0	2.0	18.0	36.5	37.5	5.5	2.5	14.5
14	14	Acute appendicitis	Appendectomy	Cured	6,000	55.0	6.5	22.5	4.5	9.5	.0	2.0	12.5	26.0	44.5	11.5	5.5	...
15	37	Endocervicitis	Trachelorrhaphy	Cured	9,500	68.5	5.0	21.0	2.5	1.0	.0	2.0	9.0	33.5	49.0	5.5	3.0	2.5
16	26	Acute appendicitis	Appendectomy	Cured	10,500	49.5	8.5	39.0	.5	1.0	1.0	.5	3.5	28.5	49.0	16.0	3.0	...
17	12	Extensive burns followed by infection	Open air; sunlight; skin graft	Cured	10,000	58.5	5.0	34.5	1.0	1.0	.0	.0	17.0	38.5	40.5	3.0	1.0	15.5
18	30	Extensive burns followed by infection	Placental graft	Improving	8,000	61.0	8.0	24.0	2.0	3.0	.0	2.0	6.0	35.5	48.5	8.0	2.0	1.5
19	60	Urinary fistula secondary to suprapubic prostatectomy.	Resection	Cured	8,500	64.5	7.5	25.5	.5	1.0	1.0	.0	10.5	41.5	43.5	4.0	.5	12.0
20	2	Inguinal hernia	Radical operation	Cured	15,000	26.5	4.5	64.5	3.0	1.0	.0	.5	20.5	36.5	39.5	1.5	2.0	17.0
21	6	Hernia; hydrocele	Radical operation	Cured	10,000	52.5	7.0	30.5	3.0	6.5	.0	.5	5.0	33.0	45.5	12.5	4.0	...
22	30	Carcinoma of stomach		Deserted	8,000	49.0	11.0	35.0	2.0	1.5	.0	1.5	10.5	39.5	45.0	3.5	1.5	10.0
23	45	Empyema	Resection of rib and drainage	Unimproved	10,000	72.0	10.5	14.5	.5	.0	.0	2.5	19.5	43.0	31.0	5.5	1.0	22.5
24	55	Myelitis	Laminectomy	Died	15,000	79.5	7.5	8.5	.5	.0	.0	4.0	7.0	36.0	44.5	8.5	4.0	3.0
25	28	Extensive abscess, neck and jaws, secondary to decayed tooth.	Drainage, 3 weeks	Cured	18,000	85.5	6.5	2.0	3.5	.5	.0	2.0	18.5	43.5	29.5	6.5	2.0	22.0
26	31	Palmar abscess	Drainage, a few days	Cured	8,000	66.5	5.5	22.0	2.0	2.5	.5	1.0	10.0	30.5	46.5	10.0	3.0	.5
27	16	Osteomyelitis of tibia	Curettage	Improved	12,000	57.0	10.5	23.5	2.0	6.0	1.0	.0	9.5	33.5	39.5	14.5	3.0	3.0
28	30	Appendicular abscess; general peritonitis.	Drainage, etc.	Cured in 4 weeks	18,000	78.5	4.0	12.5	4.0	.5	.0	.5	14.5	37.5	39.0	5.0	4.0	12.0
29	20	Actinomycosis lower and upper maxillary; positive uncinariasis.	Curet and drainage; thymol	Still under treatment	9,000	34.0	8.0	17.5	2.0	31.5	2.0	5.0	21.0	46.5	26.5	4.0	2.0	27.5
30	28	Empyema	Resection of rib; drainage	Still under treatment	25,000	83.0	1.5	13.5	1.0	.0	1.0	.0	15.5	54.5	24.5	4.5	1.0	30.0
31	13	Ruptured appendicular abscess; general peritonitis.	Drainage, etc	Died	15,000	83.0	6.0	6.5	2.5	2.0	.0	.0	20.5	49.5	25.0	4.0	1.0	30.0
32	25	Cellulitis of arm, shoulder and hand resulting from infected finger.	Drainage	Cured	10,500	77.0	2.0	19.5	1.0	.0	.5	.0	20.5	48.5	27.5	3.0	.5	29.0
33	17	Spastic paralysis with deformity	Tenotomies and resection of knee-joint.	Improved	11,00	57.0	3.0	27.5	.5	7.0	2.5	2.5	3.0	37.0	46.5	10.5	3.0	...
34	33	Multiple varicose ulcers of leg	Resection of saphenous; curettage of ulcers, etc.	Cured	9,000	48.0	5.5	40.0	2.5	3.0	1.0	.0	5.5	40.5	46.0	5.5	2.5	6.0
35	36	Empyema of gallbladder; perforation; general peritonitis.	Laparotomy; drainage	Died	9,250	69.0	9.5	12.5	1.0	1.5	.0	6.5	16.5	42.0	32.5	6.5	2.5	18.5
36	68	Septic cystitis	Suprapubic prostatectomy	Cured	12,600	83.0	4.5	5.5	.0	3.0	1.0	3.0	15.5	40.5	39.5	2.5	2.0	16.0
37	31	Acute appendicitis	Radical operation	Cured	7,000	70.0	4.0	20.0	3.5	.5	2.0	.0	13.5	32.5	45.5	4.0	4.5	6.0
38	24	Acute appendicitis	Radical operation	Cured	9,000	78.0	7.5	10.5	2.0	2.0	.0	.0	4.0	35.0	51.5	7.5	2.0	...
39	28	Acute appendicitis	Radical operation	Cured	7,800	72.0	8.5	15.5	2.0	1.5	.5	.0	5.5	30.5	56.0	6.0	2.0	...
40	10	Pott's disease	Spinal jacket	Under treatment; improving.	9,000	76.5	4.0	15.5	1.0	2.0	1.0	.0	8.0	32.0	51.5	4.5	4.0	...
41	42	Chronic cholecystitis of 10 years' standing.	Cholecystectomy	Died from acute pancreatitis 48 hours after operation.	6,000	63.5	3.0	25.5	2.0	4.0	.0	2.0	6.0	33.0	51.5	6.5	3.0	...
42	28	Chronic appendicitis	Appendectomy	Cured	7,200	69.5	4.0	22.5	1.5	2.5	.0	.0	5.5	34.0	52.5	4.5	3.5	...

* In Cases 3 and 22 the patients were colored; all the others were white persons.

In a smaller series of typhoid fever cases I also found a shift to the left in severe infections, while in malaria fever and pellagra there seems to be no change from the normal Arneth picture. I hope to have the opportunity to report in detail on this work at some future time. My findings up to the present would lead me to think that in certain classes of cases the Arneth index is of some prognostic value, enough so at least to warrant a careful and intensive study of the blood-picture in all septic and infectious diseases.

I wish to acknowledge my deep appreciation to Dr. Raymond C. Turck, chief surgeon of St. Luke's Hospital, for the privilege of studying the blood of his patients, and for many other courtesies extended to me while the work was in progress.

THE DESICCATION TREATMENT OF CONGENITAL AND NEW GROWTHS OF THE SKIN AND MUCOUS MEMBRANES *

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I have undertaken during the past six years some experimental and clinical studies with high-tension electric currents, for the purpose of determining their value relative to the reduction of accessible adventitious growths. The practicability of utilizing such currents for producing a thermic action of just sufficient intensity to devitalize tissue by dehydration was described by me before another section[1] of this association in 1912. This method has been developed to a higher degree of efficiency since that time, and additional facts concerning it realized. It has proved so satisfactory in my hands that I take the liberty of again calling attention to it and of presenting a series of pictures to show some of the results obtained.

The field of application is limited to accessible neoplasms, as of cutaneous surfaces and such mucous membranes as the mouth, throat, larynx, conjunctiva, bladder, urethra, vagina, uterine cervix and rectum.

The advantages of desiccation are as follows: 1. Accessible abnormal tissue may be destroyed rapidly and effectively and the operation is bloodless. 2. It is a method of precision. A small point may be destroyed without infringement on normal tissues, as may an area of large size and considerable depth. 3. No needle or other instrument is inserted into the growth. 4. The current has an anesthetizing property, which renders application bearable. 5. There is a devitalizing action on cells of less vitality than normal cells somewhat deeper than the desiccated area, leaving the normal cells intact. 6. There are sterilization and rapid repair. 7. Blood- and lymph-channels are sealed, which lessens the likelihood of metastasis in cases of malignancy. 8. The cosmetic result is good, as shown by the absence of contracted cicatricial tissue.

There are no disadvantages, other than the expense and cumbersomeness of necessary apparatus.

THE DESICCATION METHOD

Heat effects as applied to living tissue range in degree from simple hyperemia to carbonization. Somewhere between these extremes there is a point the effect of which is more than hyperemia and less than carbonization, which is called the desiccation point. If this accurate caloric degree is produced, controlled and sustained, it will cause rapid dehydration of the tissue desired to be devitalized, rupturing the cell capsule and transforming it into a dry mass; in other words, just enough heat is generated to destroy tissue without actually carbonizing it. Substances such as soap, potato and tissues, cadaveric and living, may be desiccated through a sheet of white paper without charring or discoloring the paper, and the transformed matter pulverized between the fingers. The correctness of the desiccation principle has been acknowledged by physicists, and I claim for it a new principle for application to surgery.

Instrumentation.— Static apparatus, twenty-four plates, twelve made of fiber 33 inches in diameter, and an output of, at least, 3 milliamperes of current, and twelve of glass 38 inches in diameter. Five horsepower motor to propel fiber plates, these plates being capable of approximately 2,000 revolutions a minute. Two Leyden jars, each of 0.00042 microfarads' capacity, used in conjunction with a resonator or surge-coil, the inductance portion of which has forty turns 3½ inches in diameter, of 25 gage Brown and Sharp copper wire. The surge end of the coil has ninety turns of the same size wire, same diameter of turns. These careful measurements are necessary for a proper balance between the capacity, inductance and the resistance.

Technic.—A Leyden jar is connected with each pole of the machine. The resonator or surge-coil is interposed between them and connected with each jar, thus completing the circuit. One end of the resonator is grounded. A wire is carried from the side of the resonator not grounded to the desiccation applicator. This applicator is supplied with a make-and-break device by means of which the current is controlled at will. A fine needle is inserted in the end of the applicator and kept in place by means of a thumb-screw. The speed of the plates, which controls the current strength, is regulated according to the size and depth of the area desired to be destroyed. This is not done by set rule, but by knowledge gained from technical experience. The rods of the static machine are then separated until the discharge of sparks assumes a characteristic formation, which is known as the point of critical resistance. The patient should lie on a low operating-table or reclining-chair. The operator sits and rests his elbow against the side of the table with his wrist on the part of the patient adjacent to the area to be treated, to insure a steady hand. For superficial dehydration, the needle-point is not brought in direct contact with the tissue, but an air-space varying from 0.25 cm. or less to 2 cm. is interposed between them. The electron waves are thrown from a metal point and projected to the tissue in the form of a fan-shaped efflux of sparks following one another with such rapidity that to the eye the appearance is that of a luminous glow. When deep destruction is desired, the patient is grounded and the needle is brought in direct contact with the tissue. The placing of the operator's hand on the patient at a point opposite the area under treatment adds to the capacity, and helps to concentrate the current; this is usually sufficient without grounding. It matters not which pole is used, as this current is unlike the galvanic current, which has electrolytic or chemical properties, and polarity must be considered, whereas the desiccation current from either pole is purely thermic in action. The unaltered current from the static machine cannot be used for desiccation, but it must undergo a physical transformation analogous to the metamorphosis of a volume of water into spray or steam. This is done by introducing into the circuit the Leyden jars and resonator as described.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Clark, W. L.: High-Frequency Desiccation, Fulguration and Thermoradiotherapy, Their Uses in Therapeutics, The Journal A. M. A., Sept. 21, 1912, p. 916.

Other contributions to the subject by the author are as follows:

The Destruction of Surface and Cavity Neoplasms by Desiccation, a New Electrical Effect; Preliminary Report, New York Med. Jour., June 10, 1911.

High-Frequency Desiccation, Its Uses and Limitations in Surgery and Dermatology; a Second Report, Month. Cycl. Prac. Med., August, 1912.

Electrical Desiccation as an Adjunct to Surgery, with Special Reference to the Treatment of Cancer, Surg., Gynec. and Obst., August, 1912.

The Uses of Electric Desiccation, Fulguration and Thermoradiotherapy in Surgery, Supplementary Volume, Keen's System of Surgery.

DIFFERENTIATION BETWEEN DESICCATION AND OTHER ELECTROSURGICAL METHODS

1. Desiccation (Clark).
2. Electrolysis; synonyms, ionic surgery, cataphoresis (Massey).
3. Fulguration (DeKeating Hart), non-destructive.
4. Diathermy (Nagelschmidt), synonyms, thermopenetration, thermocoagulation.
5. Fulguration (destructive); synonym, high-frequency cauterization.

1. Desiccation (Clark) devitalizes by dehydrating the tissues.

2. Electrolysis destroys tissue by the chemical or electrolytic action of the galvanic current.

3. Fulguration (DeKeating Hart) does not directly destroy tissue, but it is asserted that when long high-tension sparks are applied to the field in malignant disease after radical operation, alteration of nutrition of the part ensues, preventing the proliferation of cancer-cells. It is also declared that the percentage of recurrences is less than with operation alone.

4. Diathermy (Nagelschmidt) is produced by the bipolar d'Arsonval current. It may be used for simple heating of the tissue or it may be carried to the point of destruction, in which case the tissues are cooked. No sparks are used by this method, but two electrodes are brought into direct contact with the tissue, the position of the indifferent electrode depending on the direction in which the heating or destruction is desired. The current flows in both directions, and meeting with resistance in the body in completing the circuit, heat is generated in the tissues between the electrodes.

5. Fulguration (destructive). In this country the term "fulguration" has been employed to express any sparks of high frequency that have the property of destroying tissue, whereas the original fulguration as described by Hart is non-destructive. On account of the general acceptance of the term "fulguration," the prefix "destructive" will be used to differentiate it from the Hart method, which is non-destructive. High-frequency cauterization, however, is more descriptive, and would be a better term to use. Destructive fulguration is more closely allied with desiccation than the other methods, because they are both destructive effects produced by sparks of high frequency, but are quite distinct in character, as will be shown. Destructive fulguration is produced from an induction coil and desiccation from a high potential static apparatus.

DIFFERENTIATION BETWEEN THE PHYSICS OF DESTRUCTIVE FULGURATION AND DESICCATION

While the current generated from a coil or other magnetic device, and transformed by proper accessories, is capable of producing a coarse destructive action, the current from such a source has insufficient frequencies or oscillations, and is incapable of producing the refined desiccation effect, on account of the interruptions in the primary of the coil. As no discharge can be transmitted to the body until such interruption occurs, the current is delivered in a series of hot discharges, which renders the thermic degree inconstant, and the impact against the tissue painfully severe. A steady flow of current as is produced from the static machine is necessary, but it must be of large capacity and subject to control, or it will fall short of or go beyond the desiccation point. The destructive effect on tissue produced by the coil type of current may be compared to a surgical operation with a saw-edged knife, while the devitalizing effect produced with the static type of current may be likened to the more refined action of a keen-edged bistoury.

EFFECTS OF DESICCATION

The size and depth of the area that may be desiccated with one application is controlled by the operator and depends on the following six factors: (1) current strength; (2) whether monopolar or bipolar; (3) frequency of oscillations; (4) distance of the electrode from the body; (5) time of exposure, and (6) density of tissue.

Desiccation is usually, but not always, contra-indicated in neoplasms that are covered by healthy skin, as the skin must also be destroyed to reach the diseased tissue. Desiccation destroys tissue without opening blood- or lymph-channels, and will act as a styptic when there is oozing of blood. It sterilizes tissues on which it acts directly, as has been shown by experimentation with cultures taken before and after treatment of an infected area of tissue. A dry crust forms at once after the application, and the time required for separation depends on the character of the tissue. In the case of mucous membranes the desiccated tissue soon becomes macerated by the secretions and may separate in a few hours, while on the skin surface it takes a longer time. When the skin is soft and vascular there is more rapid separation than when it is hard and with poor blood-supply. Thus, a soft mole will slough more readily than a callus. Regeneration of skin or scar tissue often takes place underneath the crust. The procedure is not entirely painless, but quite bearable if the technic is correct. The current, if applied gently at first, has anesthetizing properties. and is usually sufficient, but in supersensitive persons a local anesthetic is employed in addition, either by topical application in the case of mucous membranes and ulcerated surfaces, or by infiltration if the area is extensive and deep, although the latter is never practiced when there is a suspicion of malignancy; cocain driven into the tissue by positive galvanism is used in preference. In rare cases a general anesthetic is required. Nitrous oxid gas and oxygen is used in preference, although chloroform may sometimes be employed. Ether should never be considered on account of its inflammable properties.

CONDITIONS FOR WHICH DESICCATION IS APPLICABLE

Verruca, Moles, Roentgen-Ray and Senile Keratoses.—Usually one application is sufficient in these conditions. The lesion is immediately transformed into a dry crust. It was my practice formerly to allow this crust to remain until it separated naturally, but it has recently been found that it is an advantage for immediate cosmetic reasons and more rapid healing to remove the crust at once with a groove director, or some such instrument. The base of the lesion is then sealed by superficial desiccation, and the thin ensuing crust separates in a few days. Healing is rapid, and the area, which is at first slightly red, gradually fades to normal color. There is no contracture as is usually the case with cauterization, but a smooth surface results. It is justifiable to advise the removal of these growths for other than cosmetic reasons, as they may be considered precancerous lesions.

Nevus Pigmentosus and Vascularis, Lentigo, Chloasma, Tattoo Marks, Coal Marks, Etc.—In these conditions the technic is the same as in the preceding, and the results have been quite satisfactory. In large port-wine marks and pigmented nevi I have found the ultraviolet ray produced by the Kromayer quartz-mercury lamp more satisfactory.

Keloid.—Desiccation followed by the Roentgen rays has been found to be a successful treatment. The same results may be obtained by the Roentgen rays alone, but a longer time is required. It has been observed that a better cosmetic result is obtained by desiccation followed by the Roentgen rays than by excision and the Roentgen rays.

Neoplasms of the Hollow Viscera.—Bladder: Employing a catheterizing cystoscope under the usual aseptic conditions, the urethra is anesthetized by a 2 per cent. cocain solution, or some other local anesthetic, and the bladder distended with sterile water or boric acid solution. A wire insulated to the end is then passed through the instrument and brought in direct contact with the growth, which may be destroyed in one, or a series of applications, depending on its size. The current and destructive action is always under the control of the operator. Recent experience justifies the hope that in selected cases desiccation may be of service in prostatic hypertrophy, treated by the urethral route.

Urethra: Papilloma, Caruncle, Granulations, Infected Glands, etc.: A thin insulated wire is passed through the treatment aperture of an air-inflation or other urethroscope, as is done with the applicator in making topical applications. Papilloma, caruncle, chronic granulations and infected glands following Neisserian infection, or other causes, may be destroyed, and there is sterilization somewhat deeper than the area destroyed because of heat penetration. The advantages of this treatment over the cautery and chemical escharotics are absence of much inflammatory reaction and no contracted cicatrix, and hence less likelihood of stricture.

Rectum: Hemorrhoids, Papilloma, Granulations, Ulcerations, etc.; External hemorrhoids and growths near the rectum may be very satisfactorily treated by desiccation, and growths in the rectum when a suitable proctoscope is used to render the lesion accessible. Operation is usually to be recommended in extreme internal hemorrhoids in preference to desiccation, but should there be a contra-indication to operation, even these may be successfully treated by desiccation.

Larynx: Tumors of the larynx may be destroyed by desiccation. The laryngoscope or the ordinary laryngeal mirror may be employed to expose the interior of the larynx, and the current applied by means of an insulated wire suitably curved. It is essential to success in these cases to destroy all reflexes in the throat with a strong solution of cocain; otherwise the application of the current will be impossible.

There is reason to hope that with improved endoscopes the future may show desiccation to be applicable to some neoplasms in the esophagus and stomach.

Throat and Pharynx: Neoplasms in these regions are quite accessible, and may be destroyed by desiccation. Mucous membrane growths respond readily. The whole or a portion of diseased tonsils may be desiccated without causing bleeding, and the operation is made bearable by applying a solution of cocain of sufficient strength. Desiccation has no particular advantage over excision in tonsil work, but should there be a refusal or contra-indication to operation, then desiccation may be relied on as a worthy substitute. In young children operative measures are to be recommended in preference to desiccation in throat conditions, because a general anesthetic must be used. Chloroform in the presence of unusual heat gives off hydrochloric acid and chlorin fumes, and ether is contra-indicated on account of its inflammability.

Nose.—Growths in the anterior nares, such as polyps, angiomas, papillomas and epitheliomas are accessible, and are usually successfully treated by desiccation.

Eye.—Desiccation may be applied externally to the lids for such lesions as xanthoma, verruca, nevi and epithelioma, and to the conjunctiva for trachoma, dry granular conjunctivitis, papilloma, ulcerations and pterygium. There is little danger in working near the eye, as the control of the desiccation current is perfect.

APPLICATION OF DESICCATION IN MALIGNANT DISEASE

1. *Cutaneous Surfaces.*—(*a*) Localized: Desiccation in my hands has been almost uniformly successful in localized epitheliomas and rodent ulcers of the skin. The destruction is carried beyond the diseased area for a short distance to insure thorough eradication. Blood- and lymph-channels are sealed, on account of which there is less likelihood of metastasis. Healing is rapid, and the cosmetic effect excellent. When a large area is involved a short course of Roentgen-ray treatments following desiccation is advisable, taking advantage of their well-known selective action on cancer-cells, lest there be some disease that possibly escaped desiccation. This may not always be necessary, but it is wise to take advantage of this combination treatment. As much can be immediately accomplished by one desiccation application as can be accomplished by the Roentgen rays alone in a comparatively long period of time, and desiccation will cure cases that the Roentgen rays alone will not affect, but in combination the efficiency of both is increased.

(*b*) With Metastasis: The results in these cases are usually unsatisfactory by any method, and no claims are made for desiccation except in conjunction with radical operative measures, when the field may be desiccated after operation in suitable cases, to seal blood- and lymph-channels. It is a duty as a routine measure to treat postoperatively with the Roentgen rays as the best means of preventing recurrence, promoting comfort to the patient and prolonging life.

2. *Mucous Membranes.*—(*a*) Localized: In localized cancer of the mucous membranes, such as the tongue, and the buccal surfaces or the lip, the results of desiccation compare favorably with those obtained in localized skin cancers, although there is not quite the same assurance of success, on account of greater proneness to metastasis and because one cannot be sure that the adjacent glands are not involved, even though they may not be palpable.

(*b*) With Metastasis: This is the most hopeless class of cases with which the surgeon has to deal, and there is much to be desired with any treatment known at the present time. Desiccation is used only as a palliative. Unless too far advanced, the chance of possible success afforded by radical operation or desiccation followed by the Roentgen ray should not be denied the patient.

3. *Inoperable Cancer.* — In absolutely inoperable cases, whether of the skin or mucous membranes, the initial lesion may be desiccated and massive Roentgen-ray dosage applied to the glands and desiccated site. Some unexpected good results have shown that this course is sometimes justified. In cancer of the cervix and rectum, if inoperable, desiccation as a palliative means has advantages over the curet and cautery, for the reasons that a general anesthetic is unnecessary, there is less inflammatory reaction, it destroys the accessible diseased tissue quite as effectively, sterilizes, deodorizes and will stop bleeding.

4. *Postoperative Recurrences.* — Desiccation has a field of usefulness in postoperative recurrences in any location that is accessible. For example, recurrence along the line of excision in cancer of the breast may sometimes be controlled by this method, or at least act as an excellent palliative.

5. *Sarcoma.*—In accessible sarcomas, if seen early, desiccation is a satisfactory treatment. One extensive melanotic sarcoma of the forearm, confirmed by pathologic examination, which was excised, recurred in a short time and was desiccated. There has been no recurrence at the points treated for two years, but several new foci appeared at various times, which were all controlled by desiccation. In advanced sarcoma the same general rules apply as in advanced carcinoma.

Miscellaneous conditions in which desiccation has been used with success are: early Paget's disease, lupus vulgaris and erythematosus, acne vulgaris, hypertrophic acne rosacea, adenoma sebaceum, chancroids, condylomas, clavus, varicose and other ulcers with exuberant granulations, growths and granulations on the tympanum.

SUMMARY OF INDICATIONS

1. Desiccation is a successful treatment for all accessible benign neoplasms or lesions of the skin and mucous membranes in which destruction of tissues and good cosmetic result is desired. All of such lesions may be regarded as possibly precancerous.

2. Desiccation is curative in the great majority of localized malignant lesions of the skin and mucous membranes. In the more advanced cases the efficiency is increased by combining it with the Roentgen rays, attention being paid to accurately measured dosage.

3. Desiccation is only palliative in cancerous lesions associated with glandular metastasis, in postoperative recurrences and in cases too far advanced for operation. The use of desiccation and the Roentgen rays in some of these cases is justifiable, because sometimes good results beyond expectations are obtained.

I have endeavored to present the important features of this method, covering the various fields of application as briefly as possible, and it is hoped that the presentation is sufficiently comprehensive to serve as a basis for others who may desire to take up the work.

1809 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. Jay F. Schamberg, Philadelphia: Desiccation is a valuable method in appropriate cases of various cutaneous growths. Many of these conditions, as we know, are quite amenable to other methods of treatment long employed by dermatologists. For example, angiomas, in most cases, can be satisfactorily removed by carbon dioxid snow. I believe the method described by Dr. Clark, however, is very valuable in cancer of the mucous membranes of the nose and mouth, particularly the latter, which often proves unsatisfactory to other methods, including surgical procedures. From what I have seen in Philadelphia of the results of the desiccation and fulguration method, I believe it is perhaps the best one I know of in the treatment of cancer of the mouth, and is preferable in many cases to excision. It has a very excellent field of usefulness in the treatment of cutaneous growths, although there are many other physical agents that are equal and some, perhaps, superior to it for the removal of superficial lesions. In a few of the cases I have seen, fulguration has produced an unnecessarily extensive destruction of tissue, more so than would follow other well-chosen methods. These cases, however, had not been treated by Dr. Clark. It might be well for others to emulate Dr. Clark and perfect the technic of this method of treatment, which appears to have a distinct field of usefulness.

Dr. H. H. Hazen, Washington, D. C.: One disadvantage is that in these cases it is impossible to obtain a specimen for pathologic study, so that the true character of the lesion can be determined. We know that with the prickle-cell type of epithelioma, metastases are very apt to occur, while with the basal-cell type they are very rare, and we need statistics on the ultimate results in these cases, based on pathologic examination.

Dr. C. A. Simpson, Washington, D. C.: How does Dr. Clark get his selective action by this fulguration method? Does he compare it with the selective action of the Roentgen ray or radium?

Dr. W. H. Schmidt, Atlantic City: I have had some experience with this method, and have recently employed it in two cases of cancer of the throat. In the first case, in which the disease was well advanced, the pain was relieved after two or three applications of the desiccation method. In the second case, which is still under treatment, the outlook is favorable. The disease is not so far advanced as in the first case, and not only has the pain been relieved, but also the ulcerated surface has a much healthier appearance, and the discharge has lessened. I have also found the method of value in infected and painful ulcers of the leg.

Dr. Arthur F. Holding, New York: Radium is expensive and difficult to obtain, and so far as I have been able to ascertain, the method of treatment described by Dr. Clark is applicable to the same class of cases as is radium, and inasmuch as many practitioners cannot obtain radium, while this apparatus and method of treatment, on the other hand, is within their reach, it is a very valuable addition to our armamentarium. Of course, radium may possess certain properties or advantages of which we are now ignorant, but so far as we know at present, its usefulness in skin diseases is now limited to a class of cases approximately similar to those reported by Dr. Clark. The apparatus necessary to apply desiccation is much more readily obtainable than radium, and up to the present it seems to have produced equally good results in the treatment of various skin growths, and in less time.

Dr. William L. Clark, Philadelphia: Dr. Schamberg referred to the unnecessary destruction of tissue by the fulguration method in some of the cases that came to his notice. I wish to again emphasize the fact that fulguration and desiccation are separate and distinct methods. With desiccation, in experienced hands, there is no unnecessary destruction of tissue in any case, as the operator has complete control, even to the smallest discernible point. The reason sections for pathologic study were not taken in many cases is due to the fact that such a procedure, to a certain extent, would defeat the object of desiccation, which is to destroy tissue without opening blood- and lymph-channels. In apparently clear cases this risk is not taken; in doubtful cases sections have been taken and the channels immediately sealed by desiccation. Desiccation will destroy normal tissue quite as readily as malignant tissue if brought in direct contact, but the point made, an explanation of which was asked for, is that malignant tissue appeared to have been destroyed and had disappeared at points deeper than those actually primarily destroyed by desiccation. This is probably explained by the fact that abnormal tissue is of lower vitality than normal tissue, and that the heat penetration was sufficient to cause the death of the diseased cells, with recovery of the normal cells. In this way it does compare with the selective action of the Roentgen ray and radium. The desiccation method of treatment is applicable to other conditions besides skin lesions. It has been successfully used for neoplasms of such accessible mucous cavities as the larynx, bladder, vagina, rectum and urethra.

THE DIET IN TYPHOID FEVER*

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Whether fever patients shall be fed liberally or sparingly is an old question. Most of us were brought up on the adage, "Stuff a cold and starve a fever," though long before our time Graves[1] had advocated a liberal diet and had suggested that should his friends after his death seek a suitable epitaph for his grave they might use the words, "He fed fevers." In typhoid fever especially it was almost a universal practice to limit the diet to fluids and to a low caloric intake. Emaciation was believed to be inevitable in typhoid fever. Losses of weight as great as 30 or 41 per cent. (Curschmann[2]) have been recorded in extreme instances. Complications increased the loss of weight (Lorain[3]), but even on a diet of 2,600 calories per day in an ordinary case the weight may decrease by as much as 20 pounds (Purits[4]). The disinclination of the patient to take food was considered an indication that he did not need food. Further, it was supposed that food substances could not be well digested and assimilated in the course of high fever; and it was believed that the risks of hemorrhage and perforation were enormously increased in typhoid if solid foods were given. Finally, aside from the difficulties and dangers mentioned above, it was thought that in fever there is either (1) toxic destruction of protein which makes the maintenance of nitrogen equilibrium impossible even if the protein intake and the total caloric intake be as high or higher than is necessary to maintain weight and nitrogenous equilibrium in health (F. Müller,[5] Kraus), or (2) there is a simple hyperactivity of metabolic functions in typhoid which renders weight maintenance difficult (Benedict and Surányi;[6] Ewing and Wolf;[7] Grafe[8]).

Following Graves, a few clinical men attempted to nourish their typhoid fever patients better than before, but up to a few years ago, despite the advice of shrewd clinicians like F. C. Shattuck[9] of Boston and A. G. Barrs[10] of England, not many practitioners have dared to fly in the face of custom and resort to a high caloric intake. Recently, and largely through the influence of the enthusiastic studies carried on at the Bellevue Hospital, New York, by Dr. Warren Coleman[11] and his associates, clinicians have become more courageous, especially in hospital practice. A more liberal diet is now becoming general, though but few, perhaps, resort as yet to the high caloric values reached and advised by the more ardent advocates of liberal feeding.

METABOLISM IN TYPHOID

Laboratory workers have done and are doing their part to establish a rational basis for the feeding of fever patients. As early as 1882 von Hoesslin[12] had shown that foods were absorbed almost as well in typhoid fever as in health. A little later, a long series of publications appeared in St. Petersburg reporting the results of work in Chudnowsky's clinic. These Russian observers, according to Dubois,[13] who gives a brief summary of their work, found that foodstuffs were very well absorbed in fevers, though the absorption was affected to a certain extent by the patient's general condition. Similar results were obtained by von Leyden and Klemperer.[14] These earlier observers found that emaciation could be, to a large extent, prevented by liberal feeding in typhoid, though despite the administration of large quantities of protein they were unable to maintain nitrogen equilibrium in the disease.

In 1909 appeared the important article by Shaffer and Coleman[15] on the protein metabolism in typhoid fever. Their investigations were undertaken with the idea that the destruction of body protein in fever might be reduced to normal limits by adding large quantities of carbohydrate to the food, to act as protein-sparers. Their research is a remarkable one and will doubtless be looked back to in future as an unusual example of a metabolic study of high order at a time when but relatively few such studies were being undertaken in this country. They concluded from their work that by the use of diets of high caloric value, especially rich in carbohydrates, it is possible to prevent not only the "febrile loss" of body protein-nitrogen in patients suffering from typhoid fever, but also that due to the so-called toxic destruction of body protein. They are inclined to believe that there is a greater need for carbohydrate in fever than in health and that if the carbohydrate of the food intake be insufficient the body-protein will be drawn on to supply energy in an available form; if, on the contrary, enough carbohydrate be fed, the body protein will be protected. An interesting feature of the work of Shaffer and Coleman is the finding that from 10 to 15 gm. of nitrogen in the food ingested is sufficient to maintain nitrogen equilibrium, provided large amounts of carbohydrate be simultaneously eaten. They found that their patients could be induced to take as much as from 1,000 to 3,000 calories in the worst stages of the disease, while in convalescence an intake of from 5,000 to 8,000 calories could sometimes be reached. Later, E. F. Du Bois, working in Lusk's laboratory, studied especially the absorption of food in typhoid fever and, confirming von Hoesslin, found that typhoid patients can, throughout the disease, absorb carbohydrates and protein as well as normal persons. He asserted, too, that they can absorb very large amounts of fat, but that the percentage of absorption is somewhat lower than the normal, especially in the earlier part of the disease. During the present year, R. A. Kocher,[16] working in Friedrich von Müller's clinic in Munich, has published a paper on the metabolism in fever and compared the results with those obtained on himself and on his companion (Ferguson) when engaged in active exercise. This investigator used the nitrogen minimum (Sivén), to which excretion in the urine can be reduced, as the basis of his studies. With a very low protein intake and a high carbohydrate intake, the amount of nitrogen excreted in the urine can be reduced to as little as one-third of the amount given out on total fasting. The nitrogen minimum is a high value in fever even with a caloric intake of 80 calories per kilogram. This increase in "nitrogen minimum" is due neither to increased expenditure of energy nor as Graham and Poulton have shown to the fever alone, nor to insufficient caloric intake. Kocher points out that an analysis of Shaffer and Coleman's experiments indicates that while nitrogen loss can be compensated for by a high caloric intake, there are periods in the disease when nitrogen equilibrium cannot be maintained. Kocher's findings, therefore, support the view previously expressed by von Müller that there is in fever an actual destruction of protein due to certain special influences on the protoplasm and that it is difficult or impossible to maintain protein equilibrium at certain periods of febrile disease, even on a high caloric diet.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

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[2] Curschmann, H.: Typhoid Fever, American edition, 1905, p. 368.

[3] Lorain, P. J.: De la température du corps humain et de ses variations dans les diverses maladies, Paris, 1877.

[4] Purits, K. N.: On Increased Feeding of Typhoid Patients, Arch. f. path. Anat., 1893, cxxxi, 327.

[5] Müller, F.: Leyden's Handbuch der Ernährungstherapie, Ed. 2, i, 213.

[6] Benedict, H., and Surányi, N.: Die Stoffwechselvorgänge während der Typhusconvalescenz, Ztschr. f. klin. Med., 1903, xlviii, 290; xlix, 482.

[7] Ewing, J., and Wolf, C. G. L.: The Clinical Significance of the Urinary Nitrogen, iii, Nitrogenous Metabolism in Typhoid Fever, Arch. Int. Med., October, 1909, p. 330.

[8] Grafe, E.: Zur Frage des Stoff- und Kraftwechsels im Fieber, Deutsch. Arch. f. klin. Med., 1911, cii, 213.

[9] Shattuck, F. C.: Diet in Typhoid Fever, The Journal A. M. A., July 10, 1897, p. 51.

[10] Barrs, A. G.: A Plea for a Less Restricted Diet in Typhoid Fever, Brit. Med. Jour., 1897, i, 125.

[11] Coleman, Warren: The High-Calory Diet in Typhoid Fever: A Study of 111 Cases, Am. Jour. Med. Sc., 1911, new series, cxliii, 77; Five years' Experience with the High-Calory Diet in Typhoid Fever, The Journal A. M. A., Aug. 3, 1912, p. 363.

[12] Von Hoesslin, H.: Arch. f. path. Anat., 1882, lxxxix, 95, 303.

[13] Dubois, E. F.: The Absorption of Food in Typhoid Fever, Arch. Int. Med., September, 1912, p. 177.

[14] Von Leyden, E., and Klemperer, G., in Handbuch der Ernährungstherapie (von Leyden), 1904, ii, 332.

[15] Shaffer, P. A., and Coleman, W.: Protein Metabolism in Typhoid Fever, Arch. Int. Med., December, 1909, p. 538.

THE HIGH CALORIC DIET

This has been described so often that its details need not be repeated here. For those who wish quickly to inform themselves regarding its content and mode of application I would recommend the perusal of the chapter dealing with it in Friedenwald and Ruhräh's textbook,[17] or, especially, of the original article by W. Coleman and of that of Crohn.[18]

Where good milk is not available, or in the cases in which milk is not well borne, a diet such as that recommended by G. C. Rodgers,[19] of Elkins, W. Va., may be tried. In parts of the South (Florida, Georgia, etc.), physicians have told me that they have difficulty in securing good milk and that they often have to be content with foods other than milk in the treatment of typhoid fever.

The amount of food necessary to meet the needs in typhoid fever is undoubtedly large. Though Grafe asserts that the total metabolism in a fasting typhoid patient never exceeds 2,798 calories, Coleman's studies prove that to obtain nitrogen equilibrium, from 4,000 to 5,500 calories per day are necessary, that is, from 60 to 80 calories per kilogram of body-weight. The optimal protein intake seems to lie between 62 and 94 gm. in the twenty-four hours, which corresponds to 10 or 15 gm. of nitrogen per day. The carbohydrate intake is most important; when not contra-indicated for some special reason, it should make up, Coleman thinks, a half of the calories given. Fat seems to be better borne in the amphibolous period and during convalescence than in the earlier stages of the disease.

Protein may be taken in sufficient amounts as eggs and milk. Schottmüller[20] and other German writers give as much as 100 gm. of scraped meat per day, but in American clinics meat is rarely given, as it seems often to excite digestive disturbances and to increase renal irritation. Meat soups are also avoided, though a little broth or consommé may be given to improve the appetite and to stimulate the secretion of the gastric juice. If soup be given, it is well to add eggs and cereal to it to increase the caloric value. Eggs may be taken raw, or beaten up with milk, or as soft-boiled or coddled eggs. From four to eight eggs may often be given in the twenty-four hours.

The carbohydrate may be given partly as milk, partly as bread or toast (with butter), and partly as lactose added to the milk, cereals and orange-albumin. Coarse cereals with cellulose residue are to be avoided. Dry toast or zwiebach buttered, if thoroughly chewed by the patient, may be used without harm. Boiled rice and mashed potatoes may be given as variety. Lactose is a very important article of the diet. It is easily soluble, is not very sweet, and can be given in large amounts without the appearance of sugar in the urine.

A liberal amount of fat in the diet will send the calories up, but not all patients bear fat well, especially early in the disease. Fat may be tried in the form of cream, of butter and of yolk of egg. Coleman has been able to give as much as 200 or 250 gm. of fat per day without causing digestive disturbances. The fat content of ordinary milk is of course considerable, and milk in amounts of from 1.5 to 2 liters per day can be given to most patients without difficulty. Some patients, however, are intolerant of milk even when modified by peptonization, or by mixing with lime-water or with sodium citrate. Some patients take fermented milks very well, but the objection to them lies in the reduction of the carbohydrate content by the fermentation.

Fruit juices, to which lactose has been added, may be given, as long as there is no diarrhea, but they should be discontinued should diarrhea develop. It must be remembered, however, that patients on the high-calory diet ordinarily have from two to four stools a day.

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[16] Kocher, R. A.: Ueber die Grösse des Eiweisszerfalls bei Fieber und bei Arbeitsleistung, Deutsch. Arch. f. klin. Med., 1914, cxv, 82.

[17] Friedenwald, J., and Ruhräh, J.: Diet in Health and Disease, Ed. 4, Philadelphia, W. B. Saunders Company, 1913, p. 377.

[18] Crohn, B. B.: Experiences with the Coleman-Shaffer Diet in Typhoid Fever, The Journal A. M. A., Jan. 27, 1912, p. 259.

[19] Rodgers, G. C.: General Diet in Typhoid Fever, Report of Two Hundred Cases, Virginia Med. Semimonth., 1912-1913, xvii, 61.

[20] Schottmüller, H.: Die typhösen Erkrankungen in Mohr and Staehelin: Handbuch der inneren Medizin, 1911, i, 504.

INDIVIDUALIZATION

Now that the pendulum has swung toward a high-calory diet in typhoid, the necessity of individualization should not be lost sight of. McCrae has pointed out the dangers of overfeeding in certain cases. I am convinced that there are some patients who cannot bear the high-calory diet; indeed, in our experience at the Johns Hopkins Hospital the resident physician, Dr. Clough, has found it difficult, in the early stages of the disease, to give as large amounts as seem easily possible in the New York Clinic, and we have had some patients to whom a large number of calories could not, we have thought, be administered wisely before the beginning of convalescence. Here good clinical judgment is essential. It is often very difficult, it is true, to say whether in a given case a digestive disturbance or a tympanites is due to some article of the diet or to a high grade of intoxication. I have obtained the impression myself that the severer forms of tympanites depend less on the food intake than on toxic paresis of the wall of the intestine due to a virulent infection or a low grade of resistance. Should tympanites or other digestive disturbances begin to appear, however, it is well to modify the diet at once and especially to restrict the intake of milk and of lactose. If, on the high-calory diet, examination of the stools shows that undigested food is passing through, the diet should be reduced.

A point emphasized by Coleman, the necessity of beginning cautiously and gradually increasing the caloric value of the intake, should be kept in mind. The plan Coleman recommends is to give a pure milk diet for two days in all cases. If the patient be very ill, he may be kept, thereafter, on a fluid diet of from 1,000 calories (1 liter milk, 50 c.c. cream, 50 gm. lactose divided into eight feedings), up to 3,900 calories (1.5 liters milk, 0.5 liter cream, and a pound of lactose, divided also into eight doses) in the twenty-four hours. Soft-boiled or scrambled eggs may be added to this diet even when patients are quite sick. In mild cases, the patients may from the beginning take, in addition, buttered toast, mashed potatoes and cereals in amounts sufficient to make the total caloric intake 4,000 per day. In convalescence 5,000 or 6,000 calories per day may often be given.

The contributions of trained dietitians to the technic of administering a high-calory diet are very welcome. The attractive dishes devised by Miss Edna Cutler,[21] formerly of Bellevue, make a good start in this direction, and it is to be hoped that the dietitians in various hospitals will gradually supply us with a whole series of appetizing dishes which may be given without harm to our typhoid patients. In this connection I have found the cook-book of Jürgensen[22] a valuable aid. I wish it could be translated into English, as the caloric content of each recipe is given. In calculating the caloric content of ordinary foods the little book by Locke[23] on "Food Values" is most helpful.

CLINICAL RESULTS

The careful analysis of the patients in Bellevue Hospital showed a lower mortality among the patients fed on the high-calory diet than among the other cases. Complications (hemorrhage; perforation) and relapses were no more frequent than in patients fed in the old way. The great gain from the liberal diet consists in the lessening of emaciation, the shortening of convalescence and the prevention of exhaustion phenomena after the disease has run its course. Most patients lose 5 or 10 pounds even on the high-calory diet, though now and then a patient can maintain his weight. In the Johns Hopkins Hospital we have been struck with the better appearance of our patients during convalescence since we have fed our patients more liberally. Since convalescence can be shortened and emaciation prevented, there is good reason to believe that post-typhoidal psychoses and post-typhoidal neurasthenic states will be less common than under the old regimen. It is a little too early yet to speak positively regarding this point, but my clinical impression thus far favors the view stated.

In order that the high-calory diet may be successfully given, the details of the nursing must be carefully worked out. The times of feeding during the day and night, the relations of the food intake to the water intake, the quantities given each time, the variety of the food given, the estimation and recording of the calories in a special chart, the regular weighing of the patient, the encouragement of the patient, the tact and judgment of the nurse, are all points to be considered.

The high-calory diet in typhoid will be objected to by many patients, by many nurses, and by many physicians. It is no wonder that prejudice against it should be deep-seated, if we recall the past history of the dietetic treatment of typhoid fever. This prejudice is contributed to by false ideas regarding the character of the intestinal contents in typhoid and their relation to the ulcers. It is contributed to by an old fallacy—the argument *post hoc, ergo propter hoc*—which ascribed hemorrhage, perforation and relapse in typhoid to dietetic errors because they sometimes followed them. There are physicians in practice to-day who still believe it almost criminal to permit a typhoid patient to eat a piece of dry toast even when it is thoroughly masticated. Perforation will occasionally occur, it is true, after a patient has eaten dry toast, but this observation is far from establishing a causal relation between the two events.

As Dr. Edsall is to deal especially in this symposium with the dietetic limitations in certain cases of typhoid fever, I shall leave this side of the subject to him to present.

In conclusion, then, the evidence is at present in favor of the liberal feeding of typhoid patients, provided always that the diet be adapted to the needs and powers of the particular patient under treatment with avoidance of anything like a rigid routine applied to all cases indiscriminately.

Johns Hopkins Hospital.

Child Psychology and Education.—Normal children are neurologically incapable of following the logical sequence of ideas as generated by the adult. Their thought is unstable and incomplete because the association fibers in the brain are only in the process of development, are only as yet parts of an unfinished machine. A knowledge of this physical fact throws a light upon the state of mind which perpetrates the schoolboy "howler." "The weight of the earth is reckoned by comparing a mass of known lead with a mass of unknown lead," may produce a smile from the "man in the street," but the student of child life sees evidence of mental strain, confusion of ideas and only a partial absorption of an education which deals with *words* instead of *things*.—John Arrowsmith, *Jour. State Med.*

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[21] Cutler, Edna, Cited by Coleman, Note 11.

[22] Jürgensen, C.: Kochlehrbuch und praktischer Kochbuch, Berlin, J. Springer, 1910.

[23] Locke, E. A.: Food Values: Practical Tables for Use in Private and Public Institutions, New York, D. Appleton & Co., 1912.

THE EFFECTS OF FOOD ON METABOLISM IN TYPHOID FEVER*

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After it had been ascertained that a patient could be carried through an attack of typhoid fever with the loss of but little if any weight and that the large amount of food required for this purpose is absorbed nearly as completely as in health, the next step in the investigation of the diet problem in this disease was obviously to determine the extent to which the food was utilized after its absorption and the effect it had on the general metabolism.

The investigation which forms the basis of this paper was undertaken in association with Dr. Eugene F. Du Bois.[1]

There are two methods by which such an investigation may be carried out: direct or indirect calorimetry. Direct calorimetry implies the actual measurement of the heat produced by the body and requires an elaborate and costly apparatus. In indirect calorimetry the heat production may be calculated from the oxygen consumption and the carbon dioxid output, making allowance for that portion of the respiratory exchange which is due to protein metabolism.

Several types of apparatus have been devised for measuring the amount of oxygen absorbed and the amount of carbon dioxid given off during predetermined periods of observation. The apparatus which we employed and which we believe to be the most accurate is the Benedict "universal" or "unit" apparatus. A brief description of it will facilitate the discussion of the results which were obtained. The diagram is schematic. The machine consists of a closed circuit of tubes in which are interpolated a blower (*E*) to maintain an efficient circulation of air, two Williams' sulphuric acid bottles (*A* and *B*) to absorb the water-vapor of the breath, a bottle of soda lime (*S*) which takes up the carbon dioxid, a third bottle of sulphuric acid (*C*) which absorbs the water driven over from the moist soda lime, and a water-bottle (*F*) to moisten the air before its return to the respiratory passages. Fresh oxygen is admitted at O_2. Expansion of the circuit is provided for by means of a rubber bag (*D*) or a spirometer which rises and falls with expiration and inspiration respectively. The patient is connected with the apparatus by means of rubber tubes (1 and 2) which are inserted into his nostrils and made air-tight. The patient's mouth is sealed with adhesive plaster to prevent his opening it through inadvertence or through falling asleep.

When a patient is connected with the machine it is obvious that the only substances he can add to the air in the circuit are carbon dioxid and water; the only thing he can take from it is oxygen. The loss of weight by the oxygen-container and the gain in weight by the soda lime bottle (plus sulphuric acid bottle *C*) correspond to the amounts of oxygen absorbed and carbon dioxid given off during the period of observation. It may be added that the observations were made in periods of fifteen minutes each.

Kraus[2] was among the first to study the total metabolism in typhoid fever. He found that the metabolic processes do not depart essentially from the normal, and that the respiratory quotient in the postabsorptive (*nüchtern,* fasting) state corresponds to the nutritive condition of the body at the time of the observation, that is, to the completeness with which the storehouses have been filled. Following Kraus came a number of investigators (Regnard, Riethus, Rolly and Meltzer and others[3]) who, though working with different types of apparatus, obtained respiratory quotients which were so low that it was necessary to assume the occurrence of abnormal processes of metabolism in fever to explain them. This lack of confirmation cast doubt for a time on Kraus' conclusions, but the work of the last few years (Grafe[4], Rolly[5]) is in agreement with that of Kraus, and the conclusion appears to be inescapable that the abnormally low quotients were due to some undiscovered error of technic.

Our studies of the total metabolism in typhoid fever were begun in the fall of 1911 and have been continued through each succeeding typhoid season.[6]

Since the investigation was undertaken primarily to determine whether the high-calory diet exerted any deleterious influence on the patient and whether and in what manner the food was utilized after its absorption, practically all of the observations were made shortly after a meal, on patients who had been receiving large amounts of food. This fact should be borne in mind in comparing the results with those of previous investigators whose patients had been without food for from six to fourteen hours.

HEAT PRODUCTION

The total metabolism, or heat production, was calculated from the oxygen consumption and the respiratory quotient, since the caloric value of the oxygen varies with the height of the quotient. Heat production is expressed in terms of calories per kilogram per day or per square meter of body surface per hour or day. The latter method is the more accurate but is less practical for routine clinical work.

Febrile Period.—The heat production of the high-calory cases (fifty-five observations), averaged for the entire febrile period, was 35.9 calories per kilogram per day.

The heat production in the postabsorptive state (fifty-one observations by other investigators), likewise averaged for the entire febrile period, was 35.3 calories per kilogram per day.

In both groups of cases there is an increase in heat production (35.4 per cent. and 33.2 per cent. respectively) above the average (26.5 calories per kilogram per day) of seventeen normal persons for the most part collected from the literature to serve as controls. But the increase in the high-calory cases over those in the postabsorptive state is only 1.7 per cent, and lies within the limits of error.

It is evident, therefore, that even large amounts of food (at least, when the protein is kept relatively low) do not increase the heat production, or the fever, in the febrile stage of typhoid.

In health the taking of food is followed by an increase in heat production which, according to

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Department of Applied Pharmacology, Cornell University Medical College and the Second Division of Bellevue Hospital.

[1] The detailed results of the investigation will appear shortly in the Archives of Internal Medicine.

[2] Kraus: Ztschr. f. klin. Med., 1890, xvi, 160.

[3] For these and other references, see Grafe (Deutsch. Arch. f. klin. Med., 1909, xcv, 544).

[4] Grafe: Deutsch. Arch. f. klin. Med., 1910, ci, 209.

[5] Rolly: Deutsch. Arch. f. klin. Med., 1911, ciii, 93.

[6] During the season of 1913-14 the calorimeter, constructed in the Second Medical Division of Bellevue Hospital under the auspices of the Russell Sage Institute of Pathology, was employed. The results obtained with its aid will form a separate communication.

Rubner, is due to its specific dynamic action, and it has simply been assumed that food exerts such action in fever. Many years ago von Hoesslin estimated the supposed increase in metabolism at 10 per cent. to 15 per cent. and later writers accepted his estimate.

The reason food does not exhibit its specific dynamic action in typhoid fever can, at the present time, only be conjectured. It is not without analogy, however, for in health the specific dynamic action of food does not appear when metabolism is stimulated by external cold.

Convalescence.—The heat production of the high-calory cases was essentially uniform in the first four weeks of convalescence. The average of forty-nine observations covering these weeks was 36.2 calories per kilogram per day. This is 36.6 per cent. above normal and slightly less than 1 per cent. above the heat production in the febrile period.

The reason for the persistence of such a high metabolism into convalescence has not been definitely ascertained. Since the temperature remains normal and the patients show steady improvement in weight and strength and appearance, however, there is no present reason to consider that the high metabolism contra-indicates the liberal use of food.

In the postabsorptive state, in the case of patients who have received insufficient food during the fever, the metabolism increases with each week of convalescence, at least up to the fourth, as is shown in the following averages: In the first week the average of 25 observations was 26.9 calories per kilogram per day; in the second week, the average of 18 observations was 28.3 calories; in the third week the average of 15 observations was 29.7 calories; in the fourth week the average of 24 observations was 30.6 calories.

Since, under the older methods of dieting, the total food is gradually increased as convalescence progresses, the increasing metabolism may be considered to represent the specific dynamic action of the food.

THE RESPIRATORY QUOTIENT

The relation of the carbon dioxid output to the oxygen consumption constitutes the respiratory quotient, $\frac{CO_2}{O_2}$, which, together with the nitrogen of the urine, furnishes information respecting the nature and amounts of the substances which the body is consuming.

The chemical composition of carbohydrate is such that when it is completely oxidized to carbon dioxid and water, either within or outside of the body, the volume of carbon dioxid produced and of oxygen consumed are exactly equal; consequently, the quotient is 1.0. When fat alone is completely oxidized to carbon dioxid and water, the quotient is 0.7. When protein alone is oxidized to urea, the form in which the greater portion of it leaves the body, the quotient is 0.8.

But the body in its metabolic activities always utilizes more than a single foodstuff and the value of the respiratory quotient varies according to the proportions of protein, fat and carbohydrate consumed; the greater the proportion of carbohydrate, the higher the quotient. Quotients over 1.0 are obtained during the transformation of carbohydrate, an oxygen-rich body, to fat, which is oxygen-poor. According to current belief, the respiratory quotient never falls below 0.72 in fever.

Febrile Period.—In the febrile period the average respiratory quotients of the high-calory cases rose steadily from 0.83 in the earlier stages to 0.88 in the later. The average quotient for the whole period was 0.86.

The average respiratory quotients of the postabsorptive cases exhibited a tendency to fall. Though the fall is slight it suggests the gradual depletion of the glycogen reservoirs in consequence of the insufficient food-supply. The average quotient for the whole febrile period was 0.767.

This difference of nearly 10 points in the average respiratory quotients of patients after food and in the postabsorptive state is very significant. Since the height of the quotient corresponds to the relative proportion of carbohydrate consumed, the higher quotient of the high-calory cases clearly indicates that the body utilizes carbohydrate when it is available in preference to fat or protein for the increased production of energy in fever just as it does in health when called upon to perform extra work.

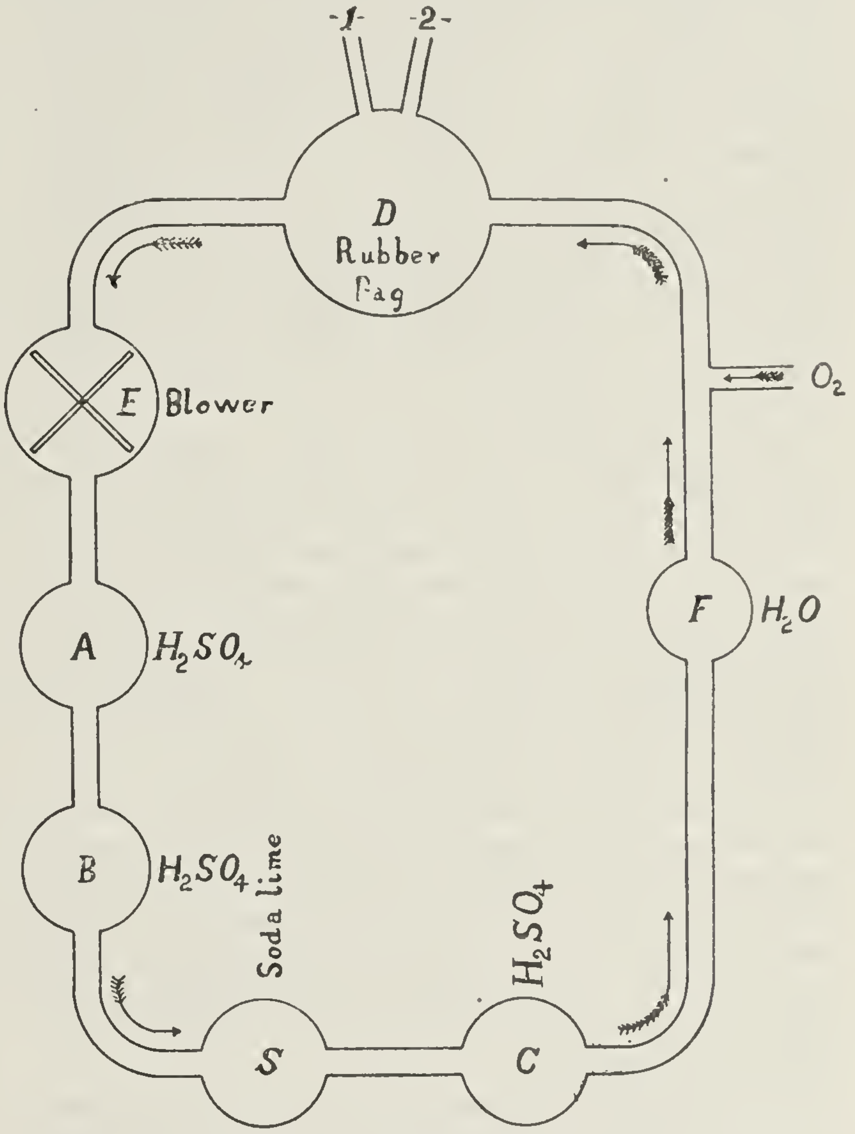

Diagram of the Benedict "universal" or "unit" apparatus for measuring absorption of oxygen and output of carbon dioxid.

Convalescence.—In the first week of convalescence the average respiratory quotient after food was 0.93. In the second week the average had risen to 1.01, indicating that, in some cases, the formation of fat from carbohydrate was in progress. In the third and fourth weeks the quotient fell, the averages being 0.95 and 0.91 respectively.

In the postabsorptive cases the respiratory quotient rose steadily during the first four weeks of convalescence, the averages being 0.82, 0.84, 0.92 and 0.96. The rise corresponds to the increase in the food as convalescence progresses.

Though the formation of fat was observed in a few patients in the earlier weeks (in the first in two of Grafe's and one of Rolly's) the respiratory quotient indicates that the food was still insufficient to meet the ordinary demands of the body for energy, and, at the same time, to permit the replenishment of the stores of fat and glycogen until the fourth week had been reached or even later.

GENERAL CONSIDERATIONS

We may apply the facts which this study has brought out, together with others previously ascertained, to the dietetic requirements of the typhoid patient in the following manner:

The increase in total metabolism which occurs in typhoid fever creates a demand for more food than would be necessary to maintain the same individual in equilibrium in health, if he were confined to bed. The average increase during the course of the fever reaches about 34 per cent., but, for reasons which are not yet apparent, an amount of food which is just sufficient to cover the heat production will not protect the body protein. It has been pointed out on other occasions that a much greater quantity of food is necessary for this purpose, and that the quantity varies with different patients. Rolland[7] succeeded in establishing nitrogen equilibrium with 45.5 calories per kilogram per day, but Shaffer and Coleman[8] were unable to accomplish it in any patient with less than 58 calories; in one patient 85 calories[9] were required, and in others even this quantity of food did not suffice for the purpose.

It will scarcely be denied that a typhoid patient should receive in his food enough energy to cover his heat production. This amounts on the average to 35.9 calories per kilogram per day when the patient lies at complete rest, quietly breathing into the respiration apparatus. Under ordinary conditions, however, he moves about the bed more or less and thereby increases his metabolism at least 10 per cent. Therefore, on the basis of heat production alone, the food should furnish 39.5 calories per kilogram per day.

But since such an amount of food will not maintain the patient in nitrogen equilibrium, these questions present themselves: Shall the typhoid diet be arranged merely to cover the heat production, or shall the attempt be made, by giving more food, to protect the body protein? The results of this particular investigation do not furnish the answer; it must be drawn from other sources.

The production of energy is not the sole purpose of food. Food must maintain the body in a condition of equilibrium or illness, if not death, will follow.

While it is true that countless numbers of typhoid patients have survived the loss of large amounts of body protein, drawn, for the most part, from their muscles, may it not be equally true that many have died because the loss was not prevented? A normal man who is losing protein nitrogen is not receiving sufficient food. Such persons are notoriously less able than those in perfect health to resist invasion by pathogenic bacteria, or successfully to combat disease. A typhoid patient who is losing nitrogen is consuming his own tissues to supply the deficit in his food. And since it has been found possible to prevent this drain I am firmly of the opinion that the patient's best interests are conserved by giving sufficient food for the purpose, providing in all instances that the digestive organs are capable of handling it. The patients who have come under my observation have been in better condition, the more nearly nitrogen equilibrium has been approached, and they have lost weight until this condition has been reached.

In this connection it may be recalled that a normal man cannot be maintained in nitrogen equilibrium if he receives only sufficient food to cover his basal heat production. This is due to the specific dynamic action of the food, or, as Lusk has shown, to the stimulation of metabolism by the excess of metabolites in the circulation. The reason that a typhoid patient cannot be maintained in nitrogen equilibrium on an amount of food which just covers his heat production has not yet been discovered.

The high quotients of the high-calory cases during the course of the fever have a practical relation to the selection of foods for the typhoid patient. As already pointed out, the height of the quotient is proportional to the amount of carbohydrate which is consumed. In our observations the quotient invariably rose after a meal containing carbohydrate. In one patient, a boy of 17 years, it rose on the fourth day of a relapse to 1.04 while the temperature was 102 F. The explanation of this is that the glycogen stores had been replenished during the preceding afebrile period, the food which the boy had received before breathing into the machine contained more carbohydrate than he needed for his energy exchanges, and a portion of it was transformed into fat.

This observation possesses very great interest in that it illustrates that the constructive processes of metabolism may be called into play even in the presence of fever. No reason is apparent why, if sufficient carbohydrate is supplied during the original fever, the same transformation might not occur. When a patient comes under treatment early in the disease the desirability of attempting to add to his store of fat may well be questioned. When, however, a patient has lost much weight I believe that the attempt should be made to bring the constructive processes into action even though fever is present.

The foregoing discussion should not be construed as the expression of an opinion prejudicial to the value of fat. The rôle of fat in the fever diet has not yet been completely learned. Observations designed to test its value are already under way and others have been planned. At present I am in position to say only, on the basis of clinical experience, that I believe fat to be an important constituent of the diet. In the case of patients who cannot take much carbohydrate it serves to keep up the energy value of the food and, so far as clinical observation tells, to maintain the patients' nutrition. In other patients it appears to be a physiologically economical way of increasing the total food intake.

These opinions derive support from the fact that the more intimately the processes of metabolism in fever are understood, the more nearly are they seen to approach normal. With the exception of the unexplained need of the typhoid patient for an excess of food over his heat production in order to maintain nitrogen equilibrium, the only difference, which may be considered to have been clearly established between the metabolic processes in fever and in health, is a difference in intensity.

CONCLUSIONS

1. Food does not increase the heat production or the temperature in typhoid fever, even when given in

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[7] Rolland: Deutsch. Arch. f. klin. Med., 1912, cvii, 440.

[8] Shaffer, P. A., and Coleman, W.: Protein Metabolism in Typhoid Fever, Arch. Int. Med., December, 1909, p. 538.

[9] In some of these cases the carbohydrate calories alone, in the food, reached 50 and more a day.

large amounts (at least, when the quantity of protein is kept relatively low). Therefore, the fear which has been entertained by physicians for so many years that a liberal diet would raise the temperature of the patient is proved to be groundless.

2. The body utilizes carbohydrate in preference to fat or protein to meet the increased demand for energy in typhoid fever just as it does in health when called on to perform additional work. Consequently, carbohydrate should occupy a prominent place in the diet.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BARKER AND COLEMAN

Dr. Lawrence Litchfield, Pittsburgh: I do not think enough stress has been laid on the way in which the high-calory feeding should be instituted, the time it should be commenced, and its gradual development. In the early stages of the fever when the patient is first stricken, with coated tongue, anorexia, etc., food is distasteful and it is almost impossible to get patients to take it, but if their digestive apparatus is treated with respect during the first stage, it is not long before the patient will begin to have an appetite and a cleaner tongue. Then is the time to begin feeding, and the amount should be increased gradually with the patient's increasing ability to take care of it. Milk in typhoid fever is regarded as a liquid food, while in reality it is sometimes the most solid food we could give. There is nothing more resistant than the curds sometimes found in typhoid stools. Another danger of the milk in cities where it is usually pasteurized is that the lactic-acid bacillus is killed, but the more dangerous spores are not killed and the milk may become very toxic with the warning sourness. Some years ago we had in Pittsburgh the most beautiful place to study typhoid fever and just before taking up the more liberal feeding of typhoid patients, I had two hundred patients on fermented milk which I fortified by the addition of cream and sugar of milk, with excellent results. Milk that is fermented does not form the large curds in the stomach, and except in rare cases it is easily borne by the patient and readily taken. I gradually increased the liberality of my diet and in 1908 or 1909 was giving toast, scraped meat, eggs, etc. The patient should be given things on which he can chew. Mastication helps to keep the mouth and tongue clean and stimulates appetite and digestion. With patients who do not take food readily, when we are at a loss to introduce a sufficient number of calories, I have, in some cases, been pleased with the results of glucose solutions given by enteroclysis. In desperate cases I give dextrose in isotonic solutions intravenously, as much as 2 liters of a 5.1 per cent. solution in twenty-four hours. When constipation is troublesome the feeding of fruit and vegetables is often not advisable, and in such cases I have found paraffin oil very satisfactory. I once had 150 consecutive cases of typhoid fever on small daily doses of Epsom salt. There were no accidents and no unusual percentage of sequelae and the mortality was lower or a little less than my average. I think, however, paraffin oil is better than Epsom salt for troublesome constipation in typhoid fever. My last patient was a young married woman, six months pregnant, with paratyphoid infection complicated by an acute hepatitis and cholecystitis. She was very sick, but, after the first few days, took a liberal diet and made an uneventful recovery.

Dr. O. T. Osborne, New Haven, Conn.: Tympanites, which I believe is not a symptom, but a complication, is most important. It means a disturbed digestion, with fermentation, and it interferes with breathing, with the action of the heart, and vastly increases the danger of hemorrhage and perforation. Hence, tympanites should be prevented, if possible, and the diet and care of the bowels is all-important. Inflammation in the intestines in typhoid fever is a surgical process, and the cleaner the small intestine is, the better for the patient. I would not allow constipation or a diarrhea, except what may be termed a therapeutic diarrhea; namely, the bowels should be moved at the will or decision of the physician. I give calomel or castor-oil in the beginning of the disease, and every alternate day the bowels are moved by cascara, aloin, or a saline. On the intermediate day the nurse gives a rectal injection of 1 ounce each of glycerin and water. After the bowels have moved once thoroughly, or at most twice, I direct the nurse to give a tablet of morphin $\frac{1}{10}$ grain. This will stop excessive action of the bowels and check peristalsis. The patient should have all the nutriment necessary to carry on all of his metabolism: I give a cup of coffee in the morning, with a little sugar in it; two cups of oatmeal gruel a day; and two whole eggs a day, either raw or poached. Raw egg-albumin, or egg-white, is not a satisfactory nutriment. If the patient is well enough to chew, he should have dry or buttered toast. He should also have, daily, the juice expressed from a pound of chopped beef which has been first covered with cold water, allowed to stand an hour, and then the whole juice and water expressed out. This amount of nutritive liquid may be served salted at two or three feedings. The patient should also have a pint of milk a day, the juice of one orange, and two or three tablespoonfuls of lime-water. If the tongue is much coated, the patient should have a little dilute hydrochloric acid after milk, eggs, or meat. If it is best not to administer meats or meat-juices, the patient should receive a small dose of iron each day, and my choice is *Eisenzucker*. If in spite of such care of the diet and the bowels, some tympanites develops, I use yeast or lactic-acid bacilli treatment.

Dr. Allan C. Eustis, New Orleans: My experience was acquired in a large country practice after having had the disease itself. I had so much milk poured into me that I became nauseated at the sight of it, and about the tenth day I wanted carbohydrates in the form of toast and molasses, etc. In my practice in the country I began to feed my patients, more especially on carbohydrates, when Dr. Coleman's work came out. I have since been an ardent advocate of his principles. I think we make the mistake of paying too much attention to quantity and not enough to quality. I believe tympanites is not a symptom but a complication, and, further, that the dry, coated tongue is also a complication, and can be cleared up by the proper dietetic measures. In the last three years I have collected twelve cases in which we have kept the patient's tongue dry and clean, simply by a properly selected diet. Analyses of the gas passed by the rectum in several cases have shown carbon dioxid as rare, hydrogen sulphid and methane predominating. I do not believe, therefore, that carbohydrates cause tympanites, but consider protein putrefaction as responsible. A high indican test is an indication to take the patient off of protein and substitute carbohydrate in any easily digestible form, such as sugar, toast, mush, cream of asparagus, soup, gruels, etc. A patient should be given three meals a day and should be treated the same as a healthy person, allowing ample time at night for sleep. In this way you do not tire out the gastric juice, and the caloric content can be kept up by giving fruit juices with sugar of milk between meals. I have often allowed patients to take a cocktail before their meals if they have been used to it. Frequent examinations of the twenty-four-hour nitrogen output of these cases showed that they do well with 5 to 10 gm. of nitrogen per day. Intestinal poisons must always be considered when treating a typhoid patient, and I would recommend the daily examination of the urine for indican, which, when present, should be eliminated by a lowering in the protein of animal origin.

Dr. Lewellys F. Barker, Baltimore: The three striking changes, clinically, in the appearance of typhoid patients in hospitals are (1) the changes in the tongue; (2) the lessening of the tympanites, and (3) the prevention of extreme emaciation. We do not see the old "typhoid tongue" any more. We rarely see marked tympanites, with careful feeding; occasionally, however, we do see it. I hope some one will find out how always to prevent tympanites. Only last week, a close friend of mine died from typhoid with tympanites and perforation, temperature 106. If we could have prevented the tympanites in this case he might have lived, but I think he had toxic paralysis of the walls of the intestine. I think bacteriologic study throws some light on relapses. In the first week of the disease, there are always large numbers of typhoid bacilli in the blood; there are relatively few in the second and third week. There is a new bacillemia with every relapse. We clinicians feel that a great debt of gratitude is due to the men who carry out the careful metabolic studies on which improvements in therapy can be based. The final judgment has, however, to be made by the clinical men who apply these studies in the actual treatment of a large series of cases. The laboratory research must be followed and supplemented by clinical research—the testing by actual observations, at the bedside, of the applied findings.

Dr. Warren Coleman, New York: Few points remain to be considered. The first concerns the remark of Dr. Barker concerning the possible objections to the use of the high-calory diet. He suggested that some nurses complain of the amount of work which the diet entailed. Without exception, the nurses to whom I have spoken of the matter have agreed that the preparation of the food was less troublesome than the care of patients under the older methods of dieting. The high-calory patients are rarely delirious and they rarely suffer from diarrhea, whereas, formerly these symptoms were common and often demanded a nurse's whole attention. The objection to fermented milks is that their fuel value has been reduced by the removal of the milk-sugar. With a diet in which proteins predominate the putrefactive organisms dominate the flora of the intestine. In the presence of large amounts of carbohydrate the fermentative type predominates. This is an additional reason for keeping the protein low—from 10 to 15 gm. of nitrogen in twenty-four hours. I believe that in most cases tympanites is due to injudicious dieting. I never give laxatives or purgatives in typhoid. A simple enema every morning empties the lower part of the intestine and answers every purpose.

THE PSYCHOSIS OCCURRING DURING THE COURSE OF PERNICIOUS ANEMIA

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In reporting the two following cases I wish to call attention to the abnormal *mental* condition occurring during the course of pernicious anemia, not coming especially as one of the final complications of the disease. It is perhaps of little moment to see such a condition occurring as one of the late complications, but we infrequently read in the literature of a well-defined psychosis making its appearance weeks and months previous to the death of the individual.

CASE REPORTS

Case 1. (No. 8043).—Male, white, aged 52, farmer. Admitted to the Columbus State Hospital Dec. 24, 1912. Commitment papers state that the "onset has been gradual, that he is suffering from pernicious anemia with peripheral neuritis, is at times excited and dangerous, threatening to kill different members of the family. Has hallucinations and thinks that different persons were trying to kill him. Is insanely jealous of his wife; at times having violent, mad fits." When admitted to the hospital the patient appeared intensely sick and was unable to walk without assistance, having marked dyspnea on the slightest exertion. He was at once placed in bed and the initial examination showed him to be a man of quite marked intelligence, possessing quite a little insight into his present condition, oriented as to location and apparently well satisfied. He realized that he was quite sick physically and desired to do all that he could to improve his condition.

From his history we learn that he has been quite a prosperous man and for many years his married life was happy. Finally, of his own accord and for no real cause he separated from his first wife. He soon married, but his second union had been unhappy. For the past few weeks he had been very suspicious of his second wife, thinking that she was trying to poison him, or in some other way cause his death. He gave as his reason for such belief that his second wife had always been jealous of his first one. He also stated that because he had quite an estate his second wife was anxious that he die so that she would fall heir to his property. At different times during the examination he would close his statement with the remark that "although this seemed very real to him it must certainly be imaginary." He showed very little difficulty in speech, pronouncing test phrases quite well. There were never any convulsive attacks, blind or dizzy spells, and he claimed that he had never had any defect of memory.

In about three weeks after the first examination the patient showed some marked changes both physically and mentally. He was well oriented as to place but could not remember how long he had been in the hospital. At this time there was also some indecision in his own mind as to whether or not he had had any real mental trouble. He could see no reason why he should have been brought to the hospital. He grew very toxic at intervals, so that he was confused and disoriented in every field. When aroused from his lethargy he recognized those about him, but when left alone, soon relapsed into a semi-conscious condition. The functions of the arms and legs became less and less efficient and for two or three weeks previous to his death he was almost entirely helpless. He died March 17, 1913, three months after admission. When admitted physical examination was as follows:

Physical Examination on Admission.—Patient is 5 feet 5 inches in height, weight 131 pounds, light hair, blue eyes, pupils dilated equally, tongue clean, dark red in color; skin is clean, somewhat tinted with yellow, musculature very flabby, breath has bad odor, inguinal and postcervical glands enlarged, liver dulness increased downward. Examination of chest negative. Nervous system: right patellar tendon more active than the left, marked ankle-clonus of the right side. Romberg's sign present. Gait unsteady. At the time of admission to the hospital blood examination was practically negative, but from an examination made Oct. 15, 1912, by Dr. Frank Winders we learn that the hemoglobin was 40, red blood-cells 1,750,000, whites 5,200. Differential count—polynuclears 48, small mononuclears 40, large mononuclears 7, eosinophils 2, megaloblasts 3, normoblasts 4, 100 whites; color index plus; polychromatophilia, poikilocytosis. At the time of this examination patient was of a pure lemon tinge, there was marked throbbing of the muscles of the neck, severe dyspnea, palpitation of the heart and digestive disturbances. The heart was dilated. A loud systolic murmur was heard all over the cardiac region and transmitted to the large vessels of the neck. Blood-pressure 105. Pupils sluggish, no patellar reflexes present and there was some unsteadiness of the limbs and feet. The diagnosis was pernicious anemia with very unfavorable prognosis; in fact, the patient was not expected to live more than three or four weeks. It was possible to obtain consent for only a partial necropsy.

Necropsy.—All the fatty tissue showed the characteristic lemon color. The left kidney was malformed, showing some old scars or contractures. The spleen was enlarged and intensely congested — a large splenic tumor. Liver was enlarged, markedly congested. Gall-bladder distended with bile, but no stones. Lungs on each side contained air but were bound down by adhesions. The heart was smaller than normal and full of clot; pericardium very yellow. The intercostal as well as the other muscles examined were of a deeper red color than normal. The brain and spinal cord were not examined. Other organs were opened *in situ* and replaced. From the gross examination the diagnosis of pernicious anemia was made.

Case 2 (No. 8206).—Male, white, aged 55, farmer; committed to the Columbus State Hospital June 14, 1913. The commitment papers stated that he was excited, had delusions concerning his previous medical treatment and also at times had delusions of persecution and of accusation. He, at times, manifested quite marked mental disturbances. According to the statements of the committing physicians he was thought to have advanced pulmonary tuberculosis.

When admitted to the hospital the patient was quiet and well behaved. He was placed in bed and given the usual routine treatment and the preliminary examination revealed the following mental state:

Preliminary Examination.—"The patient is unable to tell where he is, the day, the month, or the year, and concludes his answers with 'I have been doped up so much that my ears ring.' He confuses his present location with the place—county infirmary—where he had been an inmate several weeks previously. He insists that he has had no trouble with his mind and that the immense amount of medicine he has taken is responsible in every way for any peculiar symptoms he may manifest. Although he complains of some roaring in his head he has no clear-cut hallucinations. His memory shows lack of accuracy for both recent and remote events and his general mood is much happier than his physical condition would warrant."

Examination.—A month after his admission he still showed temporal, spatial and personal disorientation. During a conversation he disclosed delusions of persecution, hallucinations of sound and illusions, and during the entire examination there was failing attention and lack of appreciation of his condition. He was much reduced physically and the skin showed a well pronounced lemon yellow tint. Aside from some slight paresthesias the nervous system was negative. The blood examination at this time showed a marked pernicious anemia.

During the last two or three weeks of his illness he manifested marked signs of cerebral anemia, the roaring in his head becoming much more severe, vertigo was constant and unless assisted he was not able to walk. His sensibilities were diminished and he gradually grew so clouded that he could not converse with those about him. Death occurred Aug. 4, 1913, about seven weeks after admission. There was no necropsy.

DISCUSSION

When we attempt to classify these two cases we find no definite group in which to place them, unless it should be with the intoxication psychoses. To summarize, we have two individuals with well defined pernicious anemia, showing in common many mental signs, namely, lack of orientation—in the one case in every field and in the other especially in regard to place; lack of insight; such delusions as we commonly meet in paranoid states—those of a persecutory type; the memory in one case apparently normal, until late in the condition, while in the other there was lack of accuracy for both recent and remote events; the mood in both parties much happier than the physical condition would warrant; lack of attention and appreciation, and numerous physical signs such as parasthesias, diminished sensibilities, vertigo, speech disturbances, loss of functions of the arms and legs, ankle-clonus, unequal patellar reflexes, Romberg signs, unsteady gait. Apart from the abnormal mental conditions present it is evident that we are dealing with some lesions of the brain and spinal cord, such as have been described by various writers in their reports of cases.

Hereditary Development and Differentiation.—Heredity may be defined as the particular germinal organization which is transmitted from one generation to the next. Inheritance or heritage is the sum of all those qualities which are determined or caused by this germinal organization, by which it is transformed into the adult organization. Differentiation is the formation and localization of many different kinds of substances out of the germinal substances, of many different structures and functions out of the relatively simple structures and functions of the oosperm.—Edwin Grant Conklin, *Pop. Sc. Month.*

THE BACTERIOLOGY OF TYPHUS FEVER *

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The relatively recent experiments of Nicolle,[1] Ricketts and Wilder,[2] Anderson and Goldberger,[3] revealing the manner in which typhus fever was borne from patient to patient by lice, and the later investigations of Anderson and Goldberger[3] proving the identity of Brill's disease with typhus fever, have aroused new interest in this disease and the next step toward the solution of its etiology, the discovery of the specific germ, is awaited expectantly.

The bacteriology of typhus has been studied for years and numerous investigators have reported the discovery of organisms in typhus blood. No one of them, however, has thus far been able to establish the specificity of any particular organism. In general the students of the disease may be grouped into two camps, the one championing a protozoan etiology, the other maintaining that typhus is caused by a bacterium.

Among the first important investigations were those of Hlava[4] (1888), who grew a streptobacillus from the blood and spleen of twenty of thirty-three patients, but who considered more important a protozoan which he later (1892) advanced as the cause of typhus. Thoinot and Calmette[5] in 1891 found small, actively motile threads, flagellates, which disappeared from the blood in twenty-four hours, and Gotschlich[6] described minutely an intracorpuscular protozoan which he classified as "pyroplasma bigeminum." Dreyer,[7] Kireef[8] and others were unable to confirm these observations. More recently Krompecker, Goldzieher and Augyan[9] obtained a variety of different organisms from the blood, streptococci, and staphylococci, Friedländer's bacillus and others, but considered more important than these bacteria certain structures resembling malarial plasmodia which they found both within the blood corpuscles and free in the plasma; oval, pear-shaped and rod-like bodies taking an intense blue stain with Giemsa. Very recently Hegler and von Prowazek[10] have described minute bodies filling many of the leukocytes and found also free in the plasma, taking a deep red stain with Giemsa considered to be strongyloplasma. They were found both in patients and in infected apes, but not constantly.

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* From the Memorial Institute for Infectious Diseases, Chicago.

[1] Nicolle, Compte and Conseil: Transmission experimentals du typhus exanthematique par le pou de corps, Compt. rend. Acad. d. sc., 1909, p. 149.

[2] Ricketts and Wilder: The Transmission of the Typhus Fever of Mexico (Tabardillo) by means of the Louse (Pediculus Vestimenti), The Journal A. M. A., 1910, xiv, 1304; The Etiology of the Typhus Fever (Tabardillo) of Mexico City, The Journal A. M. A., 1910, liv, 1373.

[3] Anderson and Goldberger: On the Infectivity of Tabardillo, or Mexican Typhus, for Monkeys and Studies on Its Mode of Transmission, Pub. Health Rep., 1909, xxiv, 1941; On the Etiology of Tabardillo or Mexican Typhus, Jour. Med. Research, 1910, xii, 409; The Relation of So-Called Brill's Disease to Typhus, Pub. Health Rep., 1912, xxvii, 149.

[4] Hlava: Sur le typhus exanthematique, Semaine méd., 1889, p. 420; Centralbl. f. Bakteriol., Orig., 1902, xxxii, 27.

[5] Thoinot and Calmette: Note sur quelques examens du Sang dans le typhus exanthematique, Ann. de l'Inst. Pasteur, 1892, vi, 39.

[6] Gotschlich: Ueber Protozoen befunde (Apiosoma) im Blute von Flecktyphuskranken, Deutsch. med. Wchnschr., 1903, xxix, 329.

[7] Dreyer: Untersuchungen über den Typhus exanthematicus in Egypten, Arch. f. Schiffs u. Trop. Hyg., 1911, xv, 319.

[8] Kireef: Bakteriologische Untersuchungen des Blutes bei Flecktyphus, Centralbl. f. Bakteriol., etc., 1905, xxxviii, 518.

[9] Krompecker, Goldzieher and Augyan: Protozoenbefunde bei Typhus exanthematicus, Centralbl. f. Bakteriol., Orig., 1909, lix, 612.

[10] Hegler und von Prowazek: Untersuchungen über Fleckfieber, Berl. klin. Wchnschr., 1913, l, 2035.

The discovery that typhus is an insect-borne disease lent strength to the protozoan theory of its etiology because of analogy with such insect-borne infections as malaria, sleeping-sickness and relapsing fever. It is only more recently that instances of insect-borne bacterial diseases have come to light, but a consideration of these, of plague transmitted by the flea and rocky mountain spotted fever by the wood ticks, should warn against drawing too hasty conclusions about typhus.

Bacteria of all kinds have been described in the blood of typhus patients. Following Hlava came Lewaschew[11] in 1892 with cultures of micrococci and Dubief and Brühl[12] with delicate diplococci which were cultivated on the usual laboratory media. Balfour and Porter[13] in 1899 described a diplococcus. Deserving of greater consideration, however, are the more recent investigations of Galesesco and Slatineano[14] (1906), Klodnitsky[15] (1907), Rabinowitsche[16] (1908), Ricketts and Wilder[2] (1910), McCambell[17] (1910), Predjetschensky[18] (1910), Fürth[19] (1912) and Plotz[20] in 1914. All of these authors describe bacilli the descriptions of which bear a certain resemblance.

Galesesco and Saltineano[14] observed in fresh preparations of blood, elements 2 to 3 microns in length with refractile poles, non-motile, polar-staining. These observations were not constant. The same authors also described a large number of other bacteria.

Klodnitsky[15] in 1907 found thin bacilli in laked blood. In 1908 he obtained a culture of bacteria which proved highly virulent for mice. Artz and Kerl[21] were unable to confirm this observation.

Rabinowitsch[16] observed in the peripheral blood diplococci and rods which by Giemsa stain show a lighter middle zone. The cultures contained Gram-positive diplobacilli. In the first generation these were agglutinable by typhus serum, but not later, which is explained by Rabinowitsch in a subsequent paper by the sticky character of the colonies and the difficulty in making homogeneous suspensions. The cultures were pathogenic for guinea-pigs and rabbits, producing a disease much like typhus in man. Later, in 1912, Rabinowitsch obtained inconstantly a complement deviation, using an extract of culture as antigen. Cultures older than two months proved unavailable. The patient's serum (antibody) had to be taken not earlier than the sixth day of convalescence.

In December 1909 an investigation of typhus fever in Mexico City was undertaken by Ricketts and myself.[2] Blood serum of typhus fever patients was found to be sterilized by filtration through Berkefeld filters, an observation which was subsequently confirmed by others, and it was the encouragement offered by the results of these experiments that prompted the careful attention which we then bestowed on the microscopic examination of the blood of typhus patients and the organs of infected lice. If the organisms were large enough to be held back by the filter, they should be visible with the powers of the microscope. By these investigations we obtained results which were reported in April, 1910, as follows:

> 1. In the stained (Giemsa) preparation of the blood of patients, taken on from the seventh to the twelfth day of the disease, we invariably have found a short bacillus which has roughly the morphology of those which belong to the "hemorrhagic septicemia group." Usually it appears to stain solidly, but on minute examination an unstained or faintly stained bar is seen to extend across the middle. Occasionally two organisms are seen end to end. Exact measurements have not been made, but when compared with the size of the erythrocyte, their length is estimated at hardly more than two micromillimeters, and their diameter at about one-third of this figure. Certain other bodies, the identity of which is not so clear, may represent degeneration or involution forms of the above. They consist of two stained granules, connected by an "intermediate substance," which is stained faintly blue or not at all. Frequently one of these granules, or "poles," is larger than the other and stained a deep purple, whereas the smaller takes a faint blue color.
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> 2. In moist preparations of the blood of patients, bacillary bodies, with a structure like that mentioned above, have been encountered in all cases. The differentiation of the forms into two halves, separated by a line or narrow zone of a substance of different refractive power, may be observed. They possess no active motility, but vibrate more or less rapidly.
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> 3. The dejecta and various organs of a large series of lice have been stained in a similar way and examined for the presence of micro-organisms. Certain groups have been deliberately infected by permitting the lice to feed on patients, while others were supposedly normal, having been collected from healthy individuals. Streptococci, staphylococci, an oval bacillus occurring in clusters, and certain solid-staining bacilli are encountered irregularly and indifferently in the feces and intestinal contents of both "normal" and "infected" lice. Polar-staining organisms have been found occasionally in the feces and intestinal content of "normal" lice, whereas they are present almost constantly, and often in large numbers, in similar material from "infected" individuals.
>
> Protozoa have not been recognized.

These observations were reached quite independently, as Rabinowitsch's publication in 1908 had not come to our attention and the more extensive reports appeared later.

During these earlier investigations I tried to obtain further proof of the specificity of our organism by making an emulsion of the organisms of infected lice in which the bacilli were numerous and attempting agglutination with serum from convalescent patients. These experiments were not reported, as they involved a rather difficult interpretation, the emulsions containing many contaminating bacteria. I felt, however, fairly convinced that the bipolar bacilli were agglutinated; the preparations with typhus serum differed markedly from the controls with normal serum.

Our investigations included the study of some thirty infected monkeys and a hundred or more patients and in every case blood cultures were made. As mediums agar and large flasks of broth were used and no cultures were diagnosed before a week of incubation; in only two instances did any of the flasks contain any growth and these were obviously contaminations. The cultures were made as a control of our work on transmission, but the results are independently important in that they show the difficulty in the cultivation of the typhus bacteria. To my mind they cast some doubt on the results of those experimenters who have reported the cultivation of bacteria on these ordinary media.

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[11] Lewaschew: Ueber die Mikroorganismen des Flecktyphus, Deutsch. med. Wchnschr., 1892, xviii, 279.

[12] Dubief and Brühl: Contribut à l'étude anatomo-patheologique et bactériologique du typhus exanthématique, Arch. de méd. exper., 1894, vi, 224.

[13] Balfour and Porter: Edinburgh Med. Jour., 1899, vi, 522.

[14] Galesesco and Slatineano: Recherches bactériologiques faites à l'occasion de l'épidémie de typhus exanthématique de Bucarest, Compt. rend. Soc. de biol., 1906, xxv, 14.

[15] Klodnitsky: Russky Vratsch, 1907, p. 1008; Beobachtungen über Flecktyphus in Astrachan in den Jahren 1907-1909, Centralbl. f. Bakteriol., 1913, lxvii, 338.

[16] Rabinowitsch: Ueber die Flecktyphusepidemie in Kiew, Centralbl. f. Bakteriol., Orig., 1909, lii, 173.

[17] McCambell: Observations on Typhus Exanthematicus (Tabardillo) in Mexico, Jour. Med. Research, 1910, xxiii, 71.

[18] Predtjetschensky: Zur Frage über den Flecktyphuserreger, Centralbl. f. Bakteriol., Orig., 1910, lv, 212; Weitere Untersuchungen über den Flecktyphuserreger, Centralbl. f. Bakteriol., Orig., 58, 1911, lviii, 106.

[19] Fürth: Zur Bakteriologie und Epidemiologie des Typhus exanthematicus, Ref. Centralbl. f. Bakteriol., etc., 1914, li, 79; Neuere Untersuchungen über Fleckfieber, Arch. f. Schiffs u. Trop. Hyg., 1912, xvi, 241; Die Fleckfiebererkrankung des Frühjahrs 1911 in Tsingtau und Untersuchungen über den Erreger des Fleckfiebers, Ztschr. f. Hyg. u. Infectionskr., 1912, lxx, 333.

[20] Plotz: The Etiology of Typhus Fever (and of Brill's Disease); Preliminary Communication, The Journal A. M. A., 1914, lxii, 1556.

[21] Arzt und Kerl: Ueber den Typhus exanthematicus, Arch. f. Derm. u. Syph., Orig., 1913, cxviii, 387.

Our observation of bipolar organisms in the blood was later confirmed by Gavino and Girard,[22] by Nicolle[1] and by Hegler and von Prowazek.[10] I[23] have since reexamined the blood preparations made during our earlier study and feel quite certain that our findings are as significant as we then thought them to be. In reply to the criticism of Nicolle and others that these organisms are present in the blood in too small numbers to be accepted as the cause of the disease, I would call attention to the scarcity of bacilli in the blood of typhoid patients (*Typhus abdominalis*) and the difficulty in finding diplococci in the blood of pneumonics.

Following the publication of our observations appeared researches by Wilson[24] who cultivated a diplococcus in fifteen of thirty-three cases, and the investigations of McCambell[17] who observed organisms in the blood which gave the impression of being diplococci, but on closer study were shown to be bacilli with polar staining. McCambell made cultures on a variety of media, but all were negative.

In 1910 also appeared the publications of Predjetschensky[18] who observed in blood, urine and sputum an organism, usually rod-like, at times a diplobacillus, Gram-negative, non-motile, polar-staining. Cultures were positive in 100 cases when made between the sixth and ninth day of the disease, 2 to 5 c.c. of blood being implanted in 200 c.c. of broth, growth visible after twenty-four or forty-eight hours. The organism proved pathogenic for mice and guinea-pigs, was agglutinated by typhus serum but only in strong dilutions, 1:10 in one hour and 1:40 in four hours. Other immunologic tests are not reported, nor is there any proof that the animals for which the germs proved toxic had developed actual typhus fever.

Silberberg[25] in 1912 found in the cerebrospinal fluid a micrococcus which showed a clear middle zone, and Fürth[19] in 1912 described in the blood a short, thick bacillus with a clear central zone which proved cultivable in 38 per cent. of cases. The growth was difficult and polymorphous tendencies were exhibited on artificial media. Agglutination with typhus serum was indefinite and only a slight pathogenicity was found for apes, guinea-pigs and rats.

In 1913 Müller obtained cultures of a diplobacillus in five of eleven cases of typhus. The organism was Gram-positive at first, subcultures Gram-negative, slightly toxic for mice but non-toxic for macacus monkeys. He believes it the same organism as that described by Fürth, Rabinowitsch and Predjetschensky.

Finally and to my mind most encouraging, is the recent report of Plotz.[20] Plotz made anaerobic cultures of typhus blood, which in my opinion was a wise procedure, and, although his methods are not described in the preliminary report, he seems to have succeeded in obtaining eleven positive cultures in twelve cases of typhus fever, six of these being the milder Brill's disease. The cultures when injected into guinea-pigs produced a febrile reaction similar to that which occurs after inoculation of typhus blood. Complement deviation was obtained in six of eight cases, using an antigen made from the bacillus and serum from patients after crisis. The morphologic description is as follows:

> The organism is a small Gram-positive pleomorphic bacillus from 0.9 to 1.93 microns in length, the breadth being from one-fifth to three-fifths the length. It is non acid-fast, has no capsule or polar bodies and can be demonstrated with appropriate methods.

This description agrees rather closely with that of the structures observed in typhus blood by Ricketts and myself and with the observations of several of the more recent investigators. It would seem that many of us have been interested in the same organism. If later work bears out these earlier studies, typhus fever must be included in the group of insect-borne bacterial diseases and grouped together with plague and Rocky Mountain spotted fever. It is worthy of note that both of these diseases are caused by bipolar bacilli that resemble the organism probably responsible for typhus. This close relationship of typhus with plague and Rocky Mountain spotted fever was suspected by Ricketts some time before our investigations of typhus were undertaken.

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[22] Gavino and Girard: Nota preliminar sobre el Tifo experimental en los Monos inferiores, etc., Publ. del Institut Bacter. Nacional de Mexico, 1910.

[23] Wilder: The Problems of Transmission in Typhus Fever, Jour. Infect. Dis., 1911, ix, 11.

[24] Wilson: The Etiology of Typhus Fever, Jour. Hyg., 1910, x, 155.

[25] Silberherg: Bakteriologische Untersuchung der Zerebrospinalfluessigkeit bei Typhus exanthematicus, Ref. Centralbl. f. Bakteriol., 1912, liii, 327.

STUDIES CONCERNING DIABETES *

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The work, of which this paper will give a synopsis, is the continuation of an experimental study of diabetes described in detail elsewhere.[1] Certain of the results of the previous investigation, bearing on the present topic, may be summarized under the following four headings:

1. Production of Diabetes: Removal of portions of the dog's pancreas produces a lowering of the sugar tolerance. Removal of nine-tenths of the gland results in severe diabetes. When the remnant is larger (for instance, one-eighth), milder types of diabetes result. The course is chronic, extending over months, and the end fatal. Such animals furnish a closer imitation of human diabetes than is produced by total pancreatectomy.

2. Pathologic Anatomy of Diabetes: In the foregoing procedure, duct communication between the pancreatic remnant and the duodenum is preserved. Therefore the acinar tissue does not atrophy, and in some cases it may hypertrophy. The islands of Langerhans show typical progressive alterations, which may be summarized as vacuolation of cytoplasm and loss of granulation, pyknosis of nuclei, loss of cells, and

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* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Hospital of The Rockefeller Institute for Medical Research.

[1] Allen, Frederick M.: Studies Concerning Glycosuria and Diabetes, Harvard University Press, Cambridge, Mass., 1913.

finally disappearance of islands. By suitable controls the changes were shown to be specific to diabetes. Homans[2] has made a careful histologic study of such changes in the islands of diabetic cats by the aid of the admirable methods of Bensley.

3. Pathologic Physiology of Diabetes: An idea has long existed that the disturbance of carbohydrate metabolism in diabetes might perhaps be explained by the assumption that sugar exists in a combined form in the normal body, but that this combination is lacking in diabetes. In the diuretic behavior of dextrose in diabetic and non-diabetic animals, I found contrasts which were interpreted as evidence in favor of this conception, which was therefore put forward as a hypothesis to explain the various phenomena of diabetes. The combining substance was designated by the figurative title of "amboceptor," to indicate its function as a bond between tissue and sugar. The substance which thus combines with dextrose, or some link in the combination, is supposed to be furnished by the islands of Langerhans. For details concerning the hypothesis and the evidence, reference must be made to the original publication.

4. Prevention or Checking of Diabetes: Under certain conditions the presence or absence of experimental diabetes may be determined by the patency of the pancreatic duct. When the pancreatic remnant is sufficiently small, diabetes results, even if this remnant is cut off from duct communication. But, with a slightly greater size of pancreas-remnant, it is possible under favorable conditions in certain cases to show that diabetes occurs if the duct is patent, but remains absent if the duct is ligated. Particularly in one instance it was shown that a diabetes already begun stopped when the duct was ligated. The period during which diabetes can thus be prevented is necessarily limited, since ligation of the duct produces in the dog gradual atrophy and degeneration of all the elements of the pancreas, and this gives rise after weeks or months to the Sandmeyer type of diabetes.

PRESENT INVESTIGATION

The present research has advanced along the same lines as the preceding one, and has kept in view the same clinical purpose.

I. PRODUCTION OF EXPERIMENTAL DIABETES

A. By Operation

Of several species of animals tried, the dog and cat are the most convenient and useful. Rapid death from cachexia, which I previously described as an occasional occurrence in dogs, is more frequent in cats. In them diabetes is intense and life short after removal of nine-tenths of the pancreas; but by removal of fractions such as three-fourths, four-fifths and five-sixths of the pancreas, one obtains mild or severe forms of diabetes as desired, and such cats live for weeks or months. In cats, more readily than in dogs, can thus be produced mild, transitory, intermittent forms of glycosuria, doing the animal little or no harm, and determined largely by diet (as milk, or sometimes even the feeding of liver instead of ordinary meat). There is a decided tendency toward recovery, though aggravation can often be produced by continuance of improper diet. This form of diabetes may be compared to those mild, intermittent, relatively benign human cases which some persons have supposed to be not of pancreatic origin.

With respect to dogs, the figures given above concerning size of pancreas-remnants hold good for medium-sized animals, such as were convenient for the purposes of the previous research. Present findings indicate that the size of the pancreas in proportion to body-weight in large and small dogs may vary considerably, and that the size of the pancreas-remnant which permits diabetes may vary correspondingly, though a longer series of observations must be completed before making more precise statements. In cats variations of this character are absent or less marked.

B. By Diet

The papers of Thiroloix and Jacob, previously reviewed, report success in a line of experiment in which earlier workers failed. They state that some dogs after partial pancreatectomy are free from glycosuria on meat diet, but show glycosuria when carbohydrate is fed; and that continuance of carbohydrate diet finally brings the animals into a state of severe diabetes in which they excrete sugar even on meat diet. The reports of the French authors are brief, and contain no mention of controls or proof that such dogs might not ultimately develop severe diabetes, even without carbohydrate feeding. These may perhaps be the reasons why this discovery has received practically no notice in the literature. Independently of these writers I had made similar observations, and believing them to be of importance, I have repeated and extended the work. Based on the experiments so far conducted, it is possible to make the following statements:

1. After removal of sufficiently large fractions of the pancreas, as above described, dogs develop a severe diabetes, in which they show heavy glycosuria on meat diet and also during considerable periods of fasting. The condition progresses steadily downward to a fatal end.

2. When the remnant of pancreas left *in situ* is slightly larger, a condition may be produced in which the fate depends on the diet. On meat feeding such a dog is free from glycosuria and remains so for months, eating his fill every day and maintaining full health and nutrition, with no sign of downward progress; but subcutaneous tests show that the dextrose tolerance is very low, and bread feeding readily produces glycosuria. A return to meat diet stops the glycosuria; but if the bread diet and accompanying glycosuria are maintained for too long a time, the glycosuria then continues, even on meat feeding. The diabetes thus produced is not inferior in severity to that resulting from simple removal of larger fractions of pancreatic tissue, and the downward course and fatal termination are similar.

3. When the pancreas-remnant is still larger, glycosuria is absent on meat diet, and on bread diet may be absent or transitory. Such animals may remain in excellent condition indefinitely on bread diet, free from glycosuria or any downward tendency; but if sufficient sugar is added to the diet, glycosuria can be produced and maintained. After a period of such glycosuria, the animal reaches a condition in which it is glycosuric on bread diet. By prolonging the glycosuria on bread diet, the dog finally reaches the condition of severe diabetes, with glycosuria on meat diet, and continuous downward progress. For such sugar feeding I have ordinarily used commercial glucose. The

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[2] Homans, John: Jour. Med. Research, 1914, xxx, 49.

experiments succeed best in greedy dogs and those naturally fond of sugar. A decided aversion to sugar on the part of the dog may spoil such an attempt through failure of appetite.

4. When the pancreas-remnant is still larger, sugar feeding may produce transitory glycosuria, but it cannot be made to continue. The sugar tolerance is lower than in normal dogs, but nevertheless the doses of sugar necessary to produce glycosuria are higher than can be tolerated as a daily routine by the gastro-intestinal canal. Persistence in the attempt to maintain glycosuria causes diarrhea and illness. The dog refuses to eat, sugar given by stomach-tube is vomited, and true diabetes remains absent. Similar results can be obtained with cats by feeding carbohydrate in the form of milk.

The changes previously described as occurring in the islands of Langerhans occur whether the diabetes follows directly on the operation alone, or has been induced in the prepared animal by means of modification of diet. The best of the control animals are still alive; but the control tissues thus far examined indicate that in animals predisposed by operation, when diabetes is prevented by carbohydrate-free diet, the signs of exhaustion and degeneration in the islands of Langerhans are absent. If further study shows that this is the case, it will afford additional evidence that these changes have a direct relation to the diabetes and that they are a result of functional overstrain.

While various factors are undoubtedly concerned in the production of human diabetes, clinical observations indicate that diet is an important one. It is generally recognized that there is a higher incidence of diabetes among those races or classes of people who use an excess of carbohydrate. Luxurious living and sedentary life are thought to predispose to this disorder. The experimental observations on animals suggest an explanation of this relationship between diet and diabetes in the human subject. If individuals differ in the strength of the pancreatic function as in other functions, in some this may be so weak that diabetes comes on in early life irrespective of the diet. In others this function may be only a little stronger, so that diabetes may be delayed until later in life or even to the period of senility, when there occurs an impairment of various functions. Others may be more or less below the average in pancreatic functional power, but under ordinary circumstances this is sufficient to prevent the occurrence of diabetes. In these persons, however, who might otherwise go through life with no sign of diabetes, an excess of starch in the diet may serve as an exciting cause of diabetes, and the degree of such excess may help to determine the earlier or later onset and the milder or severer type of the disorder. In other persons of this sort, as in the corresponding type of dogs, the pancreatic function is able to deal safely with as much starch as can be digested, but a sufficient excess of sugar is an effectual cause of diabetes.

It is impossible to produce diabetes in the normal dog by an excess of carbohydrate feeding, since if too much sweet or starchy food is taken, indigestion results and automatically stops the ingestion. But in dogs after operation and in predisposed human patients, pancreatic weakness may reverse the normal relation, so that the organism can digest and absorb more carbohydrate than it can combine and assimilate; and in this condition the production of diabetes by improper diet is possible. The question of diabetes may then be regarded as a balance between the digestive and assimilative functions. Moreover, the body is equipped with no natural safeguards against this unnatural condition. There is no reflex or other mechanism which points plainly to the cause of the trouble and compels its cessation. On the contrary, the impaired nutrition due to failure of assimilation affects the organism as if it were due to deprivation of food. The response commonly shows itself in the harmful form of increased appetite. The taking of excessive food injures the assimilation still further, and thus a vicious circle results.

II. PREVENTION OR CHECKING OF EXPERIMENTAL DIABETES

The therapeutic experiments in animals pertain to two groups of cases, those in which diabetes is produced by simple operation, and those in which diabetes is produced by diet in predisposed animals.

1. Animals made diabetic by operation. In animals from which an excessive amount of pancreatic tissue is removed, a diabetes may be obtained which is so severe that fasting will not produce sugar-freedom. But when the pancreas remnant is of suitable size, for example, one-tenth, though the resulting diabetes is permanent on meat diet and will end fatally if allowed to persist, nevertheless a few days of fasting at the outset will produce sugar-freedom. If the diabetes is allowed to continue longer, a much longer period of fasting may be necessary for sugar-freedom, or it may be impossible to obtain. If, after obtaining sugar-freedom, feeding of protein and fat (with occasional bones) is begun very cautiously, in quantity only enough to maintain the animal in its thin condition, such dogs remain free from diabetes. The longest experiment to date is that of a dog which, possessing less than one-tenth of the pancreas, has been kept free from diabetes for six months, and there is at present no indication that the condition cannot be continued indefinitely. If an attempt is made to increase the weight of such an animal, glycosuria soon appears and must be checked by renewed fasting. Such dogs, though very thin, are vigorous and lively. They contrast sharply with dogs which, after similar operations, are allowed to remain diabetic on full meat diet. Though the latter animals at first appear much better nourished, they finally emaciate in spite of the most enormous eating; and when they have become as thin as the dogs above described, weakness and cachexia are very evident, and the progress continues downward to death.

2. Animals made diabetic by diet. When the animal possesses perhaps an eighth or a sixth of the pancreas, and is not diabetic after operation but is then made diabetic by excess of carbohydrate, this diabetes at first can be stopped by a simple change to meat diet. After a longer duration, the diabetes no longer stops on carbohydrate-free diet; but after a period of fasting, the time depending on the severity of the diabetes, the urine becomes sugar-free. With still greater duration or severity of the diabetes, sugar-freedom is no longer obtainable by fasting. When such animals are made sugar-free, they may be kept so by the same procedure as described for those of the former group. When the diabetes is thus checked fairly early, it is evident that the prognosis is much more favorable than in animals of the previous group, for in the present animals the removal of pancreatic tissue was considerably less, and the cause of the diabetes is partly a functional change. Accordingly, it is found that the

diet can be gradually increased, and in favorable cases the animals be brought to a higher level of weight and nutrition than is ever possible with dogs of the preceding type. Up to the present, however, the experience has been that these dogs are never able to return quite to the condition which they enjoyed before the diabetes, and which is permanently maintained by similar dogs in which diabetes is prevented by suitably chosen diet from the outset. As above mentioned, dogs so treated can be kept indefinitely at full weight and well-being when placed after operation on a diet which keeps them free from glycosuria. But when diabetes gravis has been produced and allowed to continue long enough to demonstrate its reality, while it has been possible by the foregoing method to stop the diabetes and bring a dog back to within a kilogram of its normal weight, every attempt to produce a further gain in weight has brought a return of glycosuria, which must be checked by fasting. Such dogs, however, are so near to normal that, if they are mixed up in a yard with ordinary dogs, a stranger might be unable to tell one from the other.

The microscopic examinations of the pancreas remnants of such animals as have yet come to necropsy from both of these groups show that in both alike the island cells are well endowed with cytoplasm and granules, and degenerative processes are not seen; but there is a decided impression that the islands are inferior in both size and number to those of normal animals. If this impression proves valid in further experiments, a correlation readily suggests itself between the observed anatomic change and the diminished pancreatic function described in the preceding paragraph.

In my previous report I have shown that by removal of suitable fractions of the pancreas, animals may be brought so close to the verge of diabetes that the removal of less than a gram of additional pancreatic tissue suffices to bring on diabetes. According to the "amboceptor" hypothesis, the pancreas furnishes some definite substance or substances used by the cells of the body for the metabolism of carbohydrates and perhaps also of other foods, the "amboceptor" being used up in metabolism and bearing some quantitative relationship to the metabolism. Extending this theory to the foregoing experiment, one may say that the fragment of pancreas which barely prevents diabetes is the smallest fragment which can supply the minimum quantity of "amboceptor" necessary for the animal's metabolism. When such a pancreatic fragment is even slightly reduced, the supply becomes slightly deficient in quantity, and diabetes accordingly begins and runs the usual downward course.

Present observations prove that the reverse of this experiment is likewise possible, that is, when an animal and its food consumption are suitably reduced, a pancreatic remnant otherwise inadequate becomes adequate; diabetes under these conditions may be prevented or be checked after it has appeared. Prevention or cessation of diabetes previously observed in consequence of ligature of the pancreatic duct may be explained by the impaired food absorption and chronic malnutrition of the animal. Similarly in dogs which develop distemper after the pancreatic operation, and which therefore refuse food and emaciate rapidly, diabetes may fail to appear or may stop after it has appeared. Interpreting these experiments on the basis of the "amboceptor" hypothesis, one may say that an otherwise insufficient amount of "amboceptor" may become sufficient when the metabolism of the body is artificially diminished.

III. CLINICAL TREATMENT OF DIABETES

In the clinical literature of diabetes there are authentic reports of certain cases in which even severe diabetes has cleared up spontaneously and completely on the onset of cirrhosis of the liver, cancer, tuberculosis or some other wasting condition. Other cases have notably improved. Probably the most severe and certainly the best studied of such examples was presented by one of Joslin's patients,[3] in whom a long-standing and dangerous acidosis disappeared entirely, and a negative carbohydrate balance became positive, following the onset of tuberculosis. When these cases are considered in the light of the experimental study of animals, the possibility is suggested that we have an indication for a rational method of dealing with diabetes, or impaired pancreatic function associated with overstrain.

Notice should be taken of the advantage possessed by most diabetic human patients over diabetic dogs. Even the most hopeful of the above-described dogs has only a small fraction of the pancreas. Most of the organ is hopelessly gone, and the presence or absence of diabetes is determined by functional influences acting on the little remnant. Furthermore, even when the diabetes is inaugurated by functional means, the organic degenerative changes quickly ensue in the islands of Langerhans. Under these conditions it is surprising that results are obtainable by treatment at all. On the contrary, in typical human diabetes the entire pancreas is present, and there are indications that functional disturbance is an important factor.

It has been thought justifiable, therefore, to undertake the treatment of a limited number of patients by a method based on the principles derived from the experimental work as indicated in this communication. The number of patients so far treated is limited, but the results obtained indicate that the same method employed in rendering the diabetic dog free of glycosuria and prolonging its life is efficacious in eliminating glycosuria and acidosis in the human patient. To what extent life may be prolonged by this method only a large statistical study will show. The observations so far indicate that the method is not harmful, and when carried out carefully seems definitely beneficial.

The method of treatment is in brief as follows: If the patient is moderately emaciated, with a negative carbohydrate balance and acidosis, he is put to bed and receives no food whatever. If coma seems imminent the usual emergency treatment with purging, stimulants, alkalies and large amounts of water should, of course, be carried out. In addition to fasting, alcohol is important in the treatment at this stage. From 50 to 250 c.c. of whisky or brandy may be given in each twenty-four hours in small doses, from 10 to 20 c.c. every one to three hours during the twenty-four. As soon as the glycosuria stops and the acidosis diminishes, which even in severe cases may be within forty-eight to ninety-six hours, the amount of alcohol and alkali may be reduced. Fasting and moderate dosage of alcohol are continued for from twenty-four to forty-eight hours longer, however, depending on the patient's strength. The alkali is now stopped, and feeding with starch is commenced in order to clear up the last traces of ketonuria. The kind of starch is of minor importance. Green vegetables are useful because their carbohydrate and food value is so low that they can be given in considerable bulk, and this bulk is agreeable to the patient for relieving his feeling of emptiness. Neither fat nor protein is added. For the first day, the food is chosen to represent a carbohydrate content of from 10 to 40 gm. This is divided into four to ten equal portions and fed at equal intervals during the day. If glycosuria remains absent, the ration for the next day is doubled, to represent 20 to 80 gm. of carbohydrate, similarly divided into numerous small portions. On the next day it is sometimes possible to increase the ration to 100 gm. of carbohydrate, without glycosuria. About this time, especially if glycosuria has appeared, another fast-day is interposed, from 50 to 200 c.c. of whisky being given. Present experience indicates that even in severe cases ketonuria may by this method be made to disappear entirely. Several repetitions of the foregoing routine may be necessary for this purpose. All food contains danger, tending toward either glycosuria or ketonuria. The carbohydrate of the diet is seldom reduced below 50 gm., and is preferably kept higher. If carbohydrate must be kept low, the total diet is kept low. The diet is so chosen that glycosuria, not ketonuria, is the signal of overstrain. Fasting-alcohol days are given not merely whenever this signal appears, but also at close enough intervals to prevent it from appearing, even every two or three days if necessary. If there has been no glycosuria, a slight addition to the diet is made after each fast-day. Each day's diet is calculated exactly, and the nitrogen-balance is watched. It is thought that no matter how low the assimilative power, the attempt to feed in excess of this power is harmful, and it is possible that by rest the assimilative function may gradually become stronger. With improvement in the patient's condition, the carbohydrate in the diet is further increased. Increase in weight, however, is not attempted at this time. From our present point of view, contrary to the generally held opinions, the attempt to increase weight should be the last rather than the first step in treatment. It is attempted to keep the metabolism at the lowest safe level until the patient is taking from 100 to 150 gm. of carbohydrate (mostly as green vegetables) daily, with fast-days interposed often enough to prevent any trace of glycosuria from appearing. Then protein is cautiously added, always being kept rather low; and in favorable cases the weight and well-being may finally improve under gradual additions of fat.

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[3] Benedict, Francis G. and Joslin, Elliott P.: A Study of Metabolism in Severe Diabetes, Carnegie Institution of Washington, 1912, Case R, p. 55.

The radical procedure here described is that used for the most severe cases. In milder cases the treatment may be correspondingly milder. Primary loss of weight is intentional. The purpose of the treatment is not to confer temporary comfort or appearance of well-being, though various symptoms, including polyphagia and asthenia, may actually be relieved. When there is extreme cachexia and emaciation, the difficulty is greatest. It may then be necessary to juggle very carefully the three factors of glycosuria, acidosis and nutrition.

A report giving the results of this form of treatment in a series of cases will be published later. It is felt that the conception underlying this method of treatment, based on experimental observations, is new, though certain details have long been recognized as of importance. According to this method, alkali treatment is not employed, unless for a brief period at the outset, while severe acidosis is being combated. The alkali treatment has been called the most brilliant discovery in the modern study of diabetic therapy. It is indeed a valuable means for facilitating the excretion of acetone bodies. But under an efficient treatment of diabetes, acetone bodies should not be excreted. They should be burned.

Though it seems possible thus to check all active symptoms, with apparent benefit, even in very severe cases, yet it is felt that the ultimate outlook for these patients is far less favorable than it would be if they could be treated earlier. The best therapeutic hope is believed to lie in the application of this principle of treatment at the earliest possible stage in diabetes.

ABSTRACT OF DISCUSSION

Prof. A. J. Carlson, Chicago: Does Dr. Allen consider the evidence conclusive that mere obstruction of the pancreatic duct in dogs leads to the atrophy of all the elements in the pancreas? In the rabbit this is not the case. I have seen in dogs, in connection with other work, the islands persist for six or nine months, that is, enough of the island tissue to prevent diabetes.

Dr. Allan C. Eustis, New Orleans: Has Dr. Allen noticed the appearance of the acetone bodies in the urine of these dogs; whether they were present during the fasting stages and how soon they would appear; and also whether the amount of the pancreas left in had anything to do with the rapidity with which the acetone bodies appeared?

Dr. F. M. Allen, New York: Answering the latter question first, I have never seen a satisfactory reproduction of human acidosis in dogs. A few authors have reported considerable acidosis in totally depancreatized dogs, and even death in coma, but these cases are the exception rather than the rule. The difference between carnivorous animals and man as respects acidosis is one reason for attempting to reproduce diabetes in other species which are more like the human in this respect. With regard to Dr. Carlson's question, two factors must be considered; one is species, and the other is time. In rabbits and guinea-pigs, following ligature of the pancreatic duct, authors have proved that numerous normal-appearing islands of Langerhans are present long after the disappearance of all acinus tissue. The pancreas is described as being replaced by fibrofatty tissue and though the islands pass through phases of degeneration and regeneration, the island tissue is not permanently destroyed but apparently persists indefinitely. Such animals are free from diabetes, but it has never been proved that true diabetes can be produced in these species by any means. In dogs, on the other hand, ligature of the pancreatic duct is followed by scar-tissue formation, and islands as well as acini are destroyed. Such degeneration of a ligated pancreas-remnant gives rise to the Sandmeyer type of diabetes. In the dense fibrous tissue at the site of the pancreas in dogs dead from prolonged Sandmeyer diabetes, it is said that neither acini nor islands have been found. The time-element is involved in experiments such as Macallum's, which undertake to show that islands persist at a time when all acini have disappeared, and that the dog at this time is not diabetic. Positive results in such experiments may furnish evidence in favor of the insular hypothesis; nevertheless after a longer time-interval the islands may be expected to degenerate and disappear. Indefinite persistence of islands in the ligated pancreas, as proved for the rabbit, has never been shown in the dog.

The Eye Sees Only What it is Trained to See.—How many eyes—yes, and skilled eyes, too—looked at the thorax and never saw the so-called Litten's sign or diaphragm phenomenon? Many of us look at it every day and fail to see it, even after we know about it. How often does the diagnosis of a thoracic aneurysm go begging for want of a careful glance?—Thomas McCrae, *Canadian Med. Assn. Jour.*

THE INFLUENCE OF SWEAT BATHS ON THE NON-PROTEIN NITROGEN CONTENT OF THE BLOOD IN NEPHRITICS [*]

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The present study is based on the supposition that by the use of the recently acquired accurate methods for estimating the non-protein nitrogen of the blood, it might be possible to determine with greater precision than formerly the effects of sweat baths on the blood in nephritis. The sweat bath, advocated first for the removal of fluid from individuals with diseased kidneys, has more recently been extensively employed for the purpose of increasing the elimination of such solids as are normally excreted by the kidneys. Certain early observations seemed to afford a basis for such a procedure. It was found that in some nephritics, after sweating, a deposit was present on the skin which on analysis proved to be rich in urea. It was soon shown, however, that this phenomenon occurs only in agonal states or in conditions of extreme collapse when the permeability of the capillaries is quite abnormal and is in no sense comparable to that obtained under the conditions of the ordinary therapeutic sweat bath.

The chief method of approaching this problem experimentally has been by a study of the amount and composition of the sweat obtained. Both Strauss[1] and Bendix,[2] by freezing-point determination, found sweat to be of a lower concentration than the blood, from which it might be expected that sweating would lead to a greater concentration of the blood. Bendix failed, however, to demonstrate any lowering of the freezing-point of the blood after a sweat, and in one nephritic found an elevation. On the other hand, Georgopulos[3] noted in two nephritics a trifling, probably negligible, depression of the freezing-point of the blood after sweat baths. Von Noorden[4] collected the sweat during sweat baths and estimated the quantities of nitrogen and of sodium chlorid recovered, and as a result found great variations in the output by different individuals, by the same individual at different times, and from different skin areas of the same individual. From his observations he concluded, however, that a nephritic, in the course of an hour's sweat, might excrete not more than 1 gm. nitrogen or 2 gm. sodium chlorid. In a very recent study Plaggemeyer and Marshall[5] have estimated the nitrogen of the sweat obtained from fifteen normal individuals during a hot air bath lasting for twenty-five minutes after the onset of sweating. They found outputs of nitrogen ranging from 34 to 640 mg. The amount of nitrogen per hundred gm. of sweat ranged from 67 to 194 mg., a concentration much above the normal non-protein nitrogen concentration of the blood, and higher than that of most nephritics. Their study would apparently suggest the possibility of reducing the non-protein nitrogen concentration of the blood by such procedures.

Loofs,[6] and later Tachau,[7] studying the output of nitrogen and chlorids throughout the entire twenty-four hours in the sweat of non-nephritic as compared with nephritic individuals, reached different conclusions: the former finding a similar output in the two classes whereas the latter obtained, on the average, a slightly higher output in the nephritics, and a much higher output in one case of contracted kidney secondary to chronic lead poisoning.

Thus we see that hitherto the study of the value of sweating, in its influence on the nitrogen content of the blood, has been attacked chiefly by the estimation of the composition of the sweat itself. We feel, however, that, in the recently developed technic of Folin and Denis, we have at hand a means of attacking this problem more directly, in that it is possible to determine the composition of the blood itself, as regards its nitrogen content, before and after sweating. For this purpose we have made use of eleven patients of the type that customarily receives sweat baths for therapeutic purposes.

EFFECT OF SWEAT BATHS ON TOTAL UNCOAGULABLE NITROGEN OF THE BLOOD OF NEPHRITICS

			Nitrogen†		
Name	Sys. Bl. Pr.	Phthalein Test*	Before Bath	Immediately after Bath	1-4 Hrs. after Bath
Li	160	30	32	..	33
Sh.	145	30	33	..	30
Sn.	195	35	33	..	36
Hi.	140	35	36	..	31
Th.	180	40	37	..	39
Fa.	170	25	46	47	48
Wi.	260	45	54	..	60
Wi.	...	10	50	48	..
Pe.	150	..	59	55	..
Ra.	230	20	81	79	..
Re.	210	10	96	98	..
Du.	90	..	106	107	..

* Figures indicate percentage eliminated in two hours.

† Figures indicate milligrams of total uncoagulable nitrogen per hundred c.c. of blood.

TECHNIC

Each patient was given a sweat bath lasting from twenty to thirty minutes, during which he was made to sweat profusely, and was given at the same time all the water desired by mouth. When the patient was able to be up an electric cabinet bath was employed, but when confined to bed an ordinary vapor bath was used. The blood was taken from a vein at the elbow before and after the bath, 5 c.c. being used for each estimation.

The technic used for the determination of the total incoagulable nitrogen has been that of Folin and Denis, except that we have collected the ammonia in the final stage in fiftieth-normal hydrochloric acid and titrated with fiftieth-normal sodium hydroxid instead of nesslerizing. We have found titration to be as accurate and more simple and less time-consuming than nesslerization for the estimation of total nitrogen. Duplicate analyses were made, except in a few instances; the greatest difference permitted being 0.1 c.c. of fiftieth-normal sodium hydroxid. Usually the titrations were identical or varied by only 1/20 c.c. fiftieth-normal sodium hydroxid.

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[*] Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[*] From the John Herr Musser Department of Research Medicine, University of Pennsylvania.

[*] These studies were made on patients on the Service of Dr. Alfred Stengel, Hospital of the University of Pennsylvania.

[1] Strauss: Ueber Nierenentlastung durch Schwitzen, Deutsch. med. Wchnschr., 1904, xxx, 1082.

[2] Bendix, E.: Ueber Wechselbeziehungen zwischen Haut- und Nierentätigkeit, Deutsch. med. Wchnschr., 1904, xxx, 233.

[3] Georgopulos, M.: Anregung der Diaphorese bei Niereninsufficienz, Deutsch. med. Wchnschr., 1908, xxxiv, 372.

[4] Von Noorden, C.: Handb. d. Path. des Stoffwechsels, 1906, i, 1048.

[5] Plaggemeyer, H. W., and Marshall, Jr., E. K.: A Comparison of the Excretory Power of the Skin with that of the Kidney Through a Study of Human Sweat, Arch. Int. Med., January, 1914, p. 159.

[6] Loofs, F. O. A.: Welche Mengen von Stickstoff und Kochsalz werden durch die Haut von Nierenkranken ausgeschieden, Deutsch. Arch. f. klin. Med., 1911, ciii, 563.

[7] Tachau, P.: Untersuchungen über den Stickstoff- und Kochsalzgehalt des Schweisses von Nierenkranken, Deutsch. Arch. f. klin. Med., 1912, cvii, 305.

With one exception our cases are all instances of chronic arterial hypertension; in some the phenolsulphonephthalein output was low and there was a moderate or marked increase of the incoagulable nitrogen of the blood; in the others, however, the phenolsulphonephthalein output was normal or nearly so and there was little if any nitrogen retention.

The last case is of especial interest, being an instance of acute mercuric chlorid poisoning with suicidal intent. The patient developed total anuria within twelve hours of the taking of the poison, and this had persisted until the time when our analyses were made, thirty-six hours later. In his vapor bath this patient sweated very freely.

The blood was in all cases taken immediately before the bath, and the second sample in some cases immediately after the bath, in other cases from one to four hours after the bath. Our results are shown in the table and may be summed up in the statement that no change of significance was observed in the concentration of the non-protein nitrogen of the blood as the result of the sweat bath.

In conclusion therefore, without any intention of denying a possible therapeutic value from sweat baths, we find no evidence that they lead to any significant change in the concentration of the non-protein nitrogen of the blood.

THE USE OF ATOPHAN AND RADIUM EMANATION IN THE TREATMENT OF GOUT AND THE ARTHRITIDES *

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Medicine has long awaited a therapeutic agent which would induce a significant increase in the output of uric acid. Before the introduction of atophan, aside from the salicylates, there was no drug which could be relied on to bring about this condition. During the six years of its history, abundant data have accumulated demonstrating that atophan may increase the elimination of endogenous uric acid from 50 to 200 per cent., and the mechanism by which atophan acts has been the object of much investigation. Disregarding the several views held concerning this point, we may say that at present the simplest and most satisfactory explanation is to be sought in an increased permeability of the kidneys, by which the level of uric acid retention is lowered, thus permitting a draining of this substance from the blood and tissues. While there are occasional scattered data in the earlier literature on atophan which appear to favor this view, nevertheless the idea may be said to have received its first experimental support when Folin and Lyman,[1] by means of the Folin-Macallum colorimetric method, demonstrated an unquestionable decrease in the uric acid concentration of the blood associated with the augmented output in the urine. These observations have since been confirmed by McLester,[2] Steinitz[3] and ourselves.[4]

Whatever may be its cause, gout is undeniably characterized by a concentration of blood uric acid which is from two to five times as great as that observed in normal individuals. Whereas, in the majority of normal individuals one finds 1 to 2.5 mg. uric acid per hundred grams of blood, in gout it is in general as high as 4 to 6 mg. Since the principle of treatment in gout is to avoid purin foods and to maintain the uric acid of the body tissues as low as possible, it would seem that an agent which is essentially a specific eliminant for uric acid, as atophan appears to be, would form a rational therapy in this condition. It then becomes desirable to learn the details attending the action of this drug.[5] We have found that the action of atophan on the blood uric acid begins to make itself felt within two or three hours after its administration, that is, as soon as absorption has taken place, and reduces the blood uric acid to a minimum concentration within about two days. This minimum concentration appears to vary for different individuals from 0.7 to 2.5 mg. per hundred grams of blood and cannot be further lowered even when the drug is administered continuously for a month and a half. The original level of uric acid concentration is nearly reattained after the use of the drug has ceased for two days.

Under treatment with atophan, all of the five cases of gout showed improvement of more or less permanence, as did also four cases of possibly gouty nature. Of the eleven cases of arthritis of various types, two showed some improvement. A superficial summary of clinical results of this character cannot, however, convey an adequate view concerning the value of the treatment. Thus, in one case of gout, there was almost immediate improvement after taking atophan, which persisted even after the cessation of the use of the drug, and in spite of the return of the uric acid concentration of the blood to the original level; while in another case of gout, the initial improvement became less pronounced in spite of the continued use of atophan and the maintaining of the blood uric acid at less than half its original level. We shall reserve a more careful analysis of the clinical results until we have had an opportunity to extend our observations over a longer period of time.

In contradistinction to gout, arthritis is not characterized by an excessive concentration of uric acid in the blood; and this difference, in our experience, has been of aid in distinguishing between these conditions. Thus in one case, which by several clinicians was regarded as typical gout, there was a constant uric acid concentration of but 2 mg. per hundred grams of blood. A careful investigation disclosed a colon bacillus infection in the pelvis of the kidney, which was cleared up under the administration of the appropriate vaccine, whereupon all "gouty" symptoms disappeared. We are not yet prepared to assert that a high concentration of uric acid is essential for a

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* From the Department of Medicine and the Laboratory of Pathological Chemistry, New York Post-Graduate Medical School and Hospital.

[1] Folin and Lyman: Jour. Pharm. and Exper. Therap., 1913, iv, 537.

[2] McLester, James S.: Studies on Uric Acid of Blood and Urine, with Special Reference to the Influence of Atophan, Arch. Int. Med., December, 1913, p. 739.

[3] Steinitz: Ztschr. f. physiol. Chem., 1914, xc, 108; Deutsch. med. Wchnschr., 1914, xl, 953.

[4] Fine and Chace: Proc. Soc. Exper. Biol. and Med., 1914, xi, 111.

[5] For further details see Fine and Chace: Jour. Pharm. and Exper. Therap., 1914.

diagnosis of gout, but our experience with those cases of joint and muscle involvement associated with a uric acid concentration of less than 2.5 mg. has indicated the desirability of a diligent search for foci of infection in various parts of the body, which may be the primary cause of the joint affections.

The improvement noted in certain cases of arthritis can hardly be explained by an influence on the elimination of uric acid. The usual lowering of the uric acid concentration of the blood is indeed noted, but there is no reason to regard uric acid as a factor in the etiology or progress of arthritis. In such cases there appears to be an analgesic action, which may likewise to some extent account for the relief felt by gouty individuals.

With regard to the influence of radium emanation on uric acid metabolism, various European workers have emphasized essentially two points: the increased elimination in the urine and the reduction or disappearance of uric acid of the blood. The increased elimination of uric acid in the urine under the influence of radium emanation is perhaps due to the induced leukocytosis with subsequent leukolysis. In the light of recent developments in purin metabolism, the disappearance of uric acid from the blood as noted by Gudzent[6] is a most unusual observation. It has not been supported by beaker experiments or by our own studies.

We have thus far treated thirteen cases of gout and arthritis in an emanatorium with radium emanation of 0.5 to 150 Mache units per liter of air in one- to two-hour sittings for one to two months; two cases of arthritis with radium drinking-water; and five cases of arthritis with injections of radium bromid equivalent to 50 to 100 micrograms of the element. In no instance was there any change whatever in the uric acid concentration of the blood. In view of these findings we can hardly subscribe to Gudzent's claim that with concentrations of radium emanation of as little as 2 to 4 Mache units per liter, uric acid disappeared from the blood and remained absent as long as one year.

With regard to clinical effects, we may say that in only two instances—those in which radium solutions were injected—did there appear to be any improvement. Here again, however, we feel that the treatment should be extended over a greater interval, before conclusions can be properly drawn with regard to clinical results.

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ABSTRACT OF DISCUSSION

Dr. Charles G. Stockton, Buffalo, N. Y.: With reference to the effect of atophan in relieving the uric acid burden of the blood we have given the drug in studies of the blood, including the method of Folin. The drug has acter unpleasantly in some instances, although usually it occasioned no trouble. One other question is what is commonly meant by the term gout. Dr. Chace spoke as though gout was a condition parallel to excess of uric acid in the blood, or uricacidemia. Gout is something in addition to an excess of uric acid in the blood. Just what that something is remains to be seen. In one case coming to my attention the patient had 25 mm. of uric acid in 100 c.c. of blood when not treated, but after long-continued dietetic treatment and the use of atophan he was discharged with 8 mm. of uric acid to 100 c.c. of blood, and yet he had no gout. He had had an attack of gout ten years before. At the same time I had two cases of gout under treatment, one patient having 5 and the other 7 mm. of uric acid to 100 c.c. of blood; one was treated by atophan and the other by colchicum and both by alkalies; the results were compared. I saw but little difference, save that the atophan seemed to have rather the better effect in reducing the uric acid. The clinical course of the two cases was much alike, both having been severe and typical gout.

Dr. S. Solis Cohen, Philadelphia: For a number of years I have been making use of atophan and novatophan in the treatment of chronic gout. I agree with Dr. Stockton that uric acid is not by any means the whole story in gout, nor do clinical results always run parallel with the reduction of the uric acid content of the blood whether under the administration of atophan or the use of radium emanations. The most striking effect, clinically, of atophan in gout, rheumatoid arthritis and acute articular rheumatism is the relief of pain. In rheumatic fever the administration of atophan was always accompanied by relief of pain and fall in the temperature, but its withdrawal was followed by a recrudescence of pain and fever. It did not bring about recovery. For this, resort to salicylates was necessary. In cases of chronic gout, or in patients having a distinct gouty tendency, atophan given for one week in the month over a period of several months is helpful. Large doses are not needed, 1 gm. a day (divided into three 5-grain doses) is sufficient. It is not necessary to reduce the uric acid content of the blood to a theoretically normal standard. Gouty people have a higher normal uric acid index than others. It is only when this is exceeded that symptoms result. This is a natural consequence of evolutionary adaptation affecting every cell in the body. While 7 mg. or even 4 mg. per hundred cubic centimeters of blood is excessive for a normal man, it may not be equally excessive for one of gouty heredity. When the quantity of uric acid has been reduced to the equilibrium-point for the individual one should be satisfied; one does not hope to make the gouty cells of an entire body normal. With radium emanations I have had some experience and also with radium drinking-water but I have not sufficient data as yet for positive conclusions. In my dispensary service at Jefferson Hospital my assistants have made careful clinical observations which seem to show that better results can be obtained in the acute cases than in the chronic ones. It is possible that the remedy was not used long enough or strong enough. Our solution equals 50,000 Mache units per liter. The first effect of the radium treatment in cases of painful joints whether of gouty, rheumatic, or other origin, is to increase the pain, that is, providing one gets any effect at all. Unless one gets this exacerbation my observations have been that one cannot hope for a curative result. Apparently the agent acts on a sluggish local process, and reawakens the corrective reactions.

Dr. Arthur F. Chace, New York: In reply to Dr. Stockton, we have found that those patients having an intolerance for atophan can take it, well diluted with water, in small doses or in combination with soda. Novatophan has not proved as efficient as atophan. The determination of the uric acid content of the blood will aid in more accurately diagnosticating cases of gout. We do not call a case gout unless there is a concentration of uric acid of 4 mg. per hundred cubic centimeters of blood. It is interesting to note in other conditions the high uric acid content of the blood; for example, in uremia we have found a concentration of 14 mg. uric acid to 100 c.c. of blood. The amount of the uric acid content of the blood is an index of the severity of the case. In all clinical cases of gout in which there is a low uric acid concentration it is well to look for a possible focus of infection. With regard to the method of administration, it is wise to do as Dr. Cohen suggested, give the drug for one week in one month, or else alternate giving atophan for four days and allowing an interval of four days. In all cases the patients are placed on a purin-free diet. With purin-free and alcohol-free diet and without the use of drugs we have seen the uric acid content reduced from 6 to 3 mg. per hundred cubic centimeters of blood. With regard to the clinical influence of radium, we prefer to reserve our judgment until we have had an opportunity to extend our observations.

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[6] Gudzent: Berl. klin. Wchnschr., 1911, xlviii, 2098.

New Instruments and Suggestions

THE SLOANE HOSPITAL INCUBATOR

Edwin B. Cragin, M.D., New York
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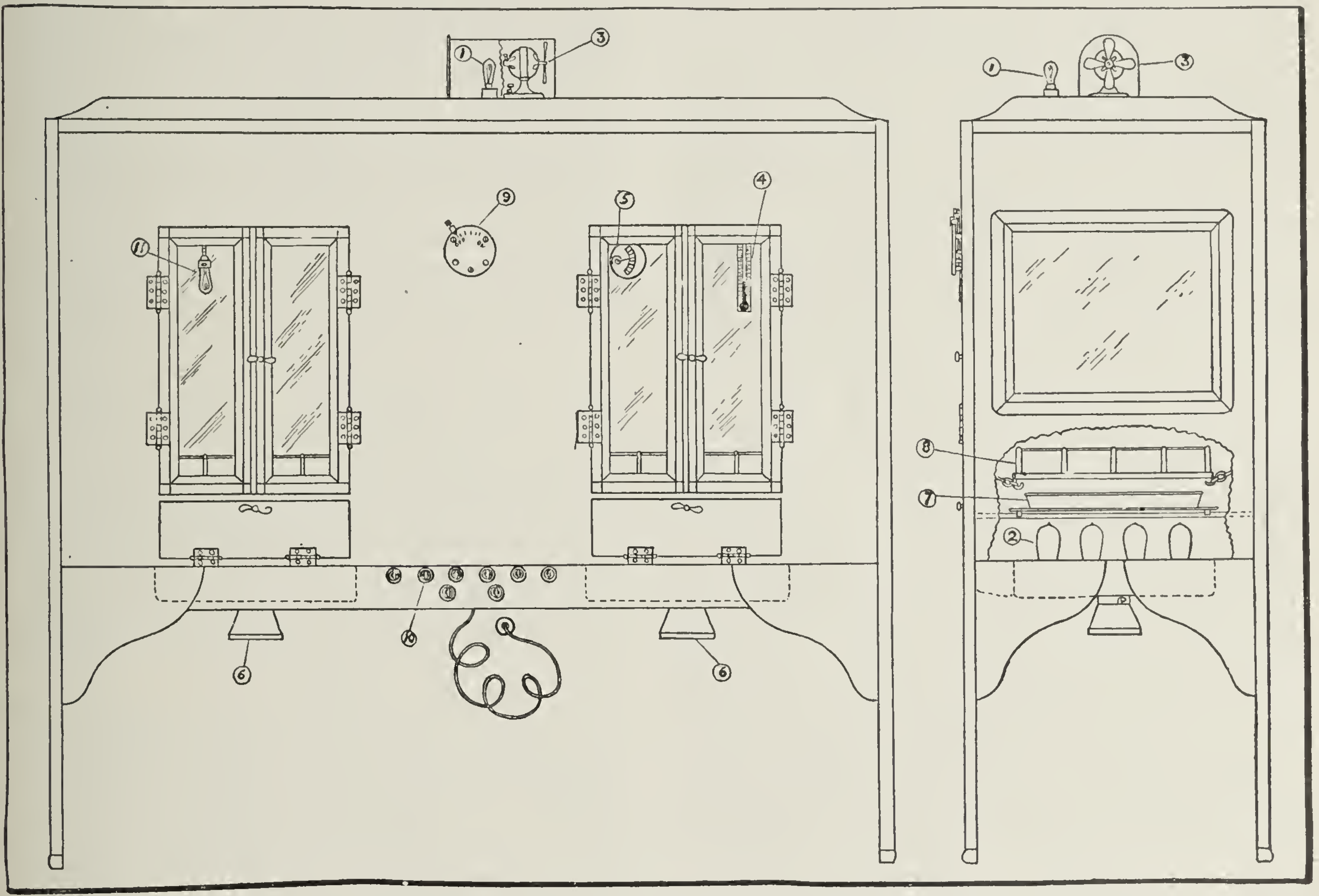
To the different varieties of incubators which have been in use for many years there have been three common objections: insufficient air space; insufficient circulation of air, and difficulty in maintenance of a constant temperature.

Impressed with these objections I have sought to overcome them:

1. By having the incubator built several times larger than those in common use.
2. By maintaining a gentle current of filtered air passing through it. The air enters through a gauze screened opening below and is sucked out by a small electric fan above.



Infant incubator; 1, resistance lamp; 2, heating lamps (violet); 3, motor for exhausting air; 4, thermometer; 5, hygrometer; 6, air intakes; 7, humidity tray; 8 cradle; 9, motor regulator; 10, heating lamp switches; 11, pilot light.

3. By maintaining a constant temperature by different series of electric lights which may be turned on or off in series.

This incubator, which was built for me by the Hospital Supply Company of New York, and of whose hearty cooperation I wish to express my appreciation, has now been in use with two of its fellows at the Sloane Hospital for Women for one year. It has met its requirements well; has demonstrated its superiority over the old types of incubators with small chambers heated by a water tank to which a gas burner was applied, and in the growth and development of the premature babies kept therein has proved a most valuable addition to the hospital.

The mechanical description of the incubator is as follows: It is built entirely of steel finished on the outside in aluminum bronze and painted on the inside with gray enamel. It consists primarily of the incubator proper which is 84½ inches in length, 46½ inches in height, and 30½ inches in depth. It is supported on legs 30 inches high, making the total height 76½ inches. In front at each side are two double doors of beveled plate glass set in nickel-plated brass frames. At each end is a beveled plate-glass window 24½ inches by 20½ inches. In the interior directly behind each set of doors is a basket or cradle, built of nickel-plated brass wire and supported on hooks, in which the infant lies. Beneath each cradle is a tray which contains water for keeping the air moist. The condition of the air is indicated by a hygrometer and its temperature by a thermometer, both of which are visible through the glass doors. Beneath each tray is a series of violet-colored incandescent lamps which furnish the heat which is distributed by means of a heat disbursor. On the roof of the incubator a small motor with a fan and the necessary resistance is enclosed in a metal chimney leading from the interior. The motor is controlled by a rheostat situated outside of the incubator between the two front windows. The lamps are connected in series of two on each side controlled by snap switches (as shown in the illustration) which in turn are connected with the house current. Directly inside of each door is a small pilot lamp. When the incubator is in operation the air enters through the intakes, comes in contact with the heat-disbursing plates and passes throughout the interior. By means of the motor fan a continual gentle current of fresh warm air is kept circulating through the incubator. The degree of heat is regulated by turning on more or less of the snap switches and by proper regulation of the motor.

Feeding Humans According to Formulae.—The study of human nutrition has not yet produced a simple formula for man's guidance in the selection of his food. Such formulae have been successfully used in the feeding of rats, and the skilful stockman in his feeding operations carefully follows charts and rules provided him by experts on animal nutrition. We may expect that similar rules will obtain more and more in human nutrition and there will be, some time in the future, such a thing as scientific feeding of men.—J. H. Lyman, *Popular Science Monthly.*

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, SEPTEMBER 12, 1914

THE NATURAL YELLOW PIGMENTS OCCURRING IN THE BODY

"Luteins" or "lipochromes" are names that have long been current to designate the pigment or group of yellow pigments which may lend color to portions of the body rich in fats or to oily secretions derived from the organism. The identification of these yellow coloring-matters has usually depended on their spectroscopic properties. The lipochromes were associated with the fats and lipoid substances, not only because of their solubility in these, but also because they showed similar behavior toward fat solvents like ether and insolubility in ordinary menstrua like water. The more or less apparent resemblance of the colors of egg-yolk, the corpus luteum, some blood-serums, sebum, milk-fat, etc., was indicated by the use of a common term, "lipochrome," to cover the pigments of all these animal products. The differences between the so-called lipochromes, represented by slight variations in the solubilities and other properties have become magnified by comparatively recent demonstrations. It has been shown that the pure "lutein" of egg-yolk is isomeric with the crystalline xanthophyll of green plants;[1] whereas the lipochrome of the corpus luteum has been identified as a true carotin.[2] The difficulties involved in this modern chemistry of the animal pigments will be appreciated from the statement that only 4 gm. of crude crystalline pigment were obtained from 6,000 hen eggs, and less than 0.5 gm. of crystalline carotin from 10,000 cow ovaries.

Following these demonstrations of the nature of some of the animal lipochromes, the origin and physiologic relationships of these natural yellow pigments have been cleared up at the dairy chemistry laboratory of the University of Missouri, in cooperation with the United States Department of Agriculture.[3] The fat of cow's milk owes its natural yellow color to the pigments carotin and xanthophylls — principally carotin, the well-known, wide-spread, yellow vegetable pigments found accompanying chlorophyll in all green plants. The carotin and xanthophylls of milk-fat are not synthesized in the cow's body, but are merely taken up from the food and subsequently secreted in the milk-fat. When a milk-giving cow is fed with food practically free from carotin and xanthophylls, such as the cow usually receives during the winter months, the immediate supply of these pigments in the organism is greatly depleted and may be entirely used up, on account of the constant drain on the supply by the milk glands. The butter-fat accordingly approaches a colorless condition in proportion to the supply of carotin and xanthophylls in the system, the length of time these pigments are kept out of the food, and also very probably in proportion to the amount of milk-fat being produced. If food rich in carotin and xanthophylls is fed to a milk-giving cow whose milk-fat has become practically colorless by reason of the conditions above described, the organism will at once recover its lost pigments and the milk-fat will increase in color in proportion to the amount of carotin and xanthophylls, especially carotin, in the food. Fresh green grass, being probably the richest in carotin of all natural dairy cattle feeds, accordingly produces the highest-colored butter. There is some difference among the different breeds of dairy cows with respect to the maximum color of the milk-fat under equally favorable conditions for the production of a high color. Each breed of cows, however, will undergo the same variation in color of the milk-fat which follows a withdrawal or addition of carotin and xanthophylls, especially carotin, to the food.

The yellow lipochrome of the body-fat, corpus luteum and skin secretions of the cow, like the lipochrome of butter-fat, is composed principally of carotin, which sometimes has associated with it one or more minor xanthophyll constituents. The carotin and xanthophyll pigments of the body-fat are derived from the food of the cow.

In the light of these interesting facts discovered by Palmer and Eckles with regard to the nature of the pigments of milk-fat and body-fat and their simple physiologic relation to the carotin and xanthophylls of the food, it is not surprising to find that the hitherto practically unknown lipochrome of the blood-serum of the cow is also chiefly carotin and bears the same relation to the food as the milk-fat carotin. We are thus able to establish the connecting link between the food carotin and the carotin of the milk-fat, body-fat, corpus luteum, etc., of the cow. Associated in small quantity with the carotin of the serum, probably dissolved in the fat of the blood, are one or more xanthophyll pigments which are always found in more or less variable quantity associated with the carotin of plants. A variation in the quantity of these pigments in the food results in a corresponding variation in the amount found in the blood-serum and milk-fat. Body-fat formed during this time will also be affected. The government investigators believe that the carotin is carried by the blood-serum in a firm combination with a protein.

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[1] Willstätter, R., and Escher, H. H.: Ueber das Lutein des Hühnereidotters, Ztschr. f. physiol. Chem., 1911, lxxvi, 214.

[2] Escher, H. H.: Ueber den Farbstoff des Corpus luteum, Ztschr. f. physiol. Chem., 1913, lxxxiii, 198.

[3] Palmer, L. S., and Eckles, C. H.: Carotin—The Principal Natural Yellow Pigment of Milk-Fat: Its Relations to Plant Carotin and the Carotin of the Body-Fat, Corpus Luteum and Blood-Serum. I. The Chemical and Physiological Relation of the Pigments of Milk-Fat to the Carotin and Xanthophylls of Green Plants. II. The Pigments of the Body-Fat, Corpus Luteum and Skin Secretions of the Cow. III. The Yellow Lipochrome of Blood Serum. IV. The Fate of Carotin and Xanthophylls During Digestion. V. The Pigments of Human Milk-Fat, Jour. Biol. Chem., 1914, xvii, 191.

The demonstration of the interrelation of food pigments and body lipochromes in cattle applies equally well to man in so far as the available evidence indicates. The fat of human milk may be tinted with the same pigments found in the fat of cow's milk. The relative proportion of carotin and xanthophylls in human milk is much more nearly equal than in the fat of cows' milk. This is not surprising when it is considered that there is strong evidence that the xanthophylls are conveyed through the body dissolved in fat, and when it is also considered that fat plays a much greater part in human food than in the food of the cow. The fat of the human body is often characterized by a marked yellow color. In view of the fact that the pigments of the milk-fat and body-fat of the cow are identical it must therefore be concluded that the pigments of the milk-fat and body-fat of human beings are also identical.

SCHOOL HYGIENE

The study of conditions surrounding school life which may injuriously affect the growth and development of the child, and proper appreciation of the related subject, the hampering influence of physical defects on the intellectual capacity of the young, have until quite recently received little consideration in this country.

The first attempt, probably, to exercise medical supervision of schools in the United States was by the city of Boston, in 1894, for the purpose of controlling the so-called contagious diseases of childhood. From this beginning, the movement has developed until now most of our cities maintain a more or less comprehensive supervision over all matters pertaining to school hygiene and the medical inspection of schoolchildren is mandatory in a number of states and elective in some others.

In this respect we are considerably behind European countries, notably Germany and England, where the system of medical school supervision is more extensively developed, has been longer in operation and is practically national in character. That this is so is largely due to the fact that consideration of the related triad, dirt, destitution and disease, has not been of such immediate importance with us, except in certain restricted areas.

School hygiene is a complex problem. It is generally conceded that our knowledge of its principles is greatly in excess of their practical application. The position of school medical officer presupposes, in addition to thorough training in physiology and psychology, a practical working knowledge of the physics of heat, light and ventilation, and an ability to recognize and coordinate the physical condition and educational needs of the developing child.

The need of skilled services and the expense incident thereto have been instrumental in restricting the practice of school hygiene largely to urban communities. This is unfortunate, because the great bulk of the school population of this country is as yet scattered over the rural districts.

The disproportionate prevalence of preventable diseases among urban and rural populations is not great; the necessity, therefore, of educating rural communities to the exercise of sanitary precautions necessary for the preservation of health is apparent. The importance of school hygiene in this respect is paramount, because the sanitary redemption of the majority of rural communities must largely be brought about through the practical education of the young in orderliness, cleanliness and the observance of sanitary precautions. Furthermore, the medical inspection of schoolchildren is in more or less intimate relation with the homes, which in turn are component parts of communities. The educational effect of school hygiene extends through these channels for the betterment of the community health.

The necessity for specialized medical services and the rather chaotic tabulation of the results of medical school inspections are largely responsible for deductions that do not bear analytic scrutiny. There is necessity for uniformity in methods of examination and of classifying the results for collective statistics to be of value. To state simply that a certain percentage of so many pupils have "defective teeth" may mean much or little. Certainly there is nothing in this classification to show whether the defect consists of one or more teeth needing attention or the presence of marked deformities. "Enlarged tonsils" do not always mean that the child should suffer the nervous shock attendant on a surgical operation; "diseased tonsils" are another proposition. Defects of vision and spinal curvature are frequently functional in character and due to "habits" of position acquired long before entrance to school, and have no connection with the equipment and arrangement of the classrooms. Much has been done along these lines, but there is need of uniform methods and systematic classification of results before these observations can be of value in studying mental and physical standards, and the effect of changing social conditions on development.

The object of school hygiene is primarily to place the impressionable child in the most favorable environment for physical and mental development and secondarily to detect and correct remediable defects which may impede intellectual training. The medical supervision of schools may, however, be further utilized by the state in the determination of the prevalence of communicable diseases, especially in rural communities. The ultimate control of malaria, trachoma, tuberculosis and typhoid fever in these communities must be largely through educational methods. For these reasons the combination of the duties of the health officer with that of the medical supervision of schools appears eminently practicable. Furthermore, the health officer would have statutory authority to inspect premises, to abate nuisances and control foci of infection indicated by school medical inspections.

Intensive studies of the mental capacity of American schoolchildren, at varying ages, should be undertaken, in widely separated communities, with a view to the establishment of the normal mental standard, thereby rendering possible the study of the impress of immigration, and the effect of a changed social environment on the mental processes of the immigrant child, as revealed by similar examinations at the ports of entry.

THE VALUE OF HEALTH IN INDUSTRY AND WAR

There is food for reflection in the fact that the exigencies of commerce, the advantageous pursuit of industrial operations, and even the preparation for real or anticipated war may promptly bring about hygienic reforms which wide-spread preaching and earnest exhortation are at best slow in promoting. The "safety first" slogan which one hears in nearly every city of the United States at the present time is one aspect of a movement to increase the personal welfare of the individual by decreasing the liability to injury through the carelessness of a fellowman. The same spirit crops out in the "ten trade commandments" of the worker which are posted conspicuously here and there in factories where personal injuries and loss of life furnish unfortunate and—let it be frankly added—unprofitable incidents in the conduct of manufacturing operations. The reminder "thou shalt not" gains added force when its value is expressed in terms of practice and daily experience rather than in the more vague language of ethical considerations. And accordingly there is a telling force in such direct admonitions as the following, which we quote from a recent compilation for use in a factory:

"Thou shalt take no unnecessary risks, nor try to show off, nor play practical jokes, for by thy carelessness thou mayest do injury which will have effect unto the third and fourth generations to follow.

"Remember thou are not the only one on the job, and that other lives are just as important as thine own.

"Thou shalt not throw matches or greasy waste on the floor, as a dirty worker is a clumsy worker, and a clumsy worker is a menace to his fellow-workers."

These and similar timely suggestions, put in a form that is sure to attract notice, cannot fail to promote the mutual and reciprocal interest of the employer and the employed. Modern hygiene and preventive medicine have recognized long ago that the individual can no longer claim a liberty in his actions, independent of his neighbor. Our provisions for quarantine, vaccination against small-pox, and diverse other regulations in the interest of the public health have, in the past, been enforced only with the annoyance that comes from lack of cooperation and from personal resentments together with the indifference for restrictive rules that is bred in a community of "free" people. Yet now we see, in the combined enterprise and altruism of modern employers, protective devices put in operation to secure, without friction or resentment, the same sort of welfare results that the federal government or state or municipality would find difficulty in getting under way.

That the unexpected situations created by war have, in the past, furnished the stimulus for new inventions and useful processes is too well known to require detailed comment. It would appear in the present situation that the war against universal peace may actually be a war against intemperance. The armies and navies of to-day represent the most efficient fighting forces that the nations can command. No device, no agency that will contribute to their power and preparedness, is willingly neglected. Health is a prime consideration in this respect. Field Marshal Earl Kitchener is reported to have counseled the English soldiers to abstain from drinking while abroad, reminding them that their duty cannot be done unless health is preserved. The men were cautioned to keep constantly on guard against excesses. The German Emperor is said to have forbidden the "treating" of the soldiers in his armies. The sale of absinthe, imported by French soldiers in an earlier war, when alcohol was used to fight fever, has been restricted in Paris.

It is of slight consequence whether or not these rumors are entirely correct. They represent the current tendencies, which are undeniable by anyone who has watched the recent decisions of American naval authorities in the face of not a little apparently adverse criticism couched in the usual phrases concerning personal liberty. The truth is, that "the relation of alcohol and fighting has been squarely met, and the fact admitted that they are not compatible." A recent editorial writer has expressed this by saying that a temperate army was something not conceived of in the old theories of war; but a drunkard is to-day as much out of place in an army as he would be on a battleship. As every great conflict, whether of church or state, of labor or commerce, has brought out some permanent good, however clouded it may temporarily have been by the major issues at stake, so the horrible strife which the world is now experiencing may actually be developing a war against intemperance—a permanent advantage of no mean proportions.

A NATIONAL STANDARD REQUIREMENT FOR MEDICAL PRACTICE

The varying standards of medical practice in the several states have caused inconvenience and hardship from the time the states began to protect their citizens against incompetence and fraud. Complaint has frequently been made against the injustice inflicted on physicians who, after years of successful practice in one state, are obliged, before being permitted to practice in another, to submit to examinations on the same terms as if they were recent graduates. In one instance, at least, an eminent man with a national reputation was called on, when moving to another state, to undergo a written test of his ability and to remember text-book words, this test being administered, it was inferred, by one of his own former pupils.

Unlimited interstate reciprocity, on the other hand, is impracticable so long as the various states maintain differing standards for medical registration. A state which maintains a high standard obviously cannot be expected to reciprocate with a state which is satisfied with a low standard. Although the Constitution does not place the regulation of the practice of medicine among the functions of the federal government, nevertheless, it must be borne in mind that the Constitution does not prohibit the national government from assuming such a function should it be deemed desirable. The Constitution does not prohibit the establishing of a national standard or the making of such a standard obligatory. In practice, however, the national government has thus far left the control of these matters to the individual states. Not only is there no constitutional obstacle to the establishment by the general government of a standard for medical practice, and the provision of an examination, recognition of which shall at least be optional with the states, but, on the other hand, there are many strong reasons for such action.

Twelve years ago The Journal suggested[1] that all examinations for entrance into the various government medical services, instead of being given severally by the respective services, be given by one national board of examiners empowered to grant certificates or diplomas which should be a guarantee of a thorough and practical medical education and a prerequisite for candidacy for any medical position under the government. "The examinations should in part be conducted in hospitals and laboratories, so that practical and not theoretical knowledge would be demanded." The standard established should be such that, although its recognition as a credential for license by the state boards would be optional with the states, no state would have an excuse for refusing to recognize it. In fact, the practice acts of at least five states, Alabama, California, Colorado, Illinois and North Dakota, provide that the licensing boards may license without examination physicians who have passed the examinations and served as officers of the United States Army, Navy or Public Health Service. The routine is practically the same in such cases as in carrying out the idea of reciprocity, so called. In either case there must be a voluntary relinquishment of rights on the part of the state, and the state can only give its examining or licensing boards the privilege of accepting the credentials of a corresponding board of another state.

The idea was taken up by Dr. W. L. Rodman[2] before the Committee on National Legislation of the American Medical Association later in 1902. He argued that the states would no doubt be glad to recognize diplomas or certificates issued, after a rigid, broad and practical examination by a board of unassailable standing. This would not interfere with the work of the state examining boards, for only the exceptionally able and ambitious graduate would care to try for the national diploma.

Lieut.-Col. J. R. Kean,[3] in a recent address before the Federation of State Medical Boards, makes a practical suggestion toward the establishment of such a national examining board. The Secretary of War, he reminds us, is authorized to issue commissions as first lieutenants in the Medical Reserve Corps to graduates of reputable medical schools who pass an examination to be prescribed by the Secretary. No limit is placed on the number of reserve officers.

If, therefore, the President of the United States should appoint a board for the examination of officers for the Medical Reserve Corps, of a composition which would insure a high standard of requirement, and the state boards would agree to recognize without examination the holders of Reserve Corps commissions—as the states named above already recognize medical officers of the government services—the thing would be accomplished. If the laws of any state do not at present permit such recognition it would not be difficult to obtain the necessary legislation.

It would not be necessary to wait for favorable action by every state, for if the scheme were to be begun by even a few states, the rest could be expected to come into line as the desirability of the scheme became evident. It would obviously be desirable that the other medical services of the national government should join with the United States Army in a plan of such importance to the profession at large. The successful candidate would then have the qualification for a commission in the Medical Department of the Army, the Navy, or the Public Health Service, as well as a certificate of proficiency, "which would be the open sesame to the doors of state exclusiveness." As Kean says, "this board would not seek to examine a very large proportion of the recruits to the ranks of the profession or supersede, in any way, the state boards. . . . It is to do what a group of boards cannot do: to set a standard which all will accept; to be a mint which will stamp with its approval the good coin so that it will pass current in every part of the country, and not have to be weighed at every state line; to break down the barriers which, for acknowledged competence and ability, are unnecessary, vexatious and barbarous. It would be for the pace-makers and standard-makers of each year's crop of graduates; for the men who desire special honors or appointments; or for those who have migratory instincts and who may desire to enter some new field of work, and for whom the seal of approval of the general board would be valuable."

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[1] National Board of Medical Examiners, editorial, The Journal A. M. A., Jan. 11, 1902, p. 108.

[2] Rodman, W. L.: A Voluntary Board of National Examiners, The Journal A. M. A., May 10, 1902, p. 1215, also editorial same issue, p. 1233.

[3] Kean, J. R.: The Use of the Government Medical Services in Raising the Standard of Medical Education, Quart. Fed. State Med. Boards U. S., April, 1914.

It may be of interest in this connection to note that Canada, which was confronted by a similar problem in the form of provincial rights that might not be gainsaid by the federal government, has surmounted the difficulty by the creation of a general medical council, whose registration the provinces had the privilege of accepting after the passage of permissive legislation. It is surely not to be imagined that so unfortunate an anomaly as our present chaotic system of registration is to remain an insoluble problem.

THE ALIMENTARY BACTERIA OF HEALTHY CHILDREN

The profound significance of the bacteria of the alimentary tract during the period of infancy is appreciated in a general way by every one who is concerned with the nutrition of children. It is nevertheless quite doubtful whether all of the manifold possible relations of the intestinal flora to the problems of health and disease are ordinarily comprehended by those who do not give considerable attention to the subject. Microorganisms can, of course, injure the individual by becoming the agents of infection. Pathogenic bacteria find their way through the alimentary barrier and may bring about digestive or other nutritive disturbance as a secondary consequence of some systemic disease for which they are responsible. Far more commonly, however, the bacterial invaders initiate harm by their immediate, local action on the food materials which they meet in the gastro-intestinal canal. It is in this respect that our knowledge of the situation is still far from complete.

Broadly speaking, we realize that proteins, fats, and carbohydrates are altered in specific ways through the agency of bacteria. The limited character of this information is exemplified by the use of the indefinite expressions, such as the "putrefaction," "growing rancid," or "fermentation" respectively of the three great groups of nutrients. In a way, furthermore, it is realized that the fermentative activities tend to preponderate over the putrefaction changes in infants when the diet is a natural one of milk. But there is nothing in such generalizations that is definite or specific enough to furnish very helpful guidance in times of alimentary trouble. The formation of abnormal products is never the result of the chemical processes of uncomplicated digestion. The harmful compounds arise only through the intervention of bacteria; the latter may belong to a specifically abnormal flora, or the normal alimentary flora may for some reason overstep the usual bounds of its activity and thus become abnormal in behavior rather than in its microbial character. Finally, ordinarily harmless organisms may completely change the nature of the products to which they usually give rise, if the character of the substratum that they subsist on is radically altered or other features of their environment become different. The intestinal flora of infants and young children therefore unquestionably deserves further study to determine more specifically than ever before the range of variety possible and the nature of the products which may be held responsible for physiologic effects of bacterial origin.

First of all and preliminary to a study of the morbid changes, it seems necessary to expand our knowledge of the conditions in health. A contribution has recently been furnished by Logan[1] from the research laboratory of the Royal College of Physicians at Edinburgh. His investigations agree in many respects with previous findings, notably the well-known experiments of Tissier.[2] In the intestinal flora of breast-fed infants —the ideal condition—the acid-tolerant group of organisms is immeasurably predominant, and is of the strictly anaerobic type called *Bacillus bifidus.* Coccal forms and lactose-fermenting bacilli are present, but scanty; spore-bearers are rare. In artificially fed infants the main difference is a decrease of the acid-tolerant group, and an increase in the lactose-fermenting group, along with the appearance of the non-lactose-fermenting organisms. The place of the *Bacillus bifidus* is now largely taken by the facultatively aerobic *Bacillus acidophilus.* The coccal forms show greater variety under this condition of diet. In children on both the breast and the bottle, a half-way stage between the two types of flora is observed. When children were fed a diet approximating more or less in type to that of adults, no one variety of organisms dominated the others as it does in the breast-fed individuals. The number of varieties present was greater. Coccal forms were numerous and very varied in type. The spore-bearing *Bacillus enteritidis sporogenes* was isolated in some cases.

These statistics emphasize very clearly the readiness with which the alimentary flora changes as the result of relatively slight changes of diet (with its variable content of bacteria). If the simpler conditions of microbial life found in the breast-fed infant represent a great physiologic advantage, future efforts should be directed to learn how to prolong them even when the dietary regimen is necessarily altered.

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[1] Logan, W. R.: The Intestinal Flora of Infants and Young Children, Jour. Path. and Bacteriol., 1914, xviii, 527.

[2] Tissier: Compt. rend. Soc. de biol., 1899, li, 943; Ann. de l'Inst. Pasteur, 1905, xix, 109.

Current Comment

KNOWN BY THE COMPANY IT KEEPS

The advertising manager of a certain cement company doing a national advertising business holds that, in spending his employer's advertising appropriation, it is his duty to demand of the publications he patronizes value received for the money paid. He feels that he does not get the true value when advertisements of his product are lined up with advertisements of fraudulent wares. To the advertising agencies he says:

> "Will you please say to all newspapers desiring to carry our advertising that we decidedly object to being placed in close company with noisome patent-medicine ads and other fakes or near-fakes . . ."

To explain what he means, at greater length, the manager in an open letter to the Association of National Advertising Managers recalls a recent experience. Picking up a New York daily a few weeks ago, he found an advertisement unblushingly claiming that a certain "patent medicine" would cure consumption. He wrote, protesting, to the publishers of the paper who, in return, defended the advertisement and said they would continue to carry it. Commenting further on the atrocity of the claims made by the exploiter of the nostrum, the advertising manager says:

> "Either this advertising doctor has a cure for consumption or he hasn't. If he is the great benefactor for which suffering humanity has looked in vain for generations, this newspaper would have a scoop and would at once give pages of free publicity. If it really believes what it aids this advertiser to say to consumptives, its editorial department is asleep at the switch."

This criticism will hold true of most "patent-medicine" advertisements. Wide-awake men in the advertising business realize that every dishonest advertisement weakens the opportunity of decent advertisers to gain the confidence of readers. Enlightened selfishness alone should impel the advertisers of meritorious and truthfully-exploited products to protest against being placed in company with swindling "patent medicine" fakers. The advertising manager just mentioned says: "Robbing consumptives or opening the door for such robbers seems to me to be business in which no decent man can engage." He might have added that the majority of schemes devoted to robbing consumptives and other sick persons would cease to exist were it not for the publicity which certain publications are willing to give them—for a consideration. The arguments and criticisms just given, while applying specifically to lay publications are applicable with equal force to medical publications. The medical profession has for years been pleading for the suppression of fraudulent advertising that directly affects the public health; at the same time our profession has tolerated and supported medical publications whose advertising pages have been, and in many cases still are, reeking with frauds just as vicions as those to be found in newspapers that cater to quacks and "patent-medicine" fakers. The only difference between a fraudulent "proprietary" and a fraudulent "patent medicine" is in the language used in advertising the two products. A lie is no less a lie because it is told in dignified language, and a fraud is no less fraudulent because it is perpetrated on the public through the instrumentality of physicians. What the advertising manager of the cement company said with regard to advertisements in newspapers and general publications applies with equal force to advertisements in medical journals:

> "Gentlemen, the time for pious prating about truth in advertising is past. The public will soon give us the laugh of scorn if we solemnly talk about truth while hundreds of mediums are brazenly sharing in the spoils of dishonorable advertising."

THE SALUTARY EFFECTS OF MUSIC

To what are the beneficent effects of music due? Darwin, who never rested until he could explain a thing, if it were explainable, could nevertheless no more explain why musical tones in a certain order and rhythm afford pleasure, than we can account for the pleasantness of certain odors and tastes. "We know that sounds, more or less melodious, are produced, during the season of courtship by many insects spiders, fishes, amphibians and birds." After all, we need go no deeper for an adequate explanation than that influences, such as music, which are agreeable, are therefore salutary, and music is agreeable because its component tones are regular, periodic vibrations, even auditory waves precisely so many to each note, being in this regard unlike noises, which are irregular, dissonant, conflicting vibrations. Sound waves impinge on the hearing sense, whence the perception is conveyed to the brain. The benignant influence of music physically is by the transmission of its influence from the cerebrum through the sympathetic system, which directs the various organs. Thus not only is music physic for the soul, dissipating mental depression, soothing psychic perturbations; but its influence may also enhance nutrition, further digestion (as by the "liver music" of the French) and restore organic equilibrium. Indeed, the entire working of the human mechanism, physical and mental alike, may be lubricated by a stream of music, which art and science should therefore have a place in the medical armamentarium. It would no doubt be too much to expect every physician to be a performer on some instrument; yet illustrious colleagues have been skilled executants. Strümpell, for example, was an excellent violinist; Billroth was a superb player on the piano, and all the better surgeon for his graceful skill on that instrument. And who among "those present" could forget how in Boston several years ago, during the reception of the American Medical Association, the glee club made up of local physicians burst forth into concerted song, to the supreme delight of their hearers? There is agitation now in behalf of music as adjuvant to anesthesia; to this end some musical skill might be required of medical fledglings in examinations for junior internships. In any event every physician could well be at least an appreciator of music and have some understanding of that most ingratiating art.

THE ABSORPTION OF WOOD ALCOHOL THROUGH THE LUNGS

The increasing use of wood alcohol in the industries and the growing appreciation of the toxicity of the substance, involving possibilities of harm far greater than the behavior of the closely related grain spirits, ethyl alcohol, would lead one to suspect, have given the impetus to extensive physiologic investigations. To some of these, notably the experiments of Völtz and Dietrich, we have referred in the past.[1] Usually the study of the effects of methyl alcohol has been confined to conditions in which it has been introduced into the organism by way of the stomach. In some of the industries, particularly those in which denatured alcohol containing the methylated spirits are employed, the possibility of absorption of vapors of wood alcohol through the respiratory passages and lungs must be reckoned with. A very recent investigation with this point in view, by Loewy and von der Heide at the Royal Agricultural College in Berlin,[2] has disclosed the surprising fact that quantities of methyl alcohol as small as 0.2 per cent. in the inspired air may lead to absorption of the product into the body in not inconsiderable amounts. The absorption is slow, so that some time may elapse before the organism is "saturated" with the alcohol. Somewhat unexpected is the fact that, under comparable conditions, fat animals take up decidedly less wood alcohol exhibited as vapor admixed with air than do lean subjects. This is due to the poor solubility of methyl alcohol in fats and lipoids, a fact demonstrated by the German investigators contrary to the current beliefs of the relatively ready solubility of the lower alcohols in fats and fat-like substances.

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[1] Völtz, W., and Dietrich, W.: Ueber die Beteiligung des Methylalkohols und des Aethylalkohols am gesamten Stoffumsatz im tierischen Organismus, Biochem. Ztschr., 1912, xl, 15; Some Public Aspects of the Wood-Alcohol Industry, editorial, The Journal A. M. A., Feb. 14, 1914, p. 538.

[2] Loewy, A., and von der Heide, R.: Ueber die Aufnahme des Methylalkohols durch die Atmung, Biochem. Ztschr., 1914, lxv, 230.

RED AND WHITE MEAT

The irritating action of the extractives of meat during excretion by the kidneys is well known and has been the basis of a rule of treatment limiting the use of these products and the meats containing them to a minimum in the treatment of parenchymatous and interstitial nephritis. Because certain red meats contained a large amount of extractives, the rule to exclude red meats and permit white meats and fish gained currency. More recently it has been shown that some white meats contain a high percentage of extractives, so that the chemical composition of the two varieties of meat does not differ sufficiently to justify a marked preference for the white meat over the red. On the other hand, there are those who still assert that the objection to red meats as opposed to white is well founded. Thus McCrae in Osler's "Modern Medicine"[1] says "All kinds of meats contain extractives, and the so-called dark meats to a greater extent than the light meats. Adler," McCrae says, "in a review of the subject, concludes that the prevalent idea that the subject of renal disease ought to eat light rather than dark meats is correct, and that these meats boiled contain the harmful factors less than when roasted." The fact is that the color is an insufficient criterion. The objection to extractives as irritating to the kidneys is quite correct and the important point is to determine for each kind of meat whether it contains a sufficient amount of the extractives to be injurious. The question thus seems to be reopened. Kindborg,[2] in the chapter of his text-book dealing with this subject, concludes that the old distinction between red and white meats cannot be sustained. He founds his recommendations for the use of meat in nephritis on the comparative amount of extractives in the individual sorts of animal food. Thus some sorts of fish are higher in extractives than most kinds of meat and their effect on the kidneys must be judged accordingly.

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[1] Osler: McCrae in Modern Medicine, Ed. 2, iii, 784.

[2] Kindborg, E.: Innere Medizin, iii, 90.

Medical News

ARKANSAS

Personal.—Dr. Walter K. Grey has been appointed local surgeon for the Iron Mountain System at Cotter.——Dr. William C. Tipton, Mountain Home, has been appointed physician in charge of the Confederate Soldiers' Home, Little Rock.

Home from Abroad.—Dr. and Mrs. James H. Buckley, Fort Smith, returned from Europe, August 12.——Dr. Ollie W. Clark, Pine Bluff, reached home from abroad, August 20. ——Dr. R. Manton Wilson, Hope, who has been in Korea for eight years as a medical missionary, has returned home.

ILLINOIS

Personal.—Dr. Albert F. Storke, for five years president of the Board of Health of Oak Park, has resigned.——Dr. Clara Harrison Towne, Lincoln, has resigned as psychologist at the Lincoln State School and Colony.

Home from Abroad.—Dr. and Mrs. Robert S. Denney, Aurora; Dr. and Mrs. Karl F. Snyder, Freeport; Dr. Nina P. Merritt, Alton; Dr. Frederick E. Roberg, Joliet; Dr. George B. Kelso, Bloomington, and Dr. Ora L. Pelton and family, Elgin, have returned from abroad.

Chicago

Changes Field of Labor.—Dr. Thomas H. Glenn, formerly in charge of the pathologic and bacteriologic laboratories of the Northwestern University, has been placed in charge of the clinical and Roentgen-ray laboratories now being installed in the First National Bank Building, Fort Dodge.

Abroad and Home from Abroad.—Dr. Carl Langer and family and Dr. and Mrs. Bradford A. Camfield have returned from abroad.——Dr. and Mrs. Zenas H. Going are reported to be in London.——Dr. Anthony Biankini, Dr. Walter K. Allport, Dr. and Mrs. Alfred Schirmer and Dr. Hayden S. Barnard and family are still in Europe.

INDIANA

Reappointments on State Board.—The governor has reappointed Drs. Moses S. Canfield, Frankfort, and W. A. Spurgeon, Muncie, as members of the State Board of Medical Registration and Examination.

Indiana Physicians Returned and Abroad.—Dr. Malachi R. Combs, Terre Haute, has landed in New York.——Dr. and Mrs. Charles O. Bechtol, Marion, have reached home from Germany.——Dr. Manford M. Clapper, Hartford City, who had been marooned in London, has reached home.——Dr. and Mrs. Edward F. Hodges, Indianapolis, are said to be in London.

KENTUCKY

Personal.—Dr. B. Frank Eckman, Covington, has returned from Europe.——Dr. and Mrs. Frank T. Fort, Louisville, have returned from abroad.——Dr. W. Edward Grant, health officer of Louisville, who has been ill for four months, is convalescent and has resumed practice.

MARYLAND

Abroad.—Dr. H. Flournoy, resident psychiatrist at the Henry Phipps Psychiatric Clinic of Johns Hopkins Hospital, and a member of the medical reserves of the Swiss army, has left Baltimore to return to Switzerland, in answer to his country's call for reservists.——Dr. Ernest Zueblin, who is in Germany, has not been heard from and it is thought that he will remain in his country and assist in the army or in some hospital that will be established for the wounded.

Personal.—Dr. Robert F. Wells, Gamber, is ill with typhoid fever in St. Anthony's Hospital, Baltimore.——Dr. Charles R. Edwards, Baltimore, who was operated on for appendicitis, has recovered and resumed his practice in the University Hospital.——Dr. Thomas Boyle Owings is said to be critically ill at his home, Owings Glenn, Ellicott City.——Dr. Francis E. Harrington, Cumberland, has been appointed assistant epidemiologist in connection with the United States Public Health Service, Washington.

Home from Abroad.—Dr. Charles E. Hartwig of Baltimore who arrived on the refugee ship *Principessa Mafalda* from Europe tells of his capture by the Austrians as a spy. He was searched and questioned and turned over to the police of Vigi di Fassa. Eventually he proved his American citizenship and was released.——Physicians who have returned from Europe are Dr. Joseph Bloodgood, Dr. Frank Martin, Dr. Randolph Winslow and Dr. Frederick Baetjer; Dr. James T. Johnson, Cumberland; Dr. and Mrs. Alexander D. McConachie and Dr. Mary N. Browne, Baltimore.

MISSISSIPPI

Personal.—Dr. Edward C. Parker, Gulfport, has returned from abroad.——Dr. Thomas O. Hunter, Biloxi, registrar of the statistical department of the State Board of Health, is said to have been removed by Dr. Ethelbert H. Galloway, Jackson, secretary and executive of the board.

Progress of Hookworm Campaign.—The work in Jones County was brought to a very successful conclusion toward the end of August, over 2,500 cases having been treated. Hookworm was found in over 60 per cent. of all cases examined, the largest percentage being found in children. The people showed much interest and cooperated in the work. Many schools were found in which all the teachers and pupils were infected. Much infection in country schools is attributed to the ingestion of the eggs of the parasites in drinking-water obtained from springs near the schools.

MISSOURI

New Sanatorium.—Dr. W. S. Woodford, West Plains, has leased the Havens property in Carthage which was formerly used by Dr. Fulton as a sanatorium and will equip it and operate it as Woodford's Sanitarium. The institution will be opened some time next month.

Poison Selling Restricted.—An ordinance has been adopted by the city council of Joplin, placing restriction on the sale of morphin, cocain, heroin, carbolic acid and other poisons and also on the extracts and derivatives of habit-forming drugs. The ordinance also prohibits the distribution of sample packages or bottles of medicine.

Missourians Abroad.—Dr. and Mrs. Charles C. Dennie and Dr. and Mrs. Edward G. Blair, Kansas City; Dr. William F. Schmid, St. Joseph, and Dr. and Mrs. John J. Bourn, Hannibal, have returned from abroad.——Dr. Andrew L. Shoog, Kansas City, is said to have been placed in charge of the Salpêtrière Hospital, Paris.—Dr. James W. Heddens and family, St. Joseph, are in Stratford-on-Avon, England.——Dr. J. Elliott Royer, Kansas City, is in a hospital in Bern, Switzerland, recovering from injuries received in a fall while mountain climbing.

St. Louis

Personal.—Dr. Wilhelmina A. Ragland is interned in Switzerland.——Drs. Christopher C. Morris and Walter R. Hewitt have returned from abroad.

Banquet to Hospital Board.—Hospital commissioner, Dr. Cleveland H. Shutt, and the hospital superintendents gave a dinner in honor of the members of the hospital board, August 29.

Leper Escapes from Colony.—George Rusuls, a Greek, who has been under the observation of the health authorities for leprosy and was sent to join the leper colony at Quarantine, August 29, escaped a few hours later.

Hospital Opened.—The three-story building at Grand Avenue and Palm Street, recently purchased for $30,000 by the board of benevolence of the Christian Church, which has undergone extensive alterations and decorations, will be opened in a short time as the Christian Hospital. The institution has a capacity of fifty beds, and the officers of the staff are, Dr. Julins C. Heinrichs, president; Dr. Albert E. Meisenbach, vice-president, and Dr. Treston R. Ayars, secretary-treasurer.

MONTANA

Personal.—Dr. Fred F. Attix, Lewistown, has returned from abroad.——Dr. Robert I. Rizer and family, Anaconda, believed to be in Vienna.——Dr. Charles R. Blake, Butte, and Harry A. Bond, Dillon, have entered into partnership.

Prosecution of Milk Dealers.—The first prosecution of milk dealers in Cascade County was conducted July 17, at Great Falls, when the proprietors of five local eating houses were tried in the justice court for selling milk containing less than the standard percentage of butter fat. Three of the restaurant proprietors were tried and found guilty, and two pleaded guilty without the cases coming to trial.

NEW YORK

Personal.—Dr. Baxter T. Smelzer, Albany, has returned from abroad.——Drs. Thomas A. Ryan and Edward G. Griffin have been appointed examining physicians for the Albany District by the State Compensation Commission.

Wants Psychopathic Ward.—In a report made to the health commissioner of Buffalo by Dr. Baron Ross Nairn, examiner in lunacy, an appeal is made for a better psychopathic ward for the care of Buffalo patients under observation for supposed lunacy.

Children's Haven Opened.—On August 29 the Children's Haven at Far Rockaway was formally opened by Health Commissioner Goldwater. This home has accommodations for thirty-five and will care for children whose widowed mothers are in hospitals.

New York City

Personal.—Drs. John W. Draper, William J. Robinson and wife and George W. Jean have returned from abroad.——Dr. Lewis S. Pilcher, Brooklyn, has been elected surgeon-general of the Grand Army of the Republic.——Dr. Moses S. Kakels, Dr. Sara Welt-Kakels, Dr. John Warren and Dr. M. E. Rhein have returned from Europe.

NORTH CAROLINA

Home from Europe.—Drs. Lucius N. Glenn, Gastonia and Jacob F. Highsmith and daughter, Fayetteville, have returned from abroad.

Field Hospital Encamped.—Field Hospital, No. 1, N. C. N. G., encamped the last week in August at Camp Battle near Hendersonville. More than one hundred members were present.

Antityphoid Vaccination. — The North Carolina State Board of Health is now furnishing antityphoid vaccine, and in Robinson County alone more than 2,800 inoculations have been made.

Health Seekers Society Chartered.—The Asheville Health Seekers Society has been incorporated without capital by D. A. Pressley, W. P. Harvey and James Williams, with the object of providing friendly attention for worthy tuberculosis patients, funds for their needs and a sanatorium for the care of patients with small means and those who are indigent.

Personal.—Dr. J. Vance McGougan, Fayetteville, gave his annual entertainment to the Cumberland and Hoke Counties Medical Society, August 20, at his country place.——Dr. James M. Covington, Wadesboro, has been added to the state hookworm commission.——Dr. Samuel W. Hurdle, Reidsville, has been appointed whole-time health officer of Rockingham County, vice Dr. Samuel Ellington, Wentworth, resigned.

OKLAHOMA

Personal.—Dr. Charles R. Preston, Mountain Park, lost his office furnishings by fire, recently.——Dr. George W.

Sutton, Cleveland, has purchased the Bartlesville Hospital and has remodeled it and increased its capacity to twenty-five beds.——Dr. Alva A. West, Guthrie, will remain in England during September.

The Tables Turned.—Dr. G. Fowler Border, Mangum, was recently made the object of an unusual attack. It is alleged that an attempt was made by two women to induce him to perform a criminal operation, a dictograph having been placed in the room before the conference. Dr. Border, instead of being trapped, trapped the trappers. Two arrests have been made and Dr. Border is said to have filed suit for $100,000 against the Burns Detective Agency, Chicago.

PENNSYLVANIA

Personal.—Dr. Henry J. Benz has succeeded Dr. Henry B. Burns as superintendent of the Bureau of Child Welfare of Pittsburgh.

Physicians Entertained.—The Carbon County Medical Society was entertained by Dr. John W. Luther, Palmerton, at a clambake and cornroast recently, at Lake Mineola near Brodheadsville.

Home from Europe.—Dr. Martin E. Griffith, Monessen; Dr. and Mrs. George B. Kunkel and son, Harrisburg, and Dr. Charles H. Schlesman and son, Allentown, have returned from Europe.——Dr. Tyrus E. Swan, Easton, has reached London on his return home.

Bulletin on Health of Schoolchildren.—Dr. Samuel G. Dixon, state health commissioner, issued his thirty-first *Weekly Bulletin*, August 30. It deals with the health of schoolchildren and the care and attention which should be paid to them before entering the school that much illness from contagious diseases may be prevented.

Philadelphia

Personal.—Dr. Charles B. Penrose arrived from Europe September 3.——Dr. Howard F. Hansell arrived in New York September 2.——Dr. James William White is taking a trip through the Puget Sound Country and British Colony.——Dr. Walter L. Pyle has returned after a trip to Demerara, British Guiana.——Dr. Karl Schaeffle has succeeeded Dr. Eward B. Shellenberger, Harrisburg, as deputy medical inspector of tuberculosis dispensaries.

Million Assured for Blockley.—It has been announced that Councils' Finance Committee will yield to the demand of the physicians that the next loan shall include $1,000,000 to start the reconstruction of the Philadelphia General Hospital. While the overcrowding has been relieved to considerable extent by the removal to Norristown of many of the insane and indigent patients, and by other arrangements, there is still insufficient room at Blockley and, what is worse, it is impossible to give modern treatment in accordance with advanced ideas of sanitation in the present old buildings.

Rat Receiving Station.—On September 4, a rat receiving station was installed at the Race Street Pier and the payment of bounties for live and dead rats began. William J. Wahl, an inspector of the Board of Health, is in charge of the station, which is open from 8 a. m. to 5 p. m. and is connected by telephone with the electrical bureau. Thirty rats taken from the liner *Merion* which docked from Liverpool, have been taken to the city laboratories to be examined for traces of bubonic plague. Rats are being taken from the holds of all vessels docking at this port, as a part of the campaign instituted by Director Harte of the department of health and charities. A corps of nearly a score of special agents is inspecting vessels as they arrive, and also is collecting rats from several hundred traps placed along the Delaware River front between Girard Avenue and Reed Street. It is hoped in this way to keep out the bubonic plague.

TENNESSEE

Hookworm in James County.—Dr. Yancey, state hookworm examiner, after an investigation in James County, declared it heavily infected with hookworm. Of about 100 children examined, 75 were found infected.

From, to and in Europe.—Drs. Herbert T. Brooks and Otis S. Warr, Memphis; Drs. George Manning Ellis, Edwin Dunbar Newell, German P. Haymore, Henry Berlin, James H. Atlee, James A. Smith and John S. B. Woolford, Chattanooga; Drs. Albert G. Kern, Knoxville, and Albert W. Harris, Nashville, have returned from Europe.——Drs. Cary Snoddy and Robert H. Newman, Knoxville, sailed on the hospital ship, *The Red Cross*, September 9.——Dr. Hiram B. Jacobsohn has reached Rotterdam from Vienna on his way home.

TEXAS

South Texas Physicians to Meet.—The annual meeting of the South Texas Medical Society will be held in Corpus Christi, September 15 and 16, under the presidency of Dr. F. W. Painter.

Health Exhibit Car.—The appropriation of $10,000 made by the thirty-third legislature is sufficient to equip and maintain a health exhibit car which will start on its journal over the state this month. The car will be accompanied by a director and a corps of lecturers and demonstrators.

Physicians Abroad.—Drs. Edward H. Cary and Garfield M. Hackler, Dallas; Otto K. Peters, Galveston; Samuel P. Cunningham, San Antonio, and Joseph Gilbert, Austin, have returned from abroad.——Dr. James W. Ward, Detroit, is believed to be in Vienna.——Dr. and Mrs. Harold L. Warwick, Forth Worth, are in London.

Personal.—Dr. Edmond Doak, heretofore associated with the Taylor Sanitarium, has purchased a third interest in the Taylor City Hospital.——The Whiteside Office Building, owned by Drs. E. F. and M. A. Whiteside, Timpson, was burned August 6, with a loss to Drs. Whiteside of $2,000 in office books and instruments, and of $1,500 to Dr. Ollie F. Johnson.

GENERAL

Colored Physicians Meet.—The National Medical Association held its annual meeting in Raleigh, N. C., August 25 to 27 and elected the following officers: president, Dr. Frank S. Hargrave, Wilson, N. C.: vice-presidents, R. C. Brown, D.D.S., Richmond, Va., and W. A. Jones, Ph.G.; secretary, Dr. Walter G. Alexander, Orange, N. J.; assistant secretary, Dr. G. R. Ferguson, Charleston, S. C.; treasurer, Dr. J. R. Levy, Florence, S. C. It was decided to meet in Chicago in 1915.

Hospital Chiefs Confer.—At the sixteenth annual meeting of the American Hospital Association held in St. Paul, August 24 to 28, the followings officers were elected: president, Dr. William O. Mann, Boston, superintendent of the Boston Homeopathic Hospital; vice-president, Dr. Arthur B. Ancker, superintendent of the St. Paul City Hospital; W. W. Kenney, superintendent of the Victoria General Hospital, Halifax, N. C., and Miss Ida N. Barrett, superintendent of the Grand Rapids (Mich.) Hospital; secretary, Dr. Harry A. Boyce, superintendent of Kingston General Hospital, Kingston, Ont., reelected, and treasurer, Asa Bacon, superintendent of the Presbyterian Hospital, Chicago, reelected. It was decided to hold the next meeting of the association in San Francisco.

Prevention of Tuberculous Infection in Children.—The trustees of hospitals for consumption for Massachusetts have sent a circular letter to physicians of that state calling attention to the responsibility resting on the profession in the prevention of consumption, especially among children. The trustees suggest that it is tuberculous children who cannot stand the strain of young adult life that furnish our thousands of new cases of pulmonary tuberculosis each year. It is the opportunity of physicians, first to protect these children from infection, and second, to see that they are cared for when such infection has taken place. When actual disease is evident the case has probably gone beyond the stage when cure is possible. A diagnosis of "infection" as contrasted with a diagnosis of "disease" is the key to this problem. Physicians are requested to aid by reporting these cases, simply as a matter of record, to the State Board of Health, which will furnish special cards for the purpose.

The Plague in New Orleans.—Since the report of bubonic plague in the last issue of The Journal, three cases of human plague and eleven cases of rodent plague have been discovered. The human cases are as follows: Case 23, Max Neuman, white, male, nativity, United States; residence, 421 Harmony Street; employed at grocery store, corner Carrollton Avenue and Green Street; aged 19; sickened, August 29, with left femoral bubo. Case 24, Ethel Ticker, white, female, residence, 1742 Touro Street, corner Roman Street; sickened September 1, diagnosis positive September 2, with left femoral bubo. Case 25, Lloyd Wilson, white, male, occupation, plumber; residence, 1824 Baronne Street; sickened September 1, suspicious September 2, diagnosis positive September 3, left femoral bubo. Cases 75 to 85, inclusive, of rodent plague have also been found. During the week ended August 29, in the Department of Outgoing Quarantine, 81 vessels were fumigated with sulphur; 15 with carbon monoxid; 9,764 pounds of sulphur were burned; 15,736 tons of outgoing freight were inspected and 32 clean and 6 foul bills of health were issued. The Overland Freight Inspection Department inspected 3,925 cars; rat-proofed 1,230 cars, and condemned 9 cars. No rodents were killed in cars during the week. In the Department of Field Operations, 9,178 rats were trapped, 4 premises were fumigated, 40 premises were disinfected, 3,726 premises were inspected, 150,008 poisons were placed, 1,926 notices were served, 117 buildings were rat-proofed, 774 abatements were made and 121 dead were inspected. In the Department of Laboratory Operations, 8,235 rodents were received, of which 6,614 were examined, 18 were found suspicious and the diagnosis of plague was confirmed in 14. The total number of rodents trapped thus far is 64,063 and of these 58,599 have been examined.

CANADA

Medical Corps Organization.—Previous to 1899 there was no Army Medical Corps in Canada, each regiment having its own medical officers. At the present there is an organized system of 700 medical officers and 1,800 non-commissioned officers and men. Sir Ian Hamilton recently reported that the medical corps keeps well ahead of every other branch of the military service in its completeness and preparations for war.

Personal.—Dr. Max Klotz, Ottawa, immediate past president of the Ontario Medical Council, who has been doing graduate work in Germany, has arrived in England and will sail for home immediately.——Dr. George Strathy, Toronto, has returned from England.——Dr. Walter Wright, Toronto, is now doing work in Moorfields, London, England.——Dr. D. W. McPherson, Toronto, left the past week for Valcartier Camp near Quebec, in charge of the Army Medical Corps, Toronto, Dr. Wallace Scott was second in command.——Dr. D. A. Clark, Toronto, has gone with his regiment to the camp.——Dr. S. P. Ford, Norwood, Ontario, who has practiced in that village for fifty years, was recently tendered a banquet and a congratulatory address by the physicians of Peterboro and surrounding country.——Dr. G. G. Nasmith, bacteriologist to the Toronto Board of Health, is at Camp Valcartier watching the water supply.——Dr. George R. McDonagh has returned to Toronto from England.——Dr. William Burt, Paris, Ont., Drs. Charles J. Hastings, Herbert J. Hamilton and Augusta Stowe Gullen, Toronto, have been reelected to represent the graduates in medicine on the senate of the University of Toronto.——Dr. A. T. Shillington, Ottawa, is in charge of the medical services at Camp Valcartier. He states that out of a total of 33,000 in camp, but fifty-one have developed any illness.

WAR NOTES

Russia Organizing a Corps for Cholera Service.—The Russian authorities are considering a proposal to establish a corps for cholera service to consist of 10 medical men and 20 nurses.

Medical Service in England.—As many practitioners and panel physicians have taken places in military service, arrangements are being made to fill their places temporarily and conserve their practices during their absence .

Foreign Medical Publications.—Recent issues of foreign medical publications are exceedingly thinner in bulk and especially in original contributions. The issue of the *Lancet* for August 29 is the annual Students' Number and contains no original articles. Much space is given in current British journals to war news.

England to Manufacture Synthetic Drugs.—Agitation is being made for English chemical companies to arrange for the manufacture of German synthetic products. Duty free alcohol is being urged to aid manufacturers in this work. The patent laws are such that firms who will undertake to manufacture the necessary products at this time may continue to do so even after peace is declared. Edward White, president of the British Pharmaceutical Society, has recommended that sodium salts be substituted for potassium, as Germany is the great source of the latter.

Compulsory Antityphoid Vaccination of English Army Urged.—Sir W. B. Leishman has published a letter urging compulsory antityphoid vaccination for the British army and pointing to the American success during the mobilization in Texas. As it is impossible to vaccinate all the recruits en masse, Lord Kitchener has expressed a wish that all may be vaccinated as rapidly as occasion offers. Antityphoid vaccine is supplied on requisition from the Base Depot of Medical Stores, and medical officers are urged to seize every opportunity to increase the number of the inoculated.

Switzerland Appeals for Aid.—The Official Information Bureau of Switzerland, located in New York, writes that the Swiss Republic has been compelled to call to arms the entire Swiss army of 300,000 men, in order to be prepared to enforce and defend the neutrality of the country. This leaves the harvests to be gathered by the aged and by women and children, and imposes a heavy burden on the 3,500,000 population, more particularly as the customary trades and industries of the country are at a standstill. An appeal is made to Americans for contributions to meet the needs of the destitute; these may be sent to the Swiss Relief Fund, 241 Fifth Avenue, New York.

Surgical Scissors and Forceps.—Few physicians realize that all, or nearly all, surgical scissors and forceps are imported, most of them from Germany. The war, of course, has closed practically all the surgical instrument factories. A correspondent who is interested in the subject, and who has just returned from abroad, writes: "While I was in Europe I saw factory after factory where the first call took out from 60 to 85 per cent. of the men. There is no doubt but that the instrument business of this country will be in bad shape inside of the next sixty days." This means that it will stimulate and encourage our home instrument-makers to undertake the manufacture of these instruments.

Pharmaceutical Arrangements in Austria.—The Austrian Department of the Interior has issued an order requiring the public pharmacies to be kept open as far as possible. In case the proprietor or the responsible manager of the pharmacy is compelled to be absent for military service, a master of pharmacy can be entrusted with the conduct of the pharmacy without the requirement of a definite period of professional service. The order also provides that in cases in which a master of pharmacy cannot be obtained, and there is an urgent necessity for a public place for the furnishing of medicines, a medical house pharmacy can be established. The order further provides that in such cases a sign, giving the residence of the physician conducting the pharmacy, shall be distinctly displayed to the public and similarly in the case of pharmacies whose business must be suspended, a sign indicating the nearest accessible pharmacy must be displayed.

Conditions of Life in Paris.—Three weeks after the mobilization, as noted by a special correspondent to the London *Lancet*, the greatest change in Paris was in the traffic arrangements. All buses have ceased operations and the city is much more quiet. All horses and private motor cars were commandeered. The street railway ceased operations except from 7:30 a. m. to 7:30 p. m. and the wives of the employees took their places. Food conditions generally are fair and arrangements are being made to conserve the food supply. Notices have been posted urging all who have not been vaccinated in the last five years to apply at any of the hospitals or the vaccination bureaus which have been established. Directors of primary schools and medical inspectors have been instructed to vaccinate all children. Among other sanitary measures, burning of all rubbish and boiling of water have been urged. No wounded soldiers are sent to Paris for the present; they are being sent to the provinces.

Red Cross Expedition Sails.—The American National Red Cross steamer, *Red Cross*, formerly the Hamburg-American steamer, *Hamburg*, was still at New York September 9, having on board ten hospital units to assist in the care of the wounded in the European armies. Major Robert U. Patterson, M. C., U. S. Army, is in command of the detachment and the officers of the units are as follows: (1) Dr. Reynold M. Kirby-Smith, Sewanee, Tenn., director; Drs. John A. C. Colston and Martellus H. Todd, Baltimore, assistants; (2) Dr. Roades Fayerweather, Baltimore, director; Drs. Lewis C. Spencer and Harry Richmond Slack, Baltimore, assistants; (3) Dr. William S. Magill, New York City, director; Drs. Philip Newton, Washington, D. C., and Paul H. Zinkhan, Salem, Ore., assistants; (4) Dr. Robert W. Higgs, Buffalo, N. Y., director; Drs. Fred W. Eastman and Henry N. Shaw, assistants; (5) Dr. Edward H. Egbert, Washington, D. C. director; Drs. Brown S. McClintic, Peru, Ind., and Arthur M. Zinkhan, Washington, D. C., assistants; (6) Dr. Charles H. Sanders, Washington, D. C., director; Drs. John S. Spearman, Baltimore, and Grover A. C. Stem, Washington, D. C., assistants; (7) Dr. Cary A. Snoddy, Knoxville, Tenn., director; Drs. Fred G. Benton, New York City, and Walcott Denison, St. Louis, assistants;

HENRY B. WARD,
[illegible] UNIVERSITY.

(8) Dr. John D. Bartlett, Galesburg, Ill., director, Drs. Russell A. Jewitt, Cleveland, and John C. Miller, Shenandoah, Pa., assistants; (9) Dr. Howard W. Beal, Worcester, Mass., director; Drs. Veader N. Leonard, Baltimore, and William T. Fitzsimons, New York, assistants; (10) Lieut. Col. Bial F. Bradbury, M.C. Maine N.G., Norway, director; Drs. Robert H. Newman, Knoxville, Tenn., and John Lancer, New York, assistants. Its sailing was delayed because of protest from foreign consuls regarding the large number of Germans, not American citizens, on the crew.

Shortage of Medical Supplies in Austria.—The influence of the war on the market for drugs is felt not only in this country but even in Austria although she is an ally of Germany in which so large a part of the drugs used is manufactured. As will be seen from another item, the German Emperor has forbidden the exportation of a large number of very important drugs. The "Pharmaceutische Post" for August 8, calls attention to the effect of this law on the drug market in Austria and to the unfortunate position which a nation is in when it has to depend on other nations for its important drugs. Most chemical preparations, among them the most important alkaloids like morphin, the analgesics and hypnotics, are not produced in Austria but only in Germany, and at present cannot be imported on account of the necessities of the war.

This situation affects not only public pharmacies, but also the public hospitals and even the military hospitals which must supply their needs through the wholesale druggists. A circular from the latter has already been sent to pharmacists in which they have set forth the serious economic condition that has been called into being by the war and demand attention to these conditions on the part of pharmacists. They also make the announcement that they will furnish goods only for cash and are compelled to make an advance of 15 per cent. on all goods. Some makers of bandage material have raised the prices in their list from 40 to 80 per cent. Under such circumstances it is impossible that pharmacists shall maintain the price of medicines established by law, and permission must be given them, according to the Post, to make on their part, a corresponding increase in their charges.

The standing committee of the Vienna Medical Chamber and of the Economic Organization of Physicians of Vienna has also addressed a public request to the Vienna physicians to prescribe imported alkaloids only in the amounts absolutely necessary.

Exportation of Medical Supplies from Germany Forbidden.—In its current issue the *Pharmaceutical Post* published in Vienna, quotes from the Berlin *Drug News* the following order issued by the kaiser:

> We, William, by the grace of God, German Emperor, King of Prussia, etc., in the name of the Empire, with the complete concurrence of the Bundesrat, issue the following orders:
>
> 1. The export and transport across the boundaries of the German Empire of material for dressings and remedies, as well as surgical instruments and apparatus, is forbidden until further notice.
> 2. The Imperial Chancellor will publish a list of articles whose export and transportation is forbidden according to Section 1. He is empowered to permit exceptions to conditions in 1 and to establish necessary regulations.
> 3. The present order is to take effect on the day of its announcement (publication).
>
> In witness whereof, behold our Imperial signature and the impression of the Imperial seal.
>
> Given at the New Palace, July 31, 1914.
>
> (L. S.) Wilhelm,
> von Bethman Hohlweg.

In connection with the above, the following announcement is published:

> On the basis of the second paragraph of the Imperial orders of July 31, 1914, regarding the prohibition of the export and transportation of dressing material, remedies and surgical instruments and apparatus, I make public announcement that the following articles come under this prohibition: Pure carbolic acid, mercury, corrosive sublimate, iodin, potassium iodid and sodium iodid, iodoform, chloroform, pyrazolonum phenyldimethylicum (antipyrin) and its derivatives (pyramidon, etc.), powdered opium, morphin and its salts, codein phosphate, paraformaldehyd, quinin hydrochlorid and sulphate, arecolin, salvarsan, absorbant cotton, gauze for dressings and other dressing material, surgical and other medical and dental instruments and apparatus, bacteriologic apparatus, material for bacteriologic media (agar, gelatin, peptone), vaccine virus, prophylactic sera and curative sera for infectious diseases and also experimental animals.
>
> Berlin, July 31, 1914.
>
> I. V. Delbrück,
> Imperial Chancellor.

On September 8, Representative Metz reported the raising of the export embargo on dyestuffs via Rotterdam, including medicinal products with the exception of chloroform, carbolic acid, serums and salvarsan.

LONDON LETTER

London, Aug. 14, 1914.

Libel Action Against the British Medical Association

A nostrum proprietor named Stevens has brought an action against the British Medical Association for statements made in "Secret Remedies," the book in which the association has exposed various quacks. It may be remembered that last year this individual, who professes to cure consumption, brought an action in which the jury disagreed. In the present case he appeared in person. In addressing the jury he claimed that he had discovered a cure for consumption which had proved successful in his case when sent to South Africa seventeen years ago by his family doctor. In the association's book it is stated that "the vendor considerately warns the public against American quacks and impostors," but though so engagingly candid about his rivals he follows the plan of sending one letter after another to any sufferer whose name he may have obtained, a system which seems to have been invented in America. His circulars have a character of their own, because of his effrontery to the medical profession. Persons who respond receive a list of questions to be answered by their doctor and are advised to continue under his observation that he may be impressed by the marvelous qualities of the remedy. He also said, "The great drawback to my cure so far as the medical profession is concerned has been the fact that I would not reveal its formula. This is now done away with. The formula is 80 grains of umckaloabo root and 13 grains of chijitse to every ounce prepared according to British Pharmacopeia methods." The book commented on "the farce of revealing a formula by the employment of such fancy names as one of the oldest dodges of the quack medicine man." The following analysis was given: "The medicine contained in 100 fluid parts 21.3 alcohol, 1.8 glycerin and 4 solid substance; the latter contained about 1 part of tannin and 0.2 of ash. The solid substance agreed in all respects with the solids of decoction of krameria." In his advertisements Stevens guaranteed to cure the patients or to return the money in full. He also alleged that he returned to England to prove his cure to the satisfaction of the British government.

For the association evidence was produced that a man who went to see Stevens concerning some clerks in the same employ said he was subject to colds in the head. Stevens volunteered to examine him and said that his left lung was in a bad condition and gave him an injection. He subsequently saw a chest specialist who found there was nothing the matter with him. Dr. Bullock, a pathologist, said that he experimented with Stevens' remedy and found that it had no bactericidal properties, although the claim was made that a dilution of 1:100 killed tubercle bacilli. Sir Richard Douglas Powell, former president of the Royal College of Physicians, stated that he knew no remedy which would cure consumption. A physician from West Africa gave evidence on behalf of Stevens. He had heard the name "umckaloabo." It was a Kafir word meaning "life everlasting" and was applied to a plant in Kafir Land; a decoction made from it contained a vegetable parasite which was an antitoxin for chest complaints. Stevens produced several witnesses who stated that they had been cured of consumption by him. Well-known specialists gave evidence that there was no proof that these persons had suffered from consumption. It was also shown that although Stevens issued guarantee bonds promising to refund the money if a cure was not accomplished, yet when his patients died and their families, who were in poor circumstances, applied for the return of the money, he refused to give it. The jury returned a verdict in favor of the defendants. The British Medical Association is therefore to be congratulated on its successful exposure of this quack.

Jews and Consumption

It is generally held that Jews are much less liable to tuberculosis than other white races. That this view requires some qualification seems to be shown by Dr. D. L. Thomas, Health Officer for Stepney, a district in the East End of London mainly inhabited by Jews. He holds that consumption is more common among Jews than other classes and that it is undoubtedly on the increase among them. The return of cases notified and the number of deaths in certain model dwellings occupied by 5,789 Jews and 6,848 Gentiles, showed that in the buildings entirely occupied by Jews, 95 notifications were received, and there were 14 deaths or 14.7 per cent. of the persons attacked. In the buildings where there were no Jews, 26 notifications were received and there were 6 deaths, a percentage of 23 of those attacked. So that a greater percentage of Jews than of Gentiles contracted the disease, but a smaller percentage of those attacked died. These figures, adds Dr. Thomas, "tend to confirm the opinion I have frequently expressed, that pulmonary tuberculosis is more common among Jews than others and that it appears to be of a more chronic nature. Its chronic character may be the cause of its greater prevalence among Jews. Some of these chronic patients live for many years. They cough and expectorate quantities of sputum laden with tubercle bacilli, and are the center of infection for many years. The danger of this in crowded rooms or in workshops where many work in close proximity to each other, is obvious." In regard to the above statistics it must be borne in mind that the Jews in Stepney are among the poorest and most down-trodden of their race. Driven by oppression out of Russia they seek refuge in England, where they overcrowd certain slums and begin the struggle for existence at a disadvantage.

BERLIN LETTER

(*Delayed in transmission*)

Berlin, Aug. 8, 1914.

The War

Although we have been prepared for years for an attack from Russia, France or England, the gigantic war in which we are now involved quite unexpectedly has naturally affected German physicians severely. In an economic way it bears on the entire profession, especially on those liable to military service by the call to service in the army. Aside from the army surgeons belonging to the standing army, the surgeons who are on furlough (reservists) were immediately mobilized. In addition, a large number of physicians in civil life who, in part, are no longer bound to military service, and in part have never performed it, have placed themselves at the disposal of the war department mostly, for hospitals which will later be erected in their own home towns. It is at present not possible to determine the number of physicians who have gone into active service, but if one estimates from comparison with the conditions in the Franco-Prussian war of 1870-1871, there would be about 12,000 physicians in the army. Naturally the question arises, How will the civil population receive medical care in the absence of so large a number of physicians? The representatives of the medical profession made immediate provision for active help in this matter. The Medical Chamber of Berlin-Brandenburg has required all the physicians of its district who are in the position to do so to assume without charge the practice of their colleagues who are in the field, and among the physicians who have already given notice of their willingness to serve in this way a representative service has already been organized. It is distinctly provided that the substitute shall fully assure the income to his colleague serving in the army or to his family. Similar measures will doubtless be taken in other parts of Germany. The task of providing that the families of physicians who are deprived of their support through service in the army shall receive material aid so far as possible is of especial importance. Also in this respect the Medical Chamber of Berlin-Brandenburg has already taken steps to the extent that the loan committee has announced that it will allow loans to the needy families without interest so far as its means permit. In the *Deutsche medizinische Wochenschrift*, it is further stated that the great fund of the Leipsic League amounting to more than $250,000 (1,000,000 marks) which was raised for the aid of physicians in their conflict with the insurance societies and which is no longer of value for its original purpose, is to be devoted, as far as possible, to needy members and their families. If these and similar measures of the authorities of the profession are insufficient to provide he needed assistance, there is no doubt that physicians of means who remain at home will provide funds for the welfare of the profession.

The great enthusiasm which prevails among the German people expresses itself not only in the readiness to go to war, but also in the willingness for sacrifice which is necessary to provide means for the care of the wounded. Already in he first days of mobilization, a fund was provided of about 250,000 (1,000,000 marks) by some banks and private indiiduals, to which the kaiser alone contributed from his private purse $25,000 (100,000 marks). The offer of the American Red Cross to send an expedition of three surgeons nd twelve nurses with the necessary material to care for ur wounded, communicated by the American government hrough its ambassador, has been received with marked ppreciation. The resolution of the members of the Society of American Physicians of Berlin to offer their services to the German army has been received with no less favor.

Naturally, the military hospitals are of the first importance for the reception of the wounded. Next come the state and municipal hospitals which, in consideration of the enormous size of the army and the extent of the individual battles, must soon be made use of. Moreover, physicians have already offered their private clinics for this purpose. Further, some of the nobility have arranged to care for the wounded in their castles. The Kaiser Wilhelm Academy of Berlin for the instruction of army surgeons is arranged for the care of convalescents. Its doors are naturally closed to students, for the younger students have been sent into the army as nurses, and the oldest have taken an emergency medical examination and gone with the troops as assistant surgeons. Moreover, medical students from civil life who have almost completed their studies have been permitted to dispense with the medical examination. In this way the number of physicians available for military service has been increased.

Thanks to the recognized excellent organization of our military sanitary service, the hope may be entertained that the fearful horror of war, so far as regards the wounding of soldiers, will be mitigated so far as possible. Further, from the same reason, we may hope that the epidemic diseases which in former wars have swept away as many or more persons than have fallen on the field of battle, will be excluded, not only from the army, but also from the civil population. That there is danger in this respect has become known to us by a report from Russia where, already for many weeks, cholera is said to be demanding not a few victims in various districts. Even an invasion of St. Petersburg by the plague has been feared.

MEDICAL AND SANITARY AFFAIRS IN VERA CRUZ

(*From Our Special Correspondent*)

Vera Cruz, Mexico, Aug. 28, 1914.

The hot season, which is also the rainy season, begins in Vera Cruz in May or June and lasts until the end of September, and as the season advances the tendency is for the death and morbidity rates for all diseases to increase, due to the heat itself, and the rapid increase in the amount of malaria; yet thanks to the effective work of our sanatoriums, this year is an exception, in that the civil death-rate for July is practically no greater than for June, in which month it was lower than the average.

The civil death-rates per thousand of population, per annum, for the months of June and July for the past five years for the city of Vera Cruz are given below; the improvement for July of this year is too great to be accidental or due to anything but improved sanitation.

	June	July
1910........	36.86	46.86
1911........	38.29	46.86
1912........	44.86	49.72
1913........	36.86	41.15
1914........	32.00	32.58

A comparative statement of the civil deaths from communicable diseases for June and July of this year is as follows:

Civil Deaths from Communicable Diseases for June and July, 1914

	June	July
Typhoid fever	1	0
Malaria	8	2
Small-pox	4	1
Dysentery	12	4
Tuberculosis	19	26
Diarrhea and enteritis, under 2 years....	19	14
Diarrhea and enteritis, 2 years and over..	28	23

The increase of deaths from tuberculosis is not unusual during the hot weather; the small-pox epidemic is over and there are now no cases in the city; between May 18 and July 31, 66,432 persons were vaccinated; revaccinations are now being made when indicated but general vaccination ceased with the end of July. The principal gain is due to the fall in the death-rates for malarial and intestinal diseases and this improvement is directly due to our preventive measures.

The antimalarial measures which affect the civil population are three: the suppression of mosquito breeding, the use of the Army laboratory in establishing the correct diagnosis, and the following up and treatment of all proved carriers of gamets in the blood. Mosquito-breeding has been largely suppressed by the extensive and intricate system of ditches in the environs of the city, totaling about 25 miles in length; miles of vacant lots and hundreds of acres of swamp at the bases of the gigantic sand-dunes behind the city have been drained by the Health Department, and it is now possible to sleep comfortably in almost all parts of the city without the use of mosquito-bars, something heretofore unknown at the height of the rainy reason.

Malaria has been made a reportable disease by the Health Department and demonstration of the parasite in the blood is insisted on as far as possible. All houses where proved cases of malaria have occurred have been visited by inspectors trained in mosquito extermination, and secondary cases have been so far practically unknown. As a result of a partial malarial survey of the city, it has been found that the disease is principally localized along the railroad and the railroad yards. Further investigations along this line are now under way. The work has advanced far enough to demonstrate that there is very much less malaria here now than is usual at this time of the year; the Mexican physicians are unanimous in stating that the amount of *paludismo* is now very small.

The other group of diseases which have been brought under control are the dysenteries and diarrheas, and the preventive measures which seem to be directly responsible for the improvement are the following: the suppression of flies and the protection of foodstuffs in the markets by screening; the improvement in the milk-supply; and disinfection and isolation of dysenteric cases. The number of milk-venders in the city is approximately 150, and 200 samples of milk have been examined for dirt, adulteration and the percentage of fat. The milk examinations are made at irregular intervals on unannounced dates, each vender's milk being examined at least quarterly. The measure, however, which seems most directly responsible for the diminution in the number of cases and deaths from intestinal diseases is the antifly campaign. The city water has been frequently examined in the laboratory and found uniformly good. No cases of yellow fever have originated here or been brought to the port.

The health of the troops has remained excellent, the sick-rate being only 2 per cent. from all causes, or rather less than at most garrisoned posts in the United States. Surgical cases during June and July were few, accidents and injuries, 10 cases; appendicitis, 9 cases; Hagner's operation in about 15 suitable cases has given splendid results. Dysenteries, both bacillary and entamebic have practically disappeared; in May there were 16 cases, in June, 12, in July, 2, and so far in August, 1; the only fatality occurred in May.

Malarial diseases have increased moderately; in May there were 3 cases, in June, 19, in July, 24, and in the first twenty days of August also 24. There have been no fatal and very few severe cases among the troops, since they receive early and proper treatment. Deaths among Mexicans, especially of the poorer classes, have not been infrequent during August of previous years; one Mexican physician of good standing states that ordinarily in August and September, every physician in the city may have 4 or 5 pernicious cases each day, with a high percentage of deaths. The fatalities, they state, are distinctly less since the hypodermic use of quinin has become common. They use 15 grains of quinin bichlorid in 1 c.c. of sterile water; each dose being prepared ready for use in sterile glass ampules. The injection is given deeply into the muscles, care being taken to avoid deposits of fat; abscesses do not follow unless the dose be given into the subcutaneous or fatty tissue. Fatal cases among Mexicans this year are few, and have occurred only among the very poor and ignorant.

The malarial season, beginning in May, lasts to the time of the "northers," cold gales out of the north, which begin to blow toward the end of September. We have, therefore, to look forward to at least a month more of malaria; in fact the worst part of the year is yet to come. The number of cases among both Mexicans and Americans has been kept down to a degree heretofore unattained and every effort is being exerted to exterminate the disease. As it is, many of our cases are imported, and come from localities not under our control. There is no doubt but that the malarial sick-rate of Vera Cruz can be lowered more and more each year, but to accomplish it will require time, brains and money.

No doubt Northern travelers have often wondered why the inhabitants of tropical cities live huddled together in compactly built towns, whose narrow streets are utterly devoid of shrubbery and shade trees. To one who has made a malarial survey of such a town, locating each case on a spot map, the reason is evident, for malaria creeps in through the outskirts of the city from all sides, and does not cease its advance until the older, more densely built portion of the city is reached.

Marriages

HYMAN ISAAC GOLDSTEIN, M.D., Camden, N. J., to Miss Evelyn Lipitz of Vineland, N. J., at Atlantic City, N. J., September 8.

JOHN LADA MILLER, M.D., Alliquippa, Pa., to Miss Florence Nellie Molter of Warrendale, Pa., at Suterville, Pa., August 27.

THOMAS JOSEPH HOULIHAN, M.D., Ida Grove, Iowa, to Miss Gertrude Masterson of Chicago, at Sioux City, Iowa, August 24.

CARL EDWARDS, M.D., Wade, Ohio, to Miss Iva Keller of New Matamoras, Ohio, at Marietta, Ohio, August 20.

ARTHUR MONROE CALVERT, M.D., Lawrence, Ind., to Miss Anna May Gorby of Indianapolis, September 5.

ALBERT HERR MONTGOMERY, M.D., Chicago, to Miss Elizabeth Russell of Tulare, Cal., August 22.

THOMAS J. W. SHOEMAKER, M.D., to Miss Blanche Papanek, both of Fort Worth, Texas, August 15.

FREDERICK J. ROOST, M.D., Sioux City, Iowa, to Miss Helen Kearney of Jackson, Neb., August 29.

HAROLD H. MEREDITH, M.D., to Miss Mary Adel Palmer, both of Montrose, Colo., August 15.

CYRIL E. SHEPPARD, M.D., Larned, Kan., to Miss Helen Smith of Baldwin, Kan., August 17.

GLENN ORVILLE DAYTON, M.D., Butte, Mont., to Miss Sylvia Maginn of Chicago, September 1.

Deaths

George Banghart Henry Swayze, M.D. Jefferson Medical College, 1859; one of the founders and first dean of the faculty of the Medico-Chirurgical College of Philadelphia; assistant surgeon of the One Hundred and Seventy-Eighth Pennsylvania Volunteer Infantry during the Civil War; afterward editor of a weekly newspaper in Mahanoy City, Pa.; died at his home in Philadelphia, August 22, from senile debility, aged 81.

John R. Umstad, M.D. Jefferson Medical College, 1876; a Fellow of the American Medical Association and a specialist on diseases of the eye; surgeon on the staff of the Charity Hospital, Norristown, Pa.; and for many years coroner's physician of Montgomery County; died at his home in Norristown, August 26, from typhoid fever, aged 58.

Charles T. Race, M.D. Tulane University, New Orleans, La., 1882; a member of the State Medical Association of Texas; for more than thirty years a resident of El Paso, Texas; and since 1885 an official of the city health department; assistant city health officer of El Paso; died at his home in that city; May 8, aged 62.

James B. Garvey, M.D. College of Physicians and Surgeons, Baltimore, M.D., 1884; a Fellow of the American Medical Association; for four years sheriff of Calaveras County, Cal., and for two terms superintendent of schools; died at his home in Dunmore, Pa., August 23, from acute gastritis, aged 71.

Arthur Wesley Hammer, M.D. Northwestern University Medical School, Chicago, 1911; formerly of Arbuckle, Cal.; was found dead in the bathroom of his apartment in Chicago, August 30; it is believed from water gas asphyxiation, aged 32.

Jasper T. Englerth, M.D. Physio-Medical College of Indiana, Indianapolis, 1879; physician to the German Baptist Old Folks' Home and Orphanage; died at his home in Honey Creek, Ind., August 12, aged 61.

Frederick C. Beals, M.D. University of Buffalo, N. Y., 1875; a Fellow of the American Medical Association and health officer of Salamanca, N. Y.; died at his home in that city, July 25, aged 62.

Leonard H. Spalding, M.D. University of Maryland, Baltimore, 1869; for thirty-three years a practitioner of Peoria, Ill.; died in Rochester, Minn., August 22, from heart disease, aged 69.

Henry Redlich, M.D. Rush Medical College, 1883; a member of the Illinois State Medical Society; died at his home in Chicago, August 30, aged 82.

William H. Person, M.D. Jefferson Medical College, 1877; a member of the Nebraska State Medical Association and for a quarter of a century a leading practitioner of the Elkhorn Valley; died at his home in Stanton, Neb., August 12.

Thomas Warren Moore, M.D. University of Pennsylvania, Philadelphia, 1869; a member of the State Medical Association of Texas; died at his home in Seguin, Texas, August 19, from cerebral hemorrhage, aged 68.

Robert Francis Gibson, M.D. Harvard Medical School, Boston, 1901; a Fellow of the American Medical Association; of West Somerville, Mass.; died at Hill, N. H., August 16, from heart disease, aged 41.

Samuel Alexander Nicholson, M.D. College of Physicians and Surgeons, Boston, 1904; a lecturer in his Alma Mater; died at his home in Bradford, Haverhill, Mass., August 18, from heart disease, aged 40.

Oliver J. Rowland, M.D. Long Island College Hospital, Brooklyn, 1899; a member of the State Medical Association of Texas and a resident of Sealy, Tex.; died in Boston, Mass., July 17, aged 38.

Ruth Bryant Leake, M.D. University of Michigan, Ann Arbor, 1891; for many years a member of the staff of Battle Creek Sanitarium; died at her home in Asheville, N. C., August 12, aged 58.

Thomas Joseph Murphy, M. D. College of Physicians and Surgeons, Baltimore, Md., 1899; a member of the Maine Medical Association; died at his home in Bangor, Maine, August 14, aged 41.

Uriel S. Wright, M.D. Washington University Medical School, St. Louis, 1871; a member of the Missouri State Medical Association; died at his home in Fayette, Mo., August 15, aged 67.

Patrick H. Mangan, M.D. Kentucky School of Medicine, Louisville, 1903; for ten years a practitioner of Central Falls, R. I.; died at his home in South Attleboro, Mass., August 12, aged 41.

Gustave F. Walker, M.D. Eclectic Medical Institute, Cincinnati, 1872; for nearly forty years a practitioner of New Orleans, died at his home in that city, August 15, aged 73.

John H. Murphy, M.D. Eclectic Medical Institute, Cincinnati, 1875; for seventeen years a resident of Fort Worth, Texas; died at his home in that city, August 18, aged 78.

Clarence K. Alger, M.D. Temple University, Philadelphia, 1909; a Fellow of the American Medical Association; died at his home in Swarthmore, Pa., August 16, aged 45.

John A. Parkison, M.D. Jefferson Medical College, 1868; surgeon of volunteers during the Civil War; died at his home in North Athens, Tenn., August 17, aged 72.

Ira Zeno Plunkett, M.D. Marion-Sims College of Medicine, St. Louis, 1896; died at his home in Lewis, Iowa, August 13, from cirrhosis of the liver, aged 38.

Grant Safely, M.D. Colorado School of Medicine, Boulder, 1900; of Yreka Cal.; was killed in an automobile accident, near Galt, Cal., August 11, aged 42.

Joseph A. Utter, M.D. Pulge Medical College, Cincinnati, 1885; died at his home in Crawfordsville, Ind., August 19, from angina pectoris, aged 67.

Lee E. Monroe, M.D. Washington University, St. Louis, 1881; died at his home in Eureka, Mo., August 16, from cerebral hemorrhage, aged 55.

Thomas J. Watlington, M.D. Jefferson Medical College, 1857; died at his home in New Boston, Tex., May 26, from senile debility, aged 84.

Nathaniel P. Ward, M.D. Rush Medical College, 1894; died at his home in Saybrook, Ill., August 20, from pernicious anemia, aged 50.

Matthew James Glass, M.D. Trinity Medical College, Toronto, Ont., 1887; died recently at his home in Poplar Hill, Ont., aged 65.

George Nelson Dolbeck, M.D. Hahnemann Medical College, Philadelphia, 1895; died at his home in New York City, July 29.

Marshall Camp, M.D. University of Iowa, Iowa City, 1881; died at his home in Decatur, Iowa, August 14, aged 60.

William H. McConnell, M.D. Jefferson Medical College, 1857; died at his home in Brimfield, Ohio, July 24, aged 83.

Jennie E. Smith, M.D. Chicago Homeopathic College, 1879; died at her home in Chicago, August 20, aged 79.

Edward Thomas, M.D. Rush Medical College, 1860; of Scottville. Mich.; died in Manistee. Mich., August 17.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

WINE OF CARDUI

The Journal is Sued and the Company is Reported to Be Soliciting Testimonials from Doctors

The manufacturers of "Wine of Cardui" have entered suit against the American Medical Association and the editor of The Journal for $300,000.00, presumably for the article regarding this product which appeared recently in The Journal. We say "presumably," as no details are yet to hand regarding the exact nature of the suit.

In this connection, some interesting data have just been received which we give to our readers in detail. In brief, it appears that the Chattanooga Medicine Company, which manufactures Wine of Cardui, has an agent, or agents, in the field whose purpose it is to obtain testimonials from physicians regarding the alleged value of its nostrum. According to a letter, which we reproduce below, the doctors are approached and the statement is made that his opinion and expert testimony is desired in support of the company's product. Our correspondent says, further that the physician is told that a retainer will be given for his services and that he will be paid $25 a day and expenses if he will favor the company by going before its attorney and making a deposition and, furthermore, that if his services as an "expert" at the Chicago trial should be needed, the company is prepared to pay $50 a day for his services.

Our correspondent's letter detailing the attempts of the concern to obtain testimony of this sort, follows. Names, dates and places have been omitted for obvious reasons:

To the Editor: According to the statement of an agent of the Chattanooga Medicine Company who approached doctors of ——— for the purpose hereinafter stated, that company, anent recent articles concerning Wine of Cardui published in a "Chicago paper," has brought suit for damages against that publication. The words "Chicago paper" were his own; as you will learn, particular pains were taken to conceal the fact that The Journal of the American Medical Association was the "paper" in question.

The mission of this man, according to his own account, was to secure material with which to bolster this suit. The method the Chattanooga Medicine Company is pursuing through him for the prostitution of medical men in Tennessee and Alabama to that end may be of interest to you.

Through the kindness and cooperation of Dr. ——— of this place, as well as Drs. ——— and ———, and Mr. ———, a local druggist, I have been able to collect the information given here. Affidavits as to any part or all of it will be furnished, if desired, by the gentlemen concerned.

Through the kindness of the druggist mentioned above I was informed of the activity of Mr.———, the agent in question. While seeking to "get a line" on local physicians, he told the druggist of his plans and way of working. He vouchsafed the information that he was to employ ten doctors in Alabama and ten in Tennessee as experts for his company; also the fact that he paid each a retainer for his immediate services in signing a certain paper.

On investigation, I found that he had seen two of the three medical men he had decided on as prospects, and had been peremptorily dismissed before getting well launched into his argument. Fortunately, Dr. ———, the third "prospect" was warned that he was marked for a visit. After consulting an attorney, it was decided, in order to learn at first hand the agent's methods, and to secure, if possible, a copy of the paper mentioned above, that the doctor, when approached, should guardedly encourage the gentleman to divulge his offer in full. This was done.

Only pertinent details of the conversation of the first interview are given below; these are just as set down at the doctor's dictation immediately afterward.

Agent: "Doctor, ———— is my name. I am representing the Chattanooga Medicine Company. To state my business briefly, I will say that we are instituting a suit against a Chicago paper which recently made a vicious attack on one of our preparations, Wine of Cardui. At that time it was claimed that Wine of Cardui is freely drunk as booze in the South; also that the women of the South are rapidly being made drunkards by its use. Now, Doctor, we do not believe this to be true. We wish to defend the fair name of southern womanhood from this libel, and in doing so, our product as well. To support us in this suit we want your opinion and expert testimony. You are familiar with Wine of Cardui, I presume, Doctor?"

Dr. ————: "Yes."

Agent: "Do you believe what the paper says?"

Dr. ————: "What you have repeated? No, I do not!"

Agent: "Have you prescribed Wine of Cardui?"

Dr. ————: "No."

Agent: "Have you had opportunity to observe its therapeutic action?"

Dr. ————: "Daily."

Agent: "Is it your opinion, Doctor, that the therapeutic action of Cardui on the female generative organs is due to the alcohol it contains?"

Dr. ————: "The alcohol in Cardui, in the prescribed dose, or in any dose, would not, so far as I know, have any special action on the uterus or appendages."

Gratified that no explosion had occurred so far, and beginning to feel sure of his ground, the agent warmed to his task. The physician was here treated to some specious but skilful flattery, which, being irrelevant, we do not give. The doctor was finally asked directly what he thought of the attack on Cardui. He responded: "It sounds interesting."

Agent: "As I stated at the start, Doctor, it is our desire to retain you as an expert. [Producing a paper.] A retainer will, of course, be paid for your services now. I have here a paper which will give you a good idea of the kind of certificate we want to get. To save trouble, many doctors use it as a guide to go by in writing out their own."

The doctor took the paper and kept it. A copy of this document is enclosed. We have the original. [See "Specimen of Certificate Wanted," below.]

Agent: "We will, if you will so favor us, require you to go before our attorney and make a deposition as to your belief in the things here set down; that will be better. We will pay you $25 a day and expenses if you will do this. Also, later, it is likely we will need your services as an expert at the Chicago trial. We are prepared to pay you $50 a day and expenses for this service."

Dr. ————: "But I told you at the start that I had never prescribed Cardui; that I have never observed therapeutic effects that could be attributed to it. If that was the case with a doctor who went to Chicago in your behalf, what could he say that would be of benefit to you?"

Agent: "That will be all right, Doctor; our attorneys will furnish you the testimony."

At this point the doctor excused himself, promising an audience the next day. I was present at that time. The agent was asked on this occasion what paper was being sued—this question had been purposedly withheld before. He did not know. However, being pressed, he finally admitted that he thought it was a journal, possibly a medical journal. The two issues of The Journal in question were thrust before him. He admitted those contained the articles. His confusion was pitiful.

————, M.D., ————.

Specimen of Certificate Wanted

I have practiced medicine for eleven years, and during that time I have frequently prescribed Cardui for women suffering from menstrual disorders with beneficial results.

I have had patients under my care who have been using Cardui, and I have noticed good results from its use. (Description of symptoms may be inserted here.)

I am positive that the therapeutic results obtained by the use of Cardui are not due to the small amount of alcohol contained in each dose.

I have known of the reputation of Wine of Cardui for many years and know it to be good.

In all my experience as a physician I have never known of the use of this medicine as a beverage.

————M.D.

Graduate of ———— Medical College, ————, 19——.

Some Resolutions

In view of the statements given by our correspondent, the following resolutions recently adopted by the Medical Society of Limestone County, Alabama, are of interest:

Resolutions by the Medical Society of Limestone, County, Alabama

Resolved, That we, members of the Medical Society of Limestone County, Alabama, being present at a regular meeting, and constituting a quorum, do hereby express our disapproval and condemnation of the methods being pursued by the Chattanooga Medicine Company in order to secure material from physicians to be used in a suit for damages against The Journal of the American Medical Association. Be it further,

Resolved, That we regard as reprehensible the efforts made by their representative, when approaching physicians on the subject, to conceal the identity of the publication being sued. Be it,

Resolved furthermore, That we regard the offer of a sum of money as a retainer to physicians besought to act in the alleged capacity of experts for the company, together with certain sums of money for certificates, depositions and testimony in favor of the said company, as nothing more or less than a technical and legal subterfuge in attempting to bribe and corrupt the members of the medical profession; this offer is so regarded because of the action mentioned in Resolution Two of these resolutions, as well as the fact that local members of the profession have been offered money to sign certificates, and to make depositions certifying facts which they had previously stated to the representative of the Chattanooga Medicine Company, making the offer they did not believe, and in some instances had plainly represented to him as being without the bounds of truth. Lastly, be it

Resolved, That the secretary of this society be authorized to attach to these resolutions the seal of the society; that they be spread on the minutes, and that a copy of the said resolutions be sent The Journal of the American Medical Association, to neighboring medical societies and to the chairman of the state board of censors.

J. S. Crutcher, President.
A. L. Glaze, Jr., Secretary and Treasurer.
J. F. Hughes,
C. O. King,
D. G. Estes,
B. S. Pettus, County Health Officer.
J. A. Pettus,
J. H. Maples.

ANGIER'S EMULSION

Report of the Council on Pharmacy and Chemistry

Angier's Emulsion is essentially a petroleum product. When it was first put on the market commercial interests had been fostering the idea that petroleum products had food-value, and the manufacturers of Angier's Emulsion, making use of the idea, advertised it as a "food-medicine" and an "ideal substitute for cod-liver oil." The impression thus created has been kept alive through persistent advertising in spite of scientific proof to the contrary. To-day many who know that petroleum products have no food-value are still likely unconsciously to class Angier's Emulsion among nutrients. Although the manufacturers now advertise this product as "purely mechanical in its action," they yet show a disposition to profit by the old misapprehension, since, so far from expressly disavowing the old claims as erroneous, they mingle with the new ones vague claims of "tonic and reconstructive merits" apparently designed to sustain, in those who do not take time to consider the evidence carefully, the old faith in the claimed nutritive qualities of the preparation.

While the Council judges a preparation by the claims made for it at present, and not by any past misstatements when these have been thoroughly corrected, the past advertising of Angier's Emulsion so instructively illuminates the scientific worthlessness of proprietary therapeutic claims in general, and the whole course of its history is so typical that the referee has thought it well to review the subject briefly. The Council has authorized the publication of the following report.

W. A. Puckner, Secretary.

Angier's Petroleum Emulsion was brought out in 1881—that is to say, before the food-value of petroleum products had been experimentally disproved. Its advertising history well illustrates the weed-like vitality of a financially profitable therapeutic fallacy. The shifting claims made for this preparation are such good examples of the generally unreliable therapeutic pretensions of proprietary medicines—whether of the "patent medicine" or of the "ethical proprietary" type—that it has been deemed advisable to present a brief review of the conflicting claims made for it at various times.

A PETROLEUM PRODUCT

Angier's Emulsion is described by the manufacturers as containing, in addition to "our specially purified Petroleum," "the combined hypophosphites of lime and soda, chemically pure glycerine, and the necessary emulsifying agents." So far as the hypophosphites are concerned, it is probably unnecessary to remark that the latest researches bring to light no evidence that they influence metabolism in the slightest degree. The Angier Chemical Company apparently accepts this view, for in its advertising stress is laid exclusively on the merits of the emulsion as a petroleum product. It is therefore proper to consider it from this point of view.

The history of the internal use of liquid petrolatum was sketched in a recent Council report.[1] As mentioned at that time, a number of petroleum products were put on the market some thirty years ago as substitutes for lard and butter. Contemporary opinions regarding the food value of such products differed widely.

There never was any scientific evidence to support the view that petroleum and its derivatives are assimilable by the animal organism. In fact, so far as we can learn, there was no scientific investigation of the problem until Randolph's experiments in 1884. These were probably the first to demonstrate the non-absorbability of petroleum and its valuelessness as a foodstuff.

In 1899 Robert Hutchison conclusively demonstrated by experiment that petrolatum, paraffin and related products were absolutely unassailable by any of the digestive fluids, and therefore could not possibly have any food value. Various investigators later confirmed these findings.

FIRST ADVERTISED AS A "FOOD-MEDICINE"

Let us now take up the advertising history of this nostrum. In 1895 it was sold under these claims:

> ". . . a 'Food-Medicine' that is far more than a substitute for cod-liver oil";
> ". . . a Food-Medicine that is readily assimilated and helps to digest other foods."

In 1897 it was an:

> "Ideal Substitute for Cod Liver Oil."

In 1899 it:

> ". . . conserves heat and energy by furnishing more material for oxidation."

In 1902 it:

> ". . . supplants tissue waste by tissue reconstruction."

The promoters of Angier's Emulsion thus for some time ignored the status definitely assigned to petroleum products by the experiments of Randolph, Hutchison and others. This was only natural. If petrolatum was absolutely inert in the alimentary canal (and this was now proved beyond controversy) then an emulsion prepared from it most certainly was not a "food-medicine," could not "supplant tissue waste," or "conserve heat and energy." All the credit which previous "unterrified and ingenious advertising" (to quote Hutchison) had accumulated for Angier's Emulsion was bound up with the view that petroleum products were foodstuffs.

LATER ADVERTISED AS NON-ABSORBABLE

The non-absorbability of liquid petrolatum, however, suggested to Robinson, Schmidt, Lane and others, a new therapeutic use for it in the treatment of chronic constipation. This method has rapidly gained popularity and it is not surprising, therefore, that the promoters of Angier's Emulsion changed their claims accordingly, and now began to base their advertising chiefly on the proved properties of petrolatum. In 1910 the emulsion was advertised for the treatment of chronic diarrhea on these grounds:

> ". . . given by the mouth, it passes to the lowermost portions of the intestines without changing its identity; hence it exerts antiseptic, soothing and demulcent properties upon every inch of the intestinal tract, from the duodenum to the rectum."

The old claims, however, were not discarded altogether, for in 1911 the preparation was recommended for children's diseases as:

> ". . . an aid to appetite and digestion and a splendid tonic and builder."

Before long the attempt was made to weave together the claims based on opposed and mutually incompatible properties. In 1912 we find Angier's Emulsion recommended because it:

> ". . . corrects digestive disturbance and promotes normal action of the bowels. At the same time it has a most invigorating tonic influence upon the general health."

In 1914 medical men are advised through the advertising pages of the *British Medical Journal* of the:

> ". . . tonic and reconstructive merits of Angier's Emulsion."

A pamphlet on "Constipation," which is "Presented to Physicians with Compliments of the Angier Chemical Company" (copyright, 1913; still distributed in 1914) informs physicians that Angier's Emulsion is:

> ". . . purely mechanical in its action."

Notwithstanding this, we are told later on in the same pamphlet that it:

> ". . . facilitates, hastens and assists the processes of digestion and assimilation." . . . "is a most efficacious remedy in Pulmonary Tuberculosis because it not only maintains normal nutrition, but also exerts a well-defined specific palliative influence upon the cough and other symptoms of the disease."

Evidently the advertisement is written in the hope that in one paragraph a claim based on the proved properties of petroleum products may be substantiated, while in another a totally different and inconsistent claim may be glibly insinuated in vague phrases designed to lull thought and thus perform the remarkable feat of securing credence for two contradictory statements.

UNWARRANTED AND MISLEADING CLAIMS

Further evidence that Angier's Emulsion is at present exploited both to the medical profession and to the public under claims that are unwarranted and misleading, if not as palpably untrue as the claims made in the past, is found on the wrapper of a trade package purchased in 1914 and in the circular accompanying it. Note the following:

> "Indicated in Diseases of the Throat and Lungs and of the Digestive Apparatus. Useful in General Debility and Wasting Diseases, Especially when due to Faulty Nutrition. The antiseptic properties of the Emulsion particularly adapt it to the treatment of diseases of septic or bacterial origin."
>
> "Angier's Petroleum Emulsion is indicated in affections of the throat, lungs and intestinal tract—both subacute and chronic. In diseases of the digestive apparatus due to catarrhal, ulcerative or tuberculous conditions, its peculiar soothing, healing and aseptic properties make its use especially beneficial. Wasting diseases, particularly when due to faulty nutrition, are greatly benefited by its use, one of the most noticeable effects being a prompt and decided increase in weight."

It is, of course, unnecessary to point out that, since petroleum is non-absorbable, Angier's Emulsion contains no ingredient capable of affecting the respiratory mucous membrane except by local application, for which, indeed, this preparation is evidently not intended.

COMPOSITION AND FORMULAS

According to a circular which was contained in a trade package recently purchased

> "Each fluidounce of Angier's Petroleum Emulsion with hypophosphites contains: 33⅓ per cent. of our specially purified Petroleum; 9 grains of the combined hypophosphites of lime and soda, chemically pure glycerin and the necessary emulsifying agents."

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[1] Liquid Petrolatum or "Russian Mineral Oil," Propaganda Department, The Journal A. M. A., May 30, 1914, p. 1740.

As regards the nature of the product referred to under the indefinite term "petroleum" the circular states that Angier's Emulsion is:

> ". . . prepared with refined petroleum specially purified for the purpose. By a process peculiarly our own the crude petroleum, obtained from special wells is so purified that all taste and odor and all objectionable and irritating properties are removed, while the full medicinal value of the oil is retained. . . ."

The composition assigned to Angier's Emulsion in an advertising pamphlet "The Petroleum Idea," issued in 1907 differs in that it is said to contain "specially purified crude petroleum" and that each fluidounce is said to contain 2.84 grains of benzoate of sodium. While these quotations convey the impression that certain medicinal constituents of the "specially purified" product obtained from "special wells" are "retained," a pamphlet recommending the use of Angier's Emulsion for the treatment of constipation assures us that it produces the "mechanical effects of the purest petroleum" and that it is "purely mechanical in its action."[2]

LABORATORY REPORT

The statements regarding the identity of the "petroleum" are so unsatisfactory and contradictory (in one place "refined petroleum specially purified for the purpose," in another "specially purified crude petroleum"—in one place "medicinal" and in another "purely mechanical in its action") that the help of the Chemical Laboratory of the Association was invoked to establish the character of the petroleum product and to determine the presence or absence of sodium benzoate, at one time declared by the manufacturers to be present but later omitted from the formula. The Association's chemists reported:

"From a specimen of Angier's Emulsion recently purchased there was separated by the customary methods of analysis, a yellow fluorescent, unsaponifiable, semi-solid residue which has all the properties of ordinary yellow petrolatum of a consistence somewhat softer than the product described in the Pharmacopeia. It was much more dense than the colorless, non-fluorescent liquid petrolatum now in vogue as a laxative. The preparation contained benzoate, both in the form of free benzoic acid and also in the form of a water-soluble salt probably sodium benzoate."

The petroleum product contained in the emulsion was thus shown to be intermediate between the ordinary (solid) and the liquid petrolatum. It also appears that a benzoate is still present, though no longer mentioned in the formula.

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[2] As is the custom in the exploitation of proprietary medicines, the preparation which is the firm's main output—the leader—is made to do duty as an advertising medium for auxiliary preparations. Thus the Angier Emulsion booklet advises the use of Angier's Throat Tablets. These tablets are alleged to be composed essentially of elm bark and petroleum, are claimed to "promote appetite and aid digestion," and it is stated that "their healing action on all mucous surfaces makes them decidedly beneficial, not only to the pulmonary tract but on the digestive areas as well." Angier's Throat Tablets were examined in the Association's Laboratory to determine the amount and kind of petroleum present in the tablets. Extraction of the tablets with ether yielded a petroleum product which resembled in every way the product obtained from the emulsion. Slightly less than 12 per cent. of the tablet was composed of the petroleum oil. The part insoluble in ether appeared to consist essentially of elm bark, with gum and sugar.

The Laboratory and the Clinic.—There are few more significant principles contributing to form the substratum of good and successful work at the bedside than a just estimate of the correct relationship between clinical and experimental work, and lack of the requisite clearness of mental vision in this matter is, I believe, one of the most potent causes of unexplained disappointment and failure. We sometimes observe a man of high intellectual power, honest, painstaking and industrious, who seems to fail unaccountably, and by that I do not mean in respect of wordly advancement and public estimation, but he fails in the actual practice of his profession at the bedside. If I were asked to state in general terms what in my opinion is the most frequent defect that underlies this regrettable phenomenon, I should reply without hesitation, "Inability to distinguish clearly between the teachings of the laboratory and those of the bedside"—R. Hamilton Russell, *British Medical Journal.*

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

DISINFECTION OF LIBRARY BOOKS

To the Editor:—1. Can books, say of the circulating department of a public library, be properly disinfected? If so,

2. What is the best method?

3. What would you do with public library books used in families in which there is an open case of tuberculosis (pulmonary) (*a*) disinfect them, (*b*) destroy them, and deny family further privileges of the library?

4. Have you any suggestions on this important question of disseminating disease by means of schoolbooks and books of circulating departments of public libraries?

J. Vander Laan, M.D., Muskegon, Mich.

Answer.—1. Yes.

2. The best disinfecting agent is formaldehyd gas, and the books should be thoroughly opened. They should be arranged on perforated wire trays and exposed to the gas for twelve hours at a temperature of 80 C. (176 F.). When only a few books are to be treated, in the absence of a special apparatus, they may be disinfected by placing two or three drops of a 40 per cent. solution of formaldehyd on every second page. The book is then laid in a closed box or barrel in which more formaldehyd solution has been sprinkled and left in a warm place for not less than twenty-four hours.

3. Tuberculosis is not usually regarded as sufficiently contagious to necessitate the disinfection of books. Without doubt, however, a sufficient degree of safety can be attained by disinfection without denying the tuberculous patient and family the privileges of the library.

4. See The Journal, April 20, 1912, p. 1201.

The danger of infection of any sort being conveyed by books is very slight. If the books are kept out of circulation for a short time or simply filled with formaldehyd, if they must be "disinfected," no one need fear that books will be much of a factor in disseminating disease.

ANTISEPTIC ACTION OF HEXAMETHYLENAMIN

To the Editor:—Please let me know whether an article was published in The Journal a few years ago, stating that as a result of experiments carried on, it was found that hexamethylenamin was an antiseptic independent of its formaldehyd content.

S. W. Marick, M.D., Pittsburgh.

Answer.—Such an article has not been published in The Journal within the last five years. In an abstract of an article by L. B. Wiggs, entitled "Pharmacologic and Clinical Aspects of Hexamethylenamin" (*Southern Medical Journal*, December, 1910, abstracted in The Journal, Jan. 14, 1911, p. 152) it is stated that "the drug—as such—has only mild antiseptic properties and is probably, in part at least, absorbed unchanged." A statement was made in Queries and Minor Notes (The Journal, May 18, 1912, p. 1527) to the effect that hexamethylenamin in itself is somewhat antiseptic, but not markedly so. At that time it was believed that hexamethylenamin broke up in the tissues, liberating formaldehyd, and the answer to the query referred to held that the statement that "its value lies in the fact that it breaks up in the tissues and thus formaldehyd is liberated, is fully justified." In an editorial, July 6, 1912, page 38, it is said that "the theory of its (hexamethylenamin's) action centers in the liberation of formaldehyd from the compound on treatment with acid." It appears that the opinion that hexamethylenamin is antiseptic independently of the liberation of formaldehyd was an assumption not founded on reliable experimental evidence. The recent investigations of Burnam, Hanzlik and others have shown that its action as an antiseptic depends on the decomposition into formaldehyd and ammonia, which occurs only in an acid medium.

ORIGIN OF THE NAME "WALDEYER'S RING"

To the Editor:—Please give the origin of the name "Waldeyer's ring" as applied to the pharyngeal, faucial and laryngeal tonsils.

J. W. D.

Answer.—This name was given in honor of the German anatomist, Heinrich Wilhelm Gottfried Waldeyer, born in 1836.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Colorado: Denver, October 6. Dr. David A. Strickler, Empire Bldg., Denver.

District of Columbia: Washington, October 13-15. Sec., Dr. George C. Ober, 125 B. St., S. E., Washington.

Georgia: Atlanta, October 13-15. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Wallace, October 6. Sec., Dr. John F. Schmershall, Jerome.

Illinois: Chicago, October 6-8. Sec., Dr. C. St. Clair Drake, Springfield.

Kansas: Topeka, October 13-15. Sec., Dr. H. A. Dykes, Lebanon.

Michigan: Lansing, October 13-15. Sec., Dr. Beverley D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, October 6-9. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

Missouri: Kansas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, October 6. Sec., Dr. William C. Riddell, Helena.

New Mexico: Santa Fe, October 12. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: September 22-25. Chief of Examination Division, Mr. Harlan H. Horner, Department of Education, Albany.

Oklahoma: Muskogee, October 6-8. Sec., Dr. John W. Duke, Guthrie.

Rhode Island: Providence, October 1-2. Sec., Dr. Gardner T. Swarts, State House, Providence.

West Virginia: Clarksburg, October 13. Sec., Dr. S. L. Jepson, 81 Twelfth St., Wheeling.

New York January Report

Mr. H. H. Horner, secretary of the Examination Division of the New York Education Department, reports the written examination held at Albany, Buffalo, New York and Syracuse, January, 1914. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 117, including one osteopath, of whom 73 passed, including one osteopath, and 44 failed. The following colleges were represented:

College	Year Grad.	Total No. Examined
PASSED		
University of Colorado	(1905)	1
Yale Medical School	(1906, 1); (1911, 1); (1912, 2); (1913, 1)	5
Georgetown University	(1912)	1
Johns Hopkins University	(1904, 1); (1907, 1); (1911, 2); (1912, 1)	5
Dartmouth Medical School	(1910)	1
Albany Medical College	(1912, 3); (1913, 5)	8
College of P. and S. in the City of New York	(1894)	1
Columbia Univ., College of P. and S.	(1911, 1); (1912, 3); (1913, 6)	10
Cornell University	(1911, 1); (1913, 1)	2
Fordham University	(1911, 1); (1912, 1); (1913, 4)	6
Long Island College Hospital	(1912, 2); (1913, 5)	7
New York Homeo. Med. Coll. and Flower Hosp.	(1910, 1); (1913, 1)	2
Syracuse University	(1911, 2); (1912, 3); (1913, 1)	6
University and Bellevue Hospital Med. Coll.	(1913)	6
University of Buffalo	(1912, 1); (1913, 2)	3
Jefferson Medical College	(1912, 1); (1913, 1)	2
University of Vermont	(1912)	1
Medical College of Virginia	(1911)	1
University of Toronto	(1906, 1); (1911, 2)	3
Royal Imperial University, Vienna	(1912)	1
FAILED		
University of California	(1900)	1
Yale Medical School	(1911)	1
Georgetown University	(1913)	1
George Washington University	(1905)	1
Howard University	(1902)	1
Chicago College of Medicine and Surgery	(1912)	2
College of Physicians and Surgeons, Chicago	(1902)	1
Tulane University of Louisiana	(1908)	1
Baltimore Medical College	(1913)	1
College of Physicians and Surgeons, Baltimore	(1912)	1
University of Maryland	(1911)	1
Tufts College Medical School	(1910, 1); (1913, 1)	2
Univ. of Mich. Homeo. Med. Coll.	(1911, 1); (1912, 1)	2
Albany Medical College	(1912)	1
Columbia Univ., College of P. and S.	(1913)	1
Fordham University	(1913)	2
Long Island College Hospital	(1913)	2
New York Homeopathic Medical College	(1882)	1
New York Homeo. Med. Coll. and Flower Hosp.	(1913)	1
Syracuse University	(1912, 1); (1913, 1)	2
University and Bellevue Hosp. and Med. Coll.	(1913)	3
University of Buffalo	(1913)	4
Jefferson Medical College	(1912)	2
Hahnemann Med. Coll. and Hosp., Philadelphia	(1911)	1
Medico-Chirurgical College of Philadelphia	(1912)	1
Woman's Medical College of Pennsylvania	(1912)	1
Laval University, Quebec	(1900)	1
Royal Univ. of Naples, Italy	(1897, 1); (1905, 1); (1912, 1); (1913, 1)	4
Royal University of Rome	(1910)	1

Book Notices

Feeble-Mindedness: Its Causes and Consequences. By Henry Herbert Goddard, Ph.D., Director of the Research Laboratory of the Training School at Vineland, New Jersey, for Feeble-Minded Girls and Boys. Cloth. Price, $4 net. Pp. 599, with illustrations. New York: The Macmillan Company, 1914.

In this book is embodied a report of the work done during the last five years in the Vineland Research Laboratory. An attempt was made to ascertain the cause of feeble-mindedness of the children in that institution. Three hundred and twenty-seven cases are reported, the research including a detailed study of the heredity as ascertained by a field investigation. The greatest stress is laid on this factor, although each case was thoroughly analyzed from every point of view. The summarized study has led the author to believe that intelligence is inherited according to the mendelian law. This conclusion is, of course, of great importance. Based on so large a series of cases as this, it must necessarily be given the most serious consideration, although this research is but preliminary to further studies along the same line. It has been done with a thoroughness which warrants a belief that future studies will have an equally valuable outcome. The cases are divided up into groups, according to various chief factors underlying the conditions in each instance. There are numerous plates illustrating the features of the different cases, and several chapters explaining the line of study followed and the reasoning process by which Dr. Goddard arrived at his conclusions. The language is simple and the diagrams extraordinarily clear.

Defensive Ferments of the Animal Organism against Substances Out of Harmony with the Body, the Blood-Plasma and the Cells. Their Demonstration and Their Diagnostic Significance for Testing the Function of Different Organs. By Emil Abderhalden, Director of the Physiological Institute of the University at Halle. English Translation by J. O. Gavronsky, L.R.C.P., M.R.C.S., M.D., and W. F. Lancaster, M.A. Third Edition. Cloth. Price, $2.75 net. Pp. 242, with 11 illustrations. New York: William Wood & Co., 1914.

The date of translation of this edition of Abderhalden's work is Feb. 3, 1914, approximately twelve years since the beginning of the fundamental work of the author. In that period there is hardly a single branch of medicine to which the application of this method has not been made. The basic researches are the chief feature of the present volume. The technic of the test is outlined, and there is a chapter on sources of error which will aid the reader toward a greater surety that his work is worthy and reliable. How important this is may be judged from Abderhalden's statement in the preface to the effect that "every research which has not been carried out with absolutely unobjectionable technic delays our arrival at a clear appreciation of the methods." In view of the growth of the subject the author has not attempted to give a complete bibliography, but merely to list and criticize the more important papers which have been published. The time is not yet ripe for drawing final conclusions, but enough has been done to show that important advances are being made. This little guide is a valuable aid to a continuation of the early steps.

Die Operativen Erfolge bei der Behandlung des Morbus Basedowii. Von San.-Rat Dr. Otto Klinke, Direktor der Provinzial-Heilund Pflegeanstalt in Lublinitz. Paper. Price, 4 marks. Pp. 112. Berlin: S. Karger, 1914.

In this brochure the author carefully reviews the literature of the subjects from 1880 to 1914 and divides this period into two parts, the first from 1880 to 1894, which he calls the old, and the second from 1894 on, which he calls the new. While the number of the articles reviewed is considerably over one thousand, yet the author says that it cannot be said to be exhausted in all directions. Statistics are tabulated showing the results of 6,825 operations for goiter in which Basedow symptoms were present and 8,992 operations in which Basedow symptoms were not present, making an interesting and instructive study. In the extensive bibliography at the end, American contributions are conspicuous by their absence. In reviewing the literature in this way it is interesting to note the gradual development of the dominant present-day ideas concerning the nature of this disease and the influence which the operative treatment has had in determining them.

Diagnostic Methods, Chemical, Bacteriological and Microscopical. A Text-Book for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Pharmacological Therapeutics in Rush Medical College, University of Chicago. Fourth Edition. Cloth. Price, $4.50 net. Pp. 738, with 208 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

Less than a year has passed since the publication of the third edition of this work. However, through suggestions from several sources, the author has been able to add to it several subjects not previously discussed and of importance to physicians who wish to be thoroughly conversant with laboratory methods. Among them are, for example, discussions of Kowarsky's method of determining glucose in the blood; several methods for staining spirochetes in the tissues; Lange's colloidal gold test for congenital syphilis, and the newer applications of Abderhalden's method. To those familiar with the laboratory and its uses, no recommendation of this book is necessary. Physicians who desire a ready reference work for the later as well as the commonly used diagnostic methods will find it invaluable.

Dental Jurisprudence. An Epitome of the Law of Dentistry and Dental Surgery. By Elmer D. Brothers, B.S., LL.B., Professor of Medical and Dental Jurisprudence in the University of Illinois. Cloth. Price, $2. Pp. 220. St. Louis: C. V. Mosby Company, 1914.

This is a general review and an analysis of the principles and rules of law affecting the practice of dentistry. Since dentistry is, in a sense, a branch of medicine, the laws, procedures and decisions that apply to medicine also apply to dentistry. As a matter of fact, almost all the references given in this book are to medical cases. The author has presented the subject in a concise manner, and in terms that are both clear and non-technical. It is a book that should be in the hands of every dentist, or at least of those who are not thoroughly conversant with their responsibilities under the law. And, since the matter is so near-medical, physicians will find it full of good advice and information.

Medicolegal

Strong Declaration of Liability Against Hospitals with Charitable Foundations

(Lindler vs. Columbia Hospital of Richland County (S. C.), 81 S. E. R. 512)

The Supreme Court of South Carolina affirms a judgment for damages in favor of the plaintiff, who was burned on a hot-water bottle. The court says that this is the first case in that state on the question: Is a hospital with a charitable foundation liable to patients for injuries caused by the negligence of the employees? It has been stated that the doctrine of immunity from damage suits originally arose in cases in which hospitals were operated by government agencies. If the doctrine had been confined to its original declaration, there would have been no trouble; but, when the exempting circumstance does not exist, the immunity ought not to exist. The result of these holdings is that, when a small charitable foundation is secured, a hospital may be opened; patients secured, who go there under an invitation that promises skilled physicians, competent trained nurses; advantages promised that cannot be secured at home; then, when the patients are secured, they may be neglected, burned with fire or vitriol, put into beds from which other patients afflicted with contagious, loathsome, and it may be disgraceful diseases have been taken, and we are told that there is no remedy except to sue, though the injured party may be a poor, overworked, broken-down, friendless, helpless woman. The court is not reflecting on the defendant hospital; it is ready to believe that the injury here was simply one of those acts of inadvertence that sometimes befall the most careful of men and women. The thing against which it protests is the absolute immunity, given to all hospitals that can secure a charitable foundation, from the most brutal and inhuman treatment of those unfortunate men and women who may be carried (sometimes without their knowledge or consent) within the hospital walls, under an implied contract. Some of the cases hold that the pay patients, when they enter a hospital with a charitable foundation, are really charity patients, and the weekly sums they are required to pay are not payments at all, but contributions to the charity fund. This is brilliant, but is not convincing. This court thinks the first duty of every man and the first call on every fund is to repair the evil of its own doing, and then the remaining fund or remaining strength may be devoted to charity. The court does not think it wise or safe to allow an institution to exist with unlimited power to do evil, and make that institution powerless to repair the evil, because some good man or woman has contributed a fund and intended thereby to do good. The court knows that a trust fund cannot be diverted to a different purpose from that for which it was created; but the purpose of the trust is to relieve suffering, and not to increase it. When, in the administration of the trust, suffering is increased, the purpose fails. The courts that declare immunity are destroying and not maintaining the trust.

Conviction for Publishing Obnoxious Advertisement Affirmed

(People vs. Kowalski (Mich.), 146 N. W. R. 177)

The Supreme Court of Michigan affirms a conviction of the defendant for an offense defined and made punishable by the provisions of Act 164, Public Acts of 1907, namely, that, being a duly registered practitioner in medicine, she inserted or caused to be inserted and printed in a newspaper an advertisement obnoxious to the statute. The jury were instructed that it was not necessary to find, in order to convict this defendant, that she personally went over and caused the advertisement to be inserted. It was sufficient if she caused it to be inserted either in person or by her duly authorized agent. If she was the responsible moving party, who incited or procured the publication of that advertisement, and if it was of the character penalized by the statute, namely, if it was an advertisement with reference to diseases of the genito-urinary organs, or venereal diseases, or containing obscene or offensive matter, she would be just as guilty as though she went over and put it in herself. The mere fact that she did it through somebody else, if she did it, did not relieve her from responsibility; but the jury must be satisfied, in order to convict her, that she knew it was going in, was responsible for its going in, paid for it, knowing what she was paying for. That was a correct statement of the law, which, in the language employed by the court or in some suitable language, the people were entitled to have given to the jury.

Society Proceedings

COMING MEETINGS

Amer. Academy of Ophthal. and Oto-Laryn., Boston, Oct. 19-21.
Amer. Assn. of Obstetricians and Gynecologists, Buffalo, Sept. 15-17.
American Association of Railway Surgeons, Chicago, Oct. 14-16.
American Electro-Therapeutic Association, Battle Creek, Sept. 15-17.
Association of Military Surgeons of the U. S., Cincinnati, Sept. 29-Oct. 2.
Delaware State Medical Society, Wilmington, Oct. 13-14.
Idaho State Medical Association, Boise, Oct. 8-9.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Med. Soc. of the Mo. Valley, Des Moines and Colfax, Ia., Sept. 17-19.
Minnesota State Medical Association, St. Paul, Sept. 30, Oct. 1-2.
Mississippi Valley Med. Assn., Cincinnati, Oct. 27-29.
Nevada State Medical Association, Reno, Oct. 13-15.
New Mexico Medical Society, Albuquerque, Oct. 5-7.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Vermont State Medical Society, Rutland, Oct. 8-9.
Virginia Medical Society, Washington, D. C., Oct. 27-30.
Washington State Medical Association, North Yakima, Sept. 21-23.
Wisconsin State Medical Society, Oshkosh, Oct. 7-9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

August, CXLVIII, No. 2, pp. 157-312

1 *Syphilis of Liver, Imitating Cirrhosis. W. F. Cheney, San Francisco.
2 *Syphilis of Vertebral Column: Its Symptomatology and Neural Complications. J. R. Hunt, New York.
3 Syphilis of Esophagus. U. J. Wile, Ann Arbor, Mich.
4 Schistosomiasis Japonica: Study of Two Cases. D. Lovaird and R. L. Cecil, New York.
5 *Absence of Hyperplasia of Remainder of Thyroid in Dogs after Piecemeal Removal of Gland. Autotransplantation of Thyroid in Partially Thyroidectomized Animals. J. A. Hunnicutt, Baltimore.
6 Pituitary Disease: Report of Three Cases. A. D. Dunn, Omaha, Neb.
7 Mental Manifestations in Tumor of Brain. A. Gordon, Philadelphia.
8 Peripheral Pigmentation of Cornea, Associated with Symptoms Simulating Multiple Sclerosis. T. B. Holloway, Philadelphia,
9 Infantilism. A. Strauch, Chicago.
10 Smegma Bacillus. G. E. Brereton and K. W. Smith, Madison, Wis.

1. **Syphilis of Liver Imitating Cirrhosis.**—Cheney urges that in any case that appears to be cirrhosis of the liver, judging from clinical history and physical signs, the blood should always be examined for syphilis. If the Wassermann reaction is positive, vigorous specific treatment will often produce marvelous improvement not to be expected in any other way; but even when the reaction is not positive, the liver disease may be luetic, and so specific therapy may prove of no avail; yet at the same time the therapeutic test will have given valuable information and have done no harm. There is no certain way to tell which case of hepatic cirrhosis is luetic and which is not, except by the blood test, for previous history of infection, or of other earlier manifestations of syphilis, as well as stigmata produced elsewhere in the body by the disease, may all be lacking absolutely; while there may be nothing about the condition of the liver on physical examination or the symptoms it produces, to determine the etiology or to distinguish ordinary portal cirrhosis from luetic.

2. **Syphilis of Vertebral Column.**—Syphilitic spondylitis and perispondylitis while rare, Hunt says, are nevertheless sufficiently frequent to be given careful consideration in every case of acute or chronic vertebral disease. The onset may be sudden, simulating an acute rheumatic affection, or it may develop gradually and run an exceedingly chronic and protracted course. Localization in the cervical region, especially, should awaken the suspicion of lues, as more than half of the recorded cases are of this region. It may, however, occur in any portion of the spinal column. Of 100 cases available for analysis, Hunt found that 25 per cent. were associated with some complication referable to the nervous system. These were either of the nerve roots and plexus or of the spinal cord itself. Generally speaking, in this group of cases with neural complications, the symptoms indicated a lesion of the spinal cord in two-thirds; in the remaining third, the neural symptoms were limited to an involvement of the nerve roots or plexus.

5. **Hypertrophy of Thyroid in Dogs.**—According to Hunnicutt three-fourths of the dog's thyroid gland may be removed without appreciably affecting the remainder of the gland. In only 3 of the 59 dogs on which the operation of piecemeal removal was performed did the remaining gland change from a normal to a hyperplastic state. In 5 of the 59 dogs the remaining gland reverted from the early hyperplastic state to the normal state. Where a diagnosis of some degree of hyperplasia was made at the first operation, the pieces removed from the same dogs at subsequent operations had not undergone further hyperplasia. Of the pieces removed from 56 dogs at the first operation, 58 per cent. were normal, 32 per cent. showed early glandular hyperplasia, 5 per cent. marked glandular hyperplasia, and 5 per cent. very early glandular hyperplasia. Definite increase in the size of the remaining gland (hypertrophy) was not observed. The remains of the thyroid lobes, the accessory thyroids, and the successful grafts in a given dog, presented the same histologic picture. In no dog was myxedema or tetany observed in which as much as one-fourth of the thyroid and one parathyroid gland were preserved.

Annals of Ophthalmology, St. Louis

July, XXIII, No. 3, pp. 445-604

11 Parenchymatous Keratitis. A. Alt, St. Louis.
12 Case of Papillary Iritis following an Injection of Salvarsan. C. Loeb, St. Louis.
13 Paralysis of Ocular Muscles. J. F. Shoemaker, St. Louis.
14 Ocular Symptoms of Syphilis of Nervous System. M. Wiener, St. Louis.
15 Therapeutics of Ocular Lues. W. F. Hardy, St. Louis.
16 Salvarsan and Eye. J. Green, Jr., St. Louis.
17 Case of Thrombosis of Retinal Vein. J. H. Claiborne, New York.
18 Case of Double Inversion. G. F. Arps, Columbus.
19 Steel in Eye and Suicide. J. H. McCassy, Dayton.
20 Dacryocystitis Caused by Membranous Closure of Nasal Duct. M. Wiener and W. E. Sauer, St. Louis.

Annals of Surgery, Philadelphia

August, LX, No. 2, pp. 137-280

21 *War Surgery. A. de Page, Brussels.
22 *Amputations. O. Witzel, Dusseldorf.
23 Amputation of Hand. P. von Kuzmik, Budapest.
24 *Amputation of Leg. J. F. Binnie, Kansas City, Mo.
25 *Free Transplantation. E. Lexer, Jena.
26 *Tissue and Organ Transplantation. E. Ullman, Vienna.
27 *Chronic Ulcers of Stomach and Duodenum. W. J. Mayo, Rochester, Minn.
28 *Ulcer of Stomach and of Duodenum. H. Hartmann and P. Lecene, Paris.
29 Diagnosis of Gastric and Duodenal Ulcer. F. de Quervain, Basel.

21, 22 and 24. Abstracted in The Journal, May 2, pp. 1425 and 1426.

25 and 26. Abstracted in The Journal, May 16, p. 1581.

27 and 28. Abstracted in The Journal, May 9, pp. 1501 and 1500.

Archives of Diagnosis, New York

July, VII, No. 3, pp. 201-300

30 Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
31 *Some of Newer Methods of Diagnosis in Heart Affections. T. E. Satterthwaite, New York.
32 Respiration in Heart Disease. M. Herz, Vienna.
33 Relation of High Systolic to Diastolic Pressure. J. H. Musser, Jr., Philadelphia.
34 Acromial Respiratory Sounds. J. H. Barach, Pittsburgh.
35 *Percussion Sign for Detecting Fluid in Pleura. L. S. Maee, San Francisco.
36 Clinical Features of Abdominal Pain and Tenderness. C. A. Elsberg, New York.
37 Seven Cases of Cutaneous Sarcoma. H. Fox, New York .
38 Primary Family Splenohepatomegaly (Gaucher Type). H. B. Sheffield, New York.
39 Diagnosis of Carcinoma. M. Kahn, New York.

31. **Diagnosis of Heart Affections.**—The importance of Sahli's announcement of the discovery of his band in 1885 is emphasized by Satterthwaite. The band consists of a wreath of dilated reddish colored venous radicles, usually from 1 to 2 inches wide, disposed in somewhat vertical and parallel lines, though dendritic in appearance. It forms a semicircle on the left side of the thorax over the lower ribs, its center corresponding to the nipple, below which it runs at a distance of several inches. It may escape notice unless one examines the skin closely, for sometimes it is narrow, the radicles are minute, or it is imperfectly developed. It is said to have been noticed in thoracic aneurism and mediastinal tumors, but its significance has not yet been established. Judging from analogy, however, Satterthwaite believes that some intrathoracic deposit of a fibroid material has taken place, as in adhesive pericarditis, calling for a collateral circulation. It is of the same nature as the caput medusa seen over the anterior abdominal wall in cirrhosis of the liver.

35. **Fluid in Pleura.**—This sign is produced by placing the pleximeter finger as near as possible at the base of the spinous process of the vertebra on a level with the suspected fluid and on the side opposite to it, and percussing diagonally through the body of the vertebra in the axis of the opposite lung. If fluid is present the resulting note will be flat. If no fluid is present and the lung is consolidated or normal, the resulting note will be dull or resonant but not flat. If the process is reversed, and diagonal percussion made through

the body of the same vertebra toward a normal or consolidated lung opposite the fluid, the resulting note will be resonant or dull but not flat. This method differs fundamentally from the usual method of spinal percussion, viz., percussing directly over the spinous process in the axis of the center of the vertebral body. This gives a mixed note depending on the condition of the organs on both sides of the spinal column. The method of diagonal percussion described by Mace gives in the same vertebra notes characteristic of the lung toward which the percussion is directed.

Archives of Internal Medicine, Chicago

August 15, XIV, No. 2, pp. 145-288

40 *Pathology of the Spleen. J. H. King, Baltimore.
41 *Influence of High-Calory Diet on the Respiratory Exchanges in Typhoid. W. Coleman and E. F. DuBois, New York.'
42 Study of Twenty-Nine Cases of Advanced Pulmonary Tuberculosis Treated by Artificial Pneumothorax. L. Kessel and M. Taschman, New York.
43 *Studies on Acidosis and Dyspnea in Renal and Cardiac Disease. F. W. Peabody, Boston.
44 *Clinical and Metabolism Studies in a Case of Myotonia Congenita—Thomsen's Disease. J. Rosenbloom and B. A. Cohoe, Pittsburgh.
45 Case of Aplastic Anemia. J. H. Musser, Philadelphia.

40. **Pathology of the Spleen.**—Following splenectomy, King found that there occurs an increase in the total fats and cholesterin in the blood, and also a reduction in the value of the iodin number (that is, a lower iodin number). In clinical conditions associated with hemolysis, pernicious anemia, hemolytic jaundice, catarrhal jaundice and some forms of cirrhosis of the liver, there is found a decided increase in the value of the iodin number. There appears to be a parallelism between highly unsaturated fatty acids in the blood and hemolysis. The occurrence of these highly unsaturated fatty acids is intimately dependent on the activity of the spleen, for removal of that organ reduces the iodin-combining value of the unsaturated fatty acids and renders the production of icterus by hemolyzing agents more difficult. Also it greatly improves clinical conditions in which hemolysis is at work. This is interpreted to mean that the spleen may be the central point in many diseases in which hemolysis and anemia are active, especially in pernicious anemia. This organ may be conceived to take on an increased function as regards its hemolytic activities, resulting in hemolysis, anemia and icterus.

The condition of asplenism presents in some of its features a diametrically opposite picture. Animals in this condition are more resistant to hemolyzing agents, and icterus is much more difficult to produce. The increase in the total fats and lipoids following splenectomy may explain the increased resistance of the red blood-cells found to accompany the condition of asplenism. These substances have definite antihemolytic properties. In pernicious anemia, hemolytic jaundice, some types of catarrhal jaundice and cirrhosis of the liver, the hyperactive spleen unfavorably influences the anemia, through its regulation of the highly hemolytic unsaturated fatty acids in the blood. Its removal appears therefore to be indicated. Splenectomy of itself, besides influencing the hemolytic unsaturated fatty acids, raises the percentage of antihemolytic substances in the blood; that is, the total fats and cholesterin. King concludes that the fact that total removal of the spleen is not followed by any smptoms dangerous to the life of the patient has probably drawn attention away from the consideration that states of diminished function of this organ may exist.

41. **Influence of High-Calory Diet in Typhoid.**—The Benedict "universal respiration apparatus" employed by Coleman and DuBois in their investigation was tested on normal controls and found to give accurate results. They believe that the apparatus is well adapted to clinical use if Benedict's technic is carefully followed, that is to say, if precautions are taken to prevent leaks, and if results obtained on patients whose breathing is irregular or labored are discarded. Leaks lower the quotient, irregular and labored breathing artificially raise it. The metabolism of liberally fed typhoid patients exceeds that of normal individuals by from 36 to 40 per cent. Previous observers have found that the average basal metabolism during the febrile period of patients who are on diets containing less energy than they produce is 35.3 calories per kilogram per day. Comparing this figure with the averages obtained, after ingestion of food, on typhoid patients who received from 35 to 170 calories per kilogram daily, it is observed that the average metabolism per kilogram of body-weight shows an increase of from 2 to 5 per cent. If the body-surface be made the basis of comparison, it is found that the increase is between 11 and 13 per cent.

Since the variation in the metabolism of different normal persons may amount to 10 per cent. above or 10 per cent. below the normal average, it is obvious that the influence of a large ingestion of food cannot be of great importance in increasing heat production in the febrile stage of the disease. In other words, the large amount of food administered exhibits little or no specific dynamic action, thus removing the chief theoretical objection to the use of liberal diet in typhoid fever. In the high-calory cases approximately 10 per cent. must be added to cover the increase in metabolism caused by bodily exertion incident to moving about the bed. Accordingly the typhoid patients examined had an average theoretical requirement of 38.5 calories per kilogram per day. It has been found, however, that the theoretical requirement must be exceeded by from 50 to 110 per cent. in order to bring the patient into nitrogen and weight equilibrium. The fate of the excess has not yet been discovered. In the steep-curve period and during relapses some patients derived from 84 to 89 per cent. of their calories from carbohydrate and, in addition, transformed some carbohydrate into body-fat. The majority of the high-calory patients showed a sharp rise in the level of the respiratory quotients during the last days of the fever, which we have interpreted to mean that the regenerative processes of convalescence begin before the temperature reaches normal.

43. **Acidosis and Dyspnea in Renal and Cardiac Disease.**—The mild grade of acidosis which is often associated with uncomplicated chronic nephritis, Peabody found, is compenstated for by the increased excretion of acids by the kidney. It is only in uremia and usually only in very advanced uremia that non-volatile acids accumulate in the blood in an amount sufficient to cause depression of the tension of carbon dioxid in the alveolar air. In the terminal stage of uremia there may be a high grade of acidosis. Peabody claims that the development of acidosis bears little relation to the accumulation of non-protein nitrogen in the blood or to the output of phenolsulphonephthalein. Determinations of both of these may show extreme abnormalities before any marked degree of acidosis develops. The development of acidosis is not the direct or sole cause of dyspnea associated with cardiorenal disease. A high grade of acidosis may exist without causing a change in respiration which is evident on the ordinary clinical examination.

In some cases of cardiac disease accompanied by dyspnea there is evidence of a slight accumulation of non-volatile acids in the blood, in other cases there is no evidence of such an accumulation. The tension of the carbon dioxid in the alveolar air is normal or very slightly increased. The hydrogen-ion concentration of the blood remains normal. In neither group of cases is the degree of acidosis sufficient to account for the dyspnea on the basis of an increase in the stimulus to respiration alone. It seems probable to Peabody that an important factor in the causation of dyspnea in cardiac disease is an increase in the excitability of the respiratory center. Such a change in the excitability may well be caused by a lowering of the oxygen tension, and be dependent on an inadequate blood-flow.

44. **Clinical and Metabolism Studies in Myotonia Congenita.**—In a metabolism experiment of thirteen days' duration on a case of myotonia congenita, Rosenbloom and Cohoe found that the patient lost 20.02 gm. of nitrogen, while the urinary nitrogen partition (urea, ammonia, creatinin, uric acid and undetermined nitrogen) was normal in character. Creatin was absent from the urine except after the administration of 620 gm. of egg-yolk. In a period of ten days 0.9 gm. of sulphur was lost, while the urinary sulphur parti-

tion (total sulphates, ethereal sulphates, inorganic sulphates and neutral sulphur) is normal in character. In a period of ten days the patient had a positive phosphorus balance of 1.5 gm., showing that during a time of nitrogen loss, phosphorus was retained. The amount of earthy phosphates and total phosphates in the urine may be considered normal. In ten days 4.09 gm. of calcium oxid and 0.56 gm. of magnesium oxid were lost by this patient. A retention of phosphorus produced by feeding egg-yolk did not cause a retention of calcium. Evidence is produced to show that the loss of calcium may play a part in the production of the symptoms of myotonia congenita. The fact embolism was normal in character, with an absorption of about 90 or 91 per cent. of the ingested fat.

Arkansas Medical Society Journal, Little Rock

August, XI, No. 3, pp. 61-92

46 Anoci-Association. G. W. Crile, Cleveland.
47 Diagnosis and Treatment of Syphilis of Nervous System. L. Thompson and D. W. Roberts, Little Rock.

Boston Medical and Surgical Journal

August 20, No. 8, pp. 289-328

48 Function of Spleen with Particular Reference to Hemolysis and Hemolytic Anemias. H. C. Moffitt, San Francisco.
49 Ergotherapy in Treatment of Mental Disorders. E. C. Reid, San Francisco.
50 *Use of Section of Scapula in Correcting Nasal Deformity. O. A. Lothrop, Boston.
51 Syphilis of Nose. J. Prenn, Boston.

August 27, No. 9, pp. 329-364

52 *Therapeutic Artificial Pneumothorax as Associate Treatment in Pulmonary Tuberculosis. J. A. Lyon, Rutland.
53 Functions of Dispensary or Out-Patient Department. M. M. Davis, Jr., Boston.
54 Analysis of One Hundred Cases Studied in Connection with Municipal Criminal Courts of Boston. V. V. Anderson, Boston.
55 Diagnosis and Treatment of Early Pulmonary Tuberculosis. J. B. Hawes, 2d, Boston.
56 Unusual Phases of Sigmoidoscopy. R. W. Jackson, Fall River.

50. Use of Section of Scapula in Correcting Nasal Deformity.—A strip of bone, 2 inches long and about $^1/_{25}$ of an inch wide was removed by Lothrop from the free vertebral border of the scapula with bone cutting forceps and wrapped in wet, sterile gauze. The attachments of the muscles were first cut from the border and from the external and internal surfaces, great care being taken not to denude the bone of its periosteal covering. A subdermal passageway was made in the nose bridge extending to the distal extremity of the nasal bones. At this point the periosteum of the nasal bones was cut and elevated along the crest of the nose bridge up to the frontal bone. The nasal bones were now ground down with a rasp. The graft was inserted through this passageway and under the periosteum until the end reached to the frontal bone. In three weeks the graft was quite solid and in four weeks it was very rigidly held in place on the nasal bones and the dressing was omitted.

52. Therapeutic Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis.—Of the sixty-two patients treated by Lyon two were incipient ones, and treatment was given to relieve frequent hemoptysis. The lungs in both instances have been collapsed since April, 1913, and February, 1913, respectively. There has been no recurrence of the hemoptysis, and for the past several months, the sputum has been negative to tubercle bacilli. There were thirty-one cases in the moderately advanced stage of the disease, two in which the prognosis was questionable, seventeen unfavorable and twelve bad. In three instances the lung was collapsed to relieve hemorrhage and the experiment was successful. The treatment had to be discontinued with two of the patients on account of a recrudescence of the disease in the opposite lung. One developed a severe hemoptysis in the uncollapsed side and the treatment had to be abandoned. Four had to be discontinued on account of a recrudescence in the opposite lung, in one on account of neurosis, in three because Lyon was unable to introduce a sufficient amount of gas to expect any results. In two instances the treatment was abandoned on account of the occurrence of pleural shock, on both attempts to introduce gas the patient became unconscious. The treatment was discontinued in still another case which developed appendicitis. One died following a spontaneous pneumothorax and the treatment was discontinued in another case on account of adhesions at the base of the opposite lung, causing marked dyspnea.

Of the fifteen remaining patients, five have been discharged and are doing well, three of this number are at present employed about the institution and are working eight hours per day. The treatment is being continued satisfactorily in the remaining ten cases, many of whom are soon to be discharged.

The greatest number of injections made in a given case was 28, the maximum amount given was 1,700 c.c. and the minimum amount was 50 c.c. with the exception of the patients suffering from pleural shock. Here, none was given. In the twenty-nine far advanced cases the prognosis was unfavorable in ten, and bad in nineteen. The treatment was discontinued in eight instances on account of recrudescence in the untreated side, four on account of neurosis, ten on account of dense unyielding pleural adhesions. One died of acute cardiac dilatation and pulmonary edema. Of the six remaining patients, one has been discharged as arrested and is working in the institution eight hours per day, three are progressing satisfactorily, the treatment was discontinued in another instance on account of pregnancy and the one remaining is a spontaneous pneumothorax and the collapsed lung has been maintained by occasional introductions of gas. The greatest number of injections with any one person was 20, the maximum amount introduced was 1,600 c.c., and the minimum amount was 50 c.c.

Of the sixty-two cases treated, fifty-eight were bilateral and four were unilateral. The treatment was discontinued in thirteen cases on account of dense unyielding pleural adhesions, and in twelve on account of recrudescence of the disease in the untreated side.

Bulletin of American Academy of Medicine, Easton, Pa.

August, XV, No. 4, pp. 181-264

57 Relation of Modern Medicine to Some Social Problems. J. L. Heffron, Syracuse, N. Y.
58 Relation of Medical Profession to Workmen's Compensation Acts in United States. F. L. van Sickle, Olyphant.

Colorado Medicine, Denver

August, XI, No. 8, pp. 283-326

59 Lumbar Puncture Serologic, Cytologic and Chemical Findings of Mental Disease. C. W. Thompson, Pueblo.
60 Eclampsia, Its Etiology and Treatment. C. A. Ferris, Denver.
61 Treatment of Puerperal Infection. A. R. Pollock, Monte Vista.
62 Transposition of Uterus and Bladder for Cure of Extensive Rectocele and Prolapsus of Uterus. C. H. Graves, Canon City.
63 Plea for Accurate Diagnosis in Lesions of Urinary Tract. T. L. Howard, Denver.
64 Treatment for Magnetic Foreign Bodies in Eye. W. H. Crisp, Denver.

Journal of Biological Chemistry, Baltimore

August, XVIII, No. 3, pp. 329-554

65 Comparison of Carbon-Dioxid Output of Nerve Fibers and Ganglia in Limulus. S. Tashiro and H. S. Adams, Chicago, and Woods Hole, Mass.
66 Biochemistry of Iodin. I. Distribution of Iodin in Plant and Animal Tissues. A. T. Cameron, Manitoba.
67 *Effect of Acute Destructive Lesions of the Liver on its Efficiency in the Reduction of the Ammonia Content of the Blood. C. H. Fiske, and H. T. Karsner, Cambridge, Mass.
68 Biochemistry of Purine Metabolism. I. Excretion of Purine Catabolites in the Urine of Marsupials, Rodents and Carnivora. A. Hunter, M. H. Givens and C. M. Guion, Ithaca, N. Y.
69 Allantoin. M. H. Givens, Ithaca, N. Y.
70 Organic Phosphoric Acid Compound of Wheat Bran. R. J. Anderson, Geneva, N. Y.
71 *Organic Phosphoric Acid Compound of Wheat Bran. III. Inosite Monophosphate. R. J. Anderson, Geneva, N. Y.
72 *Behavior of Sugar and Lactic Acid in the Blood Flowing from the Liver after Temporary Occlusion of the Hepatic Pedicle. J. J. R. MacLeod and A. M. Wedd, Cleveland.
73 On Sphingomyelin. P. A. Levene, New York.
74 Purification and Melting Points of Saturated Aliphatic Acids. P. A. Levene and C. J. West, New York.
75 Action of Tissues on Methyl Glucosides, Tetramethyl Glucosides and Natural Disaccharides. P. A. Levene and G. M. Meyer, New York.
76 Sphingosine. Oxidation of Sphingosine and Dihydrosphingosine. P. A. Levene and C. J. West, New York.

77 Parenteral Utilization of Disaccharid Sugars. A. G. Hogan, New Haven, Conn.
78 *Some Anaphylactic Reactions. H. C. Bradley and W. D. Sansum, Madison, Wis.
79 *Blood in Acidosis from the Quantitative Standpoint. W. M. Marriott, St. Louis.
80 Influence of Protein Intake on Formation of Uric Acid. A. E. Taylor and W. C. Rose, Philadelphia.
81 Uricolysis. A. E. Taylor and W. H. Adolph, Philadelphia.
82 Creatin and Creatinin. P. A. Shaffer, St. Louis.
83 Simplification of the Determination of Total Nitrogen by Calorimetry. A. Gulick, New York.
84 Comparative Biochemistry of Purine Metabolism. II. Excretion of Purine Catabolites in the Urine of Ungulates. A. Hunter and M. H. Givens, Ithaca, N. Y.
85 Cerebronic Acid. Constitution of Lignoceric Acid. P. A. Levene and C. J. West, New York.

67. **Effect of Lesions on Hepatic Function.**—Oxygenation of the perfusing fluid by pure oxygen instead of air renders more complete the reduction of the ammonia content of the fluid as it passes through the liver. Fiske and Karsner found no difference between normal livers and livers poisoned with the various toxic substances mentioned with respect to their ability to lower the ammonia content of the blood perfused through them.

71. **Organic Phosphoric Acid Compound of Wheat Bran.**—A previously unknown organic phosphoric acid, inosite monophosphate, $C_6H_{13}O_9P$, has been isolated by Anderson in beautiful crystalline form from wheat bran. All of the salts of this acid, with the exception of the lead salt, are very soluble in cold water. The alkaline earth salts are not precipitated with ammonium hydroxid, differing in this respect from other known organic phosphoric acids as well as from ordinary phosphoric acid.

72. **Sugar and Lactic Acid in Blood.**—The authors' experiments demonstrate that lactic acid is readily produced in the liver as a result of local stagnation of blood flow. This production of lactic acid, they believe, is probably dependent on the asphyxial condition which is induced, and it is very likely from glycogen that it is derived.

78. **Some Anaphylactic Reactions.**—Guinea-pigs sensitized to beef or dog hemoglobin fail to react, or react but slightly, to hemoglobins of other origins. The hemoglobins tried were dog, beef, cat, rabbit, rat, turtle, pig, horse, calf, goat, sheep, pigeon, chicken and man. The authors conclude that hemoglobins from different sources are chemically different. A low order of sensitization to isogenous proteins is found in guinea-pigs injected with guinea-pig tissue-proteins.

79. **Acetone Substances in the Blood.**—A revised technic for the determination of acetone bodies in small samples of blood is described by Marriott. He says that the blood of normal human subjects, and of dogs, pigs and cattle contains less than 1.5 mgm. of acetoacetic acid and less than 4 mgm. of butyric acid per 100 grams of blood, the results being expressed in terms of acetone. In acidosis the acetone bodies in the blood are higher than normal. The highest figure obtained was 28 mgm. of acetoacetic acid and 45 mgm. of oxybutyric acid per 10 grams of blood, expressed as acetone.

Journal-Lancet, Minneapolis

August 15, XXXIV, No. 16, pp. 425-450

86 Mayo Clinic Building at Rochester. R. O. Beard, Minneapolis.
87 Direct Laryngoscopy and Bronchoscopy. C. Kachelmacher, Fargo, N. D.
88 D'Arsonval Current in Treatment of Hypertension. C. W. Watson, Minneapolis.
89 Nervous Symptoms in Nephritis. E. H. Grove, Hetland, S. D.

Journal of Pharmacology and Experimental Therapeutics

July, V, No. 6, pp. 527-648

90 Action of Certain Drugs on Uterus of Guinea-Pig and of Rat. J. A. Gunn and J. W. C. Gunn, Oxford, England.
91 Effect on Respiration of Altered Vascular Conditions in Lungs. W. E. Dixon and F. Ransom, Cambridge, England.
92 Solubility of Lead Sulphid Ores and of Lead Sulphid in Human Gastric Juice. A. Woelfel and A. J. Carlson, Chicago.
93 Effects of Chloroform and of Ether Anesthesia on Protein Contents of Blood Serum of Rabbits. L. W. Buck, San Francisco.
94 *New Standard for Determination of Strength of Pituitary Extracts. G. B. Roth, Washington, D. C.
95 *Experiments on Cardiac Action of Camphor. O. H. Plant, Philadelphia.
96 *Efficiency of Knowlton-Starling Isolated Heart-Lung Preparation for Testing Cardiac Action of Drugs. O. H. Plant, Philadelphia.
97 Removal of Diffusible Substances from Circulating Blood of Living Animals by Dialysis. J. J. Abel, L. C. Rowntree and B. B. Turner, Baltimore.
98 Plasma Removal with Return of Corpuscles. J. J. Abel, L. G. Rowntree and B. B. Turner, Baltimore.

94. **Strength of Pituitary Extracts.**—The use of *B*-imminazolylethylamin hydrochlorid in 1 to 20,000,000 solution is suggested by Roth as a new standard for the determination of the activity of infundibular extracts when the isolated uterus of the virgin guinea-pig is used as the test organ.

95. **Cardiac Action of Camphor.**—Perfusion of the normal frog's heart with camphor failed to produce any constant effect which, Plant says, can be considered with certainty an evidence of stimulation. Application of a saturated solution of camphor to the exterior of a chloralized frog's heart caused marked but rather transient increase in rate of contraction. Ether solution applied in the same way had a similar though less marked effect.

The rate of contractions in isolated strips of normal ventricular muscle from the turtle's heart, was increased by moderate amounts of camphor in a majority of experiments. The amplitude of the contractions was not increased. Camphor was without effect in chloralized strips.

In the normal isolated dog's heart camphor failed to produce any distinct and constant stimulation; such effects as were observed were too slight and occurred too seldom to be attributed with certainty to stimulation by the drug. In chloralized dogs' hearts and in hearts that showed fatty degeneration from poisonous doses of phosphorus, camphor was without any beneficial effect. Taken as a whole the results of different series of experiments lead to the conclusion that camphor does not produce effects which entitled it to be regarded as a direct cardiac stimulant.

96. **Testing Cardiac Action of Drugs.**—The drugs tested by Plant were applied at the end of experiments in which camphor had been tested and usually after the heart had been isolated for two or four hours. Caffein produced a moderate but very distinct degree of stimulation, evidenced by an increase in rate, in amplitude of contractions, in output per minute and a slight increase in the pressure of the blood in the arterial tube leading to the artificial resistance. There was apparently a direct relationship between the increased output and the increase in rate, since the output per beat was not materially changed during the period of stimulation by the caffein; the relaxation of the heart was slightly less during this period.

Strophanthin caused a marked increase in output per minute and in amplitude of the contractions, and a moderate increase in the pressure in the arterial tube. Changes in rate were very slight, consisting in an increase of two to five beats per minute. The intra-auricular pressure as recorded by a water manometer connected with the inferior cava was decreased. The increase in efficiency of the heart under epinephrin produced a marked increase in the heart rate, in amplitude of contractions, in output and in arterial pressure; the pressure in right auricle was decreased. The effect was very striking but lasted only a short time.

Lancet-Clinic, Cincinnati

August 22, CXII, No. 8, pp. 197-224

99 Need for Whole-Time Health Officer. H. A. Cowing, Muncie, Ind.
100 Spasms. H. H. Hoppe, Cincinnati.
101 Hydroadipsia and Water Supply of Living Bodies. Z. C. M'Elroy, Zanesville.
102 Graduates of Medical Department of University of Pennsylvania Who Have Taught or Practiced in Cincinnati. A. G. Drury, Cincinnati.

Medical Record, New York

August 29, LXXXVI, No. 9, pp. 363-404

103 Intestinal Intoxication. H. Eppinger, Vienna, and J. Gutman, Brooklyn.
104 Sterilization of Mental Defectives from Physiologic Standpoint. A. W. Peters, Vineland, N. J.
105 Plea for More Rational Use of Vaccines. S. R. Blatteis, Brooklyn.
106 Radium in Treatment of Diseases of Ear. W. S. Bryant, New York.
107 Pellagra. J. R. Lowery, Raleigh, N. C.
108 Plea for More Care in Treatment of Follicular Tonsillitis. W. Lapat, New York.
109 Two Cases of Treatment by Radium Emanation. F. E. Park, Stoneham, Mass.

Modern Hospital, St. Louis

August, III, No. 2, pp. 69-140

110 Chicago-Winfield Tuberculosis Sanatorium. J. L. Anderson, Chicago.
111 Hospital Work of Labrador Mission. G. W. Corner, Baltimore.
112 New Hospital of House of Calvary. R. J. Reiley, New York.
113 Ward Waste and What Is Done with It. K. H. Van Norman, Baltimore.
114 Boom in Dispensary Work—Its Growth and Development. M. M. Davis, Jr., Boston.
115 New Children's Hospital at Los Angeles. M. L. Vannier, Los Angeles.
116 Artificial Illumination of Hospital Spaces. H. B. Wheeler, Chicago.

New Mexico Medical Journal, Las Cruces

August, XII, No. 5, pp. 127-153

117 Important Factors in Prognosis of Pulmonary Tuberculosis. J. S. Cipes, Albuquerque.
118 Tuberculin. D. C. Twichell, Silver City.

New York State Journal of Medicine

August 22, C, No. 8, pp. 349-396

119 *Practical Application of Luetin Test. H. Noguchi, New York.
120 Present Status of Complement Fixation Test in Diagnosis of Gonorrheal Infections. A. McNeil, New York.
121 Infantile Roots of Masochism. P. Federn, Vienna.
122 Adipose and Lipomatosis. G. E. Price, Philadelphia.
123 Medical and Bacteriologic Experiences During Late Balkan War. B. Jablons, New York.
124 Removal of Two Nails from Bronchi of Child Two Years Ago by Bronchoscopy. R. H. Good, Chicago.
125 Investigation of Gastric Neuroses with Vago-Excitative Characteristics. S. Neuhof, New York.
126 Functional Tests of Static Labyrinth in Neurologic Diagnosis. I. Friesner and A. Braun, New York.
127 *Modified Gastroduodenal Tube. M. E. Rehfuss, Philadelphia.

August 29, No. 9, pp. 397-448

128 General Paresis. D. M. Kaplan, New York.
129 *Digitalis in Chronic Diseases of Heart. L. F. Bishop, New York.
130 Surgical Treatment of Infantile Paralysis. J. W. Moore, Philadelphia.
131 Is Tuberculosis Crusade Becoming Burlesque? T. J. Mays, Philadelphia.
132 Roentgen Diagnosis in Fractures of Cranium in Children. G. Rosenbaum, Philadelphia.
133 Congenital Malformations of Rectum and Anus. M. R. Bookman, New York.
134 Injurious Effects of Light on Eyes. W. B. Lancaster, Boston.
135 *Placental Blood for Transfusion. G. Rubin, Chicago.
136 An Aid in Use of Allis Inhaler. P. A. Sheaff, Philadelphia.

119. **Practical Application of Luetin Test.**—Based on the observations made by about fifty investigators, the following statistical estimation of the practical value of the luetin reaction is presented by Noguchi:

Primary Syphilis.—The reaction is present in less than 30 per cent. of cases and the intensity of the reaction is usually very mild.

Secondary Syphilis.—The reaction was reported positive in 47 per cent. of 630 cases. The reaction is usually mild.

Tertiary Syphilis.—The reaction was found in about 80 per cent. of cases. The reaction is very severe in this stage of the disease (usually pustular form).

Congenital Syphilis.—The reaction was reported to occur in about 70 per cent. of cases. Brown, who made the largest series of tests, found it present in 93 per cent. of seventy-five cases studied. The reaction becomes more distinct after energetic treatment.

Syphilis of the Nervous System.—The reaction is less frequently present in acute syphilitic meningitis than in the parenchymatous affections, such as general paralysis and tabes, where it has been reported positive in about 60 per cent. of cases.

Visceral Syphilis.—The reaction is present in nearly 90 per cent. of cases, especially is it marked in the cases of aortic insufficiency.

With reference to the relation of the luetin reaction to the Wassermann reaction, all investigators agree on one point, viz., that the two reactions do not always run parallel in the same cases. Thus the luetin reaction may be absent when the Wasserman is strongly positive, or the reverse. Both reactions, however, are frequently found to occur in the same patient, especially in cases of congenital syphilis and general paralysis. This discrepancy is explained by Noguchi by the fact that the luetin reaction indicates the allergy and the Wassermann the presence of an active syphilitic process. Moreover, is it not difficult to explain the reason why a patient in whom the Wassermann reaction was, by a recent energetic treatment, reduced to a negative, should respond more readily to the luetin reaction than before the foregoing treatment, and in this particular respect the luetin reaction is able to furnish the physician with a prognostic measure in a restricted sense. From the statistics of the luetin reaction it is seen that the Wassermann reaction is much more constant among the primary and secondary cases, as well as in general paralysis, but the reverse is the case in the chronic cases, especially in those under treatment.

127. **Gastroduodenal Tube.**—Rehfuss points out that with his modified gastroduodenal tube it is possible, following the technic described, not only to ascertain the whole cycle of gastric digestion, but to locate the presence of liquid rests, hypersecretion, stasis, by a method of insufflation and auscultation described above. It is possible to determine the end point in gastric digestion, by failure to aspirate material when the patient is placed in different positions; by the character of the samples obtained; by the character of the sound produced by insufflation and heard by auscultation; by lavage. A method of outlining the stomach on the principle of the stomach whistles, is possible.

129. Abstracted in The Journal, July 18, p. 270.

135. **Placental Blood for Transfusion.**—A patient with pernicious anemia received three intravenous injections of defibrinated blood, and one injection in the gluteal muscles, with remarkable results. Rubin's patient was a woman, aged 55 years, with a general history and blood-picture of a typical pernicious anemia. Red blood-cells, 1,100,000; poikilocytosis; megaloblasts; megalocytes; normoblasts; leukocytes, 6,500. She had frequent attacks of dyspnea and tachycardia. She received 6 ounces of defibrinated fresh placental blood, mixed with an equal amount of normal sodium chlorid solution, making a total of 12 ounces. This was injected through a vein in the flexure at the elbow, the blood being kept at about body temperature. The red blood-cells increased 400,000 in less than twenty-four hours. The patient showed signs of immediate improvement. There was no dyspnea nor tachycardia. A week later 16 ounces of blood in normal salt solution were again injected intravenously in the other arm, but after 10 ounces had run in, extravasation took place and blocked the vein, so the balance of 6 ounces was injected in the gluteal region. The red cells increased 200,000 within twenty-four hours. A third injection of 16 ounces of blood in normal salt was made a week later, increasing the red cells 500,000 in twenty-four hours. The patient's general condition improved even more than the blood.

New York State Journal of Medicine

August, XIV, No. 8, pp. 389-429

137 *Drop Heart—Heart of Congenital Asthenia. C. L. Greene, St. Paul, Minn.
138 Sporadic Cretinism. Study of Forty-One Cases. C. Herrman, New York.
139 Cavernous Sinus Thrombosis. Case Report. T. R. Pooley, New York.
140 Plea for Diabetic. D. C. Mariarta, Saratoga.
141 Diabetes and Metabolism. W. B. Vanderpoel, New York.
142 Conservatism in Operative Treatment of Simple Fractures. G. Woolsey, New York.
143 Need of More Accurate Knowledge in Diagnosis of Mastoiditis by General Practitioner. J. F. McCaw, Watertown.
144 Neglect of Laboratory Aids to Diagnosis. D. Wilson, Amsterdam.
145 Tuberculin as Prophylactic. H. Greeley, Brooklyn.
146 Vaccine Therapy, Theory and Application. W. C. Thro, New York.

137. **Drop Heart.**—Greene maintains that contrary to current belief both drop heart and its chronic dilatations are extremely common and, indeed, should logically be anticipated in view of our present knowledge of the musculature of such hearts.

They have been hitherto overlooked because of the natural tendency to accept as the normal a standard of measurements far in excess of the drop heart normal and a failure to apply the simplest of therapeutic tests.

Another cause of general oversight has been the absence of serious symptoms of incompensation, apart from dilatation, and the decided dominance of subjective manifestations.

In the absence of proper diagnostic tests, the subjective manifestations are in great measure indistinguishable from those of so-called neurasthenia and nervous dyspepsia, both of which in most instances are directly associated with chronic congenital asthenia and its visceroptoses.

The type of individual carrying congenital asthenia is easily recognizable and in itself at once suggest the presence of the asthenic for drop heart. Greene insists that diagnosis must be based on the basic stigmata, the decided changes wrought by rest, the administration of full therapeutic doses of some standard digitalis preparation and results of repeated careful percussion with modern technic and a full record of symptoms.

The use of digitalis as a test measure is not only justified but required not only for the recognition of masked dilatations of drop heart, but for the silent enlargements of degenerative types as well.

The congenitally asthenic heart may initiate symptoms of the most varied character or intensify those originating in other viseceroptotic organs or finding expression in the nervous system as a whole.

It is therefore a definite and important contributive factor in those morbid states underlying the greater part of our chronic invalidism.

A few full doses of digitalis, rest modified or absolute, the comparison of carefully determined outlines obtained by modern methods are simple and efficacious means of making a primary diagnosis.

Not all drop hearts are symptom producing nor do the stigmata of congenital asthenia in general mean necessarily that their possessors must be chronic invalids.

Greene believes that dilated drop hearts, while often borne by well nourished individuals without active symptoms, may play a large part in the actual initiation of neurasthenic and dyspeptic symptoms in victims of malnutrition or infections.

Northwest Medicine, Seattle

August, VI, No. 8, pp. 223-256

147 Autoserotherapy. E. A. Pierce, Portland, Ore.
148 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. R. C. Matson, Portland, Ore.
149 Relation of Temperature to Incipient Tuberculosis. J. N. Alley, Lapwai, Ida.
150 Application of Several Orthopedic Principles to General Surgery. E. A. Rich, Tacoma.
151 Expert Testimony and Malpractice Suits. J. M. Semple, Spokane.
152 Affections of Eyes Caused by Sinus Infection. C. Seamann, Portland, Ore.
153 Impressions Received from Visit to Some Eastern Surgical Clinics. J. T. Mason, Seattle.

Ohio State Medical Journal, Columbus

August, X, No. 8, pp. 455-518

154 Efficiency of Radium in Surgery. R. Abbe, New York.
155 Health Activity by an Insurance Company; Its Work in Ohio. L. K. Frankel, New York.
156 Mastoid Complications. J. W. Murphy, Cincinnati.
157 *Prophylaxis of Ophthalmia Neonatorum. M. D. Stevenson, Akron.
158 Fractures of Skull. S. D. Foster, Toledo.
159 *Hydrophobia: Report of Case. With Autopsy Findings. H. H. Drysdale, Cleveland, and A. A. Johnston, Omaha.
160 Some Considerations after 13,000 Administrations of Nitrous Oxid. W. I. Jones, Columbus.

157. **Prophylaxis of Ophthalmia Neonatorum.**—Stevenson considers it advisable in the present stage of work for the prevention of blindness from babies' sore eyes, that the old idea among the public that it is always or nearly always gonorrheal in its origin, should be corrected. He urges that the laity should be taught the plain facts, that while a certain small percentage of cases of babies' sore eyes are caused by the gonococcus, the large majority of the cases are produced by the various ordinary forms of pus-producing germs that are likely to be found in any mother; and that the presence of babies' sore eyes does not necessarily imply any guilt or wrong on the part of either parent. So long as the disease is thought to be purely gonorrheal in its origin, there will be associated with its treatment and attempts at its prevention a great deal of unnecessary embarrassment to the family and the physician. If such a belief is prevalent the physician will naturally be afraid, in many families, to suggest the use of prophylaxis, fearing that it will be considered a reflection on the character of the mother or father, parents also would be afraid to suggest, let alone insist on, the use of prophylaxis. As a not necessarily gonorrheal disease, its public discussion will be much easier, it will receive more respectful attention, and will not be considered a part of the present almost hysteric propoganda with regard to sex hygiene and other subjects that are sometimes too freely discussed.

159. **Hydrophobia.**—The patient whose case is cited by Drysdale and Johnston presented some very unusual symptoms. In the first place, there was absolutely no record or knowledge of a bite by a dog or other animal. Second most of the pain of which this patient complained was confined to his right arm and seemingly had its origin in a recent wound on the dorsal aspect of his second finger. Tetanus, however, was promptly eliminated; there was no evidence or suspicion of trismus, permanent rigidity, orthotonus, opisthotonus or emprosthotonus. A complete review of the history of the case, the nature of the spasms and the rapid progress of the malady was sufficient to show that the disturbance was in no manner related to hysteria. The functional symptom syndrome that prevailed, that is, hemianesthesia, etc., was undoubtedly the expression of his psychopathic constitution.

The reflexes were found to be much slower on the left side as compared to those on the right. The left cremasteric, left plantar and left conjunctival responses were extremely sluggish if not abolished. No clonus Babinski phenomena, Rombergism, or spasticity was elicited. His station and gait were correct. The entire left side of his body, including the face and head, was totally anesthetic, and severe pin prods over this area did not draw blood. The surface sensibility of the right side was slightly hyperesthetic. The line of demarcation between the two sensory conditions was as sharp as the point of a needle. The patient had full control of all bodily movements; the grasp of his hands was strong; the strength of his arms vigorous, and the power of both lower limbs were apparently unimpaired. During a part of their examination, he sat on the edge of his cot and appeared quite jovial and unconcerned.

He was asked if he desired a drink of water, and instantly the typical hydrophobia spasm of the muscle of deglutition and respiration appeared. The facial expression was horrible; the muscles of the neck seemed to stretch almost to the point of snapping, and his eyes presented a "hunted look." He became cyanotic; his mouth was widely opened, and the pulse became almost imperceptible. For a few moments, he struggled to catch his breath, but ultimately relaxed. In a very short time he was quite himself. His craving for water was terrible. His mother handed him a piece of cake which he promptly ate, with little, if any, difficulty. Unintentionally, the word "water" again happened to be mentioned, and again he was thrown into a spasm equally as severe as the one from which he had just emerged.

The patient's throat was carefully examined, and the fauces were found to be extremely congested. A wad of cotton attached to an applicator was inserted deep into the pharynx and no reflex resulted. As a final test, to exclude lyssophobia, he was urged to try to relax and slowly swallow a little water. This he tried to do, closing his eyes as the glass of water was brought to his parched lips. Every mouthful was explosively expelled the moment it reached the fauces. The spasmodic seizures increased in frequency and severity. He would scream for water, but the very sight of it would precipitate violent spasms. He was able to drink a little milk and tea to within twenty-four hours of his death. He ultimately became delirious. In one attack, he violently drove his fist through the plaster on the wall, but at no time did he attempt to bite or bark. He succumbed from cardiac syncope, after three hours of almost constant convulsions and maniacal frenzy. A necropsy was performed eighteen hours after death. Sections were made from different pieces of the brain tissue, but no Negri bodies were found. A rabbit and guinea-pig were inoculated with this material. The former subdurally, the latter intramuscularly. The rabbit died the next day, evidently from mechanical injury in inoculation. The guinea-pig is still living.

A portion of the medulla was emulsified in glycerin. August 12, 0.3 c.c. of the glycerin emulsion was injected subdurally into a rabbit. No change was noted until exactly four weeks after, when the rabbit refused to eat. It was drowsy and would continually lie on its left side, it appeared thirsty and drank much water. The next day, its hind extremities were helpless, and when stimulated to move, would drag along and fall over on its left side, apparently exhausted. The next day, its forelimbs were also paralyzed. During the day the paralysis became complete. The breathing became rapid. Death occurred during the night. On examination, grossly nothing was found except a diffuse congestion of the pia mater. Microscopically, Negri bodies were found, also typical Von Gehuchten degeneration of the ganglia.

Ophthalmic Record, Chicago

August, XXIII, No. 8, pp. 379-432

161 New Operation for Conical Cornea. F. B. Tiffany, Kansas City, Mo.
162 Sympathetic Optic Neuritis or Transferred Papilloretinitis, Associated with Only Mild Serous Iridocyclitis. Report of Case. H. B. Decherd, Dallas, Tex.
163 New Electric Ophthalmoscope. C. H. May, New York.
164 Abraham Lincoln. Diagnosis of Heterophoria from Portrait and Diplopia. E. E. Holt, Portland, Me.
165 Case of Relapsing Acute Iritis Apparently Cured by Use of Autogenous Vaccine. H. C. Parker, Indianapolis.

Pennsylvania Medical Journal, Athens

August, XVII, No. 11, pp. 851-932

166 What Is the Purpose of Constitution and By-Laws of County Society? J. M. Burt, Erie.
167 Diagnostic Problems of Upper Abdomen. D. Riesman, Philadelphia.
168 Pneumonias of Childhood. C. K. Alger, Swarthmore.
169 Not Faucial but Lingual Tonsil. W. A. Hitschler, Philadelphia.
170 Relations of Nose, Throat and Mouth Conditions to Trifacial Neuralgia. G. M. Coates, Philadelphia.
171 Relation of Medical Profession to Workmen's Compensation Acts in United States. F. L. van Sickle.
172 Middle Turbinate as Factor in Headaches. J. A. Hagemann, Pittsburgh.
173 Diphtheria. J. A. Doyle, Greenville.

Texas State Journal of Medicine, Forth Worth

August, X, No. 4, pp. 147-178

174 Importance and Significance of Tears of Perineum and Cervix. E. D. Martin, New Orleans.
175 Cancer of Uterus. J. E. Gilcreest, Gainesville.
176 Some Difficulties Encountered in Making an Early Diagnosis of Cancer of Uterus. H. A. Barr, Beaumont.
177 Carcinoma of Uterus. H. F. Connally, Waco.
178 Cancer Quack; How Eliminate Him? J. H. Vaughan, Liberty Hill.
179 High Cost of Roentgen Ray When You Use It; Higher Cost When You Do Not. G. D. Bond, Fort Worth.
180 *New Supravaginal Plastic Hysterectomy. L. L. Shropshire, San Antonio.

180. **New Supravaginal Plastic Hysterectomy.**—This is the uterus-splitting operation with removal of a wedge-shaped piece from the center of the body of the uterus. After separating the bladder from the uterus down to the internal os, Shropshire clamps the uterus on either side from the insertion of the Fallopian tube to its center at the internal os with a specially devised hysterectomy clamp, and using it as a guide, transfixes the uterus at the points of the clamps with a long sharp-pointed knife, bringing the blade out of the fundus at the inner side of the clamp, making a smooth-cut surface; then by drawing the clamps together, he brings the two marginal-cut surfaces of the uterus into close apposition and puts in two rows of chromic gut sutures.

Vermont Medical Monthly, Burlington

August, XX, No. 8, pp. 199-220

181 Concerning Communicable Diseases and their Management. W. P. Northrup, New York.
182 Tonsils—Safeguard or Menace? J. M. Hamilton, Rutland.
183 Surgical Obstetrics. J. M. Gile, Hanover, N. H.
184 Aspects of High Blood-Pressure. C. M. Sneden, Littleton, N. H.
185 Poliomyelitis. O. D. Eastman, Woodsville, N. H.

Wisconsin Medical Journal, Milwaukee

August, XIII, No. 3, pp. 91-130

186 Osteitis Fibrosa Cystica. J. F. Smith, Wausau.
187 Intranasal Treatment of Chronic Frontal Sinus Suppuration. W. E. Grove, Milwaukee.
188 Extrasacular or Sliding Hernia. V. F. Marshall, Appleton.
189 Relation of Psychiatrist to Juvenile Court. A. M. Rogers, Milwaukee.
190 Surgical Aspect of Diseases Producing Peritonitis in Upper Abdomen. W. E. Fairfield, Green Bay.
191 Application of University Extension Methods to Certain Lines of Medical Practice. J. R. Taylor, Madison.
192 *Cancer and Cancer Problem. W. E. Ground, Superior.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

August 15, II, No. 2798, pp. 321-348

1 Duty of State Toward Early Environment of Child. W. L. MacKenzie and T. Dewar. 3. Environment of Child. O. Gordon. 4. Eyes and Eyesight of Children. A. R. Galloway. 5. Dental Point of View. J. S. Wallace.
2 Medical Certification Other than Under Lunacy Acts. C. Sandeman.
3 *Serum Diagnosis of Pregnancy and of Cancer. A. Leitch.

3. **Serum Diagnosis of Pregnancy and of Cancer.**—The details of 100 cases examined by Leitch to test the method in the serum diagnosis of cancer are as follows: in the first set of experiments three different substrates were employed: (1) A large protuberant, non-ulcerated squamous-cell carcinoma of the scalp, extremely cellular, with fine supporting fibrous-tissue trabeculae, the tumor being easily washed free of blood and being almost dead white; (2) a cellular spheroidal-cell carcinoma of the breast with a minimal amount of stroma; (3) placenta.

The 9 cancer serums all gave positive results with the epitheliomatous tissue—if anything, more markedly in the case of squamous cell than in other carcinomata—whereas the 12 non-cancerous cases were negative with the exception of a case of lipoma. The mammary cancer was not such a good substrate. It did not give as good results with the mammary cancer cases as did the epithelioma. With it 5 cancer serums were tested; 3 gave positive reactions, 2 were absolutely negative; of 5 non-cancer cases, 4 were negative, 1 was positive. With placenta, 8 cancer serums were tested, 7 gave positive reactions, 1 was negative; of the 7 non-pregnant, non-malignant cases 1 was positive. In all cases the serums were used fresh.

In another series the serums were tested simultaneously against four different cancers: (1) a carcinoma of the breast; (2) an epithelioma of the cervix which it was impossible to free from blood; (3) a protuberant epithelioma of the vulva; (4) an epithelioma of the tongue. With the mammary carcinoma substrate only 4 cancer serums out of 12 gave positive results, and all 3 non-malignant cases were positive; with the uterine cancer substrate 9 cancer serums out of 12 gave positive results, and 1 of the 3 non-malignant cases was positive; with the vulvar cancer substrate 4 cancer serums out of 12 were positive, and of the non-malignant serums 1 was positive; with the lingual cancer substrate 2 of the 12 cancer serums gave positive results, and of the non-malignant cases 1 was positive. The mammary cancer substrate only succeeded in picking out 1 of the 6 cases of mammary carcinoma, the uterine cancer substrate picked out 2 of 3 cases of uterine cancer, and the vulvar cancer substrate picked out the case of vulvar cancer.

Of the 100 cases tested by Leitch to prove the worth of the method in the serum diagnosis of cancer, 51 were cancer and 49 were non-malignant. In the 51 cancer cases positive results were obtained in 28, that is, 55 per cent.; and in the 49 non-cancerous controls positive results were obtained in 18, that is, 37 per cent. In Leitch's opinion, therefore, the method is without diagnostic value.

The conclusions to which Leitch has come after a careful investigation of Abderhalden's dialysation method are that the real fallacies of the technic are beyond control, and that the hypothetical fallacies which Abderhalden invokes to account for false reactions have no bases. Positive results are quite well accounted for by the facts that "substrates" alone, and the serums alone, give diffusible substances reacting with ninhydrin; that the dialysers vary enormously in the quantities of such substances which they allow to pass in a given time; that serums, influenced by the distilled water and by the presence of a tissue acting in virtue of its physical state, are progressively cleaved; and that it is not the substrate which is split by the serum so much as the serum which is split by the substrate. These real fallacies quite destroy the value of the method, and they cast grave doubts on the whole theory.

As to the value of the method in pregnancy, Leitch states that he may have been unconsciously generous to an attractive theory in his reading of the reactions, but he does not attach much weight to that explanation. It may be that pregnant serum more commonly possesses the property of being split up when some suitable physical accessory is added such as placental tissue. But what seems more probable is that there exists in serum, more frequently, though not exclusively, in pregnancy, a general proteolytic and peptolytic power which we can demonstrate by adding a suitable, though not necessarily a specific protein or peptone. The serum of the normal guinea-pig is generally credited with a fairly strong proteolytic power. Leitch tested the action of several guinea-pig serums on egg albumen, coagulated cancer tissue, human blood-clot, and human placenta, and it happened that only with the latter were strong reactions evident. That seems to show that placenta protein is a suitable substrate for the demonstration of a general proteolytic power.

Journal of Laryngology, Rhinology and Otology, London

August, XXIX, No. 8, pp. 393-448

4 Suspension Laryngoscopy and Its Practical Use. G. Killian.
5 Case of Paralysis of External Rectus Muscle Due to Presence of an Abscess in Apex of Petrous Pyramid. Death from Basal Meningitis. G. Wilkinson.
6 Bisubmucous Resection of Septum Nasi. J. van der H. Leonhard.

Journal of State Medicine, London

August, XXII, No. 8, pp. 449-512

7 Germ Carriers. L. Vaillard.
8 Rise and Progress of Factory Legislation. T. Oliver.
9 Work of the Metropolitan of Paris. L. Biette.

Journal of Tropical Medicine and Hygiene, London

August 1, XVII, No. 15, pp. 225-240

10 Coastal Climate of Tropical Queensland. F. H. Taylor and W. J. Young.
11 Entamebiasis. L. B. Keng.

Lancet, London

August 15, II, No. 4746, pp. 435-480

12 Heredity. W. Bateson.
13 Congenital Atresia of Postnasal Orifice. C. W. Richardson.
14 *Pregnancy Complicated by Severe Morbus Cordis: Two Cases Treated by Hysterotomy Under Spinal Anesthesia. J. B. Banister.
15 Gun Deafness and Its Prevention. J. Horne.

14. Pregnancy Complicated by Severe Morbus Cordis.—Banister cites two cases treated by hysterotomy under spinal anesthesia. Case 1.—The patient, a primagravida, aged 21, four months pregnant, had two years previously had a severe attack of rheumatic fever, subsequent to which she developed a mitral stenosis. She had been unwell since the sixth week of pregnancy. There had been very severe vomiting, coupled with dyspnea and edema. She had been kept at rest and treated by the usual cardiac tonics, but reaction had been unsatisfactory. When Banister saw her she was cyanosed and dyspneic, her pulse was 124 and irregular, with the galloping rhythm characteristic of marked failure of compensation. Her temperature was 101.6 F. Examination revealed a normal four months pregnant uterus. The heart was markedly dilated, weak irregular sound with no definite murmur to be heard, but a definite thrill over the whole precordium. There were moist sounds over both lungs, and the base on either side was dull as far as the angle of the scapula. There was no sign of free fluid in the abdomen, but the back and the legs as far as the knees were edematous. As the patient was in a desperate state, had not responded to medical treatment, and was further handicapped by the continued vomiting, it was at once decided to empty the uterus, and as her general condition precluded any inhalation anesthesia it was thought that the spinal method should be adopted. Accordingly, using Barker's heavy solution of stovaine, Banister produced anesthesia in this way and emptied the uterus by vaginal hysterotomy. The operation was easy of accomplishment and was carried out fairly rapidly without the patient showing any sign of shock. The bleeding was trifling. Unfortunately, the edema of the lungs progressed and she died the next day.

Case 2.—The patient, a 5-gravida, had had attacks of failure of compensation with the last three pregnancies, and extremely trying confinements, and came up in the fifth month of the present pregnancy in a condition of marked severity. The face was cyanosed, breathing was only comfortable when she was sitting up, and she had a distressing cough. The pulse was 118, weak and irregular; temperature 97.6 F. The apex beat was in the seventh space 4½ inches from the mid-sternum, and the heart sounds were weak and flapping in character. There was no murmur. During the next three and a half months she was three times admitted in the same condition but improved under treatment. A week before term she was in a very distressed condition. The symptoms of cardiac failure were all very marked. Banister decided on cesarean section under spinal anesthesia for the following reasons: (1) cesarean section was the quickest method of delivery and the one which would throw least strain on her already enfeebled heart; (2) sterilization could be carried out and further risks of child-bearing avoided; and (3) as her cardiac condition seemed to be one of general myocardial degeneration, a general anesthetic was absolutely contra-indicated. She stood the operation extremely well. The patient got up on the fourteenth day, and left the hospital on the twentieth with her baby, both in good health.

Annales de Médecine, Paris

May, I, No. 5, pp. 469-592

16 *Familial Transient Paralysis of Legs Encountered in Northwestern France. E. Lenoble.
17 *Paroxysmal Form of Absolutely Irregular Heart Action. (La forme paroxystique de l'arythmie complète.) J. Heitz.
18 *Case of Mutilating Disease of the Legs. G. Guillain and J. Dubois.
19 The Thresholds of Renal Secretion. (Signification du terme de seuil de sécretion.) L. Ambard.

16. Transient Recurring Paralysis of the Legs.—Lenoble has encountered six cases in two families and in these alone in ten years of practice in Bretagne. There is evidently some organic lesion of the anterior horns of a certain segment of the lumbar spinal cord and nerve roots. He knows of nothing on record that compares with it, except what is called familial spasmodic dorsal tabes. The segment involved seems to undergo a senile degeneration, presumably from overuse. The paralysis of the extensor muscles comes on suddenly, in one leg at a time, with formication and sense of coldness. First one and then the other leg may be attacked, and the paralysis or impotence of the leg may be more or less pronounced but it passes off in a few weeks or months. The mildness of the phenomena and the pains in the legs suggesting sciatica are special features of the syndrome. The first attack came on at 25, 28 and 32 in one family and at 18, 20 and 24 in the other; all the patients were otherwise robust.

17. Paroxysmal Absolutely Irregular Heart Action.—Heitz gives a detailed history of ten cases of complete arhythmia occurring in paroxysms with or without valvular lesions and with or without high blood-pressure. The paroxysms may develop in connection with some overwork or intoxication or some infection that has touched the myocardium, or even without apparent cause. Such patients are generally neuropathic, subject to gastro-intestinal derangements, and sometimes presenting the stigmata of hysteria. Excessive thyroid functioning seemed to be an additional factor in some cases. The heart is generally enlarged and there are signs of arteriosclerosis and of habitual overexcitability of the auricular myocardium entailing fibrillation. The paroxysms may come on with intense palpitations, dyspnea, distress, vasomotor disturbances, swallowing of air and more or less pronounced reduction of the capacity of the heart to do its work. Attacks of this kind generally last from six hours to five days, and recur at intervals of one to three months. In other cases the paroxysms are much briefer and milder but the intervals are shorter. As a rule the attacks lengthen and the intervals grow shorter in time until finally the absolute irregularity becomes continuous. One patient has had attacks of these paroxysms every two months for nine years. They last six to twenty-four hours but the ordinary rhythm outside of the paroxysms is still normal at the age of 65. Digitalis prolongs and may even bring on the attacks; it is contra-indicated therefore unless there is asystole. Drugs and other measures to soothe the nervous system and tranquillize the patient are the main reliance, supplemented possibly by local applications over the heart region, ice-bags, cloths wrung out of hot water or bags of hot sand. In the intervals the heart should be supervised, with special care for hygiene and diet. When the arhythmia has become permanent, digitalis may be systematically given to advantage. Morphin should be avoided and the patient reassured that the trouble is purely nervous and functional and will pass off without leaving any traces.

18. **Mutilating Affection of the Feet and Legs.**—The patient was a gardener of 54, apparently free from inherited or acquired taint. In 1905 he cut his heel on a piece of glass and ulceration and trophic disturbances followed, finally compelling amputation of the foot. Seventeen months later intense pains developed in the limb and further trophic ulceration. The other leg soon shared also in the mutilating affection. The differential diagnosis by exclusion was an ascending neuritis entailing secondary reactions in the meninges and spinal cord, possibly drifting into syringomyelia. The Argyll Robertson sign is positive but there are no other indications of syphilis.

Archives Générales de Chirurgie, Paris

July, VIII, No. 7, pp. 769-896

20 *Malignant Transformation of Dermoid Cysts in the Ovary. C. V. de Lapouge.
21 *Tuberculosis of the Clavicle. A. Martin.
22 Fascia Patch to Cure Hernia of Muscle. (Traitement des hernies musculaires par la greffe aponévrotique.) P. Mauclaire.

20. **Malignant Transformation of Dermoid Cysts in the Ovary.**—De Lapouge reports three cases of cancer in a dermoid cyst of the ovary and summarizes from the literature forty others, adding that several were of dermoid origin in Stroganova's twenty-two cases of cancerous degeneration of ovarian cysts (*Russky Vrach*, 1913). The presence of the cyst was known for many years in a number of cases before the malignant transformation took place, twenty-six years in one case. But when cancer is once installed it seems to run a rapid course, death following in six months at longest. The malignant transformation had progressed so far in the cases on record before operative treatment was applied that no instance of complete recovery is known. Intervention merely prolonged life a few weeks or months except in one of Tédenat's three cases in which the patient survived for seven years. Dermoid cysts, as a rule, do not manifest their presence until between 20 and 35, and then they are generally removed before there is a chance for malignant transformation. Even allowing for this there are over sixty cases on record of cancer in a dermoid cyst of the ovary. Pommier has reported a case with 4 dermoid cysts, one in the right and three in the left ovary, and two in this group developed cancer. When it has once spread beyond the walls of the cyst, irreparable damage is soon done.

21. **Tuberculosis of the Clavicle.**—Martin states that he knows of no instance of a tuberculous process in the clavicle of a child. The majority of those affected are comparatively young and have a history of tuberculous glandular processes or otorrhea. In one case the process occurred in the clavicle in a young man with inherited syphilis. None of the patients had certain pulmonary tuberculosis but some were regarded as "suspects." Four cases are illustrated, showing that either end of the shaft may be involved. If the latter, the findings are similar to those of spina ventosa in other bones.

Archives Générales de Médecine, Paris

July, XCIII, No. 7, pp. 581-672

23 Dilating and Speaking Cannula for Subglottic Laryngo-Tracheal Stenosis. L. Dufourmentel.
24 *Results of Sanatorium Treatment of Pulmonary Tuberculosis in Various Countries. (Tuberculose et sanatoriums populaires.) G. Artaud.

24. **Pulmonary Tuberculosis and Sanatorium Treatment.**—Artaud compares the statistics from nine countries of Europe during the years 1906 and 1910, comparing the figures for the death-rate and the results of sanatorium treatment, especially in Germany, Switzerland and France. His conclusions are that at least 50 and probably 75 per cent. of all in the early stages of tuberculosis can be permanently cured by the system of public sanatoriums and dispensaries. The main point is to discover the tuberculosis in its incipient stages, when it is always curable. The average stay in the sanatorium should not be less than six months; it is from the sanatorium alone that we can expect actual and durable cures. The tuberculous taking fresh-air treatment at home generally get too much medicine; the family think that drugging is the chief factor in all treatment of the sick. The result in this case is that the digestion gets upset, and when the tuberculous lose appetite and cease to be properly nourished, the downward course is rapid. The family, besides, is seldom skilled enough to ward off further contagion.

Archives Mens. d'Obstét. et de Gynéc., Paris

July, III, No. 7, pp. 1-48

25 *Congenital Tuberculosis. W. Möller.
26 *Total or Subtotal Hysterectomy? (Evidement systématique du moignon cervical dans l'hystérectomie subtotale.) De Rouville.
27 Dermographism of Pregnancy. H. Treub.

25. **Congenital Tuberculosis.**—Möller declares that we have no right to assume congenital tuberculosis in any case unless the child dies from it in the first or second week after birth and characteristic lesions are found in it, with tubercle bacilli. Analysis of the cases published as congenital tuberculosis shows that only about a half dozen conform to those conditions. He adds another to this group, the child dying two days after birth and showing lesions of pronounced and typical tuberculosis, with numerous tubercle bacilli. The location of the lesions corresponded to a primary infection of the intestinal tract, spreading by the lymphatics to the regional lymph-glands and from here penetrating at some point into the blood. Recent tuberculous lesions were found in the decidual membrane and panhysterectomy was done. Old tuberculous processes were evident in both tubes, and to these Möller traces the infection of the uterus and of the fetus. When the woman was delivered there was no suspicion of tuberculosis and the placenta was not examined.

26. **Technic for Hysterectomy.**—De Rouville declares that he is a "subtotalist," that is, in removing the uterus he amputates it above the cervix, and he here expatiates on the various advantages of this technic. After the amputation he cuts out with the bistoury the inside of the cervix stump, leaving only a shell a few millimeters thick. The stump is then sutured and peritoneum drawn down to cover it. This leaving merely the shell of the cervix thus links the total and subtotal technics, he declares, with the advantages of each and none of the disadvantages. The vagina is not opened, and thus danger of infection is avoided and there is no tendency to hemorrhage from the vaginal culdesacs, while the weight-bearing apparatus is left intact. Removing the inside of the cervix does away with the possibility of new growths in the cervical mucosa, and if such should develop in the shell left, they can be easily inspected and removed.

Revue de Gynécologie, Paris

May, XXII, No. 5, pp. 369-464

28 *Mobilization of Rectum in Repair of Complete Rupture of the Perineum. (Périnéorrhaphie pour rupture complète du perinée avec ou sans déchirure de la cloison.) S. Pozzi.
29 *Repair of Severed Ureter. (Ureterorraphie dans les sections totales de l'uretère.) P. Sejournet.
30 Spa Treatment and Gynecology. (Traitement hydro-minéral des maladies des femmes.) S. Pozzi.
31 Fibroma in Broad Ligament Accompanying Fibroma in Uterus. X. Bender.

28. **Repair of Perineum Torn Completely Across.**—Pozzi here describes with twelve illustrations the various steps of perineorrhaphy for complete laceration, according to the technic which he has been using for over twenty-five years and with constant satisfaction even in extremely serious cases. He loosens up the anterior wall of the rectum until it is free so that he can draw it down far enough to bring outside the part corresponding to the damaged perineum. By this means there is no suture in the rectal wall except where it joins the anus. This avoids the danger of infection from an intrarectal suture with eventual fistula. The transverse incision in the rectovaginal wall is made in such a way that a small edge of vaginal mucosa is left below the incision; this is a great help in restoring the anus. The incision is carried deep enough to expose the anterior aspect of the rectum. He never found it necessary to open the pouch of Douglas; it can easily be pushed aside by keeping close to the wall of the rectum. He has never had a failure with this technic, and has found it of great service also in rectovaginal fistulas of all heights, first cutting the perineum entirely across to produce conditions similar to those of complete rupture. If there is cicatricial shriveling later, rendering the anus too small, a posterior rectotomy answers every purpose. It is by no means a difficult matter to slit the rectovaginal wall in this way, separating the fibers by working in between them until the orifice of the rectum and of the vagina no longer stand parallel to each other, and can be slipped past each other like bureau drawers. Pozzi illustrates casts made from four quite complicated cases treated in this way thirteen or fourteen years ago, the outcome in all confirming the ease and simplicity and importance of this technic and the fine results and continence attained, and claims priority for the principles involved. He unites the muscles directly by a deep isolated suture, using catgut, and utilizing even mere scraps of the muscles, especially those connected with the sphincter. After this is done he passes two or three double silver wires through all the soft parts just above and crossing the suture of the muscles. The traction on the primary incision has transformed it from a transverse to a vertical incision; this is sutured and the anus restored by suturing the skin to the lower margin of the drawn down rectum, edging the anus, if possible, with a narrow border formed of vaginal mucosa. When all this is done the wires are tightened and tied over rolls of gauze outside. As long ago as February, 1894, Pozzi declared that the lacerated wall should never be sutured directly but be restored by loosening and drawing down the rectum.

29. **Suture of Severed Ureter.**—Sejournet summarizes from the literature seventy-four cases of ureterorrhaphy after complete section of the ureter, classifying them according to the technic applied. The results were better the more perfect the coaptation of the stumps. End-to-end suture is less liable to be followed by stenosis than suture by invagination. The suture should be protected with a small flap, possibly of omentum. The experiences related warn that a large flap of tissue usually shrivels so much that the fibrous retraction may lead to stenosis. It is prudent but not indispensable to leave a small drain or wick. Oozing of urine is generally transient and stops spontaneously but seems to leave a tendency to stenosis later.

Semaine Médicale, Paris

July 29, XXXIV, No. 30, pp. 349-360

32 *Drainage in Empyema. (Le soin ultérieur des pleurotomisés.) R. de Bovis.
33 "Undescended Cecum." (L'ectopie haute du cæcum et de l'appendice et son importance clinique et opératoire.) F. Lejars.

32. **After Evacuation of Empyema.**—De Bovis compares the different methods in vogue for draining after evacuation of empyema, his conclusion being that there is no need to dread the entrance of air as such a serious matter as some claim. Drains and siphons and rubber bulbs and all air-tight procedures can be dispensed with as a rule in treating simple benign empyema. By leaving the low wound open, without tubes or tampons, pus and false membranes escape and the absence of any foreign body leaves a free field to Nature to heal unmolested. This in itself is the best of all protections against ascending infection. The indispensable condition for this, however, is that the opening for evacuation of the empyema has been made ample enough, and that it was made at the exact point where gravity will prove most effectual to drain the pleura. To ensure these conditions it is necessary to resect a rib and to make the opening for the spontaneous draining at the lowest point of the slope, bearing in mind the patient's position in bed after the operation and during convalescence and whether the empyema is partial or total. He does not hesitate to close the incision and make a new one lower down if the first does not answer the purpose perfectly. He emphasizes further that the mobilization of the chest wall by the resection of a rib permits it to fall in under the pressure of the air so that, outside of the periods of inspiration, it shuts down air-tight over the convexity of the diaphragm and restricts if it does not prevent altogether the inflow of air. Air and microbes are also filtered and kept out more or less effectually by the dressings. As an operation for empyema is generally an emergency operation, the simplification of the procedure and of the after-care is a great gain. De Bovis does not believe that such large openings are necessary as Brinkmann advocates, and his experience with aspiration drainage has shown numerous disadvantages from it. He has applied the technic mentioned above in three cases and has been impressed with the prompt and complete recovery in from three to five weeks (except in the one case of tuberculous origin).

Beiträge zur klinischen Chirurgie, Tübingen

May, XCI, No. 3, pp. 403-718

34 *Epinephrin Content of Adrenals Is Markedly Reduced during Peritonitis. (Adrenalingehalt der Nebennieren bei akuten Infektionen.) Reich and Beresnegowski.
35 Treatment of Phlegmons on the Hand. M. Tiegel.
36 *Extensive Retrorenal Hemorrhage. (Zur Kenntnis der Massenblutungen ins Nierenlager.) Baggerd.
37 Curving Osteotomy for Crippled Knee. (Bogenförmige Osteotomie bei Winkelankylosen und arthrogenen Kontrakturen des Knies.) W. Schmidt.
38 Technic for Extensive Resection of the Thorax for Old Chronic Empyema. Peuckert.
39 Combination of Local Anesthetics with Potassium Sulphate Enhances Action of Some, Reduces It with Others. A. Hoffmann and M. Kochmann.
40 *Sunlight Plus Mountain Climate in Treatment of Tuberculosis of the Hand. (Erfolge der Heliotherapie im Hochgebirge.) A. Hüssy.
41 Temporary Resection of Roof of Mouth. (Temporäre Gaumenresektion.) Partsch.
42 Prothesis for Treatment of Cleft Palate. (Prothesenbehandlung der Gaumenspalten.) Riegner.
43 *Diagnosis of Nature and Location of Ileus. A. Tietze.
44 Pneumatosis of the Intestines. F. Neugebauer.
45 Villous Tumors of the Rectum; Two Cases. C. Goebel.
46 Technic for Closing the Pylorus Permanently with Duodenal Ulcer. A. Peiser.
47 Injections of Menthol-Eucalyptol in Prophylaxis and Treatment of Postoperative Bronchitis. Technau.
48 Serodiagnosis of Cancer. (Die Carcinomreaktion nach Abderhalden.) Fritsch.
49 Surgery of Peripheral Nerves. Borchard.
50 *Juvenile Deforming Osteoarthritis. G. Drehmann.
51 Gonorrheal Arthritis. C. Goebel.
52 Spontaneous Fracture after Periostitis from Overuse. Kolepke.
53 Negative Experimental Experiences in Regard to Regeneration of Periosteum. S. Weil.
54 Plugging Cavities in Bones with Pedunculated Muscle Flaps. (Plombierung von Knochenhöhlen durch gestielte Muskellappen.) R. Levy.
55 Electric Conductibility of the Urine in Diagnosis of Kidney Disease. (Verwertbarkeit der Leitfähigkeitsbestimmung des Urins in der Diagnostik der Nierenkrankheiten.) Renner.
56 Disadvantages of the Phenolsulphonephthalein Test; Not a Reliable Aid in Surgical Kidney Disease. K. Wrobel.
57 Tendency to Suffocation from the Thymus. (Thymusdrüse als Atemhindernis.) C. Ritter.
58 Technic for Avoiding Complications after Extensive Operations on the Chest. E. Jeger and J. Leland.
59 Technic for Suturing the Arch of the Aorta. E. Jeger and J. Leland.

34. **Epinephrin Content of Adrenals in Acute Infections.**—Reich and Beresnegowski report extensive experimental work and clinical investigation the results of which seem to indicate that the epinephrin content of the adrenals is very much below the normal proportion in more than half the cases of acute peritonitis. This lack of normal epinephrin content

readily explains the central vasomotor paralysis and weakness of the circulation which accompany acute peritonitis in man. Their research does not indicate that all acute infections affect the adrenal cortex so rapidly and injure it so severely as was evident in over 50 per cent. of the fatal peritonitis cases examined. This disease takes the lead in this respect. The findings in regard to the staining properties of the adrenal cortex are tabulated from 27 cases of acute peritonitis, 11 cases of chronic infections and 12 cases of acute infections not involving the peritoneum.

36. **Perirenal Hemorrhage.**—Baggerd reports a case of fatal spontaneous hemorrhage into the bed of the kidney. It proceeded from the kidney itself; in a previous case of extensive retrorenal hematoma the blood came from an adrenal. The typical symptoms of sudden intense pain in the kidney region, signs of severe internal hemorrhage and development of a tumor back of the kidney were pronounced in both cases. In these as also in a number of others on record there had been preceding milder attacks; Lenk's patient had nine in the course of three years. In Baggerd's case there had been attacks every six or eight weeks at first, each lasting two or three days; the intervals were free from pain. These attacks may have been due to preceding small hemorrhages in some cases, but in his case they were explained otherwise by a tendency to hydronephrosis kinking the ureter, and each time the attack had been preceded by a drinking bout, as also the last and most severe attack. The kidney was found floating in a pool of blood and the patient, a man of 44, never rallied after the nephrectomy. The mortality of perirenal hemorrhage is still high, 40 per cent., as the operation generally comes so late. The mortality was 100 per cent. in all the cases under conservative treatment alone. Various operative measures have been applied; the special procedure is not so important as prompt intervention to arrest the hemorrhage.

40. **Tuberculosis of the Hand and Heliotherapy.**—Hüssy tells remarkably favorable experiences with direct sunlight treatment of tuberculous processes in the hand and wrist, beseeching surgeons in particular to heed his words and refrain from operating in this class of cases and apply heliotherapy. He was assistant to Rollier, and gives the details of 32 cases. In 21 fistulas had already developed in the process in hand or wrist; in 29, lymph-glands were involved, and in 12 the lungs, while other local surgical tuberculous processes were evident in 25. The hand process healed completely under the systematic exposure to the mountain sunlight in 23 cases, and another patient was much improved. These patients have completed their course and left, the functional use of the hand is fully restored in nearly all. Eight others are still under treatment although the hand is entirely healed. In 17 of the 24 cured patients who have left Leysin all other tuberculous manifestations have been cured likewise, and in 5 they have materially improved. Three others have succumbed since to the progressive course of their multiple lesions but without return of the hand process. Heliotherapy, he emphasizes, must be applied only by physicians trained in orthopedic and surgical measures, applying the technic of each as needed, not leaving the entire task to the sunlight. Physicians at the head of tuberculosis institutions must in some way acquire the necessary surgical and orthopedic technic if they accept patients with surgical tuberculosis. The orthopedic side of treatment, punctures, proper position of the part affected, etc., are liable to be neglected when the institution is run by an internist. More use should be made in private practice of the curative action of direct sunlight. Surgical tuberculosis should be brought out of the sick-room into the light and air.

43. **Ileus.**—Tietze says that in 133 cases of ileus in which he has operated exaggerated peristalsis was pronounced in all cases except those in which peritonitis had already developed or the obstruction was not organic. Wahl declares that strangulation ileus and dynamic occlusion of the bowel both act alike on the peristalsis, paralyzing it. Tietze's experience thus confirms Wahl's theory and shows further that feculent vomit sometimes accompanies septic paralysis of the bowel from peritonitis and must not be regarded as a sign only of mechanical ileus. The importance of distinguishing between paralysis of the bowel and mechanical obstruction he regards as so vital that he does not hesitate to say that in the former case an operation is a blunder—except when a fistula into the bowel is directly planned—while with mechanical obstruction an operation can be at worst merely hastening the almost inevitably required intervention. He classifies his material under various headings: 41 died of the 81 patients with mechanical ileus; 9 of the 35 with ileus from internal incarceration, volvulus or adhesions; none died of the 4 with torsion of the omentum, but 5 died of the 9 with ileus from necrosis of the pancreas—a total mortality of 42.1 per cent.

50. **Juvenile Deforming Arthritis.**—Drehmann has encountered nine cases of an affection of the head of the femur in children analogous to coxa vara in adolescents, only it is the reverse condition. Perthes found in similar cases that the surface of the head was flat instead of round and almost a groove had been hollowed out across the top. The cartilage is of normal structure and color and the bone itself seems of normal structure. Whether slight trauma or infection is involved is open to discussion, but there is no question that the deformity is the result of weight-bearing strain. The children affected are between 5 and 10; they begin to limp a little but do not complain of pain. The hip-joint can be used freely except that abduction, either passive or active, becomes impossible. There is no adduction as with coxa vara, but there may be a slight inward rotation. The limp suggests the gait with congenital dislocation. There is no trace of contracture as with an inflammatory process. The limping continues and there may be pain when fatigued, relieved by resting. There is no shortening of the limb as a rule, and after a few years the child ceases to limp and, except for more or less inability to abduct the limb, there is nothing left of the trouble.

Deutsches Archiv für klinische Medizin, Leipzig

CXVI, Nos. 1-2, pp. 1-200. Last indexed August 22, p. 713

60 Mixed Forms of Derangement of Kidney Functioning. (Zur Kenntnis der Nephropathien. III.) P. v. Monakow.
61 Effect of Small Doses of Toluylendiamin on the Blood; Experimental Polycythemia. (Enstehung experimenteller Hyperglobulie.) R. Hertz and M. Erlich.
62 Gasometric Determination of Urea, etc., in a Few Drops of Blood. (Zur Analyse sehr kleinen Stickstoffmengen in organischem Material.) R. Siebeck.
63 Murmurs in Arhythmia of the Auricle. (Präsystolische Geräusche bei Vorhofsflimmern.) E. Weiser.
64 The Heart a Pressure Pump but Not a Suction Pump. (Zur Frage der Saugwirkung des Herzens.) A. Lehndorff.
65 Variations in the Serum Concentration in Scarlet Fever. W. Kalser and J. Löwy.
66 Ammonia and Total Nitrogen Excretion in the Urine on Different Diets and Especially on a Rice Diet. Z. Tanji.
67 Proteus Meningitis and Proteus Sepsis in a New-Born Child; Bacillus Proteus as Cause of Disease in Man. F. Goebel.
68 The Function of the Kidney in Diabetes Insipidus. L. Lichtwitz and F. Stromeyer.
69 Total Metabolism and Albumin Metabolism in Patients with Carcinoma. E. Wallersteiner.

Deutsche medizinische Wochenschrift, Berlin

July 30, XL, No. 31, pp. 1553-1600

70 *Treatment of Acute Weak Heart Action. (Behandlung bedrohlicher Erscheinungen bei der Herzschwäche.) J. Grober.
71 Vaccine Therapy of Typhoid. R. Kraus and S. Mazza.
72 *Improved Technic for Serodiagnosis. (Kritik des Dialysierverfahrens und der Abwehrfermentreaktion.) H. Oeller and R. Stephan. (Neue Methode zum Nachweis der Abwehrfermente.) P. Hirsch.
73 Normal Sugar Content of Blood in Case of Addison's Disease. (Blutzucker bei Morbus Addisonii.) J. Brockmeyer.
74 *Fatal Hematoporphyrinuria after Ten Grams of Sulphonal in Nine Days. (Letale Hamatoporphyrinurie nach Sulfonalgebrauch.) Pförtner.
75 *Periodical Arhythmia. (Zur Kasuistik der periodischen Unregelmässigkeit des Pulses.) K. Rinderspacher.
76 *Pancreatitis—Complication of Mumps? N. Dracinski and J. Mehlmann.
77 *Acute Retention of Urine under Morphin. (Die akute Harnverhaltung eine wenig beachtete Wirkung des Morphins.) A. Czapek and S. Wassermann.

78 Roentgenotherapy of Tuberculous Lymph Glands. Kühlmann.
79 Origin of Partial Antibodies. (Beziehungen der im Blut kreisenden Tuberkelbazillen zu der Entstehung von Partialantikörpern.) A. Mayer.
80 *Access to Knee-Joint by Sawing the Patella Lengthwise. (Eröffnung des Kniegelenkes bei Meniscusverletzungen durch Längsschnitt mitten über die Patella und deren Durchsägung.) P. Babitzki.
81 Preparation of Blood Platelets for Hemostasis in Operating on the Nose. (Das Coaguler Kocher-Fonio in der Rhinochirurgie.) E. Barth.
82 Refusal to Permit an Operation Considered from Standpoint of Workmen's Compensation Legislation. (Die Operationspflicht des Verletzten.) G. Puppe.

70. **Acute Weakness of the Heart.**—Grober comments on the diverse causes which may render the circulation inadequate. In nearly every instance death is the result of the heart's giving out. Acute overexertion is one of the most frequent causes of this and even a normal circulatory system may suffer severely from acute overexertion. The first thing in treatment is to relieve the heart of all the work possible; this is best accomplished by strict bed-rest. He thinks that the bed-rest is the most efficient factor in the "Karell cure." When the left ventricle is not working properly, the peripheral and pulmonary vessels become gorged with blood and great relief may be obtained from venesection. In one case he successfully repeated the venesection (500 c.c.) after an interval of three days. This is particularly useful with sudden and threatening cardiac asthma. Inhalation of oxygen may give great subjective relief, especially in chronic heart disease, but he does not ascribe any objective efficacy to it. The defective heart action may lead to transudation in the pleura, etc., and this hampers the heart action still further and immediate puncture may be indispensable. After tapping of ascites, a pleural effusion may be spontaneously absorbed. Or it may be advisable to drain away all the surplus fluid by several minute incisions 1 or 2 cm. deep in the dorsum of the foot. He has done this in several cases; the wound closed up spontaneously in a week or so.

Other means to influence transudation are to restrict intake of fluids and to stimulate diuresis. Calomel is very useful here but is contra-indicated on suspicion of nephritis. He gives 0.2 or 0.3 gm. calomel three times a day, continuing for three or four days, by which time the urine usually increases to 6 liters or more. The diarrheic stools under the calomel also aid in throwing off excess fluids, but they must not be allowed to weaken the patient. The patient with acute weakness of the heart is frightened and restless, and this emotional strain aggravates the heart disturbance and calls for a sedative drug, although heart disease reduces the tolerance for narcotics. Grober emphasizes that the physician should keep the giving of the narcotics in his own hand; he does not like to trust this to the patient or his family. When the chronic heart disease is beyond repair and there are periodically recurring attacks of asthma, he does not hesitate to give morphin to abort the attacks.

In acute heart weakness, however, the chief reliance is on camphor, and he urges not to wait until it is a last resort. A subcutaneous injection of camphor seems to ward off the dangerous consequences of morphin on the circulation while not interfering with its action on the nervous system. The camphor may induce nephritis if the kidneys are already below par or if the patient is a child, but the serious condition of menacing heart failure outweighs in importance a possible injury to the kidneys. In acute heart weakness he does not hesitate to make several injections of 1 c.c. camphorated oil (10 per cent.) at five minute or even shorter intervals. When the heart action shows signs of improvement he lengthens the intervals to half an hour or an hour or changes to intravenous injection of some preparation of digitalis. The pressing danger once past, digitalis can be continued by the usual technic by the mouth.

72. **Serodiagnosis of Pregnancy.**—Oeller and Stephan state that the conception of autosensitization under the influence of pregnancy is all that is new in Abderhalden's work, and that his dialysis and optic methods of serodiagnosis have so many sources of error that there can be no question but that they are based on mistaken premises. They obtained positive dialysis findings in a large number of men while the findings were occasionally negative in pregnant women. They report that by a preliminary dialysis for six hours with salt solution it seems to be possible to get rid of some antiferment bodies which otherwise inhibit or attenuate the digestion of the placenta tissue in the test.

Hirsch calls attention to the change in the concentration of the fluid after digestion of placenta tissue by the Abderhalden technic. If there is no change in the concentration of the fluid then it may be assumed that no digestion has taken place, and this is presumptive evidence of the absence of specific protective ferments. He uses an interferometer to test the fluid before and after for any change in concentration, and reports that tests with this technic have confirmed anew the strictly specific nature of the protective ferments.

74. **Sulphonal Poisoning.**—Pförtner's patient was a previously healthy woman of 30 with three healthy children. She developed manic-depressive insanity after an abortion without known cause. As she was growing rapidly weaker under her extreme restlessness day and night and irregular ingestion of food, she was given 10 gm. of sulphonal in the course of nine days. Obstinate constipation followed and the third day there was retention of urine for twenty-four hours and then the urine presented the typical port-wine tint of hematoporphyrinuria followed a day or so later by vomiting, colic and fatal collapse. Pförtner reviews other cases on record of hematoporphyrinuria after sulphonal, trional or veronal; Günther has compiled forty-seven sulphonal cases, with a mortality of 30 or over 53 per cent.; the outcome in 18 cases is not known but only 8 of the patients are known to have recovered. The disturbances ran an acute course in some and in others dragged over weeks and years. He advocates sodium bicarbonate in treatment. Necropsy has always revealed inflammation and atrophy of the kidneys, but nothing of the kind was found in Pförtner's fulminating case; probably there had not been time for them to develop.

75. **Periodical Arhythmia.**—Rinderspacher reports the case of a girl of 10, always healthy until diphtheria the year before. Since then she had complained of pains in the back and chest and palpitation of the heart on slight cause. The tracings indicate mitral insufficiency but this does not explain the occasionally recurring irregularity of the pulse. This is evidently due to some periodical tendency to heart-block brought on by functional disturbance of the conducting fibers between the sinus and the auricle, on which becomes superposed at times the influence of stagnation in the coronary veins. This assumption is sustained by the fact that by putting an end to the coronary congestion, the heart-beat becomes regular once more. This case teaches that digitalis may prove useful even for heart-block.

76. **Pancreatitis Following Mumps.**—Dracinski and Mehlmann report that during a recent epidemic of mumps embracing hundreds of cases (Bukowina), three cases developed symptoms suggesting acute pancreatitis, but the syndrome subsided harmlessly in each in less than a week. Recovery was complete in about ten days after the first symptoms of mumps had been noticed. Each patient developed at about the fourth day of the mumps, herpes, intense frontal headache, vomiting suggesting ileus, fever with delirium, collapse, pains and tenderness above the umbilicus, intense acetonuria and Cheyne-Stokes breathing, and in two the pulse grew very slow. In each of the three the knee-jerk was abolished, as was also the case in 10 per cent. of all the mumps patients examined, and in all the cases with this finding the course of the mumps was exceptionally severe.

77. **Retention of Urine under Morphin.**—Czapek and Wassermann report five typical cases in which complete retention of urine followed a therapeutic dose of morphin. Pal and Hirsch found that spasmodic contraction of the pylorus was frequently observed in dogs after a dose of morphin, and the same mechanism is probably involved in the occasional retention of urine after morphin has been given, the bladder sphincter closing up, and the auxiliary abdominal muscles

being too weak to force it. It has been observed only in men, and it is possible that the retention of urine from this cause may occur after operations on the skull and abdomen and be ascribed to operative shock and other causes.

80. **Sawing the Patella.**—Babitzki's patient has complete functional use of the injured leg and can climb stairs, etc.; a year has elapsed since the operation done to correct dislocation of the internal meniscus of eighteen years' standing. To obtain ample access to the meniscus without injuring the muscles and ligaments. he cut down lengthwise on the median line, sawing through the patella and turning back the halves. The technic has proved so satisfactory that he commends it to others and gives an illustration of the joint thus opened up.

Zeitschrift für Urologie, Berlin

July, VIII, No. 7, pp. 529-608

83 *Endoscopic Diagnosis and Treatment of Proliferating Urethritis. H. Lohnstein.
84 *Kidney Operations with Bilateral Kidney Disease. (Nierenoperation bei doppelseitigen Nierenkrankungen.) L. Casper.
85 Second Urethra without Connection with Bladder. (Blind endende 12 cm. lange zweite Urethra.) M. Porosz.
86 Simplification of Endovesical Operations. J. Vogel.

83. **Proliferating Urethritis.**—Lohnstein here confirms anew his statements of eight years ago in regard to the necessity for more vigorous measures than usual when urethritis assumes a proliferating type. Curetting may be necessary before the inflammation shows signs of yielding. He gives directions how to do the curetting without injury, saying that he has done it 600 times on 100 patients. In seventy-five of the cases the obstinate discharge became much reduced or disappeared entirely after the curetting done under endoscopic control. He gives an illustrated description of a little roller attachment for the urethroscope which he uses to squeeze out and massage foci of retention in the urethra when there is no actual proliferation of tissue. It may be usefully combined with the curet. The points in which the secretions are most liable to be retained are the prostatic fossula, the bulb and the middle of the pars cavernosa.

84. **Kidney Operations with Bilateral Kidney Disease.**—Casper relates that eight soon died in nine cases of bilateral kidney disease in which the results of functional tests misled him to assume that the second kidney would be equal to the task imposed on it by nephrectomy. He now refrains systematically from operating if—even once—no sugar is eliminated in the segregated urine after the phlorizin test, or if the test with a stain shows tardy change in the tint of the urine, and the tint is merely green, or if the kidney merely stiffens up from lack of the normal reaction to intake of fluids. These are his main criteria for judging the degree of insufficiency of the other kidney. He thinks that tests with alien substances give more reliable findings than those with substances found in the body.

When no sugar is eliminated after the phlorizin test in a case of contracted kidney, this shows that the individual is so impaired that he is scarcely able to stand the removal of the other kidney. If the test indigo-carmin is also eliminated unduly slowly, and there is not the normal polyuria after drinking a given amount of water, it is better to abandon a contemplated operation on the kidney primarily involved. He has made thousands of tests with phlorizin and found that healthy kidneys, without exception, eliminate sugar thereafter. Some mechanical obstruction or defective phlorizin must be incriminated when a negative response is obtained from a healthy kidney. The phlorizin settles to the bottom of the receptacle as the solution cools. Another possible source of error is extreme dilution of the urine from drinking much water. The test is less distinct when the patient is fasting; it is best to allow merely one to three hours after a meal. Considerable albuminuria is also liable to mask the findings of the test. In the few cases in which the negative findings failed to harmonize with the apparently normal condition of the kidneys, the further course of the cases gave the explanation as a hitherto latent contracted condition of the kidney became apparent. Atrophy from pressure can also run a latent course for a time. In a number of cases of enlarged prostate the kidney parenchyma had wasted away to merely a small strip of cortex, and this can occur without appreciable symptoms. Sometimes polyuria may be the only manifestation of this loss of kidney substance under the influence of pressure.

Zentralblatt für Chirurgie, Leipsic

August 1, XLI, No. 31, pp. 1281-1312

87 Extension Dressings of Tubular Tricot and Varnish. (Trikotschlauch-Mastisol-Extensionsverbände.) E. A. Lüken.
88 Mobilization of Abdominal Wall to Draw It over to Close Large Defect. (Mobilisation der Bauchwand bei grossen Ventralhernien.) S. Wideröe.

Zentralblatt für Gynäkologie, Leipsic

August 1, XXXVIII, No. 31, pp. 1089-1120

89 *Mesothorium in Treatment of Cancer. P. Zweifel.
90 *Intra-Uterine Application of Radium for Cancer. (Zur Wertung der intrauterinen Radiumapplikation bei Carcinoma uteri.) E. Meyer.

89. **Mesothorium in Treatment of Cancer.**—Zweifel's microscopic findings in cancers after mesothorium treatment confirm the destructive action on cancer cells; the normal cells showed comparatively little change under the exposures. His experience warns of the necessity for extreme care in protecting the abdomen outside of the focus; some stray rays in a few cases evidently did some injury as the patients complained of severe pains and tenesmus and one passed some scraps of bowel tissue in the stools. He recalls two of his older cases of uterine cancer in which the cancer was apparently cured by an extensive local streptococcus process but returned three or four years later. He thinks that the action of mesothorium must be explained in much the same way; the reaction to the mesothorium rays is like a burn, and in the course of this physical process the cancer cells become destroyed and are reabsorbed. It is possible, further, that the reabsorbed cells have a therapeutic action like the autolysates. He urges all who apply radiotherapy to publish an additional report on their cases after a year has elapsed.

90. **Intra-Uterine Application of Radium for Cancer.**—In the first of the two cases under the influence of the endocervical radium treatment a cancer of the cervix subsided completely, leaving merely a considerable defect. In the second case the same technic led to fulminating sepsis, speedily fatal. Necropsy failed to reveal any cause for the difference in the results observed.

Zentralblatt für innere Medizin, Leipsic

August 1, XXXV, No. 31, pp. 745-768

91 *Clinical Importance of the Systolic and Diastolic Blood-Pressure in Infectious Diseases. (Blutdruck bei Infektionskrankheiten.) J. S. Schwarzmann.

91. **The Blood-Pressure in Infectious Diseases.**—Schwarzmann here summarizes his conclusions from study of the systolic and diastolic blood-pressure in eighty cases of various acute infectious diseases. A high diastolic blood-pressure indicates a tendency to paralysis of the larger abdominal vessels with accumulation of the blood in them, and hence this must be accepted as a sign of the severity of the infection. A lower systolic pressure with a lower diastolic pressure is not a sign that the heart is weakening but only that the vascular tonus is growing less. On the other hand, when the diastolic pressure rises while the systolic falls, this is a sign that the heart is weakening. The importance of these findings for the prognosis and for prompt therapeutic measures is obvious.

Policlinico, Rome

July, XXI, Surgical Section No. 7, pp. 309-360

92 *Tuberculosis of the Breast. (Tubercolosi della mammella muliebre.) L. Durante.
93 Subphrenic Abscess Following Measles in a Child under Five. P. Ligabue.
94 *Paraffin and Wax Shield in Treatment of Inguinal Hernia in Children. (Nuovo procedimento nella cura radicale dell'ernia inguinale nei bambini.) A. Nota.
95 Subglenoid Dislocation of the Humerus. A. Sebastiani.
96 *Degrees of Detachment of the Mesentery Compatible with Retention of the Vitality of the Intestine. (I varii gradi del distacco del mesentere in rapporto alla vitalita e funzionalita dell'intestino.) P. Azara. Commenced in No. 6.

92. **Tuberculous Process in the Breast.**—Durante adds two new cases to the 150 he has found on record. The tuberculosis seemed to be primary in the breast in one of his cases. Six of the patients were males. The ages ranged from 20 to 40 in the majority and an inherited taint was generally evident. Trauma was incriminated in three cases. When there are other tuberculous lesions the diagnosis is easy when the isolated hard nodules are discovered in the breast, especially when the nodules are adherent to the skin and the lymph-nodes in the axilla display a tendency to enlargement. He insists that amputation of the breast or excision of the focus should be done at once with an incipient or primary tuberculous process but when there are already multiple fistulas, or the mammary process is secondary to tuberculous lesions elsewere, iodin, locally and internally, with general measures, is the main reliance.

In one of his own cases the microscope showed simple adenofibroma of the breast with typical tuberculous lesions in the lymph-glands surrounding the mamma and in the axilla. The patient was a frail woman of 33 who had never menstruated. The glands around the mamma and in the neck had commenced to enlarge seven years before and there was dulness over both apices. The mammary affection was evidently a retrograde process from the axillary glands, but instead of setting up a typical tuberculous lesion, merely an ordinary fibrous growth was produced. The second patient was a healthy girl of 19 who suddenly developed pruritus in the lower part of the mamma and in a few days a lump appeared, tender on pressure; in five days it developed a fistula. The Wassermann was negative, the skin tuberculin reaction slightly positive. Excision of a scrap the thirtieth day after the first symptoms revealed giant cells but no acid-fast bacilli. The lesion was excised into sound tissue. It was evidently a primary process. The girl had never been pregnant.

94. **Inguinal Hernia in Children.**—Nota gives an illustration showing his method of blocking the inguinal canal with a sheet of paraffin cut to form a deep crescent which is introduced under the cord, the horns extending upward under the pillars on each side. The canal is then sutured together over the paraffin plate in three tiers. Experiments on animals had demonstrated the smooth healing and permanent integrity of plates made of equal parts of wax and of paraffin with a melting point at 50 C. They are boiled together for twenty minutes and then poured on a sheet of glass to form a plate 3 mm. thick. The wax is absorbed in time, its place being taken by connective tissue which thus forms a solid shield with the paraffin. He has found this method extremely simple and reliable as he has applied it in 150 cases, and it proved equally effectual for two youths of 14 and 18. Some of the children were under 2.

96. **Separation of the Omentum Compatible with Retention of Vitality of Intestine.**—Azara concludes from his experiments on fourteen dogs that separation over a stretch of 5 cm. along the margin of the bowel does not compromise it beyond repair, and hence that up to this distance treatment can be conservative. With separation over a stretch of 6 cm., the functioning of the intestine is so seriously compromised that resection is required unless there is a strip at least 1 cm. wide left still attached to the intestine. This is sufficient to maintain its vitality as a rule. But a stretch 18 to 25 cm. long, even at a distance of 3 cm. from the edge of the intestine, entails inevitable gangrene of the bowel. A stretch up to 15 cm. long, with a strip left on the bowel 3 cm. wide, never was followed by gangrene but cicatricial shriveling sometimes interfered with bowel functioning. Conservative treatment is indicated in this case but the patient should be supervised, ready to operate on suspicion of trouble.

Tumori, Rome

May-June, III, No. 6, pp. 697-827

97 *Comparative Study of Different Biologic Technics for Diagnosis of Cancer. (Nuove ricerche comparative sui metodi d'indagine biologica per la diagnosi dei tumori maligni.) G. Mioni.
98 Autolysates of Embryonal or Cancer Tissues in Treatment of Cancer. (Immunizzazione attiva o chemoterapia istogena.) G. Fichera.
99 Chronic Inflammation and Benign Tumors of the Breast. (Flogosi croniche e tumori benigni della mammella.) A. Cimoroni. To be continued.

97. **Biologic Tests for Cancer.**—Mioni has been making a comparative study of various biologic tests and states that the meiostagmin reaction proved positive in 57.1 per cent. of the thirty-five cases; Crile's hemolytic test was positive in 62 per cent. and in the negative cases the cancer was in an advanced stage or a superficial growth so that the diagnosis was clinically beyond question. On the other hand, in most of the cases giving a positive response the cancers were in the viscera and many of them in the earliest stages of development. The fact that hemolysis occurs also in tuberculosis, etc., scarcely invalidates this test as the clinical manifestations otherwise exclude mistakes as a rule. Elsberg's reaction was obtained only in 11.2 per cent. The antitryptic index was characteristically high in 91.4 per cent. and thus proved its value as an aid in the diagnosis of cancer in dubious cases. The deviation of complement tests did not give reliable results in his hands, and passive anaphylaxis tests also proved uncertain. He remarks in conclusion that after excision of the cancer the various biologic tests all veered more or less promptly to a negative reaction. The details of the various groups tested with the different technics are tabulated for comparison—a total of thirty-five cancer cases and thirty-five controls, all put through the various tests.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 11, LVIII, No. 15 and Supplement, pp. 1117-1278

100 *Hemiopic Reaction of the Pupil as Aid in Diagnosis of Brain Tumor. F. S. van B. Bastiaanse.
101 Unfavorable Workings of Workmen's Compensation Laws. J. A. Korteweg and B. H. Sajet.
102 Plague in Java and Measures to Combat It. G. Brouwer and J. I. van Loghem.

April 18, No. 16, pp. 1279-1346

103 Classification of Club-Foot on Anatomic Basis and Treatment Adapted to Each Form. F. Schultze.
104 The Movements of the Stomach as Studied under Roentgenoscopy. P. C. Romkes.
105 *Fatal Action of Hypnotic in Case of Jaundice. A. Hendriks.

100. **Hemiopic Reaction of Pupil as Aid in Diagnosis.**—Bastiaanse expatiates on the importance of determining a hemiopic reaction of the pupil. With the extremely simple procedure he describes it is possible to distinguish between central hemiopia and hemiopia resulting from an interruption in the optic tract. The test can be applied even to a sleeping child, and the findings are more objective than determination of changes in the visual field. An illustrated description is given of a typical case. The patient was a stout woman of 47, who complained seven years ago that her eyesight was growing poor. The hemiopic reaction indicated interruption of the optic tract and the further course of the case confirmed the assumption of a tumor pressing on the sella turcica, etc.

105. **Death after Ordinary Dose of Medinal in a Case of Jaundice.**—Hendriks' patient was a well built man of 41 with cirrhosis of the liver, ascites and jaundice. Although confined to bed he was in such good condition that omentopexy was being considered. As he worried over the prospect of the operation and had not slept well for a few nights, Hendriks prescribed a sedative, a mixture of 200 mg. antipyrin; 700 mg. medinal; 2 gm. potassium bromid, and distilled water to 30 gm. The patient took, as ordered, one tablespoonful in the evening and slept but did not wake. He was found in coma in the morning, and died the following night with symptoms of pulmonary edema. Hendriks says that no other cause for the fatality could be discovered except the action of the hypnotic in a patient with intense jaundice.

Hospitalstidende, Copenhagen

August 5, LVII, No. 31, pp. 953-984

106 Experiences with Serodiagnosis. (Kritik over Abderhaldens Dialysemetode.) A. Bisgaard and A. Korsbierg.
107 Chondroma in the Larynx. (Klinisk Bidrag til Strubens Brusksvulster.) K. Salomonsen.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 12 Chicago, Illinois September 19, 1914

THE HEART IN THE PNEUMONIAS*

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According to the vitality and endurance of the heart and the circulatory system (including its vasomotor supply), may be reckoned the outcome of the given instance of pneumonia. Seldom, if ever, will the mechanical obstruction of the lungs prove a serious factor except in its influence on an already crippled cardiac mechanism. The less perfect the aeration of the blood in its passage through the pulmonary tissue, the more positive is the deprivation of the cardiac structure (muscle, ganglion and nerve) of its proper supply of nutriment.

The importance of this influence is emphasized by the reflection that the blood, under conditions of health, demands over 90 per cent. saturation with natural oxygen as the result of its passage through the lungs.[1] The more complete the stoppage of the blood- and lymph-streams in their course through the walls of the air-vesicles, the more real is the mechanical overload thrown on the pulmonic valve, and soon on a toxemic, tired, right ventricular wall. The more intense and virulent the toxemia, the more certain and extensive will be the damage to the entire cardiac mechanism, vascular, nervous and muscular. Yet there is often to be noted at the necropsy table a surprising discrepancy between the severity of the pneumonic process and of the toxemia, and the apparent damage sustained by the heart.

Many observers have commented on the fact that the heart in certain virulent, fatal pneumonias may appear to be affected in surprisingly mild degree. There may be little or no dilatation, no apparent incompetence of the valves, in short, seemingly no abnormality of a heart in a patient who has from the onset of the toxemia appeared to be doomed in spite of every effort to combat the disease. Such instances are practically always examples of intense, fulminant poisoning, in the so-called croupous or fibrinous type of the disease. The course is brief, the attack is largely on the nervous centers, and the heart, though always participating in the storm, seems to maintain a remarkable degree of power and equilibrium to the very end.

Not infrequently the microscope will reveal appreciable damage that escapes the naked eye. Clinically, as well as at the necropsy, however, the heart-muscle appears to be the last vital force to give way. Not so, in the many instances of bronchocatarrhal pneumonia, in which we practically never observe a sthenic patient or a heart which gives either clinical or post-mortem evidence of strength, stability or endurance.

One learns to associate the bronchocatarrhal type of pneumonia with a weak, dilated right heart, and on this basis very early to discriminate it from the croupous or fibrinous form of the disease. The temperature is irregular and low, the pulse running, rapid and often irregular, the patient asthenic far beyond the degree commensurate with the amount of pulmonary involvement—such is the clinical picture of the form of the disease in which the cardiac musculature and the vasomotor nervous system seem to sustain to such a preponderant degree the brunt of the attack. After such a pneumonia the post-mortem examination reveals almost invariably a flabby, characterless heart-muscle, of which incompetence is the main feature and dilatation the most meaningful expression. Routier[2] has recently reported a pneumonia in which the influence of the toxin on the fibers of the auriculoventricular conducting path resulted in a transient heart-block which, disappeaared spontaneously. By no means infrequently, however, the walls of both the left and right ventricles are thinned, and all of the valves, preeminently the pulmonic and tricuspid, are insufficient. I have one interesting specimen in my collection (Fig. 2) in which the conus arteriosus and the pulmonary artery both show marked permanent stretching and distention, the pulmonic valve appearing wide open between.

THE MICROSCOPIC CHANGES

I think it permissible to say that the heart shows post-mortem evidences of the toxemia in every fatal case of fibrinous, as well as of bronchocatarrhal pneumonia, that reaches the microscope. In the latter type of the disease the changes are more likely also to be macroscopic. I think it likely that every heart that weathers the pneumonic storm sustains similar lesions, of milder degree perhaps, yet from which it probably never fully recovers.

During the past year I have taken great interest in studying microscopic sections of the cardiac musculature from fatal cases of pneumonia in the wards of the Philadelphia General Hospital. In not a single instance was there a lack of evidence that a toxic influence had been actively at work. Usually the process appeared in the form of an acute diffuse myocarditis, with cloudy swelling of the cells, often with fragmentation of the muscle-fibers. In the great majority of cases the striations had nearly disappeared from the fibers, over wide areas, if not generally throughout the heart. Not infrequently could be found here and there areas showing extensive round-cell infiltration, mainly of the interstitial substance between the fibers. In quite a number of instances, as exemplified in Figure 3, there was wide-spread hemorrhagic infiltration. The nuclei of the muscle-cells were proliferated, were often swollen, and here and there vacuoles appeared in their place. Many of the muscle-fibers gave the appearance of being atrophied. In no case except in old persons, or in those afflicted with organic cardiac disease, was fatty degeneration of the heart-muscle observed.

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Cooke and Varcroft: Jour. Physiol., 1914, xlvii, 35.

[2] Routier: Arch. d. mal. du coeur, May, 1914.

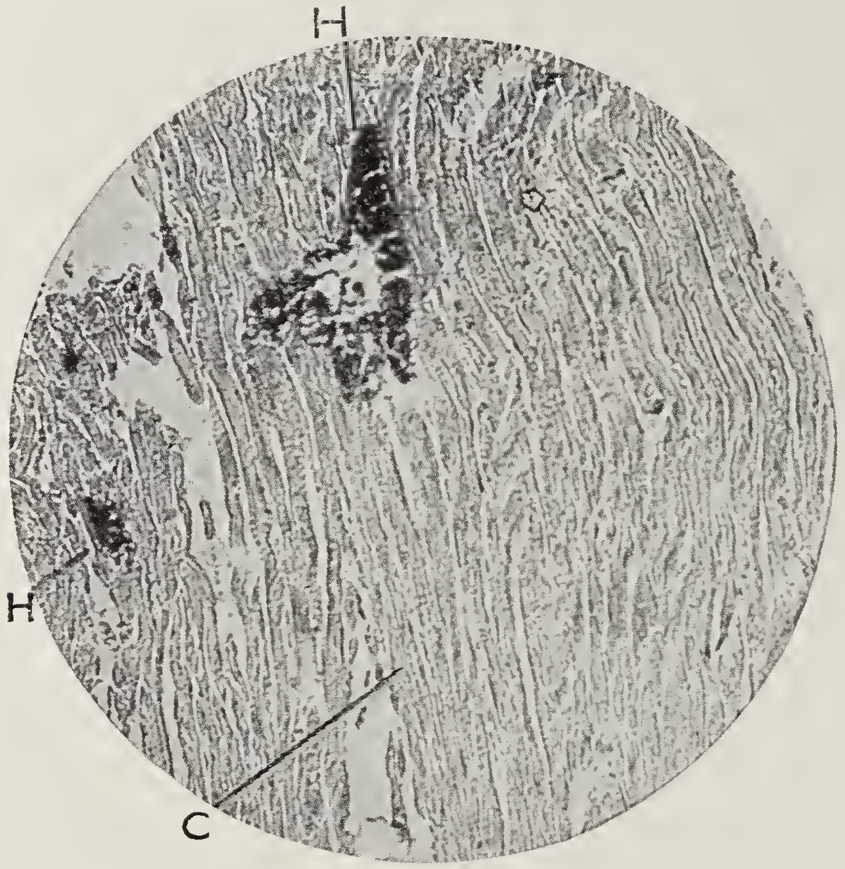

Fig. 1.—The heart-muscle in a case of croupous pneumonia, showing the rich capillary blood-supply to each fiber, the capillaries lying within (or in a groove in) the latter (*C*); interfibrillar hemorrhage (*H*), and complete loss of striae.

Macroscopically as well as microscopically, there was evidence in every heart examined of some degree of pericarditis. I observed not one instance in over a year's time of fresh endocarditis, except such as was superimposed on an old lesion.

THE BLOOD-PRESSURE

Before using the blood-pressure as an evidence of either cardiac competence or insufficiency in the pneumonias, it is incumbent on us to show that in a sthenic pneumonia the customary or normal pressure is due to an overacting or at least a capable heart; while in the low-grade or asthenic pneumonias the low pressures are due to an incompetent cardiac mechanism rather than to vasomotor failure. The personal equation will of necessity enter largely into the verdict rendered by various investigators of this question. During the past three years I have studied more or less thoroughly over seven hundred cases of pneumonia on the wards of the Philadelphia General Hospital. Both with the finger on the radial, carotid and apical pulses, and with the sphygmomanometer, I have measured the blood-pressure in very many of these cases. I have a few records of the systolic pressure made in certain sthenic fibrinous pneumonia cases reading as high as 170 and 180 mm. of mercury. Far more often the readings followed approximately the normal line (from 120 to 140 mm.). I refer, of course, only to the active and sthenic stages of the toxemia. I have yet to see in a patient with pneumonia of the bronchocatarrhal type (except in childhood) an instance of high or even of normal systolic blood-pressure. Even in instances associated with symptoms of nephritis, or with arteriosclerosis of high grade, there has persisted a low systolic pressure, indicating insufficiency of cardiac vigor and driving power.

The diastolic pressure, elicited by the auscultatory method, furnishes a fair index of the vasomotor tone. While this also is usually lowered in pneumonias of the asthenic type, it falls by no means in a measure commensurate or parallel with the cardiac power. Thus the systolic pressure in cases of bronchocatarrhal pneumonia during the stage of active toxemia has averaged not far above 100 mm., while the diastolic pressure has seldom registered below 80 mm., yielding an average pulse-pressure of 20.

This fact, together with such manifest indications of cardiac insufficiency as systolic jugular pulsation, arhythmia, small rapid pulse, enlargement of the area of cardiac dulness to the right, and often a series of valvular murmurs that can only be interpreted as indicative of muscular (relative) insufficiencies, apparently allow us but one possible conclusion, namely, that in the great number of low-grade pneumonias the heart-muscle must be ever an object of care and concern. Gibson[3] has called attention to a possible prognostic relation of the systolic cardiac pressure to the pulse-rate. Lauder Brunton has made a similar study of the diastolic pressure. In my own experience the systolic pressure has furnished a very uncertain prognostic index, for the reasons already stated. The majority of the low-grade pneumonias have presented a systolic pressure almost constantly lower than the pulse-rate, and yet the vast majority of these patients, when properly treated, have recovered.

THE INFLUENCE OF TREATMENT

Considerable evidence may be gained as to the actual condition of the cardiac mechanism through studying the results of treatment. It is a current belief and teaching, employed perhaps more freely than is justified by circumstances, that the pneumonic patient dies not of his pulmonary involvement, and not of his cardiac embarrassment, but owing to paralysis of the vasomotor system. In acute fibrinous sthenic pneumonia there would seem in certain instances to be at

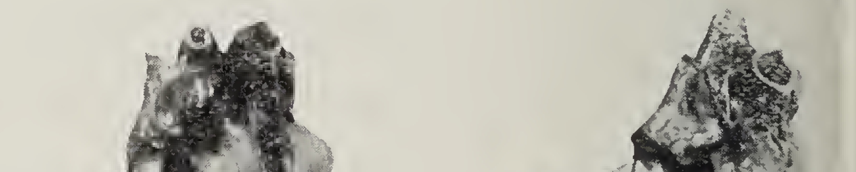

Fig. 2.—Pneumonia heart, showing (*A*) dilated conus arteriosus and right ventricle from without, and insufficient tricuspid (*B*) and pulmonic (*C*) valves.

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[3] Gibson: Edinburgh Med. Jour., 1908, lxv, 22.

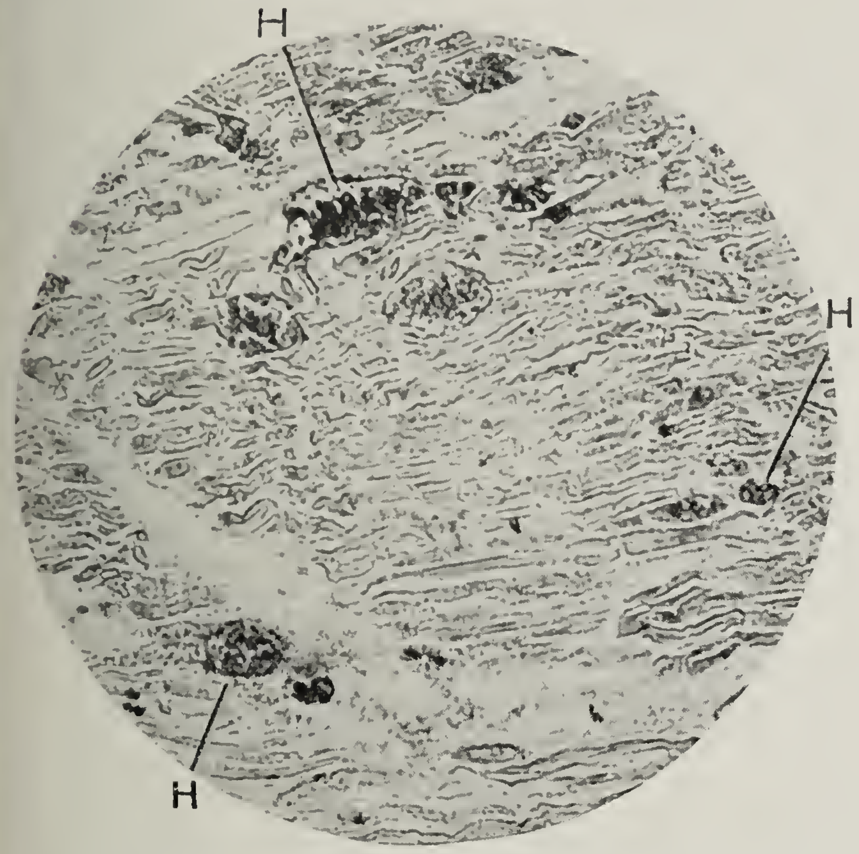

Fig. 3.—Heart-muscle from the left ventricle in a case of bronchocatarrhal pneumonia. Extensive degeneration of the fibers, with widespread hemorrhages (*H*). Striae completely lost.

least some reason to support this view. In the bronchocatarrhal type of the disease there is exceedingly little. No better illustration could be given of the truth of this assertion than the fact that the high or normal blood-pressure in the fibrinous type appears to be due to overaction of a sthenic heart; while conversely, in the bronchocatarrhal form the asthenia and the almost invariably low blood-pressure appear to be due not nearly so much to loss of vasomotor tone as to actual cardiac dilatation and disability. Instances that admit of reestablishment of the cardiac tone do well. The most telling advantage seems to come from the systematic and thorough emptying of the intestinal tract, in many cases the manufactory of the toxic products. When the bowel has been deliberately rendered and kept clean the heart has, in my experience, seemed to have its best opportunity for rehabilitation. The moment the bowel has been neglected the heart has apparently suffered in a measure that is not to be explained on the basis of mere mechanical embarrassment. Such remedies as nux vomica, quinin, camphor, digitalis and oxygen in Nature's own form of warm, clean air, may serve as cardiac tonics and, on occasion, as indispensable temporary crutches. Under their influence the blood-pressure rises and may be maintained at a more favorable level.

On the other hand, such drugs as epinephrin and pituitary extract I consider dangerous in the presence of a weak heart. While they are certain to afford a momentary rise in the blood-pressure as the result of their influence on the vasomotor system, I have more than once seen evidence of their mischievous, and possibly lethal, action on a weak heart, through the imposition on its crippled musculature of an additional load in the form of a tense peripheral circulation. Nature knows better than we when to elevate and when to lower the intravascular tension.

In a sthenic fibrinous pneumonia practically any treatment may be employed. We start and finish with the knowledge that in the vast majority of instances, otherwise healthy, non-alcoholic men and women should recover. Not so with the bronchocatarrhal, asthenic pneumonia patient, who must be supported actively through the disease because his vital forces, especially his cardiac mechanism, are all below par. Many a case of mistreated pneumonia takes on a totally different appearance when placed under conditions that favor and nourish instead of depleting the tone and strength of the heart. Perhaps the best illustration may be had in the misuse of cold air on an asthenic patient suffering from pneumonic toxemia. I have placed many such shivering, cyanotic subjects in warm, clean air and witnessed the immediate reestablishment of forces that were fast beginning to wane. Uppermost and most striking of all appeared to be the influence on the heart, which craved oxygen as its natural stimulant and tonic, but needed it in the form of warm, as opposed to cold, clean air.

PREEXISTING CARDIAC DISEASE

A final bit of evidence as to the importance of a thoroughly healthy cardiac mechanism — including musculature, valves, endocardium, ganglia and nerves — is observed in the high mortality of cases that enter on a pneumonic toxemia with preexisting cardiac disease. We have all seen instance after instance of a patient making a bold fight to weather the storm, and experiencing sudden cardiac collapse, either in midstream or on the brink of convalescence. Only recently I witnessed an acute pneumonia in a young man of 22 years, an alcoholic, with myocardial degeneration and high-grade mitral stenosis and insufficiency, all sclerotic and probably syphilitic in origin. He went to bed in the beginning of an intense pneumococcus infection with a heart widely dilated, an irregular pulse and edematous extremities. Within two days he showed a steady, remarkable cardiac gain. The jugular pulses became almost undiscernible, the apical pulse regained its regularity, the edema entirely disappeared from the extremities. With these signs of cardiac rehabilita-

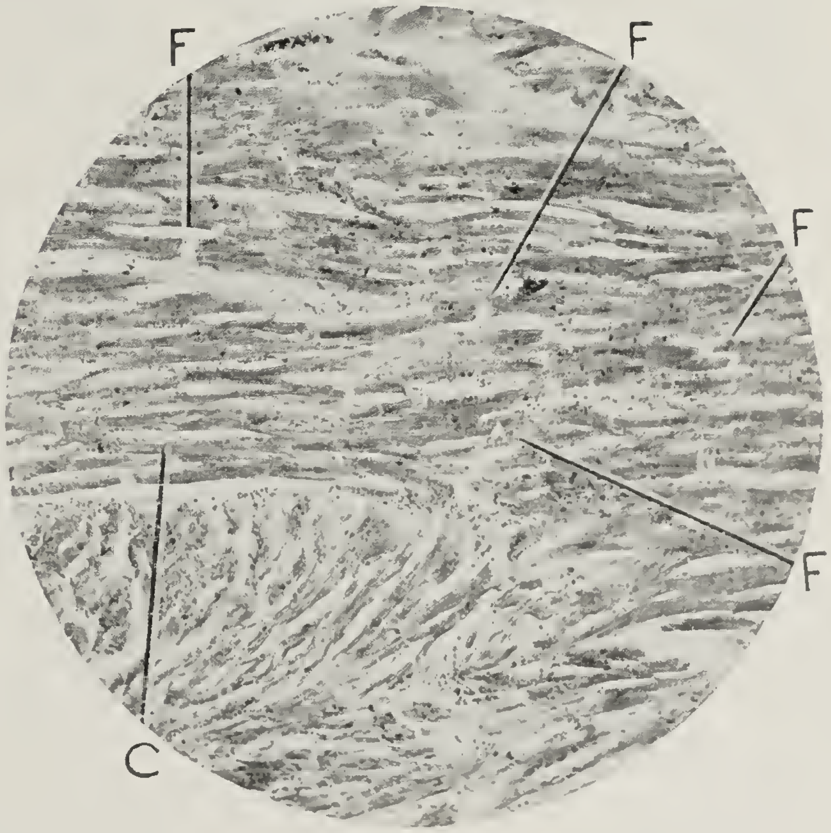

Fig. 4.—Heart-muscle in a case of bronchocatarrhal pneumonia. Striae show here and there, but have mostly disappeared. Considerable fragmentation of the fibers (*F*). The capillary blood-supply is beautifully distinct (*C*).

tion, the whole aspect of the pneumonia (croupous or fibrinous, as shown at the necropsy) altered. The patient was no longer cyanotic, the breathing became more free, and it appeared almost as though even this desperate case might win out against the acute disease. Suddenly and coincidently with an apparent crisis, all the signs of cardiac distress reappeared, and in a brief period evident cardiac, not pulmonary, death supervened. The heart had reached its recuperative limit, and could draw no further on a reserve force, because it had no further stock in store. In the same manner a tobacco- or alcohol-weakened cardiac muscle may decide the issue between life and death in an otherwise favorable pneumonia.

CONCLUSION

Without attempting to minimize the influence of the vasomotor system in the causation of a high mortality in pneumonia, it would seem as though we ought not to be satisfied, on the basis of either clinical or laboratory experience, to regard the heart in any other way than as the factor of prime importance in the safety or danger of the great majority of asthenic pneumonia patients. More and more does the prevalent pneumonia seem to be tending away from the well-recognized, frank sthenic type, to the low-grade, asthenic, bronchocatarrhal forms. The more certainly this is true, the more inevitable will be the necessity of safeguarding the heart from start to finish, not so much by the use of drugs as by their avoidance (especially cardiodepressants like nitroglycerin and alcohol), not so largely by treatment as by the studious prevention of an overdose of solicitous care. Hygiene of the intestinal tract, sane feeding, the intelligent use of an abundance of clean air of the right temperature, and the insuring of ample periodic freedom from the doctor, nurse and family will go farther than any others toward supporting the organ whose staunch cooperation is essential to the happy outcome of the case.

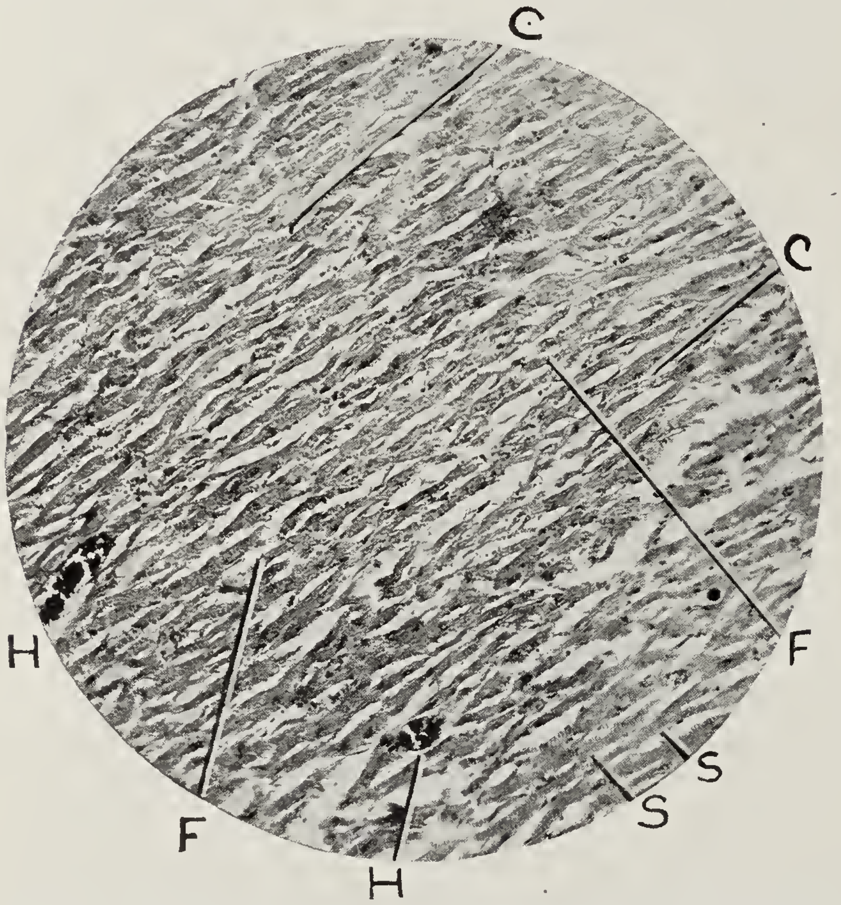

Fig. 5.—Heart-muscle in a case of bronchocatarrhal pneumonia, showing considerable atrophy of the fibers, scattered hemorrhages (*H*) and extensive fragmentation (*F*). Striae are seen here and there (*S*). Capillary blood-supply is exquisite (*C*).

1827 Spruce Street.

ABSTRACT OF DISCUSSION

Dr. James M. Anders, Philadelphia: I feel convinced that Dr. Willson is right in stating that pneumonia has been assuming an irregular bronchopneumonic type in recent years to a greater degree than formerly. This fact may be attributable to the more constant and general prevalence of various forms of influenza. The view that death in uncomplicated cases of pneumonia is due to the specific effect of the toxemia on the heart is widely accepted. Perhaps it would be more nearly correct, in the present state of our knowledge, to say that death is caused by the general rather than the local effect of the toxemia. As pointed out by Dr. Willson, the whole vasomotor system is profoundly involved in many cases. The heart is frequently dilated, especially the right side, and filled with firm coagula. It has long been held that if the more usual cardiac complications, such as acute endocarditis, pericarditis and fatty degeneration in protracted cases, be excluded, the changes presented by the myocardium are conspicuous by their absence. The results of the microscopic studies by Dr. Willson, therefore, are not a little surprising, but will constitute a distinct advance in our knowledge of pathologic changes found in the heart in pneumococcic infections, especially if confirmed by the findings of other competent observers. The frequency and seriousness of the disease in question make it desirable that further histologic investigations of the subject be undertaken. I quite agree that cold or fresh air in the treatment of pneumonia is one of the best, if not the best measure at our command, but it should not be indiscriminately employed. It has not a specific influence, but does increase resistance to the toxemia. Again, it should not be employed in cases in which active kidney lesions preexist.

Dr. William S. Thayer, Baltimore: Does Dr. Willson believe that the type of pneumonia has really changed from a sthenic to an irregular asthenic type? On what does he base his opinion? In over twenty-five years' observation of pneumonia in various regions I have not been able to detect any essential differences in the clinical character of the disease beyond, of course, the common variations in different epidemics. I am quite familiar with this assertion with regard not only to pneumonia but to other acute febrile diseases, especially typhoid fever. I rather think that the old-fashioned "typical case" is essentially a picture in the mind of the observer based on text-book descriptions—an impression so strong that in the course of years it becomes interpreted as actual experience; and that the common impression that such a disease as pneumonia is changing its type is largely based on the circumstance that in practice pneumonia shows frequent variations from this picture. I am not aware that such change in the clinical manifestations of the disease has occurred.

Dr. Robert N. Willson, Philadelphia: In answer to Dr. Thayer's question, I have two grounds for the assertion that the prevalent type of pneumonia is gradually changing from that of the old-fashioned book type of fibrinous or croupous pneumonia to the low-grade or bronchocatarrhal form. First, my own personal experience in a series of several hundred cases, both in hospital and private work, leads directly to such a conclusion. This experience covers and includes considerable necropsy and microscopic work in confirmation of the diagnoses. My second basis of argument is the result of not a few conferences held with men in various localities over the country, who agree with me in my conviction as the result of their experience and study. Dr. Anders' statement, made a few moments ago, in discussing my paper, furnishes a case directly in point. I had not previously heard his position in the matter. I shall welcome similar studies of the heart in the pneumonias as confirmatory of my own. In every instance of pneumonia widespread damage to the cardiac musculature will be found. When this fact is recognized I think we will begin again to regard the heart as the organ and force mainly to be safeguarded and conserved, and to lay a little less stress on the vasomotor factors in grave cases of pneumonia.

THE USE OF SMALL DEEP SKIN GRAFTS

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The object of this paper is to call attention again to the value of very small grafts, especially to those which contain more of the true skin than the superficial grafts advocated by Reverdin. I have called these grafts "small deep grafts."

The hastening of the healing of granulating wounds by the use of small detached bits of skin was first demonstrated by J.-L. Reverdin.[1] His report to the Société Impériale de Chirurgie, Dec. 8, 1869, caused universal interest.

He showed a patient on whom he had practiced "epidermic grafting," and described the grafts as consisting of the epidermis only. He says, "I raised with the point of a lancet two little flaps of epidermis from the right arm, taking care not to cut the dermis."

Grafts obtained by Reverdin's method are usually thought of as pure epidermic grafts, and in his articles Reverdin always spoke of them as *greffe épidermique;* but in his exhaustive paper on the subject,[2] published in 1872, he says in part, "The title 'epidermic grafts' is not perfectly correct, as the transplanted bit is composed of the whole epidermis and a very little of the dermis."

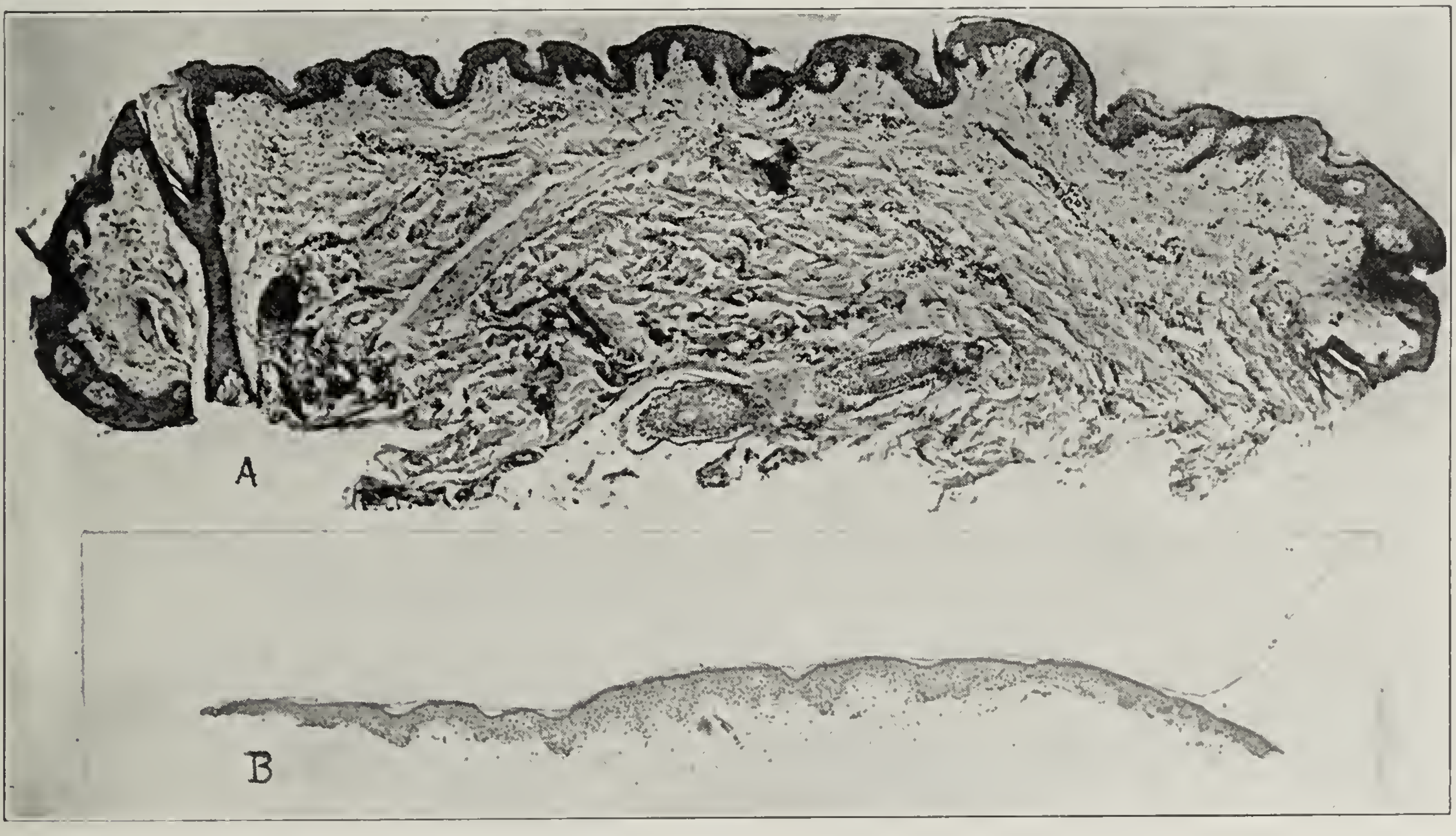

Fig. 1.—Photomicrographs of the same magnification showing the comparative thickness of a small deep graft and a Reverdin graft; *A*, a small deep graft cut to include a considerable thickness of the true skin; in the section the edges of the graft are curled inward; *B*, a Reverdin graft cut to include as little of the dermis as possible; there is a thin layer of the dermis throughout, which is thickest in the center.

Reverdin also said that if the epidermis alone could be transplanted, the same result would be obtained as when a part of the dermis was included. This, of course, is true as far as the epithelium is concerned, but it has been my experience in a large number of cases that the grafts which are somewhat deeper and contain more of the true skin give a more stable healing, and the final result is more like the normal skin in character than when the thinner grafts are used (Fig. 1).

It is interesting, when we consider that Reverdin developed his method of grafting before the introduction of antisepsis and asepsis in surgery, and that his is probably the only type of graft which could have given satisfactory results under such conditions.

The favorable results obtained by other surgeons in England, America, Germany and France, following the use of Reverdin's method, undoubtedly stimulated further investigation along this line.

The tiny grafts of Reverdin were gradually superseded by much larger grafts of the same thickness, advocated by Ollier[3] in 1872, and later by Thiersch[4] in 1886. After a few years the value of the Reverdin method seemed to have escaped the attention of most surgeons, and one might be about a surgical clinic for years and never see this type of graft employed.[5]

USE OF SKIN GRAFTS

As there is little difference, except in thickness, between the "small deep grafts" and Reverdin grafts, the following methods of preparation, etc., will be found applicable for either type.

Surface on Which Grafts May Be Placed.—The grafts may be placed on fresh wounds, but are usually applied to granulating surfaces. The success of small grafts depends to a large extent on the condition of the granulating wound, and it is most important that the granulations be clean, firm, rose pink in color, and not exuberant. Time is saved in the end by careful attention to this point. It is of advantage to place these grafts on a granulating surface, as there is no pain in the preparation of the surface; no danger of stirring up infection, and no loss of blood, which is an important point in cases already much depleted.

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[1] Reverdin, J.-L.: Greffe épidermique, Bull. de la Soc. impériale de chir. de Paris, Dec. 8 and 15, 1869, pp. 493, 511.

[2] Reverdin, J.-L.: De la greffe épidermique, Arch. gén. de méd., 1872, pp. 276, 555, 703.

[3] Ollier: Bull. de L'Acad. de méd., 1872, i, 243.

[4] Thiersch: Verhandl. d. deutsch. Ges. f. Chir., Berlin, 1886, xvii.

[5] In a study of the first 550 cases grafted in Dr. Halsted's clinic at the Johns Hopkins Hospital, between 1889 and 1909, I found that Reverdin grafts were used in only two cases, and then in conjunction with Thiersch grafts. Since that time, however, the small grafts have been frequently used (Davis: Johns Hopkins Hosp. Rep., xvi). In 1909, Ehrenfried and Cotton, in an excellent and timely paper, again brought to the attention of American surgeons the value of Reverdin's method. In this paper there is also a complete historical review of the subject (Ehrenfried and Cotton: Boston Med. and Surg. Jour., Dec. 23, 1909, p. 911).

I will not consider at this time the various methods of bringing a granulating surface into healthy condition.

Method of Preparing Healthy Granulations to Receive Grafts.—On the day preceding the operation, all secretions and crusts are removed. The granulations are painted with tincture of iodin and dressed either with balsam of Peru and castor oil, 1 : 3, or with moist boric or salt gauze. The dressings are removed at the time of operation, and the wound washed carefully, without causing bleeding, with sponges dipped in warm salt solution. The surface is dried thoroughly and a pad of dry gauze placed over the wound; it is pressed down firmly on the granulations, and removed only when the operator is ready to apply the grafts. It is most important that the surface to be grafted should be perfectly dry, as the grafts adhere much better to a dry surface, and are less liable to be subsequently displaced.

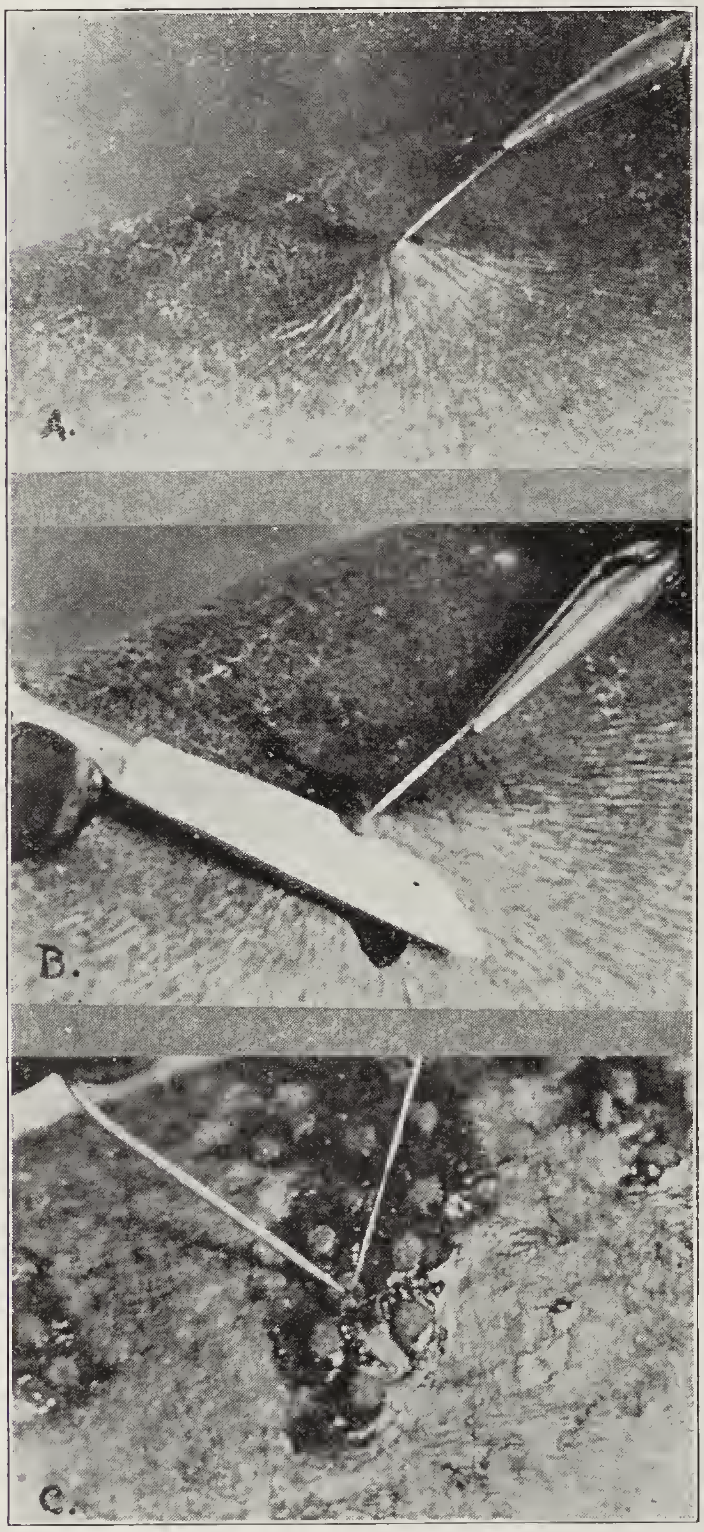

Fig. 2.—*A*, the straight intestinal needle, held in an artery clamp, with its point engaged in the skin. The skin is raised up in a little cone. *B*, the scalpel cutting through the base of the cone. *C*, placing the graft on a granulating surface. A large opened-out safety-pin is very useful in detaching the grafts from the needle. In this photograph none of the grafts have as yet been pressed down on the wound, and the edges are still curled under.

The Source of Grafts and Area from Which They Are Obtained.—Autografts are almost uniformly successful when placed on a granulating surface which is in proper condition.

Isografts are also successful in many instances, but there are wounds which have come under my observation on which no isograft would take, even after repeated trials from many donors. Autografts on the same wounds healed promptly.

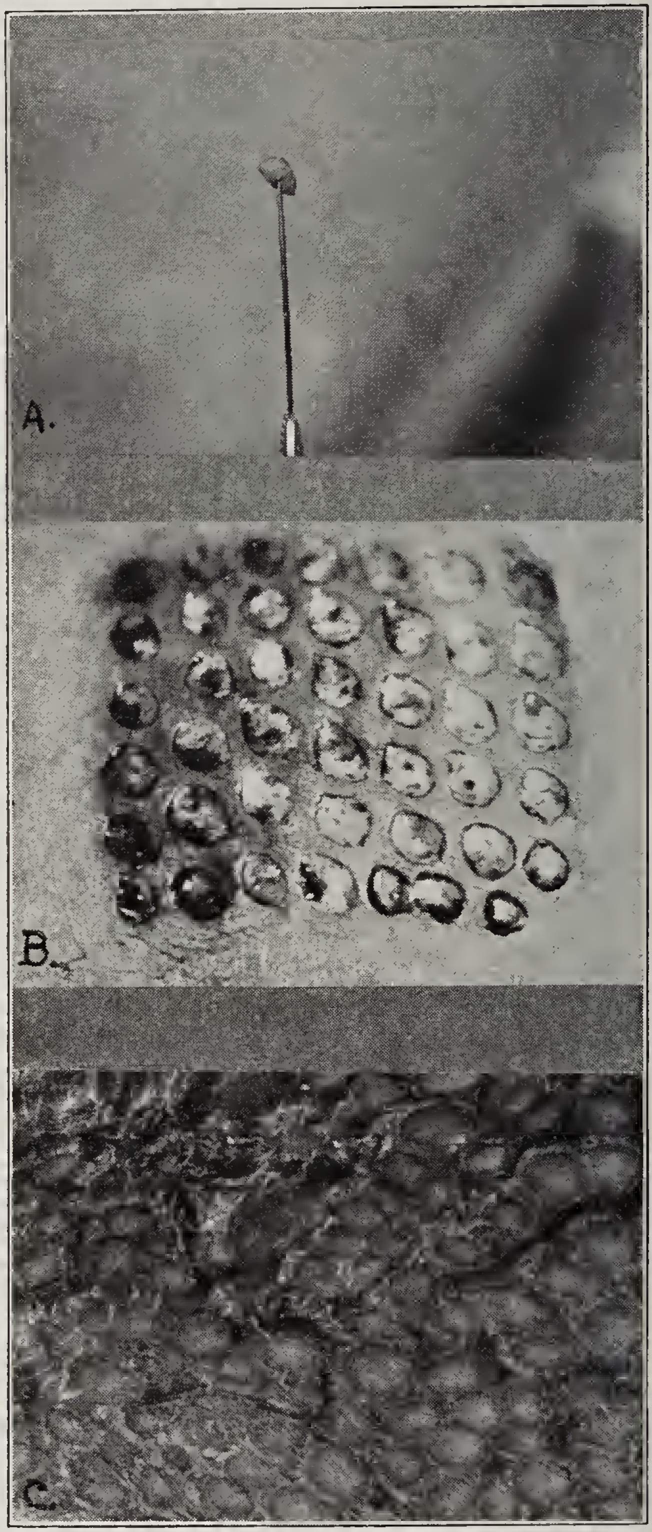

Fig. 3.—*A*, the actual size of a small deep graft with its edges curled under. When this graft is pressed down on a wound the edges flatten out, thus making the graft about one-third larger. *B*, the punched out defects left by cutting the grafts. Some are filling up with blood in spite of the epinephrin in the local anesthetic. Note the depth of the pits and the rim of undisturbed skin between them. *C*, a close view of an area grafted with small deep grafts. The grafts themselves are of normal-appearing skin, which is soft and flexible. Between the grafts is scar tissue, which is slightly depressed. The scaly appearance of this area is due to desquamation of epithelium. Photograph was taken six months after grafting.

The grafts may be obtained from almost any portion of the skin. It is considerably easier to cut them from a region such as the front of the thigh (where the skin is quite taut), than where it is lax, as for instance on the abdomen.

The region from which the skin is taken has little, if any, effect on the success or failure of the grafts.

A large number of these grafts can be obtained from a comparatively small area, thus making it possible to use small grafts on extensive wounds without any severe tax on an ill patient.[6]

Preparation of Area from Which the Grafts are Taken.—A satisfactory method of cleaning the skin before removing the grafts is to shave, and then wash thoroughly with green soap and water. Rinse with sterile water and sponge with ether, followed by alcohol; finally rinse with normal salt solution and dry. It is better to use no antiseptic in the preparation of this area, although very satisfactory results follow the use of iodin technic.

Anesthesia.—As these grafts are obtained with little pain and are usually applied to undisturbed granulations, general anesthesia is unnecessary, unless the patient is a young child, or in a highly nervous condition. It is as a rule desirable to inject 1 per cent. quinin and urea hydrochlorid solution, or 0.5 per cent. novocain, with a small amount of epinephrin, and take the grafts from the anesthetized area. The infiltration seems to have no hindering effect on the healing of the grafts.

TECHNIC

The simplest way to obtain these grafts is to pick up a bit of the epidermis with a straight intestinal needle held in an artery clamp[7] (Fig. 2). It is raised so that a little cone is formed and the base of the cone is cut through by depressing the blade of the knife.[8] (The thinner Reverdin grafts may be obtained by cutting off the tip of the cone.) The graft, still on the needle, is transferred to the wound, with raw surface downward. The grafts are placed in rows, a space of not more than 5 mm. being left between the grafts.[9] When two rows are in place, a strip of dry sterile rubber protective about 1.5 cm. wide is applied over them, so that the lower edge of the protective just covers the lower row of grafts. Then the protective is pressed down over the grafts firmly with a gauze pledget, and the edges of the grafts will uncurl and spread out evenly on the wound. The next row of grafts is placed close to the edge of the protective, and after two or three rows are applied, they are covered with a second strip of protective, which overlaps the first piece about one-half its width. The protective is pressed down firmly, and the procedure is continued in this manner until the whole wound, or the part selected, is covered.[10] The ends of the protective strips which extend beyond the wound edges may be fastened securely to the normal skin by means of a few drops of chloroform.[11] Moist salt gauze over the protective strips secured by a bandage is a satisfactory dressing. The part should also be immobilized as far as possible.

The area from which the grafts are taken may be dressed with boric ointment spread on a sheet of rubber protective, which is snugly strapped over the wound, or with silver-foil and dry gauze.

The grafts are either round or irregularly oval. They vary between 2 and 4 mm. in diameter (Fig. 3), and should seldom be larger than 4 mm. They are thickest in the center and taper off toward the edges. With a sharp knife the size, contour and depth can be judged quite accurately.

The wounds left by the removal of the grafts have the appearance of small pits punched in the skin, there being a rim of untouched epithelium between the pits. Fat may be seen in the bottom of some of the pits, which shows that a considerable depth of the skin is used.

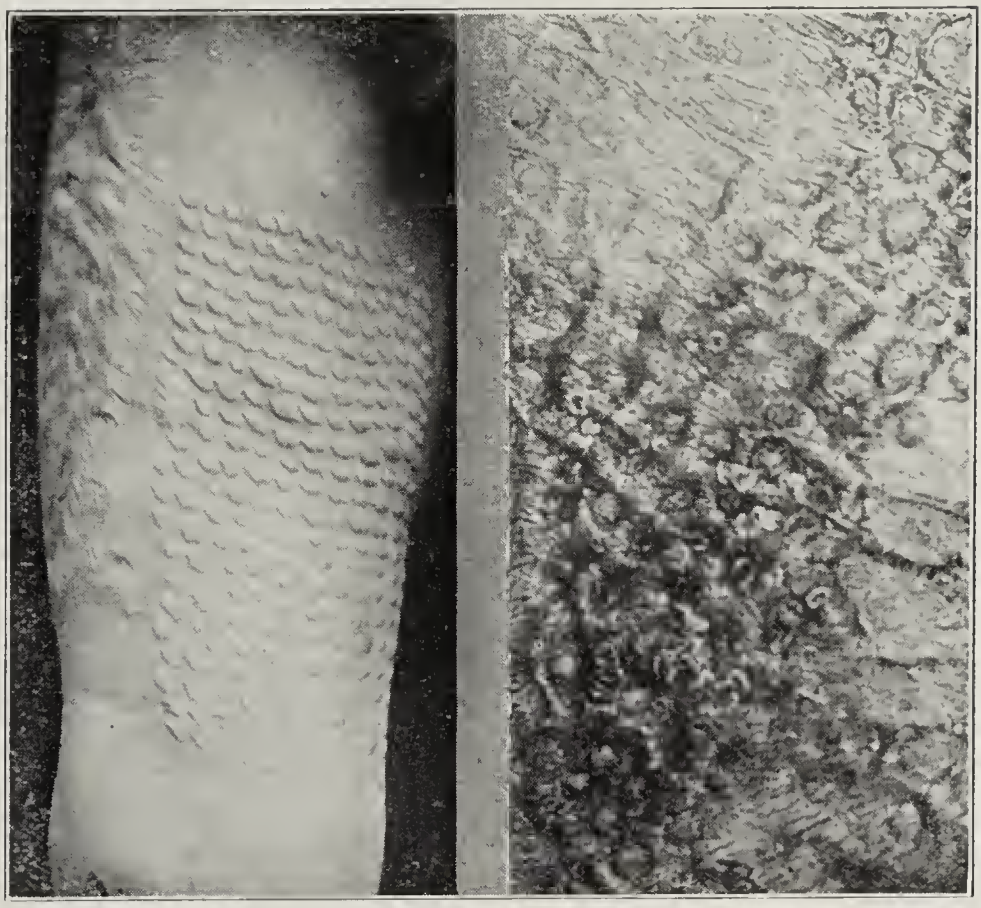

Fig. 4.—*A*, the development of keloid on the thigh in the wounds from which small deep grafts were cut. All of these grafts were cut at one operation. There was no keloid formation around the grafts. Photograph was taken one year later. *B*, keloid formation around small deep grafts. The grafts, which are soft and in good condition, can be seen at the bottom of little pits. The development of the keloid around the grafts followed a perfectly flat and apparently normal healing. There was no keloid growth in the scars from which the grafts were cut. Photograph was taken nine months after grafting.

There is more bleeding following the removal of these small deep grafts than when the Reverdin grafts are cut, and the resulting scars are also somewhat more pronounced.

Sometimes when the grafts are small, and the skin blood-stained, it is difficult to determine which is the raw surface. This difficulty is obviated when the grafts are obtained from a negro or when iodin technic is employed.

When a large number of these grafts have to be applied the process is very tedious, but this may be mitigated to a certain extent by having two men cutting the grafts, while one man places them, or vice versa.

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[6] In a number of instances I have applied several hundred of these grafts at a single operation.

[7] Agnew, D. H. (Med. and Surg. Rep., 1874, xxxi, 424), first suggested the use of the needle to raise the bit of skin to be cut in obtaining Reverdin grafts.

[8] The use of forceps and scissors in obtaining small grafts is not desirable, as the skin is thereby traumatized unnecessarily.

[9] The grafts will spread over a considerably larger area, but I believe that more stable healing is produced when the grafts are placed quite close together than when they are planted with greater intervals between.

[10] The overlapping strips of protective allow the escape of any secretions from the wound into the overlying dressings.

[11] C. A. Porter of Boston uses crape lisse and collodion to hold grafts in place on small wounds.

POSTOPERATIVE TREATMENT

The patient should be kept in bed for a longer or shorter period, depending on the size and location of the grafted area. The part grafted should be immobilized and protected from injury.

The dressings should be removed on the second or third day, and any wound secretions carefully mopped up, or washed off with a gentle irrigation of normal salt solution.

It is possible, even as soon as this, to tell whether or not the grafts have been successful, and in many instances a narrow ring of new epithelial growth can be seen surrounding each graft.

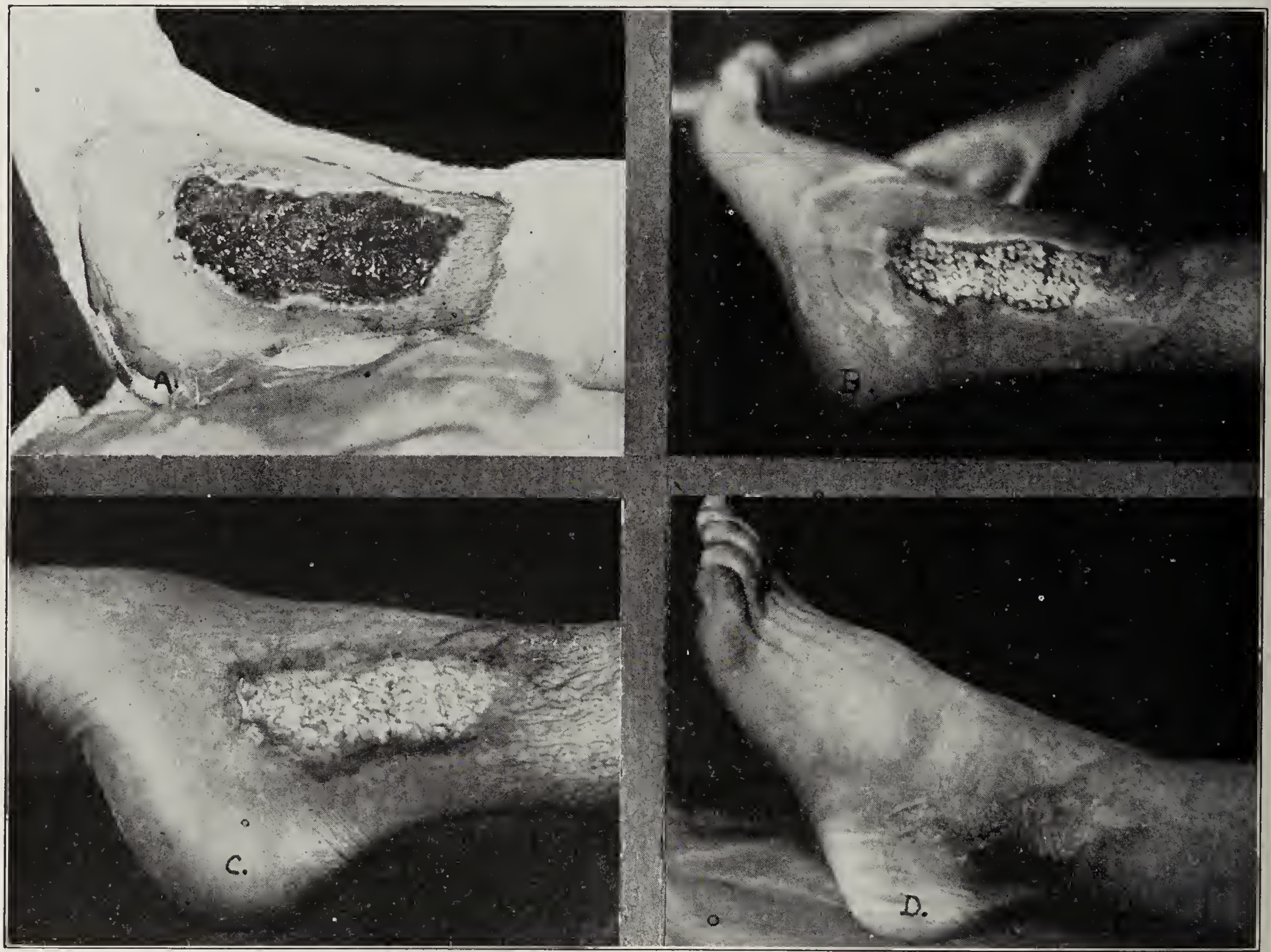

Fig. 5.—*A*, ulcer, seven months' duration, following a streptococcus infection. *B*, one week after grafting with small deep grafts. Note the close proximity of the grafts to each other. Many of them have grown together and also have joined the stimulated skin edges. Shrinkage in the size of the wound is noticeable. *C*, the same wound two weeks after grafting, entirely healed. *D*, the grafted area two years and three months after operation. The individual grafts can be plainly seen and are sharply differentiated from the surrounding scar tissue.

Some bland ointment on old linen is then applied, and if after a day or two the epithelial growth from the grafts is not as vigorous as desired, it is well to alternate the bland ointment with scarlet red, 8 per cent., in petrolatum or zinc ointment, or to use some other epithelial stimulant.

The surface from which the grafts are taken should be dressed in three or four days if protective is used, and the area dusted with a dry powder. If silver-foil is used it should not be disturbed for ten days, after which time all dressings may be removed.

As soon as the new epithelium has filled the gaps between the grafts and joined the epithelium from the wound edges, the grafted area may be dressed with a dry powder, such as zinc stearate, and exposed to the air.

I have not found the open treatment of these grafts just after application to be satisfactory.

The grafted area should be protected from injury for several weeks. Gentle massage is advisable after about three weeks, and should be continued until the grafted area is as freely movable as the normal skin around it.

There is a marked desquamation of the grafted surface when it dries out, especially between the grafts, which is evidently due to epithelial overproduction, but this scaliness can easily be controlled by the application of olive oil or oil of theobroma (butter of cacao).

UNTOWARD POSSIBILITIES

There are certain untoward possibilities which must be considered. On account of the simplicity of the operative procedure we are accustomed to regard the use of small grafts as attended with no danger and with but few bad results. Aside from contraction, which may occur, we must consider the danger of carrying infection from the granulating surface to the wounds from which the grafts are cut. It is a difficult matter to convey a graft on a needle, or any other instrument, to a granulating wound without occasionally touching the granulations with the instrument. In order to avoid this chance of contamination it is best either to use a fresh needle for each graft, or to have several needles, so that one can be "flamed" while the other is in use.[12]

Another disagreeable occurrence is the formation of keloid (Fig. 4). Occasionally a massive keloid growth will form in the grafted area, and the grafts themselves can be seen at the bottom of little depressions in the keloid. This keloid growth would probably occur in these wounds whether they were grafted or not. Again, keloid may develop in the scars of the wounds from which the grafts are taken. We know that in certain persons there is a tendency to the development of keloid following almost any wound. This is of course especially true among negroes. It has been my experience that keloid develops in white persons, either in the wound itself or in the areas from which the grafts are taken, much more frequently in burns than in large wounds from other causes. Burns caused by acids seem especially prone to be followed by keloid.

COMMENTS

The age of the patient has apparently little effect on the healing of small grafts. The general health should be carefully looked after and when necessary a vigorous building-up treatment inaugurated. Small grafts will often succeed on granulating surfaces under conditions in which no other type of graft could live. There is almost invariably a marked stimulation of the epithelium of the wound edges following the application of these grafts, even though the grafts be unsuccessful.

The shrinkage in the size of the wound after grafting with small grafts is in some cases quite remarkable. Contraction may occur under a grafted area, but it is not nearly so likely as when grafting is not done. If the grafts are placed close together, contraction may be to a large extent prevented. Healing is very much expedited by the use of these grafts, and resulting cicatrix is solid and resistant.

Small deep grafts are apparently not replaced by scar tissue, as they can be demonstrated as definite areas of normal-appearing skin surrounded by scar tissue even after several years (Fig. 5).

A wound grafted with these small grafts, placed at intervals, has a dotted appearance, and the cosmetic result is not so satisfactory as when either large Ollier-Thiersch, or whole thickness grafts, are used. For this reason it is better not to use them on the face, unless especially indicated. However, if the grafts are placed close together, so as to touch each other, the appearance of the grafted area is very much improved.

A brownish pigment sometimes appears in the grafts themselves, as well as in the cicatrix between them. The scars left by the removal of these grafts is after a time scarcely noticeable, except in those instances in which pigmentation occurs.

The sensation of an area grafted with small deep grafts gradually comes in from the periphery, and not from the underlying tissues.

The procedure is by all odds the simplest method of grafting. It requires little preliminary preparation after the granulations are in condition, and unless the area to be grafted is large, the grafting can be done in the patient's room. Enough autografts can be obtained from a small area to cover a large wound without causing any appreciable injury to a patient already in a serious condition.

Several patients have come under my care whose lives have undoubtedly been saved by the successful use of these small grafts.[13]

The difference in the ultimate result between small superficial grafts and small deep grafts placed close together is almost as marked as the difference in results between Ollier-Thiersch grafts and whole thickness grafts.

INTRINSIC CANCER OF THE LARYNX

COMPLETE EXCISION APPARENTLY EFFECTED BY ENDOLARYNGEAL OPERATION

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The treatment of intrinsic cancer of the larynx by laryngofissure is remarkably satisfactory. It is doubtful if the results of operation for cancer in any other part of the body can surpass those which I have already reported.[1] Since giving full particulars and showing cases before the Medical Society of London in 1912, I have continued to obtain the same results; that is, no patient has been lost by operation, and 80 per cent. have remained free from recurrence. This freedom from recurrence dates back in some cases for ten years.

The same proportion of lasting cures was obtained by Semon, who did much to popularize laryngofissure in these cases, and similar records were secured by Butlin, who revived the operation after it had been quite discredited both in this country and abroad. Possibly it is because these excellent results were first obtained in England that we, in this country, have come to look askance at any other route for removing an endolaryngeal cancer except that obtained by splitting the larynx. We are even a little skeptical in accepting the records which claim permanent cures by operating through the mouth; yet reports of such cases have been published by several eminent authorities.[2]

Among my recent cases it has been my good fortune to obtain, in a curious way, the definite proof that an intrinsic cancer of the larynx can be completely removed *per vias naturales*. But I hasten to add that the completeness of removal was unintentional and that I do not for a single moment suggest that excision of a cancer of a vocal cord should ever be confided to the laryngeal forceps. On the contrary, this very case which I am about to relate, gives the strongest proof of the desirability and hopefulness of treating intrinsic laryngeal cancer by opening the larynx from the outside. It was the first case of endolaryngeal cancer which I have handled in a woman; all my other patients were males.

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[12] The importance of this point was impressed on me by the following incident: A very resistant ulcer of the groin of long standing, the etiology of which could not be definitely determined, was grafted with small grafts. The wounds from which the grafts were taken on the thigh became infected, and when I was called to see the patient a week afterward, an ulcer similar to that in the groin had developed. This ulcer also resisted every method of treatment used, and it was finally necessary to excise the entire area with a liberal margin. The defect, which was 11 cm. in diameter, and down to the deep fascia, was immediately grafted with a Thiersch graft and healed promptly.

[13] I have in mind an illustrative case. A child, aged 12, was severely burned over the pelvis, thighs and legs. She came under my care nearly a year after the accident, during which period she had been repeatedly grafted without success. Her condition was desperate. She was delirious, extremely emaciated and generally depleted by the pain, and by the long-standing suppurating wounds. As a last resort the wounds were grafted with small deep, autografts, which were successful, and within a few days the change in her condition for the better was astonishing. A prompt recovery followed. No other type of autograft could have been successful in this case, on account of the condition of the granulations.

[1] Thomson, St. Clair: Brit. Med. Jour., Feb. 17, 1912, p. 355.

[2] Fraenkel, B.: Deutsch. med. Wchnschr., xv, 1; Arch. f. Laryngol., 1897, vi, 361. Arslan: Arch. Ital. di Otol., 1901, xii, Part 2; Ann. des mal. de l'oreille, 1904, xxx, 130. This gives an analysis of recorded cases. In two personal cases, confirmed by the microscope, the patients remained well after four years and twenty months, respectively. Finder: Jour. Laryngol., 1910, xxv, 602.

Mrs. A. P., aged 53, had been hoarse for eight months when she was sent to me at King's College Hospital, Oct. 12, 1912, by Dr. Shaw of Great Yarmouth. The right vocal cord from the anterior commissure back to the vocal process was replaced by a reddish, cauliflower growth (Fig. 1). This somewhat interfered with the movement of the cord, but its intrinsic mobility was not impaired. There were no enlarged glands and the case was evidently a very suitable one for operation by laryngofissure. The Wassermann reaction was negative and the chest was healthy.

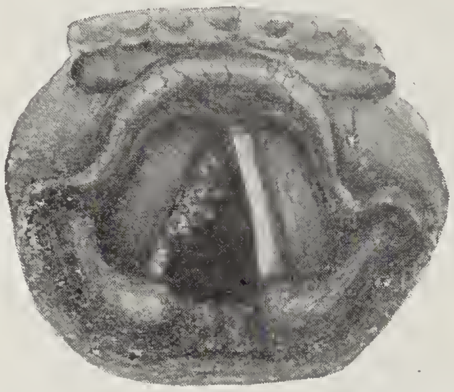

Fig. 1.—Intrinsic cancer of the larynx. Epithelioma of the right vocal cord.

As the growth did not infiltrate the cord to any great extent (as shown by the persistence of mobility), and as it projected well above the surface, I decided to remove a portion so as to confirm the diagnosis by microscopic examination. With the aid of cocain, and using a large-sized duck-billed forceps of Morell Mackenzie, with the indirect method, I seized as large a piece of the cord as possible, and, finding it very tough, I removed it by avulsion. The toughness and naked-eyed appearance were confirmatory of my diagnosis of malignant disease, and the following report on the removed tissue was kindly furnished by Dr. d'Este Emery:

> "The material is an irregular mass about 9 by 5 mm. It is divided into two parts, of which one consists of papillomatous and epitheliomatous tissue, with a very small amount of fibrous stroma which shows evidence of subacute inflammatory changes. The large portion consists of a firm fibrous basis. On one edge there are some mucous glands. On the other two unattached edges, there is a margin of epitheliomatous tissue which in places is inflamed and ulcerated.
>
> "The epithelioma in this section is a typical one but shows little keratinization. There are a few imperfectly formed cell-nests, and some so-called 'cancer parasites.'"

Nov. 28, 1912, anesthesia was induced by Dr. Silk by intravenous infusion of ether and hedonal, administered through the internal malleolar vein. The usual laryngofissure operation was carried out; no Hahn's tube was used. The remains of the right cord and the ventricular band were dissected up with their perichondrium from the inner surface of the thyroid cartilage and removed *en masse* together with the vocal process of the arytenoid cartilage. The tracheotomy-tube was removed before the patient left the table. She would have been allowed up the next day, but she was exceedingly drowsy from the hedonal and could hardly be roused. Within forty-eight hours of the operation, however, she was sitting out of bed and eating solid food. She returned to the country a fortnight after operation.[3]

The tissue removed by laryngofissure was submitted to Dr. Emery, who reported on it as follows:

> "The specimen is of an irregular shape, the longest dimensions being 19 by 10 mm. The base consists of striped muscle which is inflamed and edematous; some mucous glands occur in the lowest portion. Above this there is a layer of organizing granulation-tissue in various stages, but there is no epithelial covering. Mucous glands, normal or slightly inflamed, are scattered throughout the section, and at one end there is a triangular piece of cartilage about 2.5 mm. long.
>
> "There is no sign of epithelioma or other malignant disease in any other part of the section."

This report brings us to the instructive conclusions which may be drawn from this case. To be brief, I will simply state them in order.

1. Cancer of the vocal cords, is, in early stages, a very slowly progressive and strictly limited process. (In this case hoarseness dated from eight months, the cord was still quite mobile, and the disease was still superficial.) Alteration of voice is the principal and may be the only symptom. Persistent hoarseness in any patient calls for a definite diagnosis.
2. Diagnosis is based chiefly on inspection of the larynx. Only in certain cases in which the growth is a superficial and not an infiltrating one can it be confirmed by microscopic examination.
3. The growth, even when it occupies almost the entire length of a vocal cord, can sometimes be completely removed by endolaryngeal operation in early cases. But this completeness can be ascertained only when, by laryngofissure, the remains of the vocal cord and adjoining soft parts have been removed and submitted to the pathologist.
4. Laryngofissure is, therefore, the operation of choice in all cases of endolaryngeal cancer.
5. The operation offers the very best prospects, first, because the disease remains for some time superficial and limited, and secondly, because laryngofissure cannot be considered a dangerous operation.
6. Statistical results show a lasting cure in 80 per cent. of cases, and if all patients presented themselves and cases were diagnosed early there is no reason why the results should not be even more satisfactory.

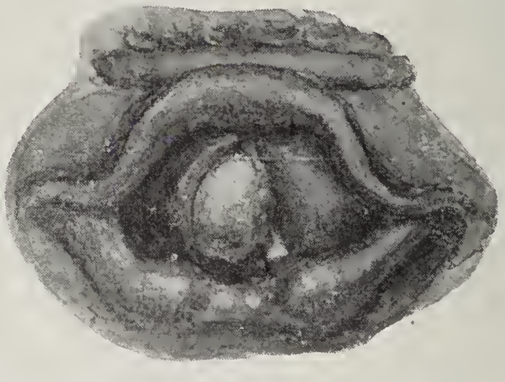

Fig. 2.—Intrinsic cancer of the larynx after operation by laryngofissure, showing a large (innocent) granuloma.

My patient is in good health, with a useful voice, and has had no recurrence at the present date, that is, one and a half years after operation.[4]

I have already confirmed the opinion originally enunciated by Semon that if recurrence does not take place during the first year after operation there is every prospect of permanent cure.

ADDENDA

In addition to the six conclusions tabulated above this case suggests three other interesting points.

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[3] The patient was shown before the Clinical Section, Royal Society of Medicine, Feb. 14, 1913.

[4] The patient was shown before the Clinical Congress of American Surgeons, in London, July 28, 1914.

1. *Regrowth.*—Toward the end of January, 1913, that is, two months after operation, the patient began to show symptoms of what many would have taken to be a recurrence of the growth (Fig. 2). But I had no anxiety myself, partly on account of the foregoing negative report from the pathologist, but chiefly from experience with previous cases in which a regrowth during the first two months nearly always proved to be a simple granuloma. In this case the fresh neoplasm was removed entire through the mouth with the same Mackenzie forceps, and by indirect laryngoscopy, and was found to consist of simple granulation-tissue, showing no epithelioma or sign of malignant disease in any part of the section.

The moral of this is, that a regrowth in early days after a thyrotomy for cancer is not necessarily malignant.

2. *Value of Indirect Laryngoscopy.*—The case shows that a considerable growth, indeed, practically an entire vocal cord, can be removed with one bite of the forceps used by the indirect, or, as some already call it, the "old method" of laryngoscopy. As I have practiced Killian's direct laryngoscopy for eleven years, I feel equally skilled with the two methods, and each method has its own well-marked indications. I very much doubt if the most expert endoscopist could have removed as large a growth as I did in this case, and certainly it could not have been done more quickly or less disagreeably. The indirect method allows of the forceps being sloped to the opposite side of the body, so that any growth on a cord can be more cleanly and completely seized than is possible with the limited action of cutting forceps working in a circumscribed, circular tube. The importance of removing as large and intact a portion of growth as is possible is of the highest value when it is desirable to submit a suspected neoplasm to the microscope. It will be a loss to laryngoscopy, and to our patients, if the rising generation of throat surgeons neglect to acquire the gentler art of indirect laryngoscopy and limit themselves to the easier but rougher technic of direct examination.

3. *Anesthesia.*—Laryngofissure can be well carried out under local anesthesia. I have employed it in one successful case, but I doubt if many of our sensitive patients in this country would submit to the moral ordeal. In the foregoing case the operation lasted eighty-five minutes. Anesthesia was induced by a mixture of 1 ounce of ether and 20 grains of hedonal to a pint of normal saline solution, the object of the hedonal being to diminish as far as possible the total amount of fluid passed into the circulation. Two pints and 6 ounces of this mixture were used, corresponding to 2 ounces 2½ drams of ether and 46 grains of hedonal, including a certain amount of wastage. Probably 2 ounces of ether and 40 grains of hedonal were infused through the internal malleolar vein. As administered by Dr. J. F. W. Silk, the resulting anesthesia was, from the operator's point of view, perfectly ideal. The field of operation was quite clear of the anesthetist and his paraphernalia, and the patient's sleep was tranquil and even.

But the profound sleep in which she continued to be plunged next day gave me some anxiety. For twenty-four hours it was difficult to arouse her, and I thought what a serious condition might have arisen if, peradventure, she had inspired any blood during the operation and we had wished her to cough up the resulting bronchial or pulmonary catarrh.

I would suggest that in future cases the hedonal be reduced to a minimum, if it cannot be dispensed with.

In another case I had there was some thrombosis of the lower part of the internal saphena vein, and this kept the patient in bed when he ought to have been up and about.

Besides, I am not quite sure whether it is wise to flood the circulation with over 2 pints of liquid, and it is difficult to keep within the limit unless some such drug as hedonal be employed with the corresponding tendency to prolonged and profound after-sleep.

Anyhow, the method of anesthesia by intravenous infusion of ether has not yet established itself in my opinion, for these cases, and it still requires consideration. In my more recent cases I have returned with satisfaction to the use of chloroform employed in the usual way.

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SARCOID OF BOECK *

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MINNEAPOLIS

Kaposi[1] first grouped mycosis fungoides, lymphodermia perniciosa, sarcomatosis cutis and the real sarcomas of the skin in a class which he called sarcoid. Spiegler[2] and Max Joseph[3] did some early work on the subject. Fendt[4] classed as sarcoid, "tumors of benign prognosis, having only a limited growth, frequently healing with arsenic, composed of groups of round cells, which are circumscribed, divided by septa and encapsulated."

Boeck[5] in 1899 reported as multiple benign sarcoid a new disease of characteristic clinical and histologic appearance. In later articles Boeck[6] reported a series of cases and added a new type of the disease, the diffuse infiltrating type.

The work of Boeck caused many cases to be reported in the European literature but in America the only cases are those of Gottheil,[7] Pollitzer[8] and Sutton.[9] G. H. Fox and Wile[10] reported an atypical case and Howard Fox[11] reported one composed histologically of round cells, so that it is not a sarcoid of Boeck. Darier and Roussy[12] in 1904 described a subcutaneous sarcoid closely resembling Boeck's sarcoid. Darier[13] in 1910 made an extensive study of the entire group of sarcoids. He divided the group into four types, as follows:

1. Multiple benign sarcoid of Boeck.
2. Subcutaneous sarcoid of Darier-Roussy.
3. Erythema induratum-like sarcoid of the extremities.

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* Read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Kaposi, M.: Lehrbuch der Hautkrankheiten, Ed. 5, p. 909.

[2] Spiegler: Arch. f. Dermat. u. Syph., 1894, xxvii, 163.

[3] Joseph, M.: Arch. f. Dermat. u. Syph., 1898, xlvi, 177.

[4] Fendt: Arch. f. Dermat. u. Syph., 1900, liii, 213.

[5] Boeck, C.: Jour. Cutan. Dis., 1899, xvii, 543.

[6] Boeck, C.: Ergänzungsband zum Arch. f. Dermat. u. Syph., 1900, p. 153; Arch. f. Dermat. u. Syph., 1905, lxxiii, Nos. 1-3, p. 71.

[7] Gottheil, W.: Jour. Cutan. Dis., 1902, xx, 400

[8] Pollitzer, S.: Jour. Cutan. Dis., 1908, xxvi, 15.

[9] Sutton, R. L.: Dermat. Wchnschr., 1914, lviii, 537.

[10] Fox, G. H., and Wile, Udo: Jour. Cutan. Dis., 1911, xxix, 375.

[11] Fox, Howard: Jour. Cutan. Dis., 1914, xxxii, 124.

[12] Darier, J., and Roussy, G.: Ann. de dermat. et. de syph., 1904, v, 144.

[13] Darier, J.: Monatschr. f. prakt. Dermat., 1910, l, 419.

4. Spiegler-Fendt type. Non-tuberculous, composed of round cells. Resembles neoplastic lymphoderma.

Boeck's sarcoid or miliary lupoid, as he later called it, has three forms: (1) large nodular; (2) small nodular or papular; (3) diffuse infiltrating. The lesions may vary in number from one only, as in the cases of Kreibich and Kraus[14] and Urban,[15] or run into many thousands, as in the case of Hallopeau and Eck.[16] It is located on the face, back, shoulders and extensor surfaces of the arms, but can occur on the scalp and lower extremities. Boeck asserted that the soles of the feet were not involved. Wolfheim[17] reported a case where the soles were involved.

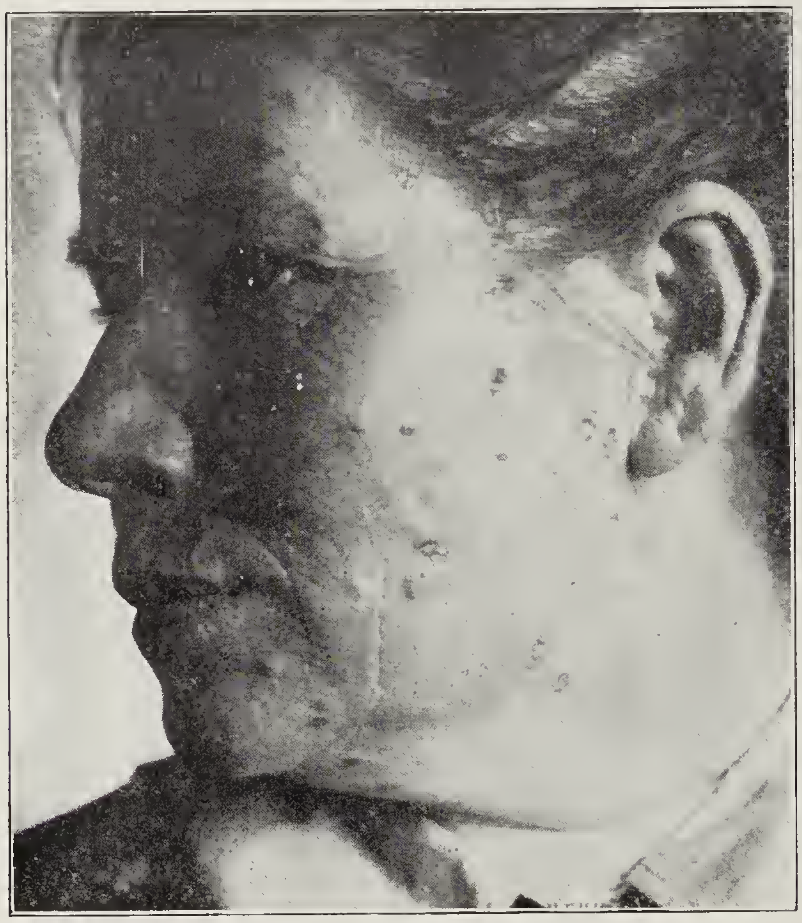

Fig. 1.—Sarcoid of Boeck.

It may begin suddenly with a diffuse edematous reddening and after from eight to fourteen days disappear and leave one or more circumscribed infiltrated areas. More often it begins as a little round nodule, deep in the cutis and as it approaches the epidermis lifts it up. The nodules grow very slowly, come out in crops and last months and even years. They feel larger than they look, according to Unna.[18] They are red at first, later red-violet, then yellowish and finally brownish. They feel hard, and often, on pressure with glass, show minute yellow foci. This led to the name "miliary lupoid." This is seen at the time of retrogression. As retrogression occurs the nodules become depressed in the center and a fine network of telangiectatic vessels run over the edge; sometimes a fine scale forms. The nodule or papule may completely disappear and leave a pigmented spot or an atrophic scar with telangiectatic vessels over it. It never softens or ulcerates. The mucous membrane is sometimes affected. The lymphatic glands may or may not be enlarged. The general condition is not influenced by the disease, and the urine and blood are normal. It occurs more often in women than in men (Fox and Wile[10]). It may occur, according to Boeck, from the thirteenth to the forty-fifth year, but cases have been reported earlier (Sutton[9] and later Mazza[19]). Rather typical in the disease is the involution of the nodules under prolonged arsenical medication.

The histologic picture is characteristic. "One look in the microscope suffices to make a diagnosis," according to Darier.[13] Sections show sharply circumscribed, deep-seated nodules, separated by connective-tissue septa which seem to have been pushed aside by the growing tumor. The cells are epithelioid with pale-staining nuclei. At the edges are seen a few lymphocytes, giant-cells and rarely giant-cells of the true Langhans type.

The elastic tissue is absent in the nodules but present in the septa. There are no leukocytes present, as a rule, and there is never any evidence of caseation. Blood-vessels can be seen in the nodules.

The Darier-Roussy type of subcutaneous sarcoid is very rare. Three cases were recorded by Darier in 1910. They consist of round or oval subcutaneous nodules from the size of a hazelnut to a walnut. They are few and are located on the back of the trunk. There is no tendency to ulceration and no influence on the general system. Histologically they are situated in the subcutis, composed of epithelioid-cells and new connective-tissue cells and lymphocytes; numerous giant-cells are seen and a few plasma-cells, mast-cells and leukocytes. It differs from Boeck's in its appearance, its size, its subcutaneous location, and also looks more tuberculous. It is less sharply defined and more infiltrating.

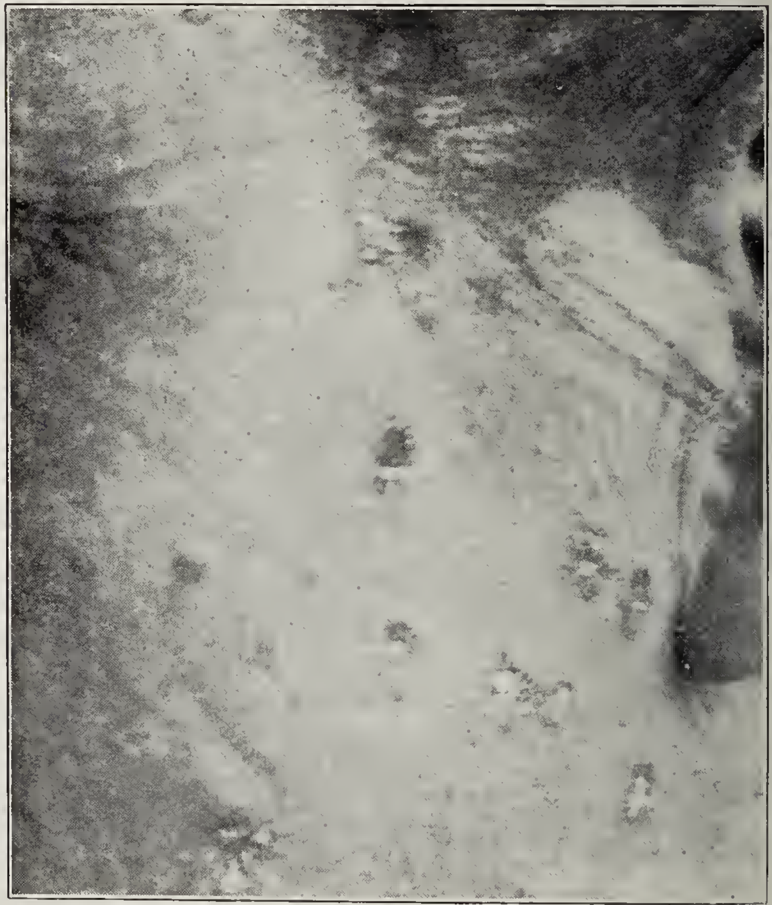

Fig. 2.—Enlargement showing inidividual lesions.

The third group of Darier, the sarcoid of the extremities resembling erythema induratum, is more frequent, and occurs mostly in women. It consists of nodules with circumscribed thickening and hardening of the cutis and subcutis. They are painless, seldom soften and ulcerate and are generally located on the extensor surfaces of the extremities. They are from the size of a pea to that of a hazelnut.

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[14] Kreibich and Kraus: Arch. f. Dermat. u. Syph., 1908, xcii, 173.
[15] Urban, O.: Arch. f. Dermat. u. Syph., 1910, ci, 175.
[16] Hallopeau and Eck: Ann. de dermat. et de syph., 1902, iii, 985.
[17] Wolfheim, R.: Ikonographia Dermat. Fasc., vi, 255.
[18] Unna, P., Jr.: Dermat. Wchnschr., 1912, lv, 1203.
[19] Mazza, G.: Arch. f. Dermat. u. Syph., 1908, xci, 57.

Pelagatti,[20] Thibierge and Bord[21] and Darier himself reported cases of this type. Many authors look on this as erythema induratum on account of the occasional ulceration, positive tuberculin reaction and the few cases of Carle,[22] Thibierge and Ravaut,[23] Colcott Fox[24] and Schidachi,[25] in which tuberculosis was demonstrated in inoculated animals. Philippson[26] demonstrated tubercle bacilli in the sections.

The fourth type, or sarcoid of Spiegler-Fendt, shows no relationship to tuberculosis, but is composed of round cells and is probably related to the neoplastic lymphoderma. This type shows nodules in the cutis, the skin is rose, lilac or dark red in color. It is located on the body, is chronic in course and has no tendency to ulceration. It is usually affected by arsenical medication. Histologically the lesions are composed of round cells more or less circumscribed and sometimes encapsulated. Epithelioid and giant-cells are either absent or very scanty. Probably many cases of sarcoma of the skin reported as cured belong to this group.

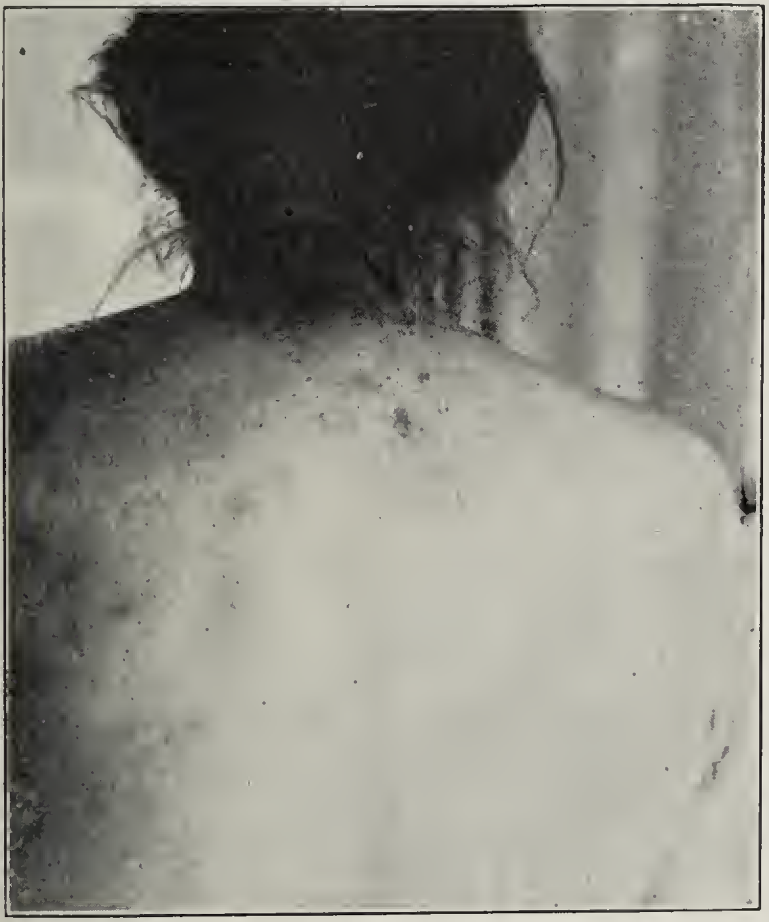
Fig. 3.—Back showing depressed areas.

In regard to Darier's classification, Nobl[27] asserts that the subcutaneous sarcoid and erythema induratum are identical. Volk[28] in a recent article says that Type 4 can be dropped, as this class belongs to the neoplastic lymphoderma. Type 3, Volk, in agreement with others, classes as erythema induratum. This leaves only Types 1 and 2, and he asserts that the cases reported by Darier-Roussy and one of his own are the only cases reported so far of Type 2, and questions if this type really does not belong to erythema induratum. Volk reports a case of subcutaneous sarcoid in which he obtained the tubercle bacillus in a guinea-pig and produced tuberculous iritis in rabbits' eyes.

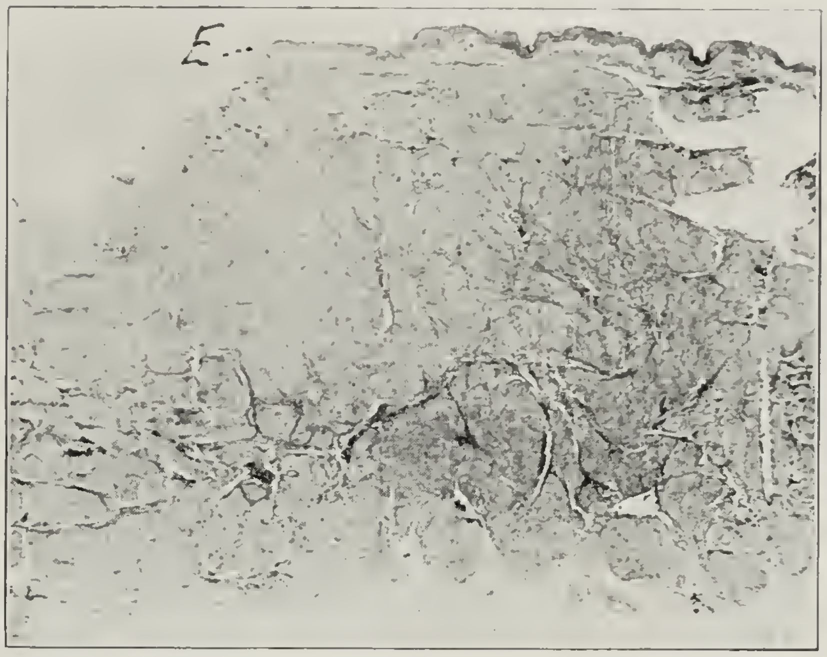

Fig. 4.—Section of tumor under very low magnification; *E*, epidermis.

REPORT OF CASE

The following case of Boeck's sarcoid came under my observation early in 1914. The patient was sent into the University Hospital by Dr. A. W. Shaw of Buhl, Minn., being referred to me by Dr. F. R. Wright.

Patient.—Mrs. H. G., Swedish, aged 53; large and well nourished. Weight 169. Eruption began three years ago, first being manifest in the scalp, then the face was affected and finally the back and arms.

Macroscopic Examination.—The scalp shows no new lesions but eight areas of irregular shape and size, somewhat depressed and slightly scaly. The face and forehead show about thirty lesions, some new, some old. They begin as a small, round, freely movable tumor deep in the skin and eventually involve the epidermis, lifting it up in a nodule, red at first, later red-violet, and as they get older more of a brownish-yellow. Finally the nodule becomes depressed in the center and shows a small white scale. Over the edges of many of the old lesions is a fine network of telangiectatic vessels. These old lesions are some small singular ones of the size of a grain of wheat and others seem to be formed of

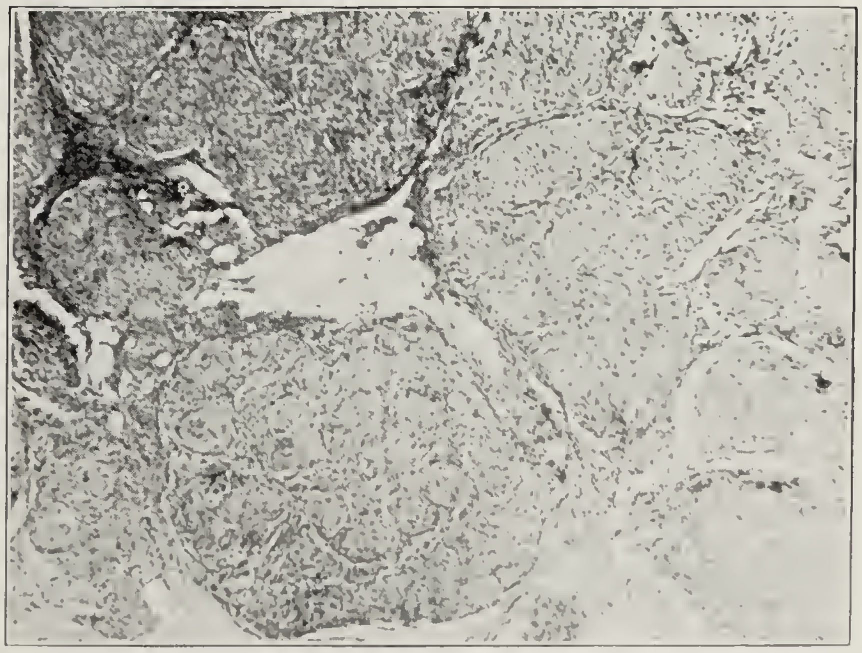
Fig. 5.—Portion of lower part of tumor under higher magnification.

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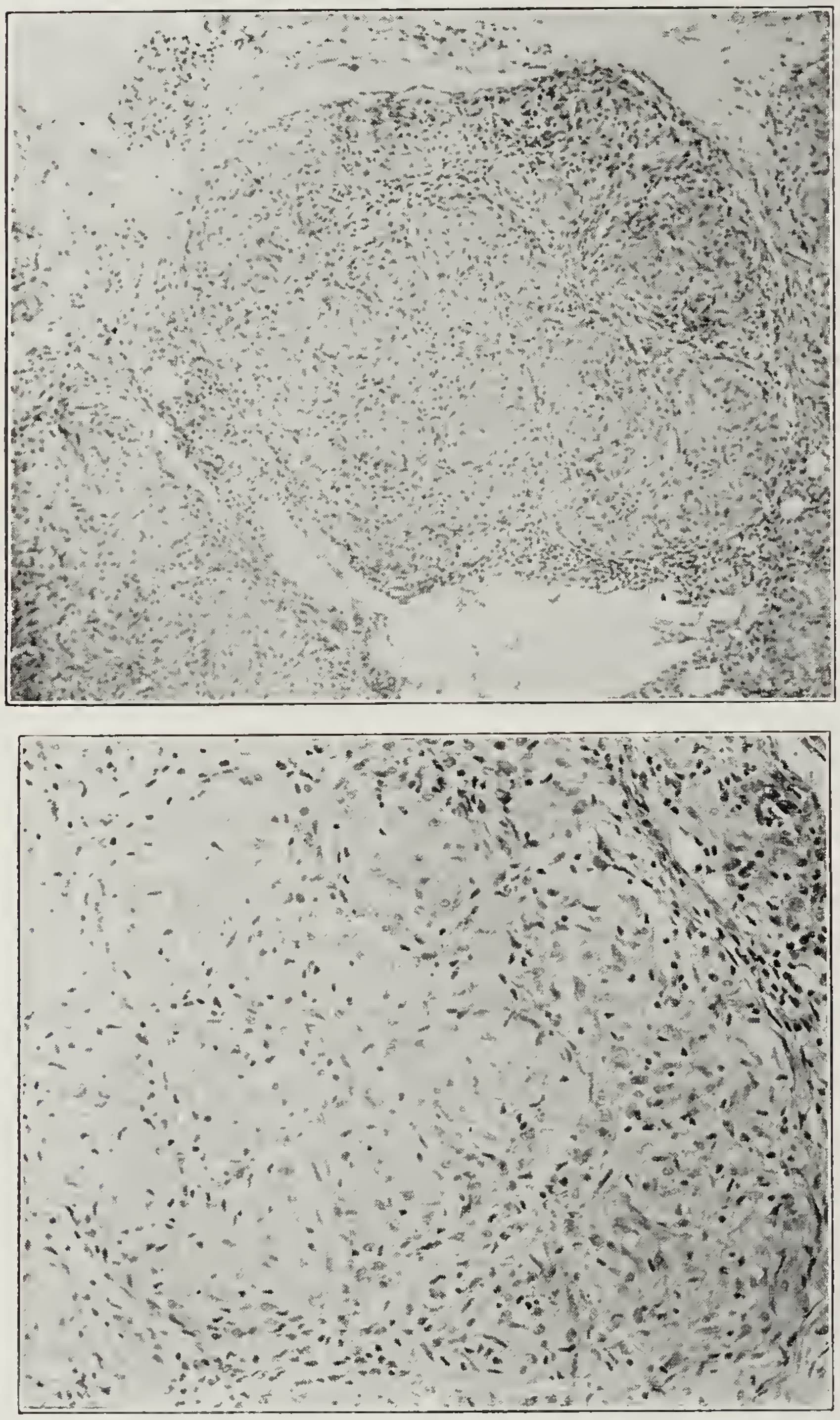
20. Pelagatti: Gior. ital. d. mal. ven., 1907, xlviii, 425.
21. Thibierge and Bord: Ann. de. dermat. et de syph., 1907, viii, 113.
22. Carle: Lyon méd., 1901, xcvi, 358.
23. Thibierge and Ravaut: Ann. de dermat. et de syph., 1899, x, 513.
24. Fox, Colcott: Brit. Jour. Dermat., 1893, v, 225.
25. Schidachi: Wein. klin. Wchnschr., 1913, xxvi, 1425; referred to by Volk (Note 28).
26. Philippson: Gior. ital. d. mal. ven., 1898, xxxiii, 61.
27. Nobl, G.: Wien. med. Wchnschr., 1913, lxiii, 2341.
28. Volk, R.: Wien. klin. Wchnschr., 1913, xxvi, 1425.

a group of these small lesions and are therefore polycyclic in shape. At the nasolabial fold are a few younger lesions lighter in color and not depressed. There is no evidence of any pus or caseation in any of these lesions. On pressure with a glass it is possible to make out minute round yellowish foci. On the back there are about fifty lesions, most of them evidently having undergone resolution. The new ones start as round hard nodules very deep in the subcutaneous fat. As they grow older they flatten out and lift up the epidermis in a hard, firm, elevated, flat brownish-red lesion. Evidently an atrophy finally takes place and the lesions heal, leaving a soft depressed bluish area, covered with dilated capillaries. There are no scales present on the back. The breast and upper arms show a few isolated lesions, one or two of which show a fine scale. The mucous membrane of the nose and mouth is not involved. The glands are not enlarged.



Figs. 6 and 7.—Still higher magnification of tumor.

Two subcutaneous injections of tuberculin gave no local or general reaction. Wassermann reaction was negative. Blood and urine normal. A small section was cut from a lesion on the face for microscopic study. Two large pieces were cut from the back to obtain more material for histologic study and animal and cultural experiments.

Microscopic Examination.—Histologically the tumors on the face and back were identical with the exception that the one from the back showed more giant-cells. The epidermis was normal. The papillary layer was unchanged except where the tumor encroached on it in some sections; there it was flattened a little. The tumor was situated deep in the dermis and consisted of a number of round or rounded areas separated by connective-tissue septa. The cells of the tumor were epithelioid with pale-staining nuclei. A few lymphocytes were seen at the edges. In the tumor from the back were giant-cells of the true Langhans type. Elastic tissue was absent from the tumor but present in the septa. No tubercle bacilli were found in any of the sections and no evidence of caseation or necrosis was seen.

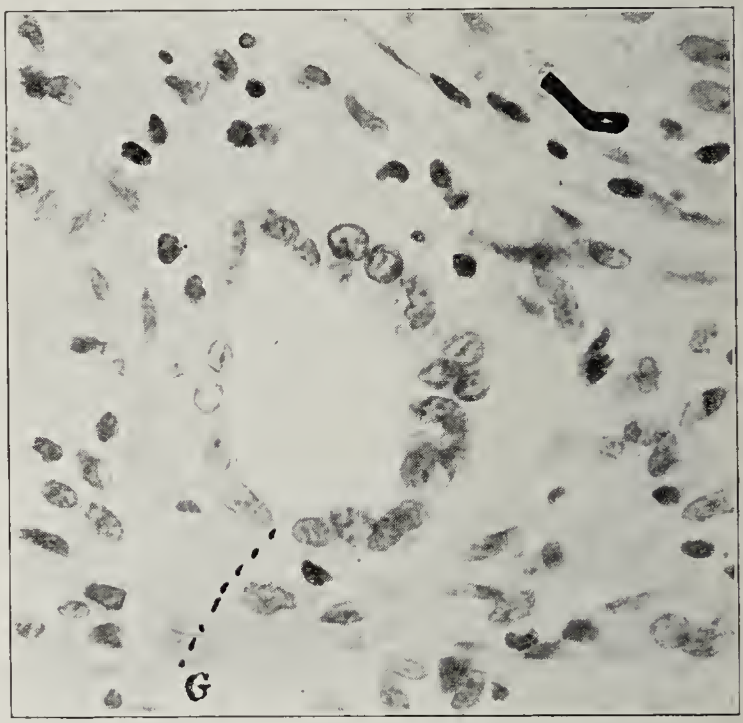


Fig. 8.—Langhans type of giant-cell.

Animal Experiments.—Two rabbits and four guinea-pigs were inoculated intraperitoneally with pieces of tissue from the tumor. One guinea-pig which died of some intercurrent disease ten weeks after inoculation showed at post-mortem several small firm nodules in the omentum. No parasitic diseases were found to account for these nodules. Examined microscopically the structure strongly suggests healed tubercles. While these lesions cannot be taken as positive proof of healed tuberculosis they are best explained by this interpretation. They are about the type of lesions one would expect to see as the result of infection with tubercle bacilli of low virulence. All the ordinary media were inoculated with material from the tumor on the back. No growth was obtained either aerobically or anaerobically.

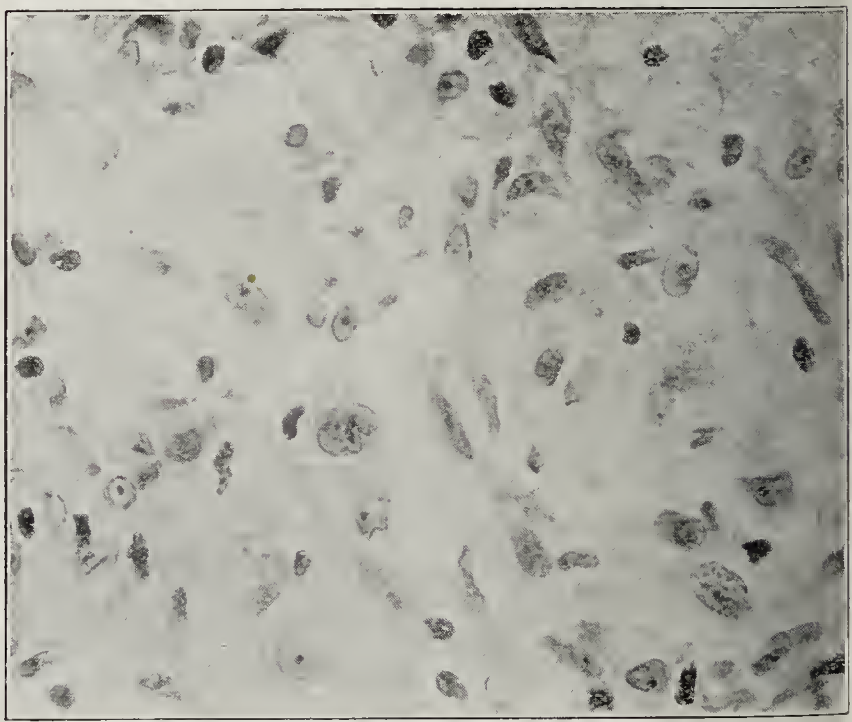


Fig. 9.—Epithelioid cells highly magnified.

ETIOLOGY

The etiology of Boeck's sarcoid is of interest. Boeck himself thought it to be an infectious bacillary dis-case which is identical or closely allied to tuberculosis. Darier classed it as a tuberculid, Winkler[29] analyzed seventeen cases and found that six patients had sure signs of tuberculosis, seven had swollen glands and four no signs of tuberculosis at all. Darier, Kreibich and Kraus, Opificius[30] and Stümpke[31] had cases in which a local reaction was produced by tuberculin. Kren and Weidenfeld[32] inoculated twelve guinea-pigs and had no successful results and none of the guinea-pigs reacted to tuberculin given one or two months later. Morawetz[33] in 1909 reported a case of Boeck's sarcoid in which Boeck personally confirmed the diagnosis. There was no local or general reaction to tuberculin. A guinea-pig inoculated, however, was dead in ten days from tuberculosis and tubercle bacilli were recovered. Kyrle[34] in 1910 reported a case of Boeck's sarcoid in which animal inoculation was successful in one guinea-pig after ten months. Kyrle[35] even goes so far as to suggest the name of tuberculosis cutis typus Boeck, considering all cases of Boeck's sarcoid as due to tubercle bacilli. Pohlmann[36] inclines to the belief in the tuberculous nature of the disease. Oppenheim[37] in 1913 reported three cases of tumors deep in the skin. These tumors appeared after hypodermic injections and gave a histologic picture that was identical with sarcoid of Boeck. He thinks that not all cases of sarcoid are due to tuberculosis but that some other organism may occasionally cause it. Urban[15] agrees with Kreibich and Kraus[14] in considering that there are two varieties of the disease, one related to tuberculosis, the other group having nothing whatever to do with it. Kren[38] in a recent communication considers Boeck's sarcoid a tuberculosis of low virulence, but says that as yet this view has not been generally accepted in the literature. With regard to the scant results of so many investigators on inoculation of guinea-pigs, it is true that a bacterium of low virulence often may not take in a guinea-pig and at times may take and later become fibrosed as apparently happened in my case.

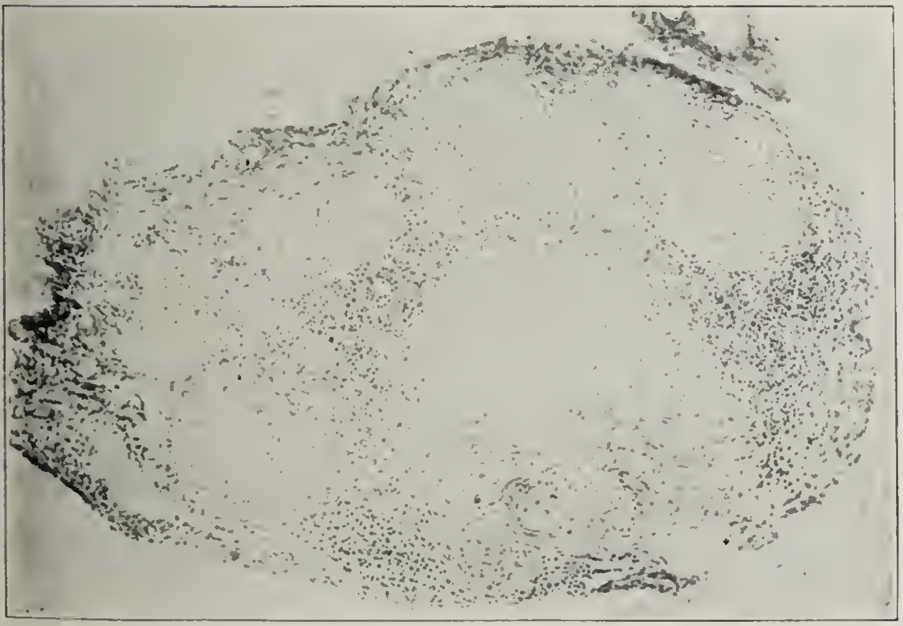


Fig. 10.—Tumor produced in omentum of guinea-pig.

DIAGNOSIS AND PROGNOSIS

A clinical diagnosis must always be confirmed by the microscope. Clinically, leprosy, lupus vulgaris, lupus erythematosis, leukemia cutis, syphilis, erythema induratum and lupus pernio must all be considered.

The prognosis as regards life is good. Recurrences are common, however.

Therapeutically arsenic has given good results in many cases. My patient has, according to a recent letter, improved very much while taking Fowler's solution. Darier has recommended calomel and tuberculin.

The histologic work in this case was done by Dr. E. T. Bell, assistant professor of pathology in the University of Minnesota, the animal experiments were done by Dr. W. P. Larson, assistant professor of bacteriology of the University of Minnesota, to both of whom I am indebted for kindly aid and advice.

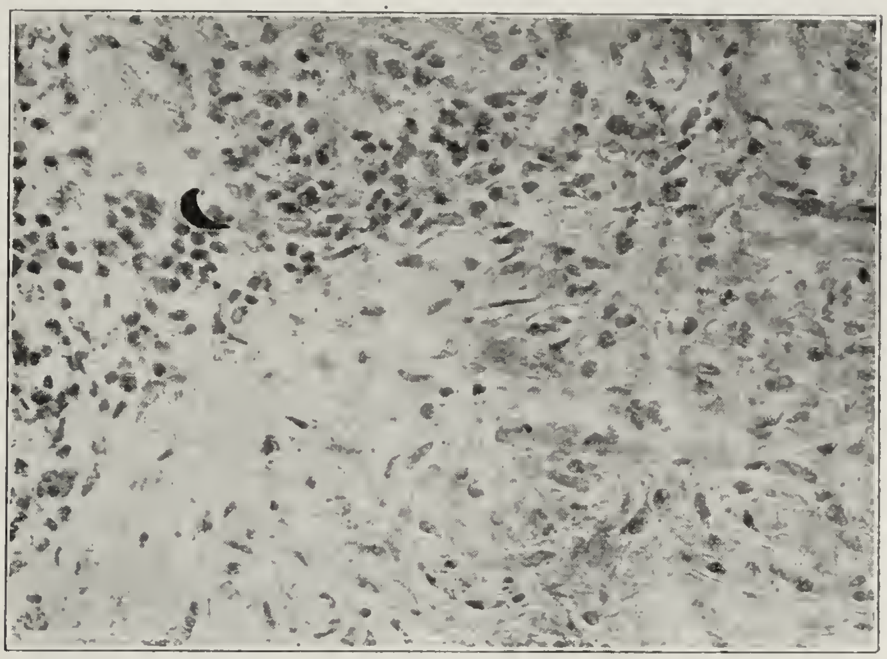


Fig. 11.—Structure of this tumor showing mostly epithelioid cells.

625 Syndicate Building.

ABSTRACT OF DISCUSSION

Dr. Howard Fox, New York: I have had an opportunity to study a case of this affection reported by my father, Dr. George Henry Fox, in conjunction with Dr. Udo J. Wile, as well as one of my own published last year in the *Journal of Cutaneous Diseases*. In my case it was practically impossible to arrive at a positive diagnosis, as the patient, a young lady, refused to have a biopsy performed. The nearest approach to a diagnosis, after the patient had been seen by many of the best dermatologists in New York and Philadelphia was that it was an atypical case of lupus vulgaris. As a result she was treated with a Finsen-Reyn lamp, operated by a skilled graduate of the Finsen Institute, for a total of about a hundred and fifty hours. After this treatment the eruption on one side of the face almost entirely disappeared, leaving, however, a marked depression. The other side of the face proved entirely refractory to the Finsen therapy and was later treated by Dr. Fred Wise with carbon dioxid snow. This was followed by a complete disappearance of the lesions with a perfect cosmetic result. As a result of this experience I would certainly urge the use of carbon dioxid snow for the treatment of other cases of sarcoid.

Dr. F. W. Cregor, Indianapolis: I report a case which I regarded as one of sarcoma cutis, basing this diagnosis on the picture of a similar case presented by Ehrmann in Vienna three years ago. My patient was a bachelor, 46 years old, who at the age of 11 first noticed dark-red, oval elevations, varying in size from a split pea to a large hazel-nut. The color of the lesions ranged from dark-red to bluish-black, with sharply defined lines of demarcation, and the

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29. Winkler, M.: Arch. f. Dermat. u. Syph., 1905, lxxvii, 3.
30. Opificius: Arch. f. Dermat. u. Syph., 1907, lxxxv, 239.
31. Stümpke, G.: Dermat. Ztschr., 1913, xx, 199.
32. Kren and Weidenfeld: Arch. f. Dermat. u. Syph., 1909, xcix, 79.
33. Morawetz: Arch. f. Dermat. u. Syph., 1910, cii, 121; referred to by Pohlmann (Note 36).
34. Kyrle: Arch. f. Dermat. u. Syph., 1910, c, 375.
35. Kyrle: Dermat. Wchnschr., 1913, lvii, 1445.
36. Pohlmann, A.: Arch. f. Dermat. u. Syph., 1910, cii, 109.
37. Oppenheim, M.: Dermat. Wchnschr., 1913, lvii, 1289.
38. Kren, Otto: Personal communication.

elevations were at all times very perceptible, and always rising gradually. The patient consulted many physicians, none of whom ever ventured a diagnosis. The family history was negative for any skin disease, and there was no personal history of syphilis or tuberculosis, nor did a careful examination reveal any clinical evidence of either of these diseases. The patient said he had long ago learned that by making an incision into these elevations with his pen-knife, they would rapidly disappear, leaving a smooth, pigmented spot. The privilege of a biopsy has not been granted, but it is promised in the near future, when I hope to make some further studies in connection with this interesting case.

Dr. S. E. Sweitzer, Minneapolis: I wish to lay particular emphasis on the etiology of this condition. The conflicting views that have been held are gradually clearing up, and there are types of sarcoid that are probably a form of tuberculosis of the skin, as my case shows. The case mentioned by Dr. Howard Fox may have had an entirely different etiology.

NEURASTHENIA AND TUBERCULOSIS (CONCEALED)*

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MINNEAPOLIS

Neurasthenia is defined as a condition of exhaustion in the general nervous system. No clear-cut symptom type has ever been described which could identify it and separate it from other diseases, the pathology and etiology of which are known. No specific cause or definite lesion in the brain, spinal cord, peripheral nerves or other organs or tissues of the body have been discovered which would serve to establish a definite pathology for it and thus distinguish it from other diseases the pathology of which is known.

Resting on no etiologic, pathologic or distinctly clinical foundation, the question may pertinently be asked—why does neurasthenia still retain its place as a clinical entity and why do clinicians persist in making the diagnosis of neurasthenia?

Because after the cases of recognizable organic disease simulating neurasthenia have been excluded from the group, a good number remain in which clinicians can detect no tuberculosis, no syphilis, no gastric ulcer, no nephritis, no organic heart-disease, no exophthalmic goiter or other organic disease.

That the limitations of our diagnostic resources may be responsible for this is quite probable because the Wassermann reaction has helped to exclude from the group of so-called neurasthenias many cases of concealed lues; the Roentgen ray has subtracted a number by revealing the presence of unrecognized gastric ulcers, and the more recent methods of cardiac examination and diagnosis have taken out a not inconsiderable number of cases of organic heart-disease.

If it can be shown that many of the so-called pure neurasthenias harbor a tuberculous infection so concealed as to have hitherto escaped recognition, the death knell of neurasthenia as a clinical entity must be sounded.

The close relationship between neurasthenia (so-called) and tuberculosis has long been recognized and commented on. Stiller[1] devotes a whole chapter to the subject. Lawrason Brown has emphasized the fact that in no disease is the neurasthenic state so frequently encountered as in tuberculosis.

It is not my intention to discuss the relationship between neurasthenia and clinically demonstrable tuberculosis, nor do I intend to consider the cases of clinically recognizable tuberculosis exhibiting neurasthenic symptoms.

The purpose of this study is to present evidence to prove that:

1. Many cases of clinically pure neurasthenia harbor tuberculous lesions so concealed as to escape detection by the examination methods usually employed.
2. No organic disease except tuberculosis can be discovered in these cases.
3. The diagnosis of tuberculosis rather than neurasthenia should be made in these cases.
4. The nervous symptoms exhibited by these patients should be interpreted as a new clinical symptom type for tuberculosis produced by the toxin of the tubercle bacillus.

In proof of this contention I here present the clinical reports of fifteen cases.

The diagnosis of neurasthenia was primarily made in all. The varied subjective symptoms, the long time over which these symptoms had been complained of, the absence of detectable organic lesions, the build and nervous construction of these individuals seemed to justify this conclusion.

The diagnosis of tuberculosis could not have been made in these cases on the usual symptoms and physical signs of this disease because these were absent.

These patients had no cough (with two or three exceptions), little or no fever, no night sweats, no hemophthisis, no rapid loss in weight, no sputum—hence no tubercle bacilli in sputum.

The presence of a tuberculous lesion in these cases was determined on, first, by a positive reaction to a subcutaneous injection of tuberculin. All the cases except one were injected and gave a positive reaction. In this case (Case 15) tubercle bacilli were subsequently found in the sputum. Second, a history of exposure to an open case of tuberculosis (nine of the fifteen gave this history). Third, doubtful lung signs not sufficient in themselves to establish the diagnosis but valuable as corroborative evidence (six of the fifteen cases gave these).

Roentgen-ray chest examinations were made in six of the cases; in four the roentgenologist reported positive findings in the lungs, in two negative. In one of the cases (Case 12) the roentgenologist reported a healed lesion. The patient, however, gave a positive reaction to tuberculin. In a second case (Case 11) the roentgenologist was in doubt ("diagnosis indeterminate: possible very early incipient tuberculosis"). Yet the patient reacted to tuberculin.

CLINICAL SYMPTOMS

The clinical symptoms of which the patients complained were varied and failed to conform to the symptomatology of any known organic disease. The non-conformity of the symptom complex is a characteristic feature of the cases. Hence the usual diagnosis of neurasthenia.

Named in the order of their frequency they are indigestion (10 cases), headache (9), constipation (7), loss in weight (7), cold hands and feet (6), mental depression (6), crying spells (5), physical tire (5), neckache (5), backache (5), general weakness (5), mental tire (5), worrying over trifles (4), eyeache (4), dysmenorrhea (4), insomnia (3), pains in the chest (2), voice tire (2), dizziness (2), tendency to take deep breaths (2), clearing of throat (2), palpitation of heart (1), shortness of breath (1), fainting spells (1), jerking of limbs (1). Only four had cough and in only one of these was there sputum coughed up.

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

[1] Stiller: Die Asthenische Konstitutionskrankheit.

A careful study of the symptoms complained of gives one no help in differentiating these cases from so-called neurasthenia. The symptom complex they present is the symptom complex described by all writers for so-called neurasthenia. It is the symptom complex diagnosed by all clinicians as neurasthenia. It is so-called neurasthenia.

DURATION OF SYMPTOMS

The symptoms in this group of cases were suffered from over a long period of time. The duration of complaints is measured in years rather than months or weeks.

Five were sickly from childhood. Three complained of symptoms five years or over; four from one to two years, while only three of the fifteen dated their complaints back less than one year.

These patients apparently possess a high resistance against the tubercle bacillus: a relative immunity given to them by tuberculous ancestors or by an infection contracted in childhood which the cell forces of the body have reduced to a quiescent state. If this were not so there would be more active recognizable tuberculosis and less so-called neurasthenia.

In many of them the tuberculous process never becomes very active; the bacilli are probably finally killed out and the individual in later life comes into a fair degree of health.

In some active symptoms and signs appear only after years of suffering from the slow fires of a low-grade tuberculous toxemia often interpreted as neurasthenia (Case 15).

PHYSICAL FINDINGS

The physical examination of these patients revealed little or no positive evidence of organic disease.

In none was a positive clinical diagnosis of tuberculosis made. A searching examination of the chest and other organs was negative for tuberculosis or other organic disease in nine of the fifteen cases.

In the remaining six, doubtful physical signs in the chest were present; but in none of these were the findings fixed and definite enough to establish a diagnosis of tuberculosis beyond a reasonable doubt, even after weeks of observation.

In the majority of these patients the tuberculous process will go unrecognized or diagnosed as (so-called) neurasthenia if the clinician relies on the knowledge furnished him by physical examination alone.

PHYSICAL BUILD

Eleven of the individuals in this group were tall and slender. They had prominent, angular features; high cheek bones; long chests; long, flat or scaphoid abdomens, and slender arms and legs. Two were short of stature but slender build. Two others were of short, chunky build with round faces, broad full chests and short rounded abdomens, and short extremities.

All were of high-strung nervous temperament. All those (seven) in which the position of the abdominal organs was determined showed enteroptosis. Thirteen of the fifteen cases therefore conform to the physical construction of the "habitus phthisicus."

Stiller expresses the relationship between "habitus phthisicus" and "habitus asthenicus" in these words: "There is no doubt to my mind that the habitus phthisicus and habitus enteroptoticus are not only strikingly similar to each other but also are completely identical."[2] This study tends to confirm his conception.

TEMPERATURE

Ten of the group showed at times slight rises in temperature (99.2 to 99.4) usually in the afternoon with a subnormal morning temperature of (97 to 98.2). (Temperature records were taken with patients in bed.)

The afternoon rise would usually occur only occasionally, patients often going for days with no rise above normal. The subnormal morning temperature was more regular, most of the cases showing it day after day.

If these patients are up and about, however, they usually run a temperature of 99.2 to 100 under physical exertion or mental excitement.

These occasional temperature rises in persons with so-called neurasthenia are of great significance. They are often the only tangible clinical evidence of a concealed tuberculous lesion.

In this connection it is interesting to note that in Weir Mitchell's "Fat and Blood," every case reported by him (eight in all) in which systematic temperature records are given had fever (99.2 to 101.2).

PULSE-RATE

The pulse-rate in this group is characterized by its variability and its tendency to rise above the normal. The maximum was usually 100, the minimum about 70. In three cases the pulse-rate ran between 100 and 120. In two the minimum was as low as 60.

A variable pulse-rate is encountered in so many other organic conditions that its value from a diagnostic point of view is doubtful.

If, therefore, one were to draft a clinical picture of this condition with which we are dealing he would describe it as follows:

A person usually under 25 years of age with or often without a history of known exposure to tuberculosis comes complaining of a varied lot of symptoms expressing nervous and physical exhaustion, the most common of which are indigestion, headache, constipation, mental depression, cold hands and feet, backache, neckache, eyeache, crying spells, chilliness, loss of weight, etc. These symptoms have dated back over a number of years with periods of improvement followed by relapse under unusual nervous or physical strain. Partial or complete breakdown often results.

On inspection one notes a poorly nourished, high-strung person with angular features, high cheek bones, long chest and abdomen, slender arms and legs and active reflexes.

A careful physical examination reveals no positive evidence of organic disease. Enteroptosis is usually present. Doubtful lung signs are occasionally encountered. The pulse-rate is usually increased; the temperature record shows an occasional afternoon rise to from 99.2 to 99.4 or more. The laboratory findings are negative for organic disease.

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[2] Es ist mir unzweifelhaft dass der habitus phthisicus und enteroptoticus nicht nur einander auffallend ähnlich sondern ganz und gar identisch sind.

The clinician is puzzled; the long history, the build and nervous construction of the individual, the absence of the signs of organic disease leads to the diagnosis of neurasthenia (so-called). But what is this disease called neurasthenia? Will some one please answer?

Are these patients negative for organic disease? I have given the historical summaries of fifteen in which the evidence is positive that a tuberculous infection exists. It is an active tuberculous process because I do not believe that any one will be so foolish as to argue that a positive reaction to a subcutaneous injection of tuberculin means anything less than an active tuberculous process somewhere in the individual giving that reaction.

The location of the lesion whether it be in the lungs, lymph-glands, peritoneum, bones, or wherever it may be focused need not concern us at present.

The fact stands out that in many of these individuals whom we have been considering negative for organic disease the evidence is incontrovertible that an active tuberculous infection does exist. Are we justified in taking the view that these symptoms of (so-called) neurasthenia are a clinical expression of such an infection? I think we are.

First, because we have no evidence to prove that these individuals harbor any other organic disease except tuberculosis.

Second, because we have good evidence for believing that tuberculosis is a chronic disease often contracted in childhood and remaining in the body in a semiquiescent state for years. The long history of many of these cases can thus be accounted for.

Third, because tuberculosis is the one chronic disease which gives most typically the symptoms of nervous and physical exhaustion encountered in neurasthenia (so-called).

Fourth, because we know that the tubercle bacillus produces a toxin (tuberculin) which circulates in the blood and is capable of producing for years a low-grade toxemia with all its varied clinical expressions.

Every experienced clinician marvels at the varied symptomatology of his recognized cases of tuberculosis, to say nothing of the clinical manifestation of those not recognized.

Are the cases presented patients with neurasthenia harboring an associated tuberculous process? I think not. If some one will demonstrate a pathologic base for neurasthenia so that it can be identified and differentiated from other diseases of known pathology, discussion on this phase of the subject might be profitably continued. In the absence of such pathologic lesions and with reliable proof of the existence in these individuals of a tuberculous process and of this only, it is only reasonable to conclude that an infection is present which is common and about which we know a great deal rather than with a name given to a symptom complex about which we know nothing.

A further question immediately presents itself. What proportion of the cases diagnosed as neurasthenia in which a careful physical examination reveals no tuberculosis, no lues, no nephritis, no exophthalmic goiter, no gastric ulcer or any other recognizable organic disease, shows evidence of a concealed tuberculous infection? I have not as yet sufficient clinical data at hand to answer this question. In my experience, after excluding all other organic diseases, the number of persons exhibiting the symptoms of so-called neurasthenia failing to react to a maximum dose of a subcutaneous injection of tuberculin is small.

But is it not probable that if one were to select a given number of individuals and subject them to the subcutaneous tuberculin test as large a proportion would react as have reacted in this series of cases?

To this question I answer: No. In between 500 and 600 individuals with symptoms suggestive of a tuberculous infection whom I have injected with tuberculin for diagnostic purposes during the last twenty years, not more than 55 per cent. have given a positive reaction.

I have presented no distinctly pathologic proof that a tuberculous lesion exists in these individuals. This is impossible. These patients are living. They may not die for years. When they do die and are examined of what value is the evidence? If a tuberculous lesion were present at necropsy how could one know whether it existed at the time the individual complained of his symptoms. If a tuberculous lesion is present and healed how can one know whether it was healed at the time of the patient's illness. It it is present and active how can one know whether the lesion was present and active at the time the patient complained of his nervous and physical exhaustion?

Post-mortem evidence has proved the reliability of the subcutaneous tuberculin test, and farther than this need not be called up in settling the question under consideration.

Nor can one rest his proof on the later development of recognizable tuberculous lesions. Some of these patients have already developed clinical evidence of the infection. Most of them have not and probably never will develop clinical tuberculosis as it is now understood.

The lesion is too minute, too well walled off, the bacilli are not virulent enough, or the resistance of the individual is too high.

It is for this very reason that so many of these cases are overlooked. It is for this very reason that the diagnosis of neurasthenia has so often been made.

Nor can the proof rest on the presence of tubercle bacilli in the sputum or other excreta. Most of these patients had no cough, hence no sputum and no tubercle bacilli in sputum.

A positive von Pirquet test was present in all but one case (Case 8). But a positive von Pirquet test can not be depended on to detect an active tuberculous infection. In this connection Case 8 is of interest. The von Pirquet test was negative while the subcutaneous test was positive. In my experience with between 500 and 600 injections of tuberculin for diagnostic purposes, I have met a number of cases in which the von Pirquet test was negative while the subcutaneous tuberculin test was positive. I shall make these cases a subject for a later study.

The stereoscopic Roentgen studies of the chest in the hands of an expert can be made of assistance in detecting some of these cases, but cannot be relied on in determining the broad question whether an active tuberculous process exists in these individuals.

The recognition of an active tuberculous infection in these cases must therefore rest primarily on a specific test (for this purpose I have used a subcutaneous injection of tuberculin), and secondarily on corroborative evidence such as a history of exposure to tuberculosis, or the presence of suggestive clinical evidence in the lungs, lymph-glands or elsewhere in the body.

I have here presented evidence, which it seems to me is conclusive to prove that:

1. Many individuals exhibiting the symptom syndrome of so-called neurasthenia harbor a tuberculous infection and this only.
2. The tuberculous process in most cases is so concealed as to escape detection by the usual clinical examination methods employed, and a specific test must be used to reveal its presence.
3. In the light of this evidence these cases should be diagnosed as tuberculosis and not neurasthenia.
4. We should recognize and adopt a new clinical symptom type for concealed tuberculosis.
5. This symptom type is the symptom complex now recognized by clinicians the world over as neurasthenia.

REPORT OF CASES

Case 1.—Miss E. L., aged 23, single, living at home, admitted to the St. Barnabas Hospital, Oct. 14, 1913, complaining of backache, insomnia, spells of depression, indigestion. Family history negative.

Present history includes a long series of ailments of various sorts, curvature of spine at 5 years of age, at first thought to be tuberculous, later considered hysteric; chorea at 10 years of age; dysmenorrhea at 15 years of age; various abdominal operations finally terminating in hysterectomy in February, 1912. No cause given by the operating surgeon for the hysterectomy other than that he considered it best for the patient's general state of health. No pathologic lesions found.

History of present complaints dates back over a number of years and includes a long series of symptoms, including indigestion, vomiting, abdominal pain, pain in back, insomnia, constipation, attacks of mental depression with hysteric manifestations, crying spells, dizziness, aching in the neck, headache, eyeache and physical tire on exertion. Has had a slight nervous cough for years. Patient has lost about 15 pounds in weight in the last year. Has dieted to such an extent that she can scarcely eat solid food of any kind.

Patient is a tall, angular-looking girl, high cheek bones, long chest and abdomen, marked tremor upper eyelids, increased knee-jerks, pupils react to light and accommodation, no incoordination, some tremor of finger-tips, no enlarged thyroid, no exophthalmos. Patient presents the stigmata of a highly nervous girl; hands, arms and legs were constantly twitching during examination; seems melancholy and depressed. Careful physical examination of this patient, including searching examination of the lungs, revealed no evidence of organic disease. There was gastroptosis, a dislocated kidney on right side, tenderness over abdominal aorta and along lower spine. Urine and gastric examinations negative, no occult blood in stools. Blood examination showed slight secondary anemia (hemoglobin 87 per cent.). Wassermann reaction negative. Von Pirquet test positive.

Patient was carefully observed in hospital over a period of two weeks. She had an occasional rise in temperature to 99.2. Pulse 85 to 100. She presented all the earmarks of a highly neurotic young woman, with frequent crying spells, much mental depression, vomiting attacks, insomnia. Complained much of cold hands and feet, backache, headache, and slight dry cough. No sputum. Had two fainting spells while going to the bath room. Roentgen examination of spinal column and lungs negative.

On the fifteenth day after admission, patient was given 1/20 c.c. of Bureau tuberculin,[3] showing a positive reaction (temperature 102) within sixteen hours after the injection. Following the positive tuberculin reaction the clinical diagnosis of neurasthenia was abandoned and the diagnosis made of tuberculosis (concealed), focus not determined, with chronic tuberculous toxemia exhibiting so-called neurasthenic symptoms.

Case 2.—Mrs. J., aged 37, married, one child. Family history negative for tuberculosis. Personal history negative except a miscarriage one year ago. Patient has been a healthy woman until one year ago when, following her miscarriage, she began losing in strength and weight.

Contracted la grippe about nine months ago which left her with a slight clearing of throat which continued for two months or more. This disappeared during the summer but reappeared again in the fall. No sputum coughed up. For the last three months has felt nervous and miserable; everything no matter how trifling seems like a mountain to her; she cries at the slightest provocation; is despondent and blue. The slightest exertion, mental or physical, tires her and she has had to give up all her social duties and home cares. Is bothered much with aching in the back of neck. Has had her eyes fitted repeatedly for glasses to relieve her headaches. Has cold hands and feet. Has had no pains in the chest. Appetite is poor. Has lost 10 pounds in weight in six months. Patient had been carefully examined by different physicians who told her she was nervous and should take a rest cure.

Patient is a short, stockily-built woman, with broad chest and short abdomen, dark hair and eyes. Mucous membranes rather pale. Well-nourished. Weeps during examination. Pupils react promptly to light and accommodation. Knee-jerks active. Marked tremor of eyelids with eyes closed. Active dermatographia. Pulse rapid, 120 to minute. Temperature at office 99.4. No exophthalmos. No von Graefe's sign. Some tremor of finger-tips.

A searching physical examination was negative for organic diseases except that in the lower right chest anteriorly over the fourth and fifth interspaces a fine pleural friction-rub could be heard. Repeated examinations always disclosed the friction-rub in this area.

Urine and blood examinations negative. Wassermann reaction negative. Von Pirquet test positive. Not being able to make a positive diagnosis the patient was given 1/25 c.c. of Bureau tuberculin and gave a positive tuberculin reaction (temperature 100.4) within eighteen hours after injection was given. No Roentgen examination of chest made. The diagnosis of neurasthenia was then abandoned.

The friction-rub in right chest and the positive tuberculin reaction justified the diagnosis of tuberculosis of right pleura; chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

Case 3.—Mrs. L. W. B., aged 30, married, no children. Family history negative except one brother dead of tuberculosis. Personal history negative except childhood diseases. Well as a young woman, never had been sick. Married three years and has been occupied with her husband (a college professor) in teaching work.

About one year ago began running down in weight. At that time was spending many hours in the classroom and doing much outside church and social work. Became blue and depressed; cried easily and on slightest provocation. Was tired all the time and could not get enough sleep. Had an aching pain in back of neck, especially when tired. Also had headaches. Lost her appetite. Chilled easily; hard to keep her hands and feet warm. Had a slight cough, especially when using her voice much. No sputum. Hoarsed up easily after talking. Had no fever, no night sweats. Became so nervous and worn out that she had to stop teaching. Consulted various physicians who told her she had neurasthenia and was overdoing.

Patient is a tall, well-developed woman, some pigmentation of skin over cheeks and face. Long chest and abdomen. Face round and full. Patient is much depressed and weeps during the taking of the history. Knee-jerks very active; active dermatographia; pupils react to light and accommodation. Some tenderness in neck and along spine and over abdominal aorta.

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[3] Bureau tuberculin is the tuberculin made by the U. S. Bureau of Animal Industry. It is a 10 per cent. solution of Koch's old tuberculin. It is the tuberculin used in testing cattle for tuberculosis.

A careful physical examination was negative for organic disease. There was gastroptosis. Urine and blood examinations were negative. No sputum. Pulse 95. Temperature showed an occasional afternoon rise to 99.2. A searching physical examination of the lungs was negative, except roughened breath-sounds in left apex. No impairment of percussion note. No râles heard. Von Pirquet test positive. No evidence of lues.

While under observation patient seemed a nervous, much depressed woman, cried at times and complained of aching pains in the head, neck, back, chest and limbs. On the fifth day a subcutaneous injection of 2 mg. of Koch's old tuberculin was given with a marked positive reaction (temperature 102.8) within sixteen hours following injection. No Roentgen examination of chest was made.

The diagnosis of neurasthenia was not confirmed. The diagnosis was made of tuberculosis (focus concealed) with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

Case 4.—Mrs. W. V., aged 23, married, housewife, one child, referred to the University Hospital June 2, 1913, complaining of headache, dizziness, indigestion, backache, irregular and painful menstruation, and tenderness in the lower abdomen; symptoms dating back two and one-half years. Family history negative. Previous history negative, except whooping-cough as a child.

The patient was carefully studied for sixty-three days in the surgical service of the hospital and then referred to the medical service with the diagnosis of neurasthenia. After her transfer the patient was again examined. She was a tall, rather poorly nourished woman, high cheek bones, long chest and abdomen, color slightly anemic, active dermatographia.

A careful thorough examination including urine, blood and Roentgen-ray chest study revealed no evidence of organic disease. Wassermann reaction negative. Von Pirquet test positive. The patient exhibited the earmarks of a highly neurotic woman, and the provisional diagnosis of neurasthenia was concurred in. Pulse 60 to 90. Temperature normal with an occasional rise to 99.4 in the afternoon.

On the twenty-fourth day after admission to the medical service patient was given 1/20 c.c. of Bureau tuberculin with a typical positive reaction within twelve hours following the injection (temperature rising to 101.6).

The diagnosis of neurasthenia was abandoned. The presence of a positive tuberculin reaction justified the diagnosis of concealed tuberculosis, focus not determined; chronic tuberculous toxemia exhibiting the symptoms of so-called neurasthenia.

Case 5.—Miss I. P., aged 24, Scandinavian, single, white, housekeeper, admitted to the University Hospital Oct. 26, 1913, complaining of shortness of breath, headaches, precordial pain, lassitude and weakness on physical and mental exertion.

Family history negative. Personal history negative except usual childhood diseases. The patient was treated five years ago for neurasthenia and took a rest cure in a hospital. Her present complaints date back three months and includes a history of mental and physical tire, some loss in weight, headaches, especially when she reads, poor appetite and indigestion.

Patient is a tall, fairly well-nourished girl, high cheek bones, long chest and abdomen, fair color, pupils react to light and accommodation, knee-jerks active.

A thorough clinical investigation of this case, including pelvic and rectal examinations, also urine, blood and gastric studies, was negative for organic disease. No sputum. Wassermann reaction negative. Von Pirquet test positive. Temperature normal with an occasional rise to 99.2. Pulse 70 to 96. Clinical diagnosis based on the history of physical and nervous exhaustion with negative physical findings was neurasthenia with astigmatism (Macnie).

On the thirty-first day after admission patient was given subcutaneously 1/50 c.c. of Bureau tuberculin with a typical positive reaction (temperature rising to 101.4) within twenty hours after injection of tuberculin. The diagnosis of neurasthenia was then abandoned.

The history and the positive tuberculin reaction in the absence of evidence of other organic disease justified the diagnosis of concealed tuberculosis, focus not determined; chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

Case 6.—Miss H. W., aged 21, single, white, stenographer, admitted to the University Hospital, Jan. 28, 1913, complaining of pains in abdomen, indigestion, dysmenorrhea and nervousness.

Family history negative except that mother died after five months' illness of probable tuberculosis of lungs. One sister now has chronic cough. Patient has never been strong, long history of backaches, menstrual troubles and recurring winter colds. In July, 1911, had a nervous breakdown followed by a period of weakness and prostration. Finally became so weak and run down that she had to stop work.

Present complaint dates back over two years and consists of a long history of ill-defined pains in upper and lower abdomen and left chest, associated with indigestion, eructations of gas, nausea, loss in weight, cold hands and feet, painful menstruation, prostration and weakness.

Patient is a fairly well-nourished young woman, seems weak and talks in a low voice; long chest and abdomen; color good; pupils react to light and accommodation; knee-jerks active; palpable postcervical lymph-glands.

A careful thorough physical examination of this patient, including repeated examination of the lungs, revealed no positive evidence of organic disease.

The apex of the right lung was questionable; there was marked visceroptosis; blood and urine negative; there was no sputum; von Pirquet test was positive; Wassermann test not made. Temperature normal. Pulse 70 to 100. No positive diagnosis could be made. The patient was high-strung and nervous and this fact together with the negative clinical findings led to the diagnosis of neurasthenia.

On the thirteenth day after admission patient was given 1/20 c.c. of Bureau tuberculin subcutaneously with a typical positive reaction (temperature 100.4) within sixteen hours. Roentgen examination of chest twelve days later showed "diffuse infiltration of both lung fields, especially marked in the right" (Bissell).

The diagnosis of neurasthenia was therefore abandoned and the diagnosis made of pulmonary tuberculosis with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

Case 7.—Miss M. L., aged 32, single, stenographer. Father died of tuberculosis of the lungs, four sisters and one brother dead of tuberculosis of the lungs. Never strong as a girl, subject to colds and bronchitis. Three years ago was in California for bronchitis one winter during which she gained 12 pounds in weight. Gives a long history of ups and downs with weakness, poor indigestion, exhaustion from physical effort, aching in the back and loss in weight.

Comes now for pains in her right chest and precordial region which she has had for about a week. Has had pains also in the left chest for a month or more. Pains are a dull ache, and chest is sore to pressure. Occasionally patient feels pains in axillae, left scapula and back. Deep breathing or cough does not aggravate them.

For about two years patient has had a clearing of her throat, more marked in the morning. Has lost 10 pounds in weight during the past year. Appetite is poor. Is bothered much with sleeplessness. Has pains at her menstruation, and now feels so weak and nervous that she has had to stop work.

Has been examined by many physicians and lung specialists, all of whom had suspected her of being tuberculous, but none of whom had been able to find evidence of tuberculosis in the lungs or elsewhere in the body and had, therefore, diagnosed her case as neurasthenia.

Patient is a fairly well-nourished girl, looks high-strung and neurotic, color pale, light hair and eyes, high cheek bones, long chest and abdomen, pupils react to light and accommodation, tremor of finger-tips, knee-jerks active.

A careful physical examination of this patient revealed no evidence of organic disease. A searching physical examination of the lungs was negative for tuberculosis. Patient had a moderate grade of gastroptosis. Sputum and urine examinations negative. Von Pirquet test positive. Blood-pressure 116. Pulse 90 to 100. Temperature normal.

Not being willing to accept the diagnosis of neurasthenia, and not being able to make the diagnosis of tuberculosis, the patient was subjected to an injection of 1/25 c.c. of Bureau tuberculin, and gave a positive reaction (temperature of 102) within eight hours after injection was given.

The clinical diagnosis of tuberculosis (concealed) with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia was then made.

Case 8.—Miss L., aged 25, Jewess, single, stenographer. Family history negative except that mother died of tuberculosis when patient was a child at home.

Personal history negative except walking typhoid fever (?) five years ago. Operated on twice for pelvic displacements. Present history dates back six years and includes a long history of nervous symptoms, including headaches, backache, neckache, insomnia, cold hands and feet, indigestion, cough, exhaustion, rest cures, operations, treatment by osteopaths and Christian Scientists, etc. Insomnia and indigestion have been her most troublesome symptoms. Has been seen and examined by many physicians and the diagnosis of neurasthenia usually made. Has taken a number of rest cures from which she would temporarily improve and go back to work only to relapse into a weak, prostrated state, rendering her unfit for her occupation. Has lost 40 pounds in weight in the last six years.

Patient is an ambitious, intelligent, bright young woman, dark hair and eyes, high cheek bones, long chest and abdomen, slender limbs, pupils react promptly to light and accommodation, knee-jerks active, pulsating abdominal aorta, active dermatographia. Marked tremor of eyelids with eyes closed. No exophthalmos, no von Graefe's sign, no enlargement of thyroid.

A careful physical examination of this patient revealed no evidence of organic disease. There was marked gastroptosis and bilateral nephroptosis. Blood, urine and stomach examinations negative for organic disease. No Wassermann test made. Exploratory abdominal section negative for organic diseases in stomach, gall-bladder, appendix or elsewhere. Searching examination of lungs revealed no evidence of tuberculosis. Von Pirquet test negative. Temperature showed an occasional rise to 99. Pulse 80 to 100. The clinical diagnosis of neurasthenia seemed justified.

After patient had been under observation for six weeks and despite the negative von Pirquet, the patient was given 1/25 c.c. of Bureau tuberculin with a typical positive reaction (temperature 101) within twenty-four hours following the injection.

The clinical diagnosis of neurasthenia was then abandoned and the diagnosis made of tuberculosis (focus concealed) with a chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.

Case 9.—Miss S. (referred by her physician as a case of neurasthenia and admitted to Asbury Methodist Hospital, Dec. 1, 1909), aged 23, living at home, family history negative except that two sisters have died of tuberculosis of the lungs. Has never been a strong girl. Has always been very nervous and of late on account of a mental worry has been bothered with a constant desire to take deep breaths. This deep breathing occurs during the day while she is awake; is not aware of it at night (is present while the history is being taken). At times has a slight cough which has always been considered a nervous cough. No sputum coughed up. Has not lost in weight. Occasionally has slight fever (99.2). No sweats, no chills. For the last week has complained of feelings of distress in the upper abdomen.

Patient is a fairly well-nourished girl, sensible and intelligent, seems high-strung and fidgety, good color, long chest and abdomen, pupils react to light, knee-jerks very active, tremor of eyelids. During the examination patient keeps taking long deep breaths in rapid succession, one after the other. The deep breathing is worse when she sits up than when lying down.

A careful physical examination of this case including a searching examination of the lungs reveals no evidence of organic disease. Blood, urine and gastric contents normal. Von Pirquet test positive. The abdominal aorta was pulsating and tender and there was ill-defined tenderness over the upper abdomen, but no mass. Patient was repeatedly examined but no conclusion could be arrived at.

On the seventh day after admission patient was given 1/15 c.c. of Bureau tuberculin and gave a typical positive reaction with a temperature rise to 101.5 within fourteen hours following the injection. No Roentgen examination of the chest was made.

The diagnosis of neurasthenia was therefore not confirmed, but the diagnosis of concealed tuberculosis with chronic tuberculous toxemia producing neurasthenic symptoms was made. The focus could not be located.

Case 10.—W. K., aged 29, male, single, American, carpenter, referred to the University Hospital, Feb. 16, 1912, as a case of nervous dyspepsia and neurasthenia. Family history negative. No tuberculosis. Denies venereal disease. Has had mumps and small-pox.

Dec. 7, 1911, patient began complaining of palpitation of the heart. Consulted a physician who examined his heart and pronounced it all right. The attacks continued for a number of days until his stomach was washed out, since which time the palpitation has not bothered him. Patient has not felt well since the attacks in December. Is bothered with belching of gas after meals, constipation, headaches, especially at night, has felt weak and nervous, has frequent urination, and at times ringing in his ears. Patient has no cough. He has lost about 17 pounds in weight since sickness came on.

Patient is a thin, spare man, fairly well-nourished, color good, answers questions promptly and to the point, is nervous and apprehensive about himself. Pupils equal, react to light and accommodation, knee-jerks active, slight cyanosis of lips and finger-tips, cervical glands just palpable.

A careful physical examination of this patient revealed no evidence of organic disease, except a questionable area on the upper right chest anteriorly below clavicle. Here the percussion note is slightly impaired, expiration somewhat prolonged and a few fine cracking râles could at times be heard at the close of inspiration close to the right sternal border in first interspace. Blood examination showed a secondary anemia of mild grade. Urine and sputum negative. Von Pirquet test positive. Gastric analysis negative except an increased acidity. Pulse 60 to 80. Temperature 97 to 98.4.

On the tenth day after admission patient was given 1/20 c.c. of Bureau tuberculin with a positive typical reaction (temperature 102.0) within sixteen hours following the injection.

Roentgen examination of chest March 1: "There is a rather marked thickening about the hilus of the right lung. A number of peribronchial lymph-nodes in both lungs. The right apex is distinctly more dense than the left." Roentgen diagnosis: Incipient tuberculosis (Bissell).

The diagnosis of neurasthenia could not be confirmed. The suspicious physical signs in the chest, the positive tuberculin reaction, the Roentgen chest findings justified the diagnosis of tuberculosis of the right lung with chronic tuberculous toxemia exhibiting symptoms of so-called neurasthenia.[4]

Donaldson Building.

ABSTRACT OF DISCUSSION

Dr. Nathan Rosewater, Cleveland: Dr. Head is right in distinguishing these cases of disguised starvation from neurasthenias. I believe a much larger class which have "that tired feeling" in the morning after sound sleep are obviously not neurasthenias, since the neurasthenic class after a night of rest with sleep wake up refreshed from the rest of nerves, brain and body, and only as they tire out sooner or later do they fag. Another class described in the paper which I read before this Section in 1908 as cases of "disguised starvation" should also be excluded.

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[4] Cases 11 to 15 omitted because of lack of space.

These are cases of more or less undernourishment resulting in more or less bankruptcy of brain, muscles, organs or tissues with impoverishment of circulatory fluids, which condition is perhaps the greatest cause of non-resistance to tuberculosis or other germ invasion, because neither the blood-stream nor the exhausted cells are in any condition to offer the necessary 100 per cent. or more of resistance to the invading germs from without, nor are they able to prevent the breaking down of foci already present. A class akin, is of those who wake refreshed but complain of wearing out before or soon after noon, unable to keep brain and body at work. On questioning these we find that they have taken for breakfast a cup of coffee, with or without a little bread. This insignificant meal cannot prevent the human machine from breaking down, any more than an automobile can be kept going when one starts away with a pint of gasoline instead of five gallons. These patients when advised to eat three or four eggs for breakfast come back reporting that they are veritable indefatigable steam-engines. Tuberculin may give a positive reaction in nearly all cases in adults but that does not prove active tuberculosis. A woman patient suffered from insomnia, but was otherwise well. Roentgenograms were made and she was told she had pulmonary tuberculosis, basing it on the Roentgen-ray findings and rapid pulse. She had neither fever, cough, râles nor other symptoms. She was examined by three abler men than myself and no active tuberculosis found. This was nearly five years ago and she is still in excellent health. As to the enteroptoses, they may be primary or secondary, mostly the latter. I have seen many with nephroptosis, gastroptosis, etc., some with Stiller's habitus and quite a number without. These ptoses are due to asthenias, occurring before or after the development of the habitus, and caused primarily by a large variety of undermining, exhausting influences, metabolic, toxic, infectious, psychic, or by overstrain or underfeeding, and not until the primary causes and the ptoses are overcome will these secondary asthenias respond to treatment.

Dr. F. M. Pottenger, Los Angeles: Dr. Head has illustrated the important fact that neurasthenia has a tuberculous toxemia as an underlying cause in a large percentage of cases. Tuberculosis affects all of the systems of the body, and, strange to say, even the symptoms of the early pulmonary form of the disease calls the attention away from the lungs rather than to them, the larynx, the heart, the stomach and the nervous system seemingly being affected. This neurasthenia is better understood when we recall that tuberculosis begins in childhood; that nearly every individual is affected; that the lesion heals in some at once, but in many passes through stages of quiescence and activity, extending now and then from the primary focus of infection to other parts of the body, so that necropsies in adults show more than 50 per cent. in and about the apices of the lungs. From such lesions as fail to heal, toxins are given off which have a profound effect on the nervous system, producing neurasthenia. Many young people who fail to develop properly, who have lowered resistance and manifest an unstable nervous system belong to this group. Such patients often respond remarkably well to the measures used in the treatment of tuberculosis and are definitely benefited by tuberculin treatment. Many believe that the phthisical habitus is often a result of tuberculosis instead of a cause. Unless the medical profession can get away from their conception that tuberculosis is the disease which we usually term consumption, and will recognize the early infection and the slight symptoms which are produced months, sometimes years before the active advanced stage manifests itself, it will miss completely the point of the modern teaching concerning this disease.

Dr. Charles Stover, Amsterdam, N. Y.: Myasthenia gravis should be differentiated before determining that the patient is suffering from neurasthenia. It is not uncommon, particularly among those who are interested in diseases of the nervous system, to meet both the neurasthenic and tuberculous type of cases which, in course of time, come under the classification of myasthenia gravis.

Dr. Eliza Mosher, Brooklyn: I have been much interested in the statement that nearly all of the patients included in Dr. Head's report had enteroptosis. According to Sir Arbuthnot Lane of London, intestinal stasis due to enteroptosis is one of the underlying causes of a large number of special diseases, tuberculosis among the number, and I believe he is right. We are finding behind many cases of neurasthenia, melancholia and even epilepsy, the systemic poisoning produced by the products of chronic intestinal stasis, and as we become skilled in the diagnosis of gastro-intestinal displacements, "bands" and "kinks," we shall more and more often find one or all of these conditions present in the abdomen of patients suffering in these and other ways. I also understood Dr. Head to say that in the cases he reported the long slender trunk so common among young tuberculous patients was a common feature. I have yet to find a delicately built girl of this type, especially if she has broad hips, who does not manifest a strong tendency to enteroptosis. Dr. Head's cases should arouse us all to the importance of making a careful examination of the abdomen in all of our patients and especially in slender-bodied undernourished, neurasthenic girls and women.

Dr. A. J. Caffrey, Milwaukee, Wis.: We all know that a very large number of neurasthenics pass through the free dispensaries, and I have charge of the medical department of the free clinics in the Marquette University at Milwaukee and have been making routine tuberculin tests of the patients we class as having neurasthenia. In nearly all cases, perhaps 90 per cent., there is a positive reaction to subcutaneous injections of tuberculin and also to the von Pirquet test. I think, from these observations, that there must be some direct connection between neurasthenia and concealed tuberculosis.

Dr. John Ritter, Chicago: I have observed that in at least 40 per cent. of the so-called neurasthenic patients, tuberculosis in some form is present. It, like walking typhoid, belongs to that large category of diseases in which more than 50 per cent. of patients are tuberculous. We see it in cases of hypo-acidity, of which at least 30 per cent. point to tuberculosis. All these, like tuberculosis following trauma, are manifestations of a previous existence of tuberculosis, the symptom-complex only following in the train of a previous disease. Tuberculosis is, as Dr. Pottenger points out, like syphilis and follows a similar course. The full picture of pulmonary tuberculosis is only the last or tertiary stage of the disease following long after the primary infection. I cannot too strongly emphasize that, in the use of tuberculin for diagnostic purposes, the intracutaneous mode of application should be used and not the subcutaneous. In the public schools in Vienna every child, at entrance, is given a von Pirquet test for diagnostic purposes. To all who do not react to this test a second one is given intracutaneously, and it has been observed that about 80 per cent. of those children who do not react primarily to the von Pirquet react positively to the Manteau test. With regard to the cases of healed lesions, the application of tuberculin for testing purposes is of no value because from the very nature of the diesase we know that these cases all react positively.

Dr. Tom A. Williams, Washington, D. C.: I cannot agree with Dr. Head's statement that all neurasthenia is due to latent tuberculosis. While I am one of the few neurologists who believe that neurasthenia, unlike psychasthenia and hysteria (which are psychogenetic), is a purely physical disorder and, moreover, due to some cause or other extraneous to the nervous system, rather than to hypothetic "nerve fatigue," I cannot accept latent tuberculosis as the sole source. We must remember that symptoms quite similar to those described by Dr. Head, are not uncommon, as every southern physician knows, in the early stages of pellagra, in hookworm disease and in latent malaria. Besides dysthyroidea as well as other glandular irregularities is responsible for disorders often labeled neurasthenic. In connection with Dr. Head's thesis, however, it is interesting to recall the investigation made in the neurologic clinic of the New York Postgraduate Hospital some years ago by Dr. Haskell, who found many of the neurasthenics suffering from a tuberculosis which had been overlooked by other physicians. Many of us regard enteroptosis not as the cause but as the effect of asthenic states, to which also the intestinal disorders may be secondary; furthermore, it must be remembered that many cases of enteroptosis develop neither neurasthenia nor tuberculosis. With these qualifications, Dr. Head's paper should be of the greatest value in warning practitioners against permitting themselves to make a diagnosis of neurasthenia.

Dr. Walter B. Swift, Boston: I agree with Dr. Williams that not all patients with neurasthenia have tuberculosis. A young woman in the neurologic service of the Boston City Hospital presented all the typical signs of neurasthenia. Six or eight months after that diagnosis was made she died of carcinoma of the stomach. Neurasthenia is not a useless word. It makes a good waste-basket—something to say in place of "I don't know." We would do better to dispense with not the word but the waste-basket and instead give these patients further exhaustive physical and mental investigation.

Dr. Albert Robin, Wilmington, Del.: Neurasthenia is a word rather loosely used to the great disadvantage of the suffering public. This term "neurasthenia" is now used as the term "malaria" was formerly used. The more we practice medicine the better diagnoses are made and we do not have to fall back on these terms of doubtful significance. In connection with my work at the tuberculosis clinic for the past ten years fully 20 per cent. of those applying for treatment have no other physical examination made except a casual one through the patient's clothing. I believe that neurasthenia is intimately associated with the early stages of tuberculosis, and because few men are able to make a diagnosis of incipient tuberculosis it is necessary to formulate some scheme by which a diagnosis in the early stages of tuberculosis may be arrived at. The busy doctor has not the time to make a thorough examination in these cases; in fact he hardly has the time to read his medical journals, and thus familiarize himself with latest methods. It should be remembered, in making a differential diagnosis between neurasthenia and tuberculosis, that in the former disease there is no elevation of temperature. In every case of tuberculosis or tuberculous toxemia, in these cases of concealed tuberculosis at one time or another there is a slight elevation of temperature. This temperature curve appears particularly after exercise. The question of exercise in making a diagnosis of concealed tuberculosis is one of great importance, and if patients are kept under observation for any length of time the diagnosis can be readily made. I am referring to slight exercises. I generally instruct the patient to walk to my office every evening, for a week, and I take his temperature immediately on arrival. A slight elevation of temperature will appear which will not appear at other times. I am in favor of an educational campaign among physicians that will cause them to be more careful in examining their patients in order to detect concealed tuberculosis or the disease in its earlier stages. I want particularly to emphasize the importance of detecting this elevation of temperature following exercise, which is as diagnostic as the reaction following injections of tuberculin, and far safer. The symptom-complex of neurasthenia plus slight elevation of temperature on exertion, plus rapid pulse, means tuberculosis.

Dr. J. P. Munroe, Charlotte, N. C.: In a paper which was read at the state society of North Carolina it was stated that the tubercle bacilli found in animals in the mountains were acid-stained and in every animal examined they were practically identical with the tubercle bacilli found in the human body. Also the symptoms appearing in these tuberculous animals were like those that appeared in the human being.

Dr. Robert N. Willson, Philadelphia: It would seem as though one were taking a rather radical step in endeavoring to include in the term "tuberculosis" all or even a large percentage of the cases of neurasthenia or nerve-tire. No one questions that the tuberculous toxin may and does predispose to neurasthenia in certain cases. Just as certainly there are many patients with neurasthenia who show no evidence during life of tuberculous infection, either before or after their cure. Most cured neurasthenics enter on their convalescence without any treatment directed toward or suitable to tuberculosis. Again, many cases of neurasthenia have a definite etiology that can be traced altogether distinct from tuberculosis, such as cardiac disease, intestinal toxemia, nervous overwork or worry, syphilis, oftentimes the very lack of a definite object in life and the consequent irritation and fretting of unsympathetic home surroundings. Neurologists speak of various types, sexual, cerebral, cerebrospinal, gastric and circulatory. Often these terms are more closely related to the etiology than to the symptomatology. Not one of the pictures is necessarily tuberculous. Of course any one may be, in a given instance. An important etiologic phase of the subject has been altogether neglected in the discussion, which would have been touched on at once had there been a thoroughgoing neurologist present. No one has mentioned the fact that practically every case of neurasthenia develops from neurotic and often from positively neurasthenic soil. We seldom fail to find the parentage of a neurasthenic tainted on one side or the other with nervous invalidism. Alcoholism, epilepsy, insanity, hysteria and neurasthenia are the progenitors of neurasthenia in the second generation. Tuberculosis may or may not be present as a concomitant, and perhaps as an exciting factor. When the soil is tainted, however, tuberculosis is not needed as a factor in the causation of the neurasthenia, which will develop in the child of the neurotic parent when the conditions are right.

Dr. George Douglas Head, Minneapolis: My contention is not that all cases of so-called neurasthenia harbor a latent tuberculosis, but that in the group of cases clinically diagnosed as neurasthenia, after excluding syphilis, heart-disease, exophthalmic goiter, gastric ulcer, nephritis and all other known organic diseases, a certain number remain in which no organic lesion can be found. This "remnant group" has been considered negative for organic disease, and because of the existence of these cases the clinical entity neurasthenia has been kept alive. Now when the individuals in this group supposed to be free of organic disease are tested with tuberculin, a large percentage of them show evidence of harboring an active tuberculous lesion, so concealed, however, as to escape detection by the usual clinical examination even of the most searching kind. I contend that the symptoms of nervous and physical exhaustion displayed by these patients and now diagnosed as so-called neurasthenia is in reality a clinical expression of a concealed tuberculous lesion and that we should recognize a new clinical symptom-type for concealed tuberculosis which is the symptom-type we now give to neurasthenia. The question has been asked, What percentage of the cases in this "remnant group" of so-called neurasthenias give evidence of harboring concealed tuberculous lesions? I am not prepared to answer this question at this time because my series of observed cases is not large enough to give reliable data. Roughly speaking, I should say that about 20 per cent. of the "remnant group" fail to give a reaction to a subcutaneous injection of tuberculin.

The Thyroid Problem.—How the tissues are affected by the secretion of the thyroid is an enigma. But the fact is certain. For the adrenal cortex even so much as that cannot be said. There is only the conjecture that this fatty substance is essential to a man's strength and manhood. . . . To the Australian or "black fellow doctors" the fat above the kidney was magic. If by incantations it could be removed from an enemy as he slept, the victim would surely lose his strength and die. We know as much, that there is no warm-blooded life without these glands.—T. R. Elliott, *Brit. Med. Jour.*, June 27, 1914.

INTRARECTAL ADMINISTRATION OF SODIUM SALICYLATE IN ACUTE RHEUMATIC FEVER WITH SATISFACTORY RESULTS*

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In 1912, I published a report[1] covering 22 cases in which the intrarectal administration of sodium salicylate in acute rheumatic fever was apparently successful. The present report is based on 100 additional cases in hospital and private practice, the results of which indicate the advantage of this method over the usual modes of treatment in acute rheumatic fever and I would urge the adoption of the method at the hands of this representative body.

The intrarectal method of salicylate administration was adopted in 1911 on the East Medical Service in the Cincinnati General Hospital after observing the number of refractory cases of acute and subacute rheumatism in the wards. Previous to this, text-books had mentioned the possibility of such a method of treatment, while very meager reports had appeared in the literature (notably, however, Erlanger's in 1893 from the Klinik Von Ziemsen), but no attempt had been made to urge the general adoption of this measure as the method of choice. Erlanger[2] reported twenty-five cases with seventy-eight salicylate enemas and his report showed very satisfactory results with as small a dosage as from 6 to 8 gm. daily, and also gave satisfactory proof of the ready absorbability of the drug by the rectum.

But the value of the intrarectal sodium salicylate administration has not met any general recognition. Many other drugs have been given per rectum, most often for their local effect, as quassia, silver preparations, tannic acid, while certain others, as opium, digitalis, collargol, quinin and various serums have been used for their remote effects, but most of these latter if not to be administered by mouth may be used preferably by the subcutaneous method, a method not to be so readily adopted for salicylate medication, though Seibert reports satisfactory results. Heretofore we have permitted ourselves to be satisfied with the administration of sodium salicylate by mouth and the results have without doubt justified the designation of the drug as a specific in acute rheumatic fever.

The salicylic acid group of substances is bactericidal and according to Meyer and Gottlieb, salicylic acid is probably etiotropic, that is, acting on the cause of the disease. If the recent investigations of Pointon and Paine and Rosenow are to be regarded as conclusive, we must look to a bactericidal agent for rational therapy and in the absence of a specific serum or vaccine, sodium salicylate and certain newer salicylic acid preparations as, salol, aspirin, salipyrin remain our principal weapons in acute rheumatic fevers.

But why should there be so many failures with salicylic acid therapy, which is in every way to be regarded as a specific? No doubt in many instances there are foci of reinfection, in which surgical measures may be necessary. But in very many instances there has been insufficient dosage due most often perhaps to the frequent intolerance of the drug by mouth; and following on this failure the drug manufacturers have not been slow to introduce preparations more readily tolerated, but without doubt less efficient than sodium salicylate in the therapy of acute rheumatic fever. There is still much indifference among medical men toward pharmacology and therapeutics, perhaps inherited from the days of therapeutic nihilism, and if we fail in a therapy learned possibly in student days, many are apt to seek at once the new therapeutics as taught by the detail men.

If a routine administration of sodium salicylate has not always given brilliant results as it often does, however, the drug should not have yielded its position so largely to the newer salicylic acid preparations. As a solution to the problem of rheumatic therapy, intrarectal administration of sodium salicylates is offered as the method of choice and as excellent a therapeutist as the late Dr. Frederick Forchheimer declared it to be the best method yet devised for the treatment of acute rheumatic fever.

The method has for its justification its ability to answer the requirements of any therapeutic agent: (1) the ease of administration; (2) the ready absorption of the drug; (3) a minimum of untoward effects; (4) the ability to administer large quantities of the preparation as is to be advocated in bactericidal therapy; (5) the removal of the residue of the drug from the bowel by subsequent enema, if the dosage ever proves excessive; (6) the results are more prompt than by any other measure.

EASE OF ADMINISTRATION

I have used intrarectal salicylate therapy in 125 cases of joint affections, the majority of which occurred in hospital practice, where, to be sure, the method is most easily carried out. The method, however, lends itself readily to private practice as well. Recently in a severe protracted case of rheumatic fever occurring in a rural district, I advised the removal of the patient to a hospital in Cincinnati, in order to carry out the rectal therapy. The wife of the patient thought that she might be able to carry out the treatment at home and she did so and was promptly successful. I received a similar report from a physician in South Dakota recently and there is reason to believe that the method has been widely used since my report two years ago.

The method of administration is as follows: A cleansing soapsuds enema is given and as soon as effective is followed by the salicylate enema given by means of a Davidson syringe and a rectal tube inserted 6 to 8 inches. The dose varies according to the size and sex of the patient and also according to the severity of the case. The first adult dose in men is usually from 8 to 10 gm., in women 6 gm., women being apparently more susceptible to salicylism than men. The synthetic salicylate has been used, especially since the clinical research carried out by the Council on Pharmacy and Chemistry, in which I had the privilege of assisting, the results of which proved the practical similarity in action of the synthetic and natural salicylates. The amount of salicylate to be given is incorporated in 120 to 180 c.c. of plain or starch water with the addition of 1 to 1.5 gm. of opium tincture. The dose of salicylate may be repeated in twelve hours, when it can usually be determined whether symptoms of salicylism will appear. Usually, however, a daily enema suffices with doses increasing perhaps from 30 to 50 per cent. daily until the limit of tolerance is reached. The largest daily dose which has been given has been 24 gm., and the only symptoms of salicylism which usually have appeared have been tinnitus and excessive perspiration. Once or twice there has been vomiting present, which might occur in the administration of even a simple enema. Where salicylism has been excessive, it usually appears within from three to six hours and the remaining unabsorbed portion of salicylate may be washed out of the bowel by subsequent enema. This has been resorted to very infrequently indeed, and it is rare also that the rectum is intolerant of the drug. I do not agree with Erlanger that the plain water enema is more readily retained than the starch water, although the former is more simple, which is in its favor. It might be said at this point also that salicylate medication must continue some days after all symptoms have subsided, otherwise recurrences are frequent.

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* Read before the Section on Practice of Medicine at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Heyn, Louis G.: Acute Articular Rheumatism Treated by the Rectal Administration of Sodium Salicylate, The Journal A. M. A., April 6, 1912, p. 1013.

[2] Erlanger: Deutsch. Arch. f. klin. Med., 1893, li-lii.

READY ABSORPTION

In testing out the value of this method it was interesting to note the promptness of absorption by the rectal mucous membrane. Usually within fifteen minutes, always within thirty minutes, a strong ferric chlorid reaction appeared in the urine and the reaction usually persisted for from forty-eight to seventy-two hours after the administration of the drug ceased.

To show also that complete absorption was usually possible, the stool subsequent to the salicylate enema was examined by acidifying with hydrochloric acid, extraction with ether and testing with ferric chlorid. As a rule usually within from twenty-four to thirty-six hours, depending on the size of the dose, there was complete absorption as shown by a negative reaction. (It would seem that the greatest absorption is within twelve hours.)

PROMPTNESS OF ACTION

Results show promptness of action. If we consider acute rheumatic fever as a disease which runs a most variable course, with a migrating involvement of usually many joints, each affected joint remaining at an acute stage of inflammation for several days, the attack possibly running a severe course of one or two months, often in spite of a more or less vigorous treatment (or there may be a less severe course involving fewer joints or perhaps only a subacute recurrent course of the disease) it may be readily seen that a satisfactory judgment of a therapeutic measure in this disease may be very difficult. A satisfactory therapeutic agent in acute rheumatic fever, however, should accomplish the following results: promptly lessen and eventually abolish all symptoms of the disease, materially shorten the course of the disease, reduce cardiac complications to a minimum and possibly prevent recurrences.

The following illustrative cases in which the intrarectal administration of sodium salicylate has been resorted to may be convincing.

Case 1.—Man, aged 32. Attack began ten days previous to admission to the Cincinnati Hospital, with successive involvement of the right hip and right knee, left knee and ankle and left shoulder. On admission the joints most acutely affected were the left elbow, left shoulder, left wrist and several phalangeal joints of both hands. The temperature reached 102 F. the first day. A salicylate enema of 10 gm. was given and a similar enema twelve hours later with complete cessation of symptoms and prompt drop of the temperature to normal. Three subsequent enemas of 10 gm. each were administered on three successive days with no recurrence or cardiac complications, the patient insisting on leaving the hospital four days after admission.

Case 2.—Man, aged 34. On admission to the Cincinnati Hospital patient had a temperature of 103 F. and involvement of both knees and both ankles acutely. Ten gm. of sodium salicylate were given daily per rectum. The second day of residence in the hospital the temperature reached 102.4 F. and only the right knee remained acutely inflamed. The third day the temperature had reached normal and there were no joint symptoms remaining. The patient insisted on leaving the house on the fourth day.

Case 3.—Colored woman, aged 27. Patient had involvement of both ankles and wrists and a temperature ranging from 101 to 102 during three days' residence in the hospital, during which time sodium salicylate (20 grains) was administered by mouth every three hours during the day. Symptoms were uninfluenced by medication per os. After a single salicylate enema of 10 gm. the temperature dropped to normal and remained there and there was a complete subsidence of symptoms. The enemas were continued for four days subsequently.

Case 4.—Man, aged 39. Admitted July 16, 1912, with a temperature of 101.6 F., pulse 108. There was involvement of both knees and ankles and both shoulders and wrists. Sodium salicylate enemas of 10 gm. were given daily. Three days later there was a maximum temperature of 100 with maximum pulse 104 and all joints except wrists were improved. The fourth day 13.3 gm. of sodium salicylate were given with complete cessation of symptoms, but with some salicylism and the enemas were discontinued. On the fourth day after discontinuance of the enemas, however, there was some recurrence of joint symptoms and 13.3 gm. were administered for four successive days in spite of some tinnitus and excessive perspiration. The temperature became normal and the joint symptoms subsided completely within ten days, during which time a total of 100 gm. of sodium salicylate had been administered. This case was somewhat refractory on account of the salicylism, but we were able to carry the treatment carefully to a successful issue.

These cases are fairly illustrative of the efficacy of the intrarectal salicylate therapy and if the more common methods of treatment in acute rheumatic fever have so often been disappointing, the intrarectal method is offered as a very safe and reliable solution to the therapy of this serious affection.

22 West Seventh Street.

ABSTRACT OF DISCUSSION

Dr. E. W. Mitchell, Cincinnati: I wish to corroborate the report made by my associate concerning the value of the rectal method of administering the salicylate. To obtain the specific action of the drug, the primary doses should be large. It is often quite difficult to give sufficiently large doses by the mouth. We have seldom found difficulty in giving by rectum from 75 to 150 grains, twice daily. That the drug is promptly absorbed is shown by its early appearance in the urine, as Dr. Heyn stated, and also by the relief of pain, reduction of temperature, etc. Notwithstanding these evidences of absorption, we have found almost constantly that the ringing in the ears, nausea and other unpleasant effects are much less marked than when given by the mouth. Why this should be so I do not know, unless the local irritation of the stomach is responsible for many of the unpleasant effects of the salicylate. We believe that salicylic acid is a specific, but that it must be given in large doses in the early stage of the disease. It has been objected that while salicylic acid itself is a germicide, its salts are very feebly so, and however given salicylic acid always circulates in the blood as a salicylate. Dr. Wood has recently offered an ingenious explanation in answer to this objection. His theory is that the excess of carbonic acid in the congested areas converts the salicylates into salicylic acid, enabling it to exert its germicidal or antiseptic power. I have also found the rectal method successful in private practice, whenever a competent nurse was in charge.

Dr. Joseph L. Miller, Chicago: Dr. Heyn shows that salicylates when administered by rectum are actually absorbed, but it is difficult to understand why salicylates by rectum in a certain dose should have a greater action than the same amount by way of the mouth, as, after all, it is apparently a question of the amount of the drug absorbed and we know that salicylates are readily absorbed by the gastro-intestinal tract. I believe one explanation of the excellent results Dr. Heyn obtained was the fact that the doses he employed were relatively large, larger in fact than the ordinary dose administered by mouth, and if the absorption was complete by the rectum it would have the same effect as if the equivalent amount were given by mouth. His work shows that in those cases in which the drug is not tolerated by mouth, it can be well taken by way of the rectum. I differ somewhat from Dr. Heyn, that salicylates are a specific in rheumatism, as statistics show that patients treated by salicylates remain in the hospital quite as long as those receiving other forms of treatment for their arthritis.

Dr. J. N. Upshur, Richmond, Va.: In the discussion of this subject a few years ago in this Section, a number of speakers stated that their practice was to give large doses of salicylates, often as much as 300 grains in twenty-four hours, that endocarditis was a troublesome sequel, and they were at a loss to explain why. I said then practically what I repeat now. In the treatment of rheumatism, a good dose of a mercurial should be given at the start. The pronounced acidity of the sweat and urine is a conspicuous symptom, indicating the administration of alkalies until these excretions are neutral. My practice is to give, well diluted in water, potassium bicarbonate, 10 grains every two hours for forty-eight hours, following it with small doses (5 grains) of sodium salicylate every two hours for about two days. Relief is usually prompt. I never give more than a dram of salicylate in twenty-four hours, and rarely that much. I believe that large doses of salicylates predispose to the development of endocarditis, and the patient is much more liable to relapse, than if a foundation is laid by the exhibition of the mercurial, followed by the alkali. I desire to enter my protest against these excessive doses of the salicylates as being most harmful and dangerous.

Dr. J. M. Rector, Columbus, Ohio: I have used this method successfully by a more satisfactory and thorough method. The solution is introduced into the colon with a large rectal tube to the point of toleration; the irrigator is then disconnected from the rectal tube and the solution forced into the upper parts of the colon by introducing air behind the solution with the aid of the Politzer bulb; the Politzer bulb is then removed and the solution which was not carried out of the sigmoid permitted to flow out of the tube. More solution is then introduced and the Politzer bulb again used until the entire colon is moderately distended. This traps the solution and carries it higher with a more equal distribution along the tract, increasing the surface through which the drug may be absorbed. This procedure is painless and I have been able to get better results with smaller doses in greater dilution, and this method also assists in elimination and drainage of the entire alimentary canal and leaves the upper part of the tract undisturbed so that it may follow its normal digestive activities uninterrupted. The three advantages are: 1. It increases the resistance of the patient by not disturbing the digestive ability in the upper part of the alimentary canal. 2. It increases the elimination and relieves all tendency to absorption from a constipated colon. 3. It gives the direct introduction of salicylate of soda in large doses with all its beneficial effects and without the digestive disturbances which usually follow the use of this drug by mouth.

Dr. James Tyson, Philadelphia: In 1896 my attention was called to the efficiency of this mode of administration of the salicylates advised with a view to getting rid of the unpleasant gastric symptoms so often associated with the use of salicylates by mouth. Of late years, however, it has been found possible to refine the salicylates so as to get their effects without the disagreeable nausea. Aspirin, for instance, is a result of such refinement, does not disturb the stomach nearly so much and is equally efficient, rendering administrations by the rectum less essential.

Dr. Nathan Rosewater, Cleveland: When salicylates first began to be used in the New York Hospital, in 1878, I saw enormous doses given with remarkably good results compared to the older methods. Germ life, metabolic and other causes have been studied since then. Knowing that salicylic acid is a powerful inhibitor of fermentation, 1 grain being sufficient to preserve a pint of fruit-juice or other saccharine fluid, it occurred to me years ago that in proportion to the body-fluid such doses were entirely out of proportion, and the unnecessary and perhaps harmful effects far in excess of that required to inhibit germ life. I began at first to give 10 grains in chronic lithemic cases, before meals, when the stomach was practically empty—at least then the salicylate would not inhibit the action of the proteolytic and carbohydrate enzymes—and in acute cases and later in all cases to give only 15 to 20 grains at bedtime, three or more hours after supper. During the day I depended first on alkaline laxatives, such as citrates and tartrates to empty the gastro-intestinal canal, and on sodium iodid and other haloid salts to reduce the viscosity of the blood-stream and to relieve the heart of overtension, sparing it and aiming to avoid damage to this readily damaged organ. By elevating the lower extremities and even the upper ones, using gravitation to assist the venous return and sparing the cardiac mechanism, my results have been most satisfactory. For instance, in a very stout woman, aged 67, with all the joints of the lower extremities red, swollen, and very painful, temperature 102 F. and the digital extremities also swollen, I succeeded in having her on her feet in twelve days, without relapse. I have not given atophan, although my colleagues have been instructed to use it whenever salicylates should fail. The same is true of other preparations which I have kept on hand but have had no use for, although I use and have prescribed annually for many years, with this small dosage, approximately 100 pounds of sodium salicylate, not the natural, but the ordinary synthetic quality. I am glad to see that Hanzlik at Lakeside Hospital has corroborated the fact that the so-called natural salicylic acid has no advantages over the U. S. P. synthetic product. I have never seen ill effects except rarely when the stomach was not empty, the hydrochloric acid still present, liberating sufficient salicylic acid to irritate the gastric mucosa into distress or even to cause vomiting.

Dr. W. W. Tompkins, Charleston, W. Va.: Our duty in this class of cases does not consist in how few days our patients are in the hospital, or confined in their homes, but our chief object should be that, when our patients get out, they should be free from endocarditis and its unpleasant symptoms. The question each physician should ask himself is how efficient is the patient after an attack of acute rheumatism? The method and dose of administration of a medicine is but secondary. Few of us have such large experience as Dr. Miller when he treats 2,000 cases by one method and 1,600 by another. Each of us has an experience, it may be relatively small; but what is important is the percentage of actual recoveries. When cases respond so readily to remedies as reported by Dr. Heyn may it not be that we would in such cases take a too optimistic view and not safeguard our patients for a few days or weeks by rest and freedom from work or exercise? Is it a safe practice to permit a patient four or five days after his initial symptoms to leave his bed or the hospital and go about or resume his vocation? If the joints of the lower limbs are involved we get a forced rest because it is painful and impractical to get about, but if a wrist or elbow is involved our patients can go about and will do so if we do not restrain them or admonish them as to their danger. The reduction of fever and the allaying of pain should be aimed at, but the important point to keep in mind is the specter of a diseased heart with all its unpleasant sequels. Dr. Heyn mentions treating 124 cases by this method—quite a large number. Will he please state how much lower his percentage of endocarditis is than we have by the method of administering the salicylates by the mouth. It is to the hospital clinician that we look for our statistics in these matters.

Dr. Louis G. Heyn, Cincinnati: I desired to state in the paper the results, in general, of the therapy and to cite a few instances fairly illustrative of the response of a class of cases to a definite line of therapy. The proof of the methods suggested must rest on the observations of those who are quite impartial in their judgment of results obtained. Dr. Miller's discussion was enlightening to me. It may be that what he said is a strong argument against the bactericidal effect of the salicylates, for he injected various bacteria and then gave the salicylates with apparently no effect on the bacteria, which would tend to prove that the salicylates have no bactericidal effect. Salicylates have apparently never had any effect where there is evidence of a general bacteriemia as would be indicated by an endocarditis, and animal experimentation and clinical results are not always in accordance. The more I see of cases of acute rheumatic fever and the promptness with which this affection reacts to the salicylates the more I am inclined to believe that the drug must have some direct effect on the bacteria in this affection. I am quite in accord with the alkaline therapy with its frequently good results; it is also well known that many patients recover without any therapy, but there are few diseases causing such severe suffering as acute rheumatism, and most of us will at least seek the analgesic action of the salicylates. I must again answer the contention for the drug by mouth. Large doses by the mouth are possible and effectual in many cases, say from 20 to 30 grains five times a day, but this amount cannot be continued many days. The attack may be subdued within ten or twelve days; but not always, as Dr. Rosewater contends. On the other hand, one sees many cases prolonged weeks or months even in spite of the salicylate treatment. Someone has said that the salicylates predispose to cardiac affections. I have given it even in cases of marked cardiac arhythmia and have seen no untoward effects, so far as I could judge. Dr. Rector's suggestion that this method of administering the enema be modified by the use of the Politzer bag, instead of the Davidson syringe in our method, would seem feasible. As to Dr. Tyson's statement that there is no further need of the use of sodium salicylate since the introduction of the newer preparation, notably aspirin, I am not prepared to endorse his views, although this may be so. I am surprised to learn that Dr. Tyson had used intrarectal salicylate so many years ago, and had I known it I should have incorporated the fact in this paper. Relative to the number of cases of endocarditis following this method of treatment, I have seen only one case in which endocarditis developed during the attack. Occasionally an apparently cured patient with rheumatic fever has been discharged from the hospital and at the next observation some time later, we have found a valvular lesion. It is difficult to determine whether it is subsequent to the previous rheumatic attack or due to a mild infection in the interval between the rheumatism and the appearance of the valvular lesion.

The Production of Senna in the Sudan.—The senna exported from Egypt is gathered from shrubs growing wild in the Sudan and the Red Sea littoral of Arabia. The Sudan variety is the *Cassia acutifolia*, which furnishes what is known as *Cassia angustifolia*, which supplies the senna called Mecca, Arabian or Indian. Senna is gathered once a year, in October, the size and quality of the crop depending on the abundance of the rainfall. The leaves and fruit are allowed to dry on the branches. The product is classified in four grades as follows: whole leaves, half leaves, broken bits and fruit (bean). Suez is the collecting point for both Sudan and Mecca senna. Arabian statistics are not available, but during the year 1912 senna from the Sudan was exported to the value of nearly £10,000 ($50,000) and in the first half of 1913 to over £6,000 ($30,000).—*Jour. Roy. Soc. Arts*, June 10, 1914.

THE USE OF A SERIES OF VACCINES IN THE PROPHYLAXIS AND TREATMENT OF AN EPIDEMIC OF PERTUSSIS *

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Last December pertussis broke out in the main building of the Hebrew Infant Asylum, an institution which houses about 375 children, ranging in age from a few days to 6 years. It soon became evident that the disease was destined to assume considerable proportions, and that we were on the threshold of an epidemic. An occurrence of this nature offered an exceptional opportunity to make an extended test of the value of vaccination in this disease.

The study of an epidemic within the confines of an institution has marked advantages over the study of an equal number of cases selected from hospital or private practice. In the first place, it must be evident that the fact that an epidemic originates from a single source, that the cases are due, in all probablity, to infection with the same type of micro-organism, greatly simplifies the solution of the problem; it negatives the question of whether a difference in the severity of symptoms is due to a variation in virulence of the invading bacteria. In hospital or in private practice, on the other hand, the cases must always have originated from manifold sources. It is probably also of advantage, from the standpoint of comparison, that these institutional children belong to the same stratum of society, that they have for the most part been reared for a considerable period within the same walls, having the same daily routine, including similar food and an equal amount of outdoor life. These are some of the conditions which are insisted on in considering the course of experimental infection among laboratory animals, but which can rarely be controlled in a study of infection in man.

Many of the hospital studies of the treatment of pertussis are, however, open to the severer criticism, that owing to the poorly defined onset of this disease there is no means of knowing how long the children were ill in their homes. This fact is naturally of great importance in considering the success of treatment. All these objections can likewise be raised in regard to cases treated in the dispensary or in ambulatory practice; in addition, this type of case is open to the criticism that one must rely solely on the opinion of ignorant parents in judging the efficacy of the treatment.

PROPHYLACTIC USE OF VACCINE

We shall first consider pertussis vaccine in its prophylactic use. Here a field of exceptional promise presented itself. Two hundred and forty-four patients were inoculated with four different vaccines. Vaccine 1 consisted of a typical strain of the Bordet-Gengou bacillus obtained from Parke, Davis & Co., and two atypical strains. Vaccine 2 was "Bacterin" (Parke, Davis & Co.), which is stated to be composed of a pure culture of the bacillus of pertussis. Vaccine 3 was prepared from four typical cultures of the Bordet-Gengou bacillus isolated by Dr. Anna Williams of this laboratory. Vaccine 5 may be termed an autogenous vaccine in the sense that it was composed of three typical Bordet-Gengou strains isolated from cases included in this epidemic. Table 1 shows the results of the vaccinations. It may be summarized by the statement that *twenty of the 244 cases developed pertussis in spite of the prophylactic inoculations.*

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* From the Research Laboratory, Department of Health, New York City.

* Read before the Section on Diseases of Children at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

TABLE 1.—PROPHYLACTIC VACCINATIONS (244 CASES)

Vaccine	No. of Inoculations	No. Treated	Pertussis
1	2	35	10
2	3	10	1
3	3	141	6
5	3	58	3
		244	20

Let us examine this table somewhat more closely. It will be seen that Vaccine 1 shows by far the greatest number of failures. Two injections of the vaccine were given in each instance, one of 100 millions, the other of 200 million bacteria. Of the ten cases which developed pertussis, five showed the first symptoms two or three weeks after the first inoculation, one after twenty-five days, one after six weeks, two after an interval of two months or more. In considering the results of prophylactic inoculations, all cases were discarded and not included in the tabulation (Table 2) which shows the development of symptoms of pertussis within two weeks of inoculation.

TABLE 2.—DETAILS OF THE TWENTY CASES DEVELOPING PERTUSSIS NOTWITHSTANDING PROPHYLACTIC VACCINATION

Name	Date Vaccinated	Type of Vaccine	Date of Onset of Pertussis	Severity of Disease
D. F.	1/12	1	3/ 5	+++
A. A.	1/12	1	1/30	+++
L W.	1/12	1	1/26	+
B. A.	1/12	1	1/26	+
*A. S.	1/13	1	3/14	+++
N. K.	1/13	1	1/29	+
M. G.	1/13	1	3/14	+
I. W.	1/ 8	1	2/ 2	+
L. R.	1/13	1	1/29	+++
D. D.	1/13	1	4/ 1	++
A. H.	2/20	3	3/10	++
B. B.	4/17	3	5/ 6	+++
Y. G.	4/17	3	5/20	++
G. H.	3/24	3	5/ 8	++
R. T.	4/17	3	5/13	++
*A. S.	2/23	3	3/14	+++
J. S.	3/24	3	6/ 1	++
H. A.	4/14	5	5/24	+
J. B.	4/14	5	5/ 5	++
L. C.	4/14	5	5/12	+

* Received two varieties of vaccine.

When we turn to Vaccine 2 we find rather too small a number of cases to allow of a satisfactory estimate of its worth. Inoculations of 100, 200, and 400 millions were made at three-day intervals. The one case which developed pertussis showed symptoms two and one-half weeks after the first inoculation. It should be mentioned in this connection that five of the cases of this group developed ring-worm and were therefore sent away from the institution. As a result, the period of exposure to infection by pertussis was shortened in these cases.

The results obtained with Vaccine 3 are particularly interesting, as they are so much better than those obtained with the other vaccines. The same doses were given as of Vaccine 2, and with the same intervals. In twenty-four of this group of 141 cases, large doses were given by mistake, namely, 500, 1,000, 2,000 millions. One of these children nevertheless developed pertussis. This case (A. S., Table 2) is of especial interest in that the child received two prophylactic doses of Vaccine 1 about the middle of January, and three very large doses of Vaccine 3 towards the end of February, and notwithstanding this treatment came down with pertussis on March 14; the disease was exceptionally severe, whooping being continued for a period of ten weeks. The other cases, five in all, developed pertussis three weeks, six weeks, one month, and one about two months following inoculation.

As the result of prophylactic vaccination with these three vaccines it was determined to make a vaccine from cultures obtained from cases in our wards. Dr. Anna Williams was kind enough to prepare a vaccine of this nature as well as to make cultures from the throats of many of the children. It should be emphasized that the typical Bordet-Gengou organisms could be isolated in only five cases out of the thirty cultures taken. In most instances other hemophilic bacilli, frequently the influenza bacillus, were isolated. It may therefore be maintained with some justice that in our cases the symptoms may not in all instances have been incited by the Bordet-Gengou bacillus, and that this accounts for the failures in the use of Vaccine 5. It will be noted that of the 58 cases inoculated with this vaccine three developed pertussis. All these children received 100, 200, and 400 million bacteria. Two of the number began to whoop about one month after vaccination, and one three weeks following the initial injection.

One hundred and thirty children did not receive prophylactic inoculations. This group included a ward of twenty-five infants under the age of 1 year, and another ward of about thirty infants between the ages of 12 and 18 months. These children must be considered separately, as they were at all times in bed, so that the danger of contact infection naturally was far less than in the case of runabout children. Moreover, in the one ward comprising thirty infants, no case of pertussis developed, so that they were not subjected to infection and therefore should not be included among those exposed to pertussis. Only one case of pertussis occurred among the twenty-five infants under 1 year of age. That this case did not lead to further infection shows the difficulties in judging of the results of prophylactic treatment. However, the fact that these infants did not come into close contact, that they were at all times in bed, should of itself exclude them from consideration. It would be a palpable error to compare infection in an infants' ward with that occurring in a ward of older children. This distinction should always be borne in mind in considering the degree of infection in institutions for children. If therefore we subtract these fifty-five cases—the thirty where no infection occurred and where consequently no exposure existed, and the twenty-five where exposure was greatly limited by absolute confinement to bed—we have eighty children who were not vaccinated. Of these eighty, fifty-nine developed pertussis. It will be remembered that of the 244 vaccinated cases, twenty came down with pertussis. There were five cases which cannot be included in the group of either the vaccinated or of the unvaccinated, as they began to whoop within a fortnight of vaccination; the case in the infants' ward constitutes a sixth case which cannot be considered.

It is difficult to determine the degree of exposure of the various children. No doubt it is true that at the very beginning of the epidemic, isolation was less complete and exposure to infection accordingly greater. This period, the early days of the epidemic, corresponds to the time preceding our employment of vaccine. However, granting a certain increased exposure of the unvaccinated at this period, we feel that the disparity in the ratio between the infected and the non-infected is so marked among those vaccinated and those unvaccinated—among the former twenty out of 244, or one in twelve, among the latter fifty-nine out of eighty, or almost three out of four—that vaccination must have played a rôle. It should be mentioned in this connection that with the exception of the infants' ward, pertussis occurred in every ward in the building, and that quarantine regulations were enforced in the cases of children with suspicious cough or actually manifesting symptoms of the disease.

TABLE 3.—DISTRIBUTION OF EPIDEMIC ACCORDING TO WARDS AND MONTHS

Ward	Dec.	Jan.	Feb.	March	April	May	June	Total
I	..	..	..	..	1	..	..	1
II	..	..	..	..	..	..	..	0
III	..	2	3	3	2	..	..	10
IV	*1	14	4	3	2	1	..	25
V	1	2	6	3	..	1	..	13
VI	..	..	..	1	..	..	..	1
VII	..	..	..	..	3	2	..	5
VIII	..	..	..	..	..	1	1	2
X	1	2	..	1	..	..	..	4
XI	1	3	1	5	..	..	..	10
XII	..	4	2	1	1	..	..	8
XIII	..	2	1	2	1	..	..	6
Total	4	29	17	19	10	5	1	85

* First case.

Table 3 shows the development of the cases both according to wards and according to months. It will be noted that in April the number of cases began to diminish. This time corresponds to the period of vaccination. In brief, vaccination was undertaken as follows: The 35 cases were inoculated with Vaccine 1 about the middle of January, and the ten cases with Vaccine 2 about the middle of February. At the very end of March and the beginning of April the large group of 135 cases were treated with Vaccine 3. In other words, prophylactic treatment on a large scale did not exist until the middle or end of April. This date corresponds with the beginning of the cessation of the epidemic. The epidemic may have been waning of its own accord; however, at this time, there was no abatement of pertussis throughout the city. We are therefore of the opinion that the vaccine was of value in preventing infection and in limiting this epidemic, but that it cannot be relied on in each individual case as a prophylactic measure. It would seem probable that there is considerable difference in the potency of various vaccines, and, following the deductions to be drawn from our results, that a polyvalent vaccine of typical Bordet-Gengou bacilli is most efficacious.

ACTIVE TREATMENT

Vaccines were also used in this epidemic in the active treatment of pertussis. As in prophylaxis, four vaccines were employed; however, one of these (No. 2) was not the "Bacterin" mentioned above but the "combined vaccine" of Parke, Davis & Co., which is composed of the Bordet-Gengou bacillus, influenza bacillus, various hemophilic bacilli, streptococci, etc. Of the eighty-five cases of pertussis constituting the epidemic, sixty-five were treated by means of vaccines, and twenty were not vaccinated. No other treatment whatsoever was given to either group of patients. About an equal number of children were treated with each of the four varieties of vaccine; the cases were not selected, a change in the type of the vaccine being instituted whenever about fifteen children had been vaccinated. In some cases two vaccines were made use of just as with the prophylactic treatment.

Table 4 seems of especial interest in judging of the efficacy of the vaccine treatment. This table, it will be noted, is composed of the twenty severest cases of the epidemic. In compiling this list, we had recourse to the ward charts which showed the number of paroxysms of coughing and attacks of vomiting which each child had by day and by night, and were guided also by the opinion of the resident physician and of the head nurses. After the twenty cases had been selected in this way, a table was constructed to demonstrate their relationship to vaccination. It will be seen that of the total number only two received no vaccine treatment whatsoever. Five received both prophylactic inoculations and active treatment during the course of the disease; five were inoculated with two varieties of vaccine. This list, which is essentially a list of therapeutic failures, contains representatives of all four vaccines, but it will be noted that, as in the case of prophylactic vaccination, Vaccine 1 makes the poorest showing. It would seem that this table requires little comment. It clearly demonstrates that the use of vaccines in this epidemic did not lessen the severity of the disease. We should add that pertussis in New York City as well as in our institution was characterized this year by its mildness. Indeed, we did not experience any fatality and but two cases of pneumonia. In an epidemic of this nature it would evidently be less valuable to judge the results of treatment by considering the number of mild cases, than by noting those of exceptional severity. This is all the more pertinent in a disease having the irregular symptomatology of pertussis, where mild cases can be differentiated with difficulty from the common cough of non-specific origin. In the tabulated cases it cannot be contended that treatment was not begun sufficiently early, as the first vaccination was in almost every instance administered during the first week of the disease. This is as early as we can hope to be able to employ vaccines in the course of any disease. Moreover, a glance at Table 2 (composed of cases which developed pertussis notwithstanding prophylactic inoculation) shows that where these early inoculations failed to ward off the disease, its severity was not mitigated; that in numerous instances not only did the vaccine fail to prevent infection, but that it did not shorten or mollify the course of the illness. In no instance, however, did any harmful local or systemic reaction follow the injection of vaccine. In this connection we may add that all attempts to employ the vaccines for diagnostic purposes proved futile, whether as a cutaneous, intracutaneous or subcutaneous test.

TABLE 4.—VACCINATION IN RELATION TO THE TWENTY SEVEREST CASES

Case	Vaccine Prophylactic	Vaccine Curative	Case	Vaccine Prophylactic	Vaccine Curative
1	0	0	11	0	1
2	0	2	12	1	1
3	0	1 and 2	13	0	5
4	0	1 and 2	14	0	5
5	1	1 and 2	15	0	3
6	0	1 and 2	16	0	3
7	0	1	17	1	3
8	0	2	18	1 and 3	0
9	0	0	19	0	1
10	0	1	20	3	0

The complement-fixation test of the serum was carried out on ten cases, using the Bordet-Gengou bacillus as antigen. These tests were made by Miss Olmstead of this laboratory, whom I wish to thank in this connection. The number of cases is far too few to allow of a statement of the value of this reaction in pertussis. In general, however, the results would seem to show that this reaction is present for some months after the cessation of all symptoms. Its chief interest is in connection with the still mooted question of the specificity of the Bordet-Gengou bacillus. It is for this reason that the cases are appended in a table (Table 5).

TABLE 5.—COMPLEMENT FIXATION TESTS

Name	Date of Onset	Type of Vaccine	Date Vaccinated	Severity of Disease	Fixation Test, June	Bordet-Gengou Bacillus
F. G....	3/ 4/14	3	3/10/14	+++	+++	+
G. S....	3/22/14	3	3/10/14	+++	+++	+
E. S....	2/ 4/14	2	2/25/14	+++	±	+
D. F....	3/ 5/14	1 and 3	1/12/14 3/20/14	+++	±	+
A. V*...	5/15/14	3	2/ 5/14	+	±	—
G. H....	5/ 8/14	3	3/24/14	++	+++	—
P. B....	4/20/14	5	4/14/14	++	+	—
L. F*...	5/15/14	5	4/14/14	+	+	—
H. B....	4/22/14	3	4/17/14	+++	++	—
C. C....	3/ 9/14	3	3/ 9/14	+++	+++	—

* Pertussis doubtful.

CONCLUSIONS

We have reported on the use of a series of vaccines in an epidemic of pertussis occurring in an institution for young children. An occasion of this nature furnishes exceptional opportunity to observe this disease, which is characterized by an indefinite onset and an irregular course, and is furthermore rarely adaptive to hospital study.

What deductions are to be drawn from the observations which we have recorded? It would seem clear that none of the four vaccines, including an autogenous strain, was of value in curing or tempering the disease in the epidemic which existed in our institution. That this failure was not due to tardy inoculations is emphasized by the circumstance that many of the severest cases received not only early active treatment but also prophylactic vaccination. No other conclusion seems possible from a review of the epidemic of 85 cases, and a comparison of the severity of the disease among the vaccinated and the unvaccinated. This opinion is based solely on our experience in this epidemic and does not preclude the possibility that a different dosage of vaccine, or treatment with a modified vaccine, may not prove to possess curative properties.

The use of the vaccines in prophylaxis seemed by analogy to offer greater promise, in view of the established fact that other vaccines, for example the typhoid vaccine, possess prophylactic although no curative power. This seems to some extent, although to a far less degree, to be true of pertussis vaccine. In view of the fact that twenty children developed pertussis in spite of the prophylactic treatment, we cannot compare its protective value to that of typhoid vaccine. However, the proportion of unvaccinated children who developed pertussis so greatly exceeded the number of the vaccinated who developed the disease, that we conclude that the vaccine has protective value in a certain percentage of cases, and that it should be employed in institutions and in families to prevent the spread of this infection.

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ABSTRACT OF DISCUSSION

Dr. John Zahorsky, St. Louis: About two years ago I reported a series of forty cases of pertussis treated by vaccine in private practice. Dr. Hess has spoken of the Infants' Asylum children as being ideal for treatment. There is one objection to that; infants in asylums have much less immunizing power in themselves. They do not resist infection so well as children in families. Their response is much slower, and I do not think we can get as good results as in private practice. I am glad to hear that the effect of the prophylactic injection was so marked. I was still in doubt as to whether we could expect a prophylactic injection to prevent whooping-cough. Bordet has shown how very difficult it is to immunize against this infection. There are some children who do become immunized to their own infection rather quickly. Others have great difficulty in becoming immune. There is a certain group of cases, those in children who have good health in every way, children who rapidly respond to infection, in which vaccines are of curative value. I think I have clearly shown that in about half the number of cases, if one, two or three injections are given at the height of the disease, thereafter the disease becomes much milder; not necessarily shorter, because after all it takes time to become immune to the pertussis bacillus. I used the vaccine last winter in fifty cases. Again and again we get such nice results from its use that it should be added to our stock of therapeutic aids in whooping-cough.

Dr. T. C. McCleave, Berkeley, Cal.: I have had a limited experience in the use of pertussis vaccine; yet it has taught me clearly that Dr. Hess is right. I have not been able to persuade myself that the vaccine was of the slightest curative value. Some of the mothers have thought so, but I was not able to corroborate their opinion. In a little epidemic at home I have had opportunity to use it in a number of families. I have vaccinated all of the children, the sick ones for curative and the well ones for prophylactic purposes. It was my experience that all of these children who were prophylactically treated and yet remained in association with the children with whooping-cough, failed to take the disease. That is, the prophylactic treatments were 100 per cent. effective, in only six or eight cases, it is true. I think the method is of value, and should unquestionably be used. This treatment is interesting to me as a private practitioner, and I believe it would be peculiarly valuable when I have particularly good control of my patients, because in the case of children continuously under my observation I intend to revaccinate from time to time and hope to prevent them having whooping-cough during their childhood. I hope to be able to determine the duration of immunity from pertussis vaccine by a method similar to the von Pirquet method for tuberculosis and the Gay skin-test for typhoid. Possibly next year I will have some information. I merely mention it as of interest. We may be able in children under our control at least to greatly reduce the susceptibility.

Dr. S. M. Hamil, Philadelphia: I have not used vaccines in the treatment of whooping-cough. A few years ago I made a complete study of the literature of pertussis, and I discovered at least 100 specific drugs recommended for the treatment of this disease. Quite interesting was the fact that some of these remedies were advocated by men of undoubted standing. Series of cases were reported in which the results were directly attributed to these various drugs. I remember, for instance, that Moncorvo reported glowing results in a series of cases from the direct application of aristol. Later he reported on it unfavorably. Where are those specific remedies now? Entirely forgotten. Why were they recommended by able men? Merely because it is so hard to determine the results of treatment in pertussis. An untreated case of great severity may suddenly develop sufficient immunity to change the entire nature of the case, even to the extent of producing a so-called abortive attack. The effect of drugs in such a case can only be misinterpreted. Therefore, we should interpret the results of vaccine treatment very cautiously. We should remember also that its application is painful, that vaccines are expensive and not free from danger. I have known of a number of instances in which alarming symptoms have followed their use. There is just as much evidence against the value of vaccines as there is in their favor.

Dr. D. L. Richardson, Providence, R. I.: This subject is very important, particularly from the point of public health. Will Dr. Hess explain whether in the class of cases in which he used vaccines they were infants or small children that were in bed? Were they put to bed in the attempt to control the disease, and in the non-immunized class were they older children in which the question of personal contact was greater? That would bear materially on his results. Perhaps I did not clearly understand. If this vaccine does immunize, it will be of great value in the future in controlling the disease. The development is so insidious that the damage is done much as in measles, but in a more subtle manner.

Dr. Kate C. Meade, Middletown, Conn.: We have just had two epidemics—one of whooping-cough and one of smallpox. We had a severe epidemic among the children of the well-to-do. Having heard of the results of this treatment from a friend in St. Louis, I asked Dr. Fisher to make me some autogenous vaccine for pertussis. The first vaccine made I think was weak. I tried it on twelve children. In many families the mothers were intelligent and able to interpret conditions. In each case it has been the oldest child who has brought the disease into the family—the child who has been in school. That child I never gave vaccine to, but immediately began on the small children. In one case I began with 150,000. I gave the vaccine in one case every day for three days, in another case each day for two days. In one case in which I knew a baby was coming into a home, and I thought it would be rather difficult to give a new baby vaccine, I gave a litle boy six doses altogether, and no other medicine. In every one of these cases the disease was stopped within eight or ten days. A little cough was left, but no whooping and no vomiting or spasmodic attacks. The older children continued to cough, but did not reinfect the smaller children. The new baby came and did not take the whooping-cough. We have been using Dr. Fisher's vaccines a great deal—mostly autogenous. I think she has great skill in preparing them. In several children we used a combination of our vaccine and a stock coryza vaccine. My twelfth case was a man, aged 76, who had typical pertussis and pneumonia. I was interested, when visiting the New York laboratory, to find they are having difficulty in separating some of their strains from that of pneumonia. In the case of this man, I gave him an autogenous strain of his own pneumococcus. He recovered remarkably, both from the pneumonia and the pertussis.

Dr. Edward S. Reimer, New York: Will Dr. Hess say at what stage in these various cases treatment was instituted? In my own limited experience, by starting in early we get better control of the cases, and much better results.

Dr. Frank W. Pinneo, Newark, N. J.: Dr. Meade's case in a man of 76, reminds me of an old lady who contracted whooping-cough last summer from a little child. While I ardently believe in vaccines, I did not use any in her case. Perhaps it was wise, because she contracted pneumonia and became very ill, but finally made a perfect recovery. We need greater knowledge about vaccines before laying down rules for their therapeutic use, and in institutions such opportunities as Dr. Hess has embraced are offered, while for private practice we may await further knowledge.

Dr. Henry Heiman, New York: It is extremely difficult to differentiate between true pertussis and those cases of bronchopneumonia of influenzal origin with a distinct pseudopertussis cough. In these latter cases it is extremely difficult for little children to expectorate this sticky material from the smaller bronchi. We have to be very careful in making a differential diagnosis.

Dr. Harry Lowenburg, Philadelphia: I think Dr. Hess has not entirely proved his case. It is a remarkable thing that prophylactic cases should be so good and results with treatment should be so poor, especially in cases in which tremendous doses are given. It does not seem likely that a remedy that would prevent would not also cure. Will Dr. Hess state just what the amount of contact was in these cases that did not develop? That these children did not develop a cough was no proof that the vaccine was effective. I should like to know whether opportunity for contagion was very great.

Dr. Alfred F. Hess, New York: Dr. Zahorsky spoke about the deficient immunizing power of children in institutions. I do not think that has ever been proved. That they are more susceptible to infection is true. If you take 100 persons in the almshouse, however, and immunize against typhoid, they will be immunized as thoroughly as 100 private persons. Children in institutions form antibodies, and they can be immunized just as well as children outside of institutions. With regard to a skin reaction with the vaccine, I may say that I tried it, but had no success. There was an unreliable local reaction, but no general reaction. I did say—perhaps I did not make myself clear—that I excluded from consideration all patients confined to bed. All the cases cited were ambulatory. There were two wards of infants in bed. One was a ward with twenty-five children in which there was one case of pertussis. It did not spread because there was no contact. The other was a ward with thirty children between 12 and 18 months old. As there were no cases in that ward, and no exposure to infection, they were excluded. The entire report is of children between the ages of 2 and 6, all runabouts. This answers the question raised by Dr. Lowenburg as to the danger of exposure. Whooping-cough occurred in every ward except the one which I mentioned, although the degree of exposure may have been somewhat different. Nevertheless, so far as we can tell, there was exposure in every ward. The vaccine was given in the early stages—as soon as a child was reported to have whooped, vaccine was given. I do not believe it can be given earlier than in an infant asylum where there is a resident physician. Dr. Heiman has raised the question of influenzal infection. Influenza was found by culture in our laboratory in a large number of these cases. The Bordet bacillus was also found. With regard to curative and prophylactic results I do not believe this prophylactic result is especially brilliant. It failed in 10 per cent. of cases. The result is not nearly so good as with some other vaccines. For instance, typhoid vaccination would be considered poor in results with 10 per cent. of failures. Compared to results in those not vaccinated, however, it is very good. It is very much easier to prevent a disease than to cure it after a considerable infection has occurred.

A NOTE ON THE PREPARATION OF BACTERIAL VACCINES *

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The work of Vaughan, his associates and others interested in protein poisons has established the relationship of these substances to local and general anaphylactic reactions. Some of the reactions following the injection of bacterial vaccines are undoubtedly due to extraneous medium proteins which have not been removed from the bacterial suspensions in the prevalent process of manufacture.

Since in the preparation of bacterial vaccines we are concerned only with the immunizing properties of the cellular proteins, it should be our aim to reduce, so far as possible, the amount of extraneous proteins in the method employed. Most of the commonly employed mediums used for the growth of bacteria contain protein substances. When the bacterial growth is washed or scraped from the surface of an agar-slant, or separated by centrifugation from a bouillon culture, the soluble excretory products of the bacteria, as well as soluble medium products are present in considerable amounts. If such suspensions in salt solution are standardized and used as vaccines, the local and general reaction which follows is apt to be relatively severe, depending on how much extraneous protein happens to be present, and on how soon after preparation the product is injected.

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* Read before American Association of Immunologists, Atlantic City, N. J., June 21, 1914.

Since the suggestion was made to me by Dr. Carl C. Warden, who at the time was working with gonococcic vaccines, I have thoroughly washed all bacterial suspensions used in the preparation of vaccines, in the high-speed centrifuge, until the supernatant salt solution (0.45 per cent.) no longer gave a biuret test. The ninhydrin reaction has not been used because of its greater expense. Two or three such washings in the centrifuge, will usually suffice to remove most of the extraneous protein. The vaccines so prepared I have called "washed vaccines," since such suspensions are practically free from all unnecessary and undesirable proteins. Washed vaccines possess the cellular elements necessary to immunization, but are free from those proteins which, in many preparations, have been responsible for relatively severe local and general reactions. Washed vaccines are much more suitable for intravenous administration.

Such washing is applicable in the preparation of all bacterial suspensions for vaccine purposes, with the exception of such fragile organisms as the pneumococcus and the gonococcus, the ordinary strains of which autolyze rapidly. Recent work by Sobernheim, by Seligmann and by Warden with more stable mutation forms of organisms offers the hope that less autolysis will take place on thorough washing and that these mutation suspensions may be handled in a manner similar to the suspensions of the more stable organisms.

For purpose of standardization, a suspension of the living, rather than dead, washed organisms is employed. The following method, which is preferable to the blood-cell-slide method of Wright because of greater accuracy, was suggested some years ago by Dr. L. H. Spooner of Boston, and has been used by me as a routine procedure with satisfaction: A small amount of the suspension is drawn into an ordinary erythrocyte mixing pipet, diluting 1 : 100 with a fairly deep-colored, thoroughly filtered, aqueous carbolthionin stain (the phenol (carbolic acid) content is 0.5 per cent.). The suspension in the counter is well shaken to secure even distribution of cells and a small drop placed on the shallow blood-platelet counting chamber of Helber-Zeiss. The organisms in twenty-five small fields are counted, and the sum divided by 25 to obtain unit value. The number so obtained is multiplied by the dilution 100, by 50 the depth of the chamber, by 400 the number of small squares per cubic millimeter and lastly by 1,000 to convert to cubic centimeters. For example, if forty bacterial cells are counted in twenty-five small squares, the unit value per square would be 1.6, multiplied by 100, by 50, by 400 and by 1,000 or 3,200 millions per cubic centimeter of suspension.

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Observation Must Precede Inference.—Take a group of students who are working at physical diagnosis and it is a constant struggle to keep them making observations and not giving inferences—usually from insufficient observation, if from any at all. No pains are too great to hammer home into the mind of every student the importance of keeping these two processes separate and not taking up the second until the first is as complete as he can make it. It is just as important for the practitioner as for the student, except that in the latter we are trying to form correct habits; the practitioner should have them.—Thomas McCrae, M.D., in the *Canadian Med. Assn. Jour.*

CANCER OF THE PROSTATE *

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The facts that the general subject of cancer presents even to-day one of our most serious and unsolved problems; that cancer of the prostate is a comparatively frequent and exceedingly distressful form of the disease; and the probability that by a more widespread application of the present available knowledge of this pathologic process the prevalent high percentage of disability and death would be considerably diminished, are advanced as sufficient reason for presenting a discussion of the subject with a contribution of data to the fund of experience.

The pathogenesis of cancer of the prostate is still a debatable question; the frequency of its occurrence, the usual sites of its original focus, its mode of extension and metastasis, are phases of the subject which are reasonably supported by facts.

This paper is based, first, on the examination of a series of 716 prostatic specimens removed at operation in the Mayo Clinic from Oct. 28, 1904, to June 1, 1914; secondly, on the pathogenesis of epithelial tumors of the breast, as view by MacCarty; and thirdly, on a review of the literature.

PATHOGENESIS

The opinions of various investigators with regard to the pathogenesis of cancer of the prostate are not uniform. The cause of this lack of uniformity seems to be due, at least in a great measure, to the different points of view from which the pathologic process is viewed.

Some authors maintain that cancer does not begin in a hypertrophic portion of the gland, that its presence here is an invasion from a focus situated elsewhere in the organ, usually in the posterior lobe. Others state that cancer occurs as an almost imperceptible transition from a benign adenoma. Still others, disregarding as unessential the consideration whether the associated process be one of general hypertrophy, adenoma or other pathologic condition, view, apart from its causation, the pathogenesis of prostatic cancer, likewise of cancer in general, as fundamentally a question of the histogenesis of epithelial cells.

A summation of the evidence adduced from the various investigations emphasizes the fact that cancer occurs in the atrophic, the apparently normal and the hypertrophic prostate. In the light of this accepted fact is seen an indication that involved in the development of the cancerous process there is a study far more basic than what is comprehended in a consideration of associated pathologic conditions. Again, the weight of evidence seems to prove that the disease begins most frequently in the posterior lobe of the gland. This seeming selectiveness of the process, however, is no more explicable in the prostate than are similar phenomena in other organs. The incident of original focus is aside from the underlying principle of pathogenesis, as advanced in the theory of the histogenesis of epithelial tissue.

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* From the Mayo Clinic.

* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space, this article is abbreviated in The Journal by omission of some of the illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

CANCER OF THE BREAST

In 1898 Albarran and Hallé,[1] in an oft quoted and adversely criticized treatise under the caption, "Hypertrophy and Epithelial Neoplasms of the Prostate," direct attention to the "remarkable *analogy between the hypertrophied prostatic gland and the mammary gland* affected with benign tumors, or with those epithelial and interstitial lesions, which are still wrongly classified among the benign neoplasms and the chronic inflammations."

In 1907, Ewing,[2] discussing "Cancer Problems," stated that "inflammatory hyperplasia passes by insensible gradations into neoplastic growths."

During the past five years, MacCarty[3] has contributed several papers to the subject of cancer of the breast. This author was stimulated to undertake an extensive investigation of the epithelial growths of the mammary gland because of inability to harmonize his daily observations with the prevalent views of the pathogenesis of these tumors and the apparently redundant, diverse and unintelligible classification of the pathologic processes.

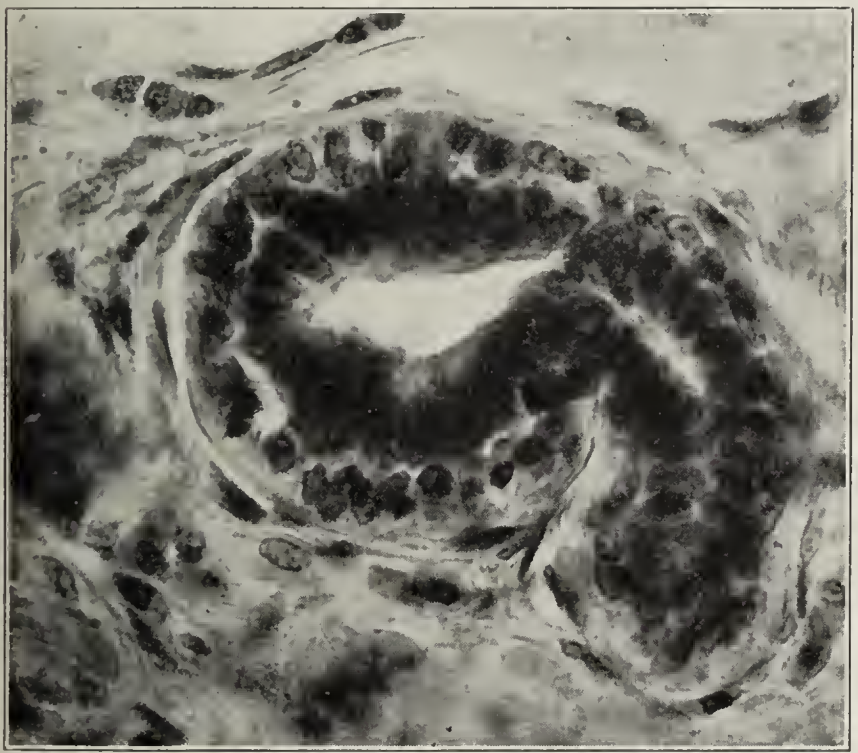

Fig. 1.—Breast; acinus showing primary epithelial hyperplasia (MacCarty).

At the beginning of this work the hypothesis was formulated, that the cells of cancer are the direct offspring of cells normally present in the acinus of the breast, and that they are derived neither from the differentiated cells through metaplasia, nor from prenatal or postnatal rests, according to the views attributed to Cohnheim and Ribbert. The investigation has been pursued on the foundation constructed by authoritative embryologists; personal speculation has been scrupulously avoided and notes of conditions have been confined strictly to the morphologic evidence presented by epithelial tissue under the microscope.

At the present period of this long investigation, MacCarty states that his earlier observations have been confirmed, and that his view of the origin of cancerous cells in the breast is no longer a hypothesis, but a demonstrable fact.

With the purpose of endeavoring to determine an analogy between the pathogenesis of cancer of the mammary gland, as advanced by MacCarty, and the pathogenesis of cancer of the prostate, I undertook the examination of this series of prostatic specimens.

A brief summary of MacCarty's investigation of epithelial growths of the breast follows:

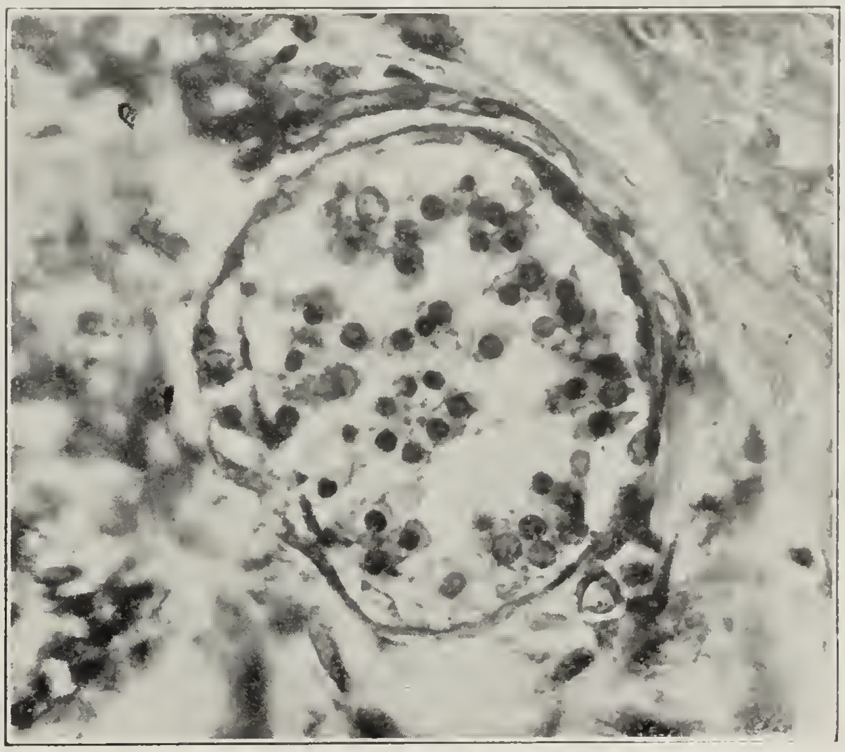

Fig. 2.—Breast; acinus showing secondary epithelial hyperplasia (absence of inner row of cells and hyperplasia of outer row of cells in lumen [MacCarty]).

The normal acinus of the mammary gland is lined with a single row of cylindrical epithelial cells, which are the differentiated, functional cells of the organ. These differentiated cells arise from the stratum germinativum, which is usually undiscernible until some stimulus causing hyperplasia is present. Then the germinative layer appears in the acinus as a second row of cells which adjoins immediately the surrounding stroma. For descriptive purposes these cells are termed the outer row and are described as the undifferentiated or partially differentiated precursors of the

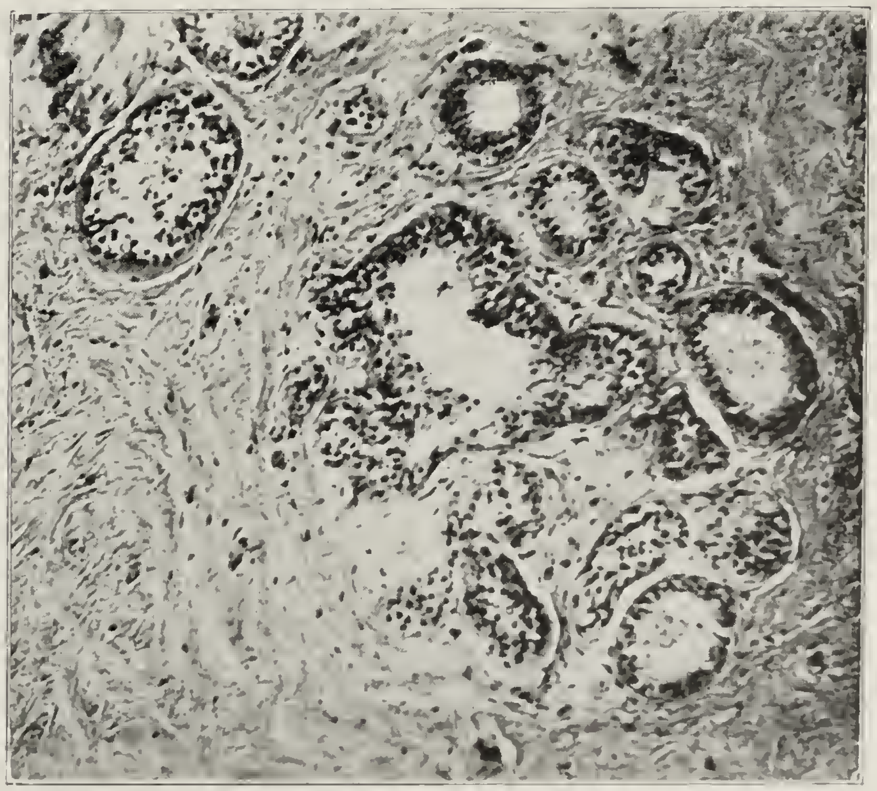

Fig. 3.—Breast; acini showing secondary hyperplasia and confusion of line of demarcation between acinus and stroma (MacCarty).

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[1] Albarran and Hallé: Ann. des mal. des org. génito-urin., 1898, p. 797.

[2] Ewing: Harvey Lectures, Nov. 16, 1907.

[3] MacCarty: Tr. of Surg. and Gynec. Assn., 1910; Surg., Gynec. and Obst., October, 1913, p. 441, Surg., Gynec. and Obst., March, 1914, p. 284.

specific functional cells. The morphologic appearance of these cells of the outer row differs from that of the differentiated cells, which now form and are termed the inner row. In the presence of an excessive or abnormal stimulus the cells of the outer row become hyperplastic and partially or completely fill the acinus. In this event, the functional cells are present, exfoliated or absent. Furthermore, the undifferentiated cells are observed not only intra-acinic, but also extra-acinic, situated in the stroma. Therefore, some microscopic fields present both rows of cells, differentiated and undifferentiated, distinct in the acinus; other fields show a definite predominance of intra-acinic, hyperplastic undifferentiated cells; and in still others, both intra-acinic and extra-acinic hyperplastic undifferentiated cells are seen. In some fields in which the inner row of functional cells are exfoliated or absent, and the undifferentiated cells of the outer row hyperplastic, the line of demarcation between the acinus and the stroma is observed obliterated, totally or in part, and the latter cells are noted also in the stroma. The facts that epithelial invasion of stroma is the accepted histologic picture of cancer; that in these observations the epithelial cells in the stroma are morphologically indistinguishable from the hyperplastic undifferentiated cells of the acinic outer row; and finally, that the latter cells represent the normal precursors of the functional cells in the stratum germinativum, seem to lead logically to the deduction that *the cancerous cells of the mammary gland are the direct, immediate descendants of the undifferentiated cells of the germinative layer,* consequently, that the hypothesis of "embryonic rests" is not essential for the explanation of cancer in this organ.

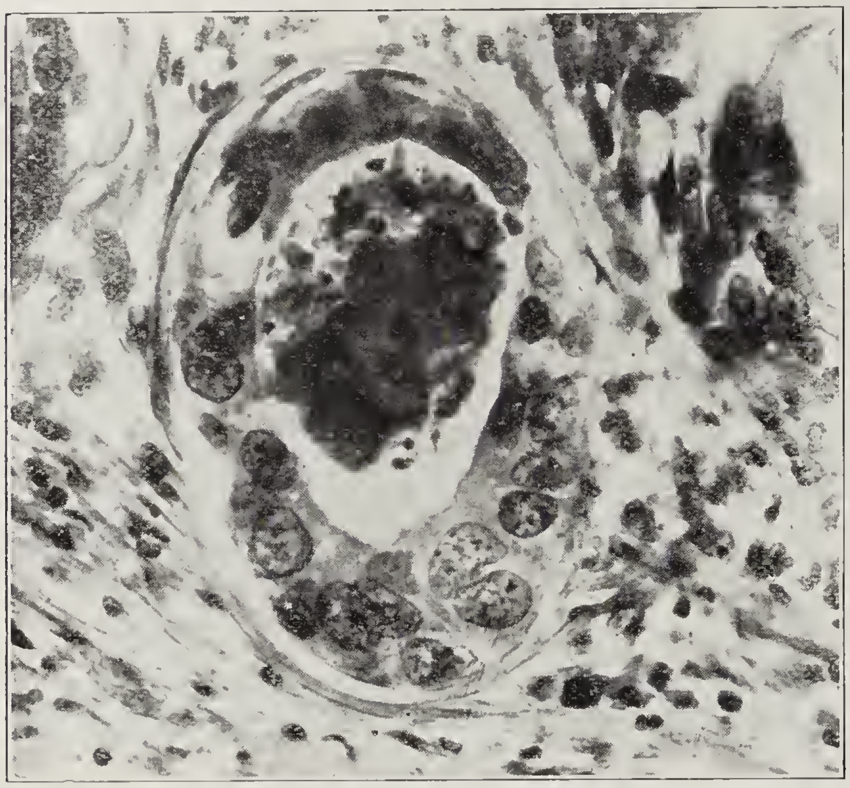
Fig. 5.—Breast; acinus showing secondary epithelial hyperplasia with irregularity of nuclei (MacCarty).

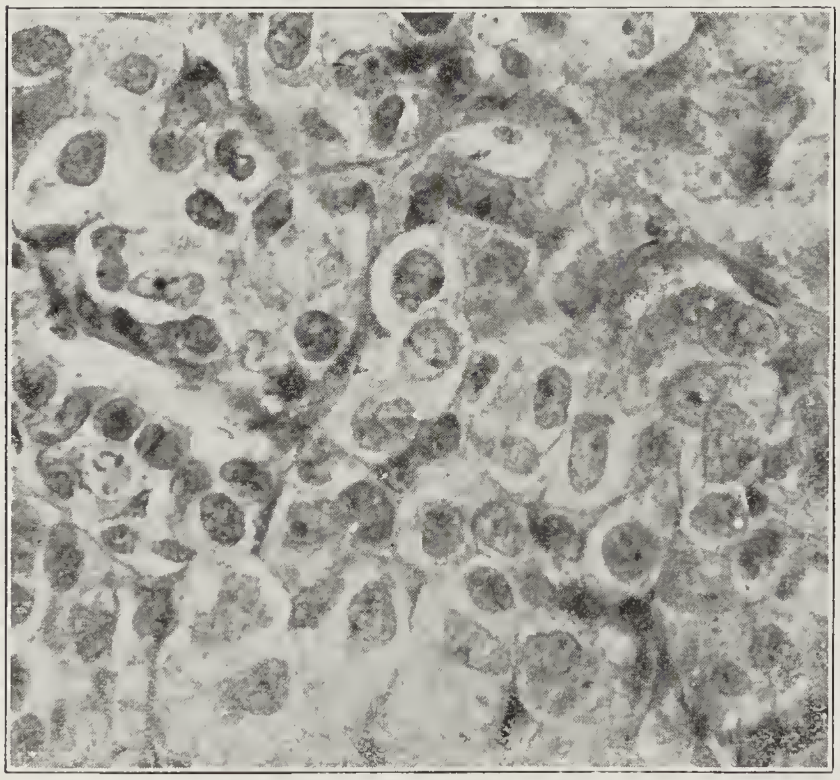
Fig. 6.—Breast; tertiary epithelial hyperplasia, showing irregularities of nuclei—cancer (MacCarty).

For the sake of simplicity in studying the mammary epithelial tumors, the following classification is based on the observations cited above: The pathologic processes involved in these epithelial growths are designated, (1) primary hyperplasia; (2) secondary hyperplasia; (3) tertiary or migratory hyperplasia. In primary hyperplasia, both rows of cells, the inner, differentiated, and the outer, undifferentiated, are present and concerned in the reaction; in secondary hyperplasia, the outer row, undifferentiated cells, are excessively proliferated (cancer?); in tertiary hyperplasia, the hyperplastic undifferentiated cells of the outer row are also present in the stroma (cancer).

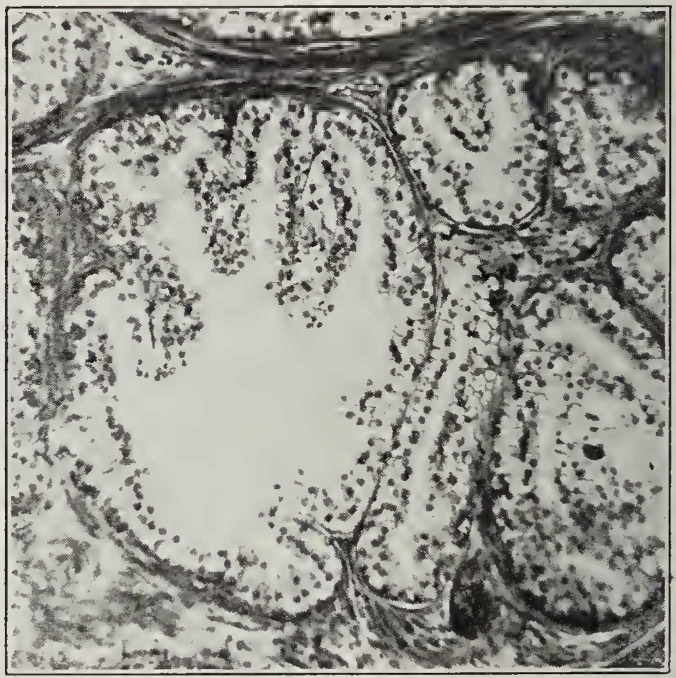
Fig. 7.—Normal prostatic epithelium.

The probability is advanced that, viewed in the light of these studies, the old criterion for determining cancer histologically, namely, the permeation of the "basement membrane," may be erroneous, consequently, that we may be compelled to view the condition of secondary hyperplasia as possibly malignant before invasion of tissue has occurred.

CANCER OF THE PROSTATE

In examining the prostatic specimens of this series for the purpose of seeking an analogy between the cancerous process in this gland and that noted by MacCarty in the breast, the following observations have been made:

The normal acinus of the prostate is lined with a single or an imperfect double layer of columnar epithelial cells. These are the differentiated or specific functional cells of the gland. In the examination of the pathologic specimens, these functional cells are seen frequently in a state of excessive proliferation, forming projections in and bridges across the acini. There is observed also partial or complete exfoliation of the same cells with the formation of cysts, which are empty or contain accumulations of the cells in varying degrees of degeneration. Some fields are noted in which the acini present not only the proliferated functional cells, but also, outside these and immediately adjoining the stroma, another row of cells, which are morphologically dissimilar to the inner row of differentiated cells. Other fields contain acini with functional cells present, exfoliated or absent, and the lumina partially or completely filled with the hyperplastic undifferentiated cells of the outer row. Still other fields are seen in which these hyperplastic cells of the outer row are both intra-acinic and extra-acinic, consequently presenting epithelial invasion of tissue, the accepted picture of cancer. Furthermore, what is impressive, the three conditions just described have been observed together in the same microscopic field.

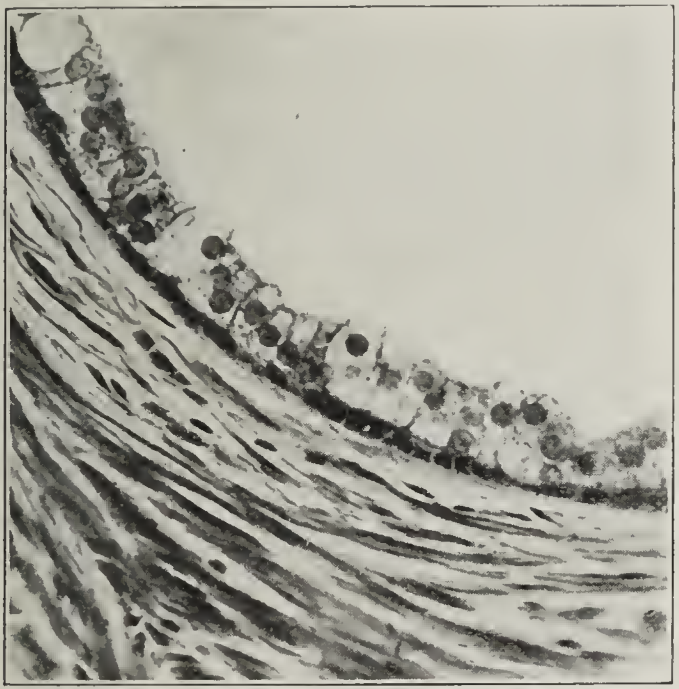

Fig. 8.—Normal prostatic epithelium.

An analysis of this comparative study of the prostate and the mammary gland indicates that an analogy exists between the microscopic pictures of epithelial changes in the cancerous process of both organs. The analogy being accepted, it follows that this study of the prostate adds further support to MacCarty's deduction, drawn from extensive observations on epithelial growths of the breast. If adequately prolonged and comprehensive investigations in the future positively confirm the present view of the latter author, it may be stated of the prostate that, whatsoever the associated pathologic condition or wheresoever the original focus, these are factors which are unessential to the process of cancerous development; that this is essentially a process of epithelial hyperplasia, involving the above-described undifferentiated cells, in a state of reaction to an abnormal irritant. Furthermore, for the pathogenesis of cancer it would not be necessary to assume the theory of "embryonic rests."

Frequency.—Statistics indicate that we are indebted to the investigators of the past half century for the existing knowledge of cancer of the prostate. The first useful statistics were compiled by Thompson[4] (1854) who cited 18 cases from the English and the French literature. Wyss[4] (1866) reported 28 cases, including Thompson's; Socin[4] (1875), 50 cases; Kapuste[4] (1885), 54 cases; Engelbach[4] (1888), 144 cases; Wolff[5] (1899), 110 cases. Since 1902, numerous reports of malignant prostatic conditions have been contributed. It is the statistics of the more recent writers, however, which, although varying within somewhat wide limits, afford us the nearest approximation to the truth with regard to the frequency with which cancer occurs in the prostate.

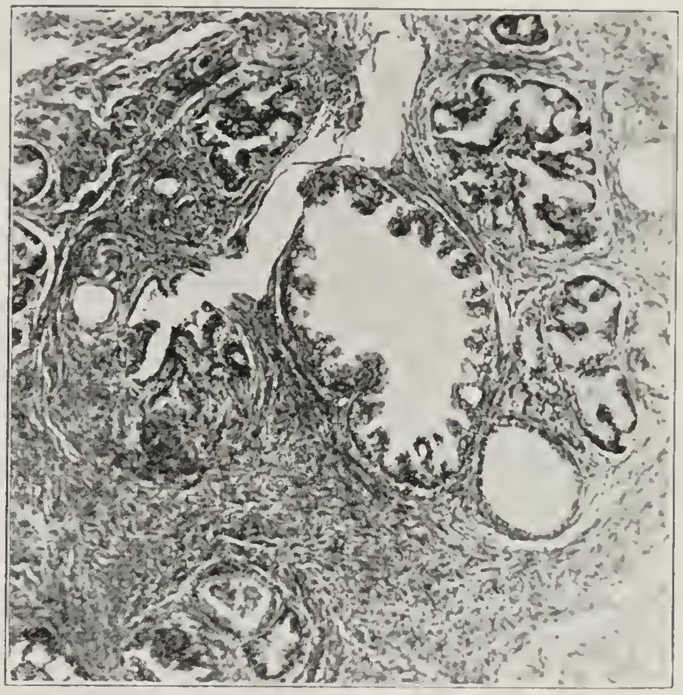

Fig. 10.—Normal prostatic epithelium, proliferating and projecting in masses in the lumen of the acinus.

In 500 cases of prostatic obstruction, Young[6] found cancer in 20 per cent. The same author states that about one out of every seven enlarged prostates after 50 years of age is cancerous. Albarran and Hallé noted 14 per cent.; Walker,[7] 16.5 per cent.; Wilson and McGrath[8] (1911), 468 reexamined prostatic specimens removed at operation, 15.5 per cent.; Freyer[9] (1914), 1,276 cases of enlarged prostate, 13.3 per cent. In the

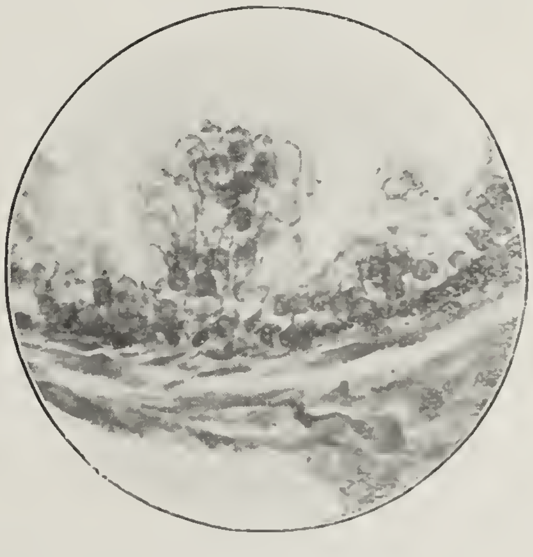

Fig. 11.—Normal prostatic epithelium, proliferating and projecting in masses in the lumen of the acinus.

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[4] Cited by von Frisch, Der Krankheiten der Prostata, Ed. 2, 1910.

[5] Wolff: Deutsch. Ztschr. f. Chir., July, 1899, lii, parts 3 and 4.

[6] Young, Hugh, H.: Ann. Surg., 1909, l, 1232; The Early Diagnosis and Radical Cure of Carcinoma of the Prostate, The Journal A. M. A., March 10, 1906, p. 699.

[7] Walker: Lancet, London, April 11, 1908, p. 1054.

[8] Wilson and McGrath: Surg., Gynec. and Obst., December, 1911, p. 647.

[9] Freyer: Arch. Internat. de chir., 1914, vi, No. 4.

present series of 716 specimens (including the 468 cases reported by Wilson and McGrath in 1911), 12.28 per cent.† are cancer.

Age.—One patient was between the ages of 40 and 50. Seventy-eight per cent. were between 60 and 80. Other investigators have found about 68 per cent. between the ages of 50 and 70. Wolff reports six patients under 40; one, 29 years of age.

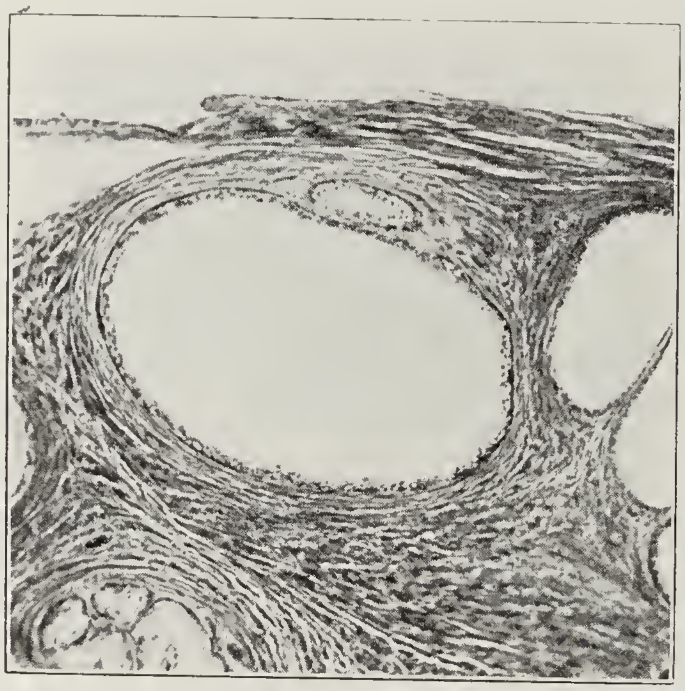

Fig. 12.—Cystic acini, showing two rows of cells, inner and outer row, similar to pictures seen in breast in primary hyperplasia.

Mode of Involvement.—Cancer of the prostate is primary in the great majority of cases. The gland is involved secondarily by adjacent cancer or through metastasis by way of the blood-stream. Rectal ulceration is the most frequent source of secondary prostatic cancer from contiguous structures. About one-half the cases of secondary involvement are metastatic from remote organs.

Site of Origin.—The most commonly ascribed site of the original focus in primary cancer of the prostate is the posterior lobe; but its presence in the lateral and middle lobes has been noted by some authors.

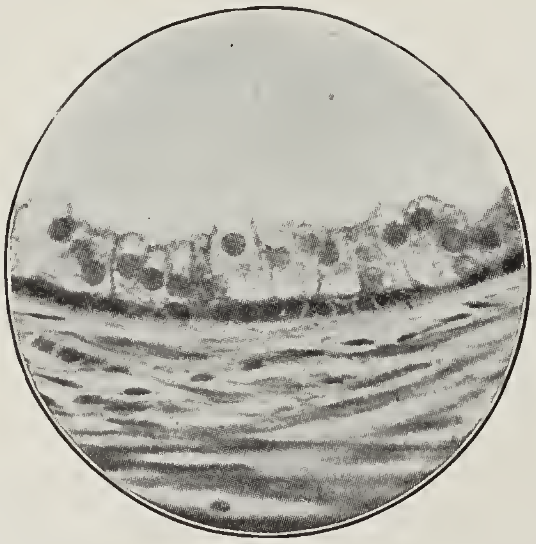

Fig. 13.—Cystic acini, showing two rows of cells, inner and outer row, similar to pictures seen in breast in primary hyperplasia.

Growth.—The cancerous process has been observed to involve the entire prostate symmetrically and rapidly, but the consensus of investigators' opinions is that, in by far the large proportion of cases, cancer of this gland is limited, occurring as one or several little nodules and of slow growth. Consequently, gross serial sections of the specimen and microscopic examination of every doubtful area are essential for the diagnosis in the great majority of cases. Failure to appreciate this point, also neglect to examine the posterior lobe, are the probable cause of statistics with low percentage of cancer, likewise of inadequate treatment and erroneous prognosis.

Extension.—In the extension of prostatic cancer the fascia of Desnonvillers, also the fibrous capsules, both of the prostate itself, and of hypertrophied spheroids, lobules or lobes, are accredited with an essentially important rôle. Young emphasizes this point. Cuneo and Veau[10] have shown that the fascia of Desnonvillers is a prolongation downward of the peritoneum in fetal life, which projecting in a plane between the prostate and the seminal vesicles in front, and the rectum behind, by virtue of its reduplication doubly inhibits the spread of cancerous cells posteriorly. Consequently, ulceration of the rectum is infrequently seen and periprostatic structures are quite effectively guarded. The tendency, then, of the cancerous process is to extend upward to the region of the ejaculatory ducts, between the fascia of Desnonvillers posteriorly and the trigone anteriorly. Young maintains that the mucosa and submucosa of both urethra and bladder are very resistant to the malignant invasion. On the other hand, von Frisch[11] notes extensive involvement of both these structures. The seminal vesicles are frequently involved, and the growth may extend along the ureters, causing complete obstruction, even rupture. Extension upward for a long distance within the vasa deferentia, without apparent involvement of the outer walls, may occur (Young). Cases noted by von Frisch were: Growth into rectum with subsequent extensive involvement of the sacrum. Growth through the obturator foramen and between the adductors of the thigh. Once the capsule is permeated, the cancerous process spreads extensively.

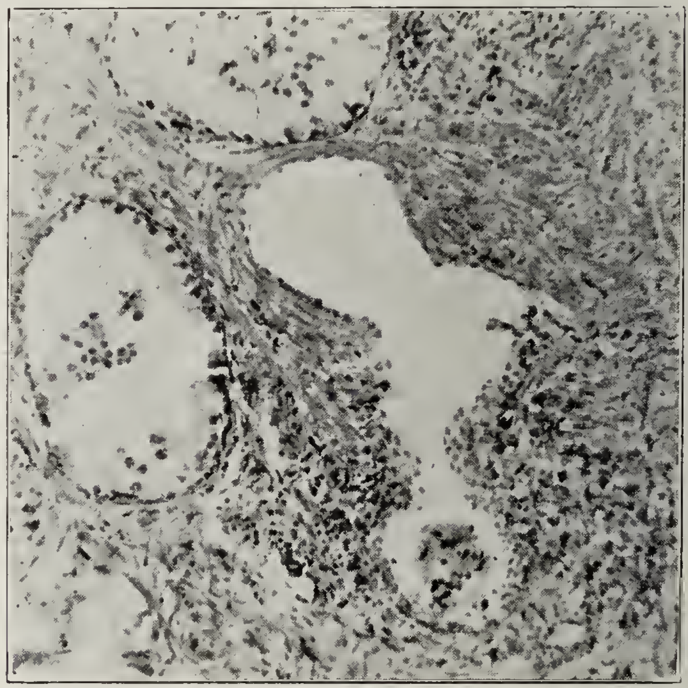

Fig. 15.—Normal epithelium in acinus, acinus with exfoliation of differentiated cells, acinus with some exfoliated differentiated cells and invasion (?) of stroma by hyperplastic cells of the outer row.

Metastasis.—This occurs in bones, lymphatic glands and internal organs. Important to be emphasized is the fact that, whereas the primary cancer of the prostate is usually small, metastases from it are commonly extensive. The most frequent sites are the skeletal bones and the lymphatic glands. Visceral metastasis is comparatively infrequent, probably occurring in about 25 per cent. Kaufmann[12] remarks the infrequency of glandular metastasis from prostatic cancer compared with that from cancer of other structures. In 100 collected cases this author found involvement of the pelvic glands 27 times; iliac, 24; inguinal, 16. Young, whose figures agree with those of Kaufmann as to the involvement of the pelvic glands, says: "It shows the fact that one should not expect enlarged glands before making a diagnosis of carcinoma of the prostate." Blumer[13] states that cancer of the prostate gives rise to metastasis in bones in a much larger proportion of cases than any other form of cancer — probably in two-thirds of patients in whom it is allowed to run an unobstructed course. Von Recklinghausen[14] emphasizes the fact that the cancerous focus in the prostate is, in comparison with the advanced foci in the bone, small and insignificant. The author directs attention to the analogy between metastasis in bone from a small nodule of cancer in the female breast and that from cancer of the prostate, and gives warning to suspect these sources in case of severe pain in the spinal column without evident cause. Blumer advises similarly in case of spastic paraplegia — involvement of the spine — and apparent osseous tumors in flat and long bones. In the thyroid, likewise, certain forms of malignant tumors occur which present entirely analogous relations, and such growths may be so small as to escape attention (von Eiselsberg[15]). The metastasis in bone is more or less general, its transmission is vascular rather than lymphatic and nearly always originates in the medulla—rarely beneath the periosteum (Blumer).

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† In the last 248 cases of this series only the specimens already diagnosed cancer were studied. It is probable that reexamination of the remaining specimens will increase the percentage of malignancy.

[10] Cuneo and Veau, cited by Bryan: Lancet-Clinic, April 20, 1912, p. 433.

[11] Von Frisch: Die Krankheiten der Prostata, Ed. 2, 1910.

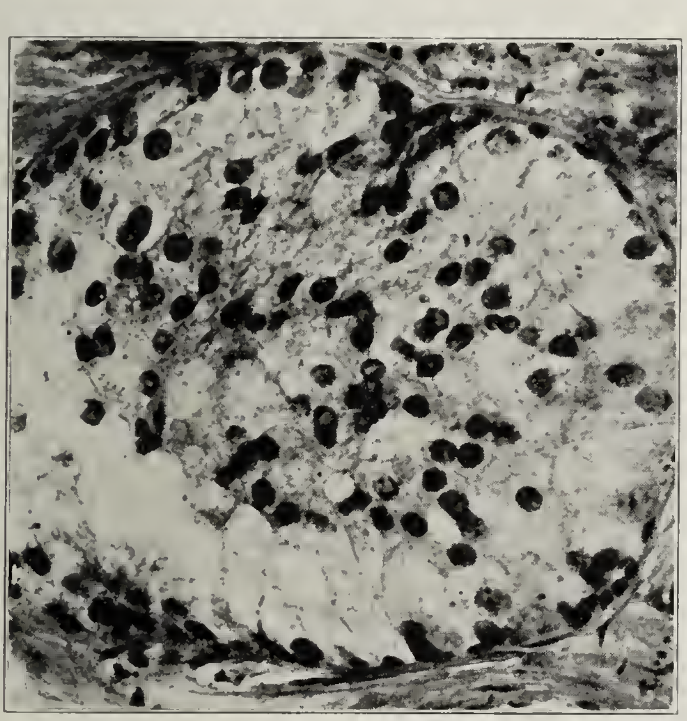

Fig. 16.—High power of acinus in Figure 15, showing both exfoliated differentiated cells and hyperplastic cells of the outer row.

SUMMARY

1. An analogy exists between the microscopic fields of epithelial changes observed in cancer of the prostate and those of the mammary gland, as presented by MacCarty.

2. In the undoubted histologic picture of cancer, both organs present in the stroma migratory epithelial cells which are morphologically indistinguishable from the hyperplastic undifferentiated cells within the acinus.

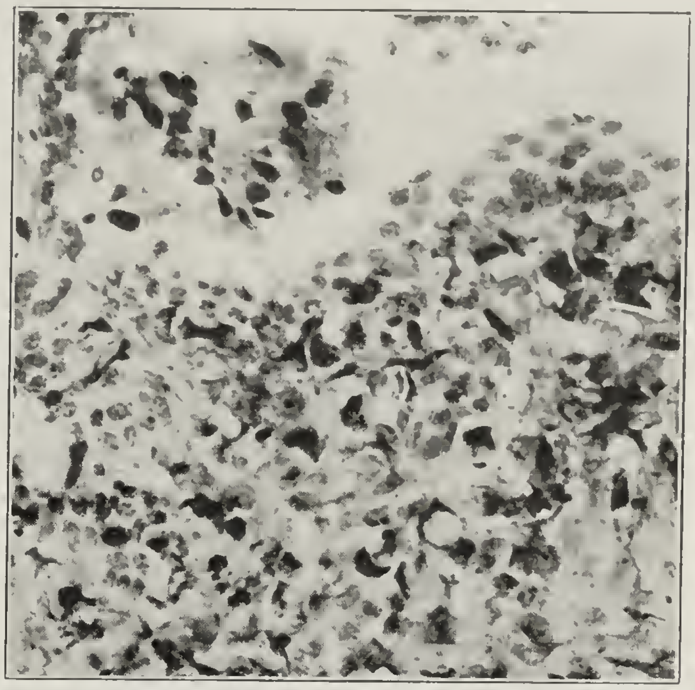

Fig. 17.—Acinus in Figure 15, in which there are exfoliation of differentiated cells, hyperplastic cells of the outer row and immediate peri-acinic invasion of stroma by hyperplastic cells of the outer row.

3. According to the studies of MacCarty, these intra-acinic, hyperplastic, undifferentiated cells represent the precursors of the specific functional cells of the gland; consequently, the positively cancerous cells are the direct, immediate descendants of those which become the differentiated cells under normal conditions.

4. This analogy between the prostate and the mammary gland being accepted, further support is added to MacCarty's deductions, drawn from extensive studies of the breast. And, if adequately prolonged and comprehensive investigations in the future confirm the present view of the latter author, then it may be stated of prostatic cancer, as well as of cancer in general, that the process is fundamentally one of

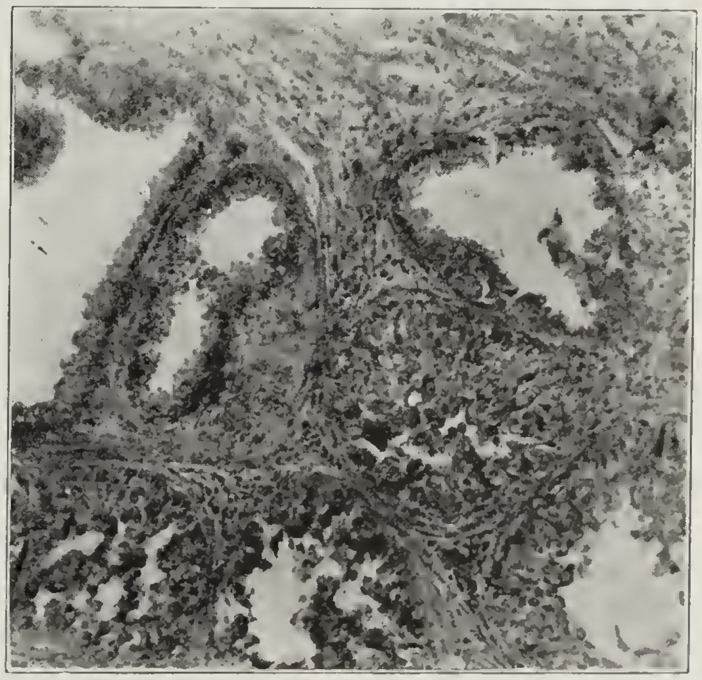

Fig. 18.—Acinus showing the two rows of cells, acinus showing the hyperplastic cells of outer row, completely filling the lumen.

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[12] Kaufmann: Lehrbuch der speciellen pathologischen Anatomie, Berlin, 1901.
[13] Blumer: Johns Hopkins Hosp. Bull., July, 1909, p. 200.
[14] Von Recklinghausen: Festschr. zu Virchow 71. Geburtstag, Berlin, 1891.
[15] Von Eiselsberg: Arch. f. klin. Chir. (Langenbeck), xlvi, 1893.

epithelial hyperplasia of the above-described undifferentiated cells, in a state of reaction to an abnormal irritant; furthermore, that for the pathogenesis of cancer it would not be necessary to assume the theory of "prenatal or postnatal rests."

5. Cancer of the prostate is a comparatively frequent disease after 50 years of age.

6. The process usually begins in the posterior lobe and occurs more commonly as a small nodule or nodules of slow growth; consequently, *careful investigation of the posterior lobe, gross serial sections of the specimen, with microscopic examination of doubtful areas, are essential for diagnosis in the majority of cases.*

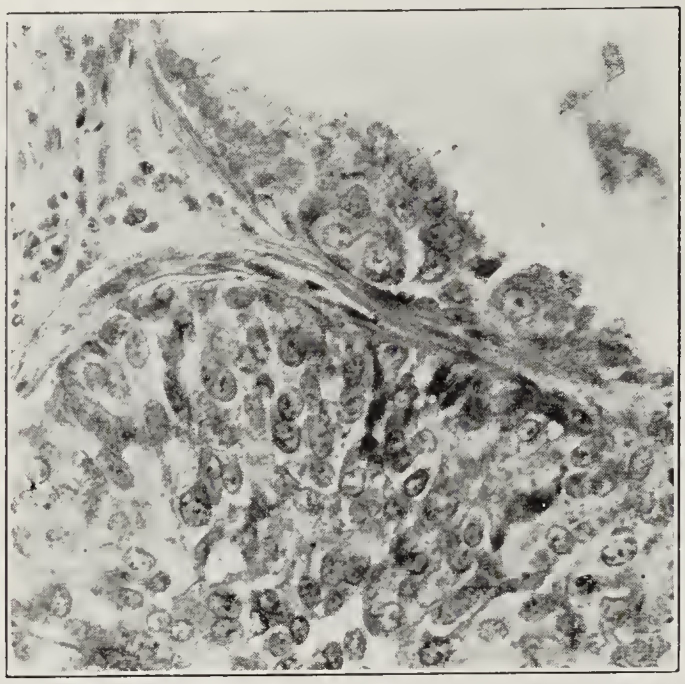

Fig. 20.—Same as Figure 19, showing in upper acinus primary and secondary hyperplasia; in lower acinus, secondary hyperplasia.

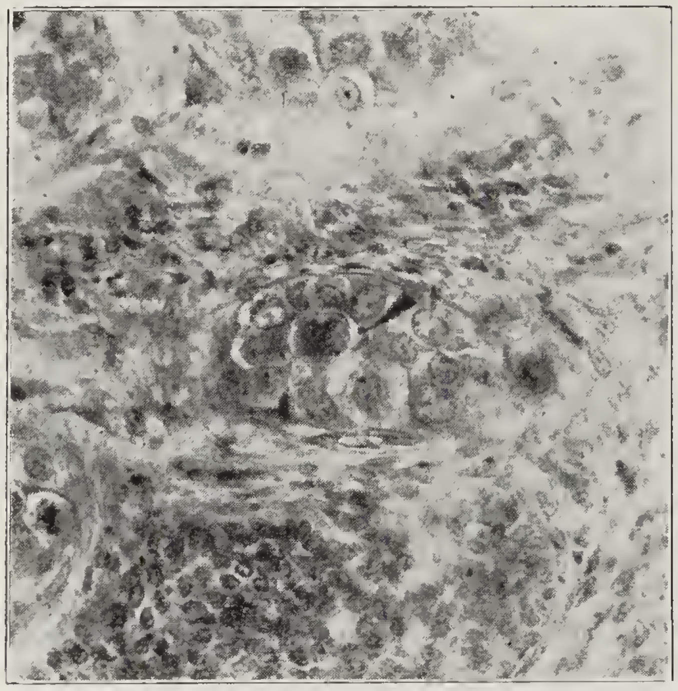

Fig. 21.—Same slide as Figures 18, 19 and 20, showing hyperplastic epithelial cells in the stroma, probably a lymphatic space (tertiary epithelial hyperplasia, or cancer). The cells are morphologically indistinguishable from the intra-acinic hyperplastic cells of the outer row (secondary hyperplasia).

7. The fascial strata associated with the prostate seem to be quite effective barriers to the progress of the disease.

8. The tendency of extension of the cancerous process is upward to the region defined by the fascia of Desnonvillers posteriorly and the trigone anteriorly, and then beyond this area.

9. Metastasis affects bones, lymphatic glands and internal organs. The cancerous focus in the prostate may be, and commonly is, insignificant, while the metastasis in bone is extensive. Similar relations have been observed with small cancerous nodules in the female breast and the thyroid. Manifestations in bone, with cause obscure, should direct attention to these observations.

10. Involvement of lymphatic glands is not a dependable factor in diagnosis, since metastasis may be present in the skeletal structure and these glands apparently unaffected.

A COMMON MECHANISM FOR MOST INJURIES OF THE SHOULDER REGION

SUPPORTED BY THE RESULTS OF TREATMENT, INCLUDING FORTY-NINE OPERATIONS *

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PHILADELPHIA

During the past six or seven years I have been making a study of a series of traumatic conditions affecting the shoulder and arm, and have presented a special study of each condition. The views expressed have been radical because they were based on a new conception of the etiology. The clinical experience by which they were supported was small because the methods of treatment were new and because the "let alone treatment" has been the rule in most of these cases. Of one of these conditions, recurrent dislocations of the shoulder, I recently reported the results of operation on eighteen shoulders, the largest number previously reported by one writer being four. I have since operated on four more. My particular purpose, now, is to show that they can be traced to an essentially common cause, and that the views offered have a rational anatomic basis and are justified by the results of treatment. It is important to bear in mind that we are dealing here with conditions that have always been the subject of much discussion and conjecture.

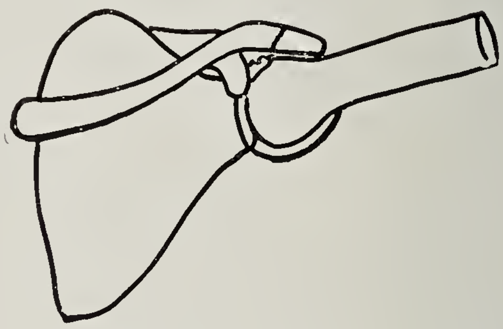

Fig. 1.—Humerus at normal limit of abduction. Leverage effect begins when capsule tears, which usually occurs at the glenoid or humeral attachment. Each of the diagrams on effects of hyperabduction on skeleton of shoulder region includes, except Figure 10, the clavicle, scapula, upper half of the humerus and capsule of the shoulder-joint.

The conception of the anatomic basis of these conditions was of gradual development. For more than ten years I had been working on the applications of anatomy to surgery, with the cadaver as the basis of the work. There is no essential difference in the signs obtained in a dislocation of the shoulder on the cadaver produced by hyperabduction, and in the usual dislocation of the shoulder in life, which is generally admitted to be due to hyperabduction. The best knowledge we have of dislocations of the shoulder and hip has come from studies of cadaver dislocations. If methods of treatment founded on such studies produce distinctly better results than those in vogue and not supported by such work, then they should and, I believe, will receive the consideration of the profession. For a fuller discussion of the various phases of the work, I must refer the reader to previous papers, references to which will be given later. My object now is to present a perspective outline of the whole subject, and this demands brevity.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

* Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

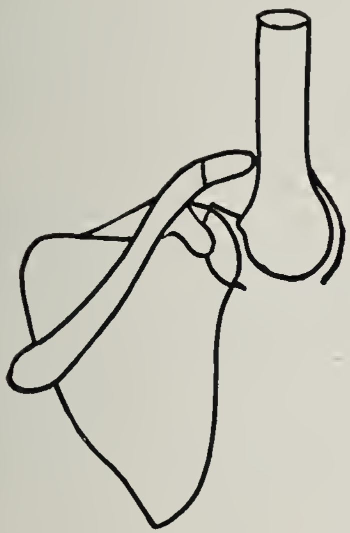


Fig. 2.—Capsule torn extensively from glenoid margin, head pried out of socket and humerus moved downward on edge of acromion. In recurrent dislocations, gap between torn capsule margins is later bridged across by new cicatricial capsule.

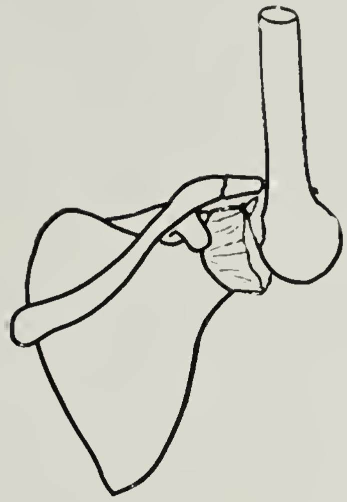


Fig. 3.—Capsule torn from humeral attachment in whole circumference, taking with it a fragment of greater tuberosity. This lesion is sometimes responsible for flail shoulder-joint.

It is of much importance to know the mechanism by which an injury to the skeleton is produced. We know very little about this whole subject. Concerning fractures and dislocations, even our largest systems of surgery have little more to say than that they are due to direct or indirect violence. We cannot rely much on the statements of the patients as to how the force was applied. They were too excited at the time and usually do not know until later where the force was expended, and then only in a very vague way. The relationship between cause and effect is more obvious in injuries of the skeleton at the ankle and wrist than in any other part of the body, probably because of their proximity to the part of the body coming in contact with the ground or injuring object. In these injuries we recognize more clearly the effects of the falls on the palm of the hand and the turning of the foot inward or outward due to the lateral instability of the foot. In no other parts of the body is there the same unity of opinion concerning the mechanism of fractures and dislocations. My whole case has been built up on the hypothesis that hyperabduction is to shoulder injuries what forced dorsal flexion is to wrist injuries and the lateral turns of the foot are to injuries of the ankle. But the influence of hyperabduction is not so obvious. A little reflection, however, will show that no movement at the shoulder is forced as frequently and violently as abduction. Only the muscles and joint ligaments on the axillary side resist, and as the capsule is an integral part of the skeleton it must suffer more than any other soft structure from the forces applied to the skeleton. It has been my contention that in falling, if conscious, a person practically never strikes on his shoulder, and I regard it as very important that Codman, who has been a close student of shoulder injuries, agrees with this contention. I believe that in falling one practically always puts out his hand to break the force of the fall and that the effect at the shoulder is to carry the arm into abduction. The only pathologic effect of hyperabduction at the shoulder that is generally recognized is the anterior dislocation, and even in this condition we have not appreciated its full importance. In my opinion, it is the key to the solution of the obscurity in most shoulder injuries.

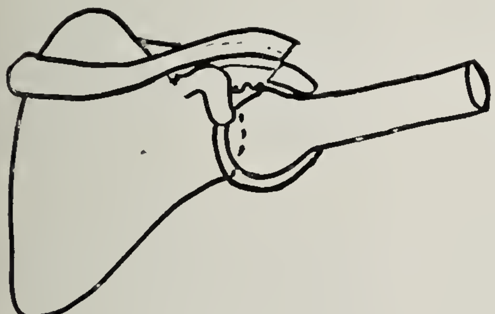


Fig. 4.—Upward dislocation of outer end of clavicle from hyperabduction.

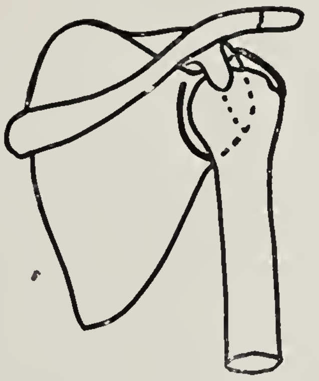


Fig. 5.—Anterior dislocation of shoulder with arm at side. Upper portion of capsule untorn.

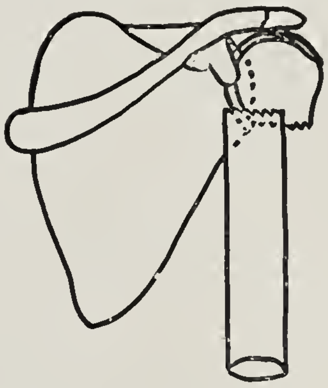


Fig. 6.—Fracture of surgical neck of humerus. Upper end of lower fragment displaced upward, forward and inward, like the head of the humerus in anterior dislocation of the shoulder.

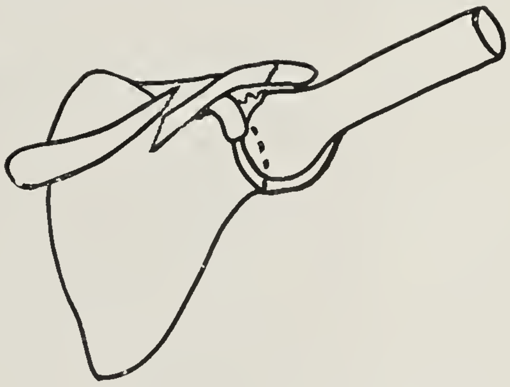
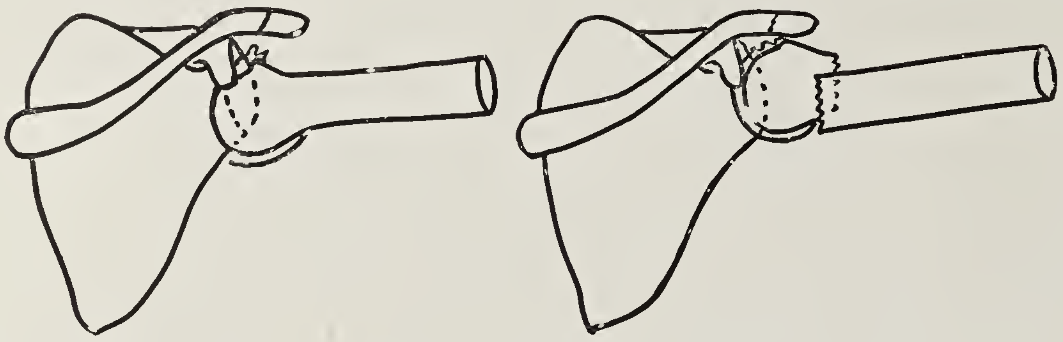


Fig. 7.—Fracture of middle clavicle from hyperabduction. Outer fragment forced downward and inward like acromion in Figure 4.

I wish to suggest here how it may explain other injuries to the skeleton than at the shoulder-joint. The lateral turns of the foot produce sprains and sprain fractures, Pott's fractures, lateral dislocations of the subastragaloid joint and even of the ankle-joint, and probably other injuries to the skeleton, also. At the shoulder, what do we know, for instance, of the mechanism of fractures and dislocations of the clavicle, or fractures of the surgical neck of the humerus? We know practically nothing, so that a plausible suggestion should be worth while. Without movement of the scapula, abduction is arrested at or a little above the horizontal by tension on the axillary portion of the capsule which turns the scapula on further abduction (Fig. 1). When the normal limit of abduction is passed, some part of the skeleton gives way. In adults, in the great majority of cases, this is probably the shoulder-capsule, which includes all the ligaments of the shoulder-joint; but why should not other parts of the skeleton break, here, as at the ankle? My cadaver studies show that the first effect of hyperabduction at the shoulder-joint is to tear the axillary portion of the capsule. Then the outer surface of the humerus just below the tuberosities strikes the edge of the acromion, when further abduction pries the humeral head out of its socket below and anteriorly (that is, into the axilla), the humerus sliding on the acromion at their point of contact (Fig. 2). But the dislocation is the end-result of hyperabduction and requires an extensive tear of the capsule. Between the force necessary to produce this severe result and that which the capsule can withstand without tearing, there will be many grades applied, producing lesser tears or sprains of the shoulder-joint. There are, in all probability, many cases in which dislocations are spontaneously reduced as the arm falls to the side of the body. Most traumatic stiff and painful shoulders are probably due to lacerations of the axillary portion of the capsule produced by hyperabduction. But with the tearing of the capsule, or without it, a neighboring part of the skeleton may give way.



Figs. 8 and 9.—Same as Figures 5 and 6, with humerus in about same plane as clavicle and acromion, showing same displacement of outer fragment as in Figures 4 and 7.

It is a significant fact that fracture of the surgical neck of the humerus is not infrequently associated with an anterior dislocation of the shoulder. It is more than likely, in such cases, that both lesions are due to the same mechanism, and it is generally agreed that the dislocation is due to hyperabduction. The limitation of movement in the shoulder-joint, frequently observed and often severe after fracture of the surgical neck without dislocation, could be explained by a simultaneous tear of the capsule, with or without a simultaneously reduced dislocation. The fracture would represent the breaking of the lever, the humerus, at the fulcrum, the acromion (Fig. 1). Mencke[1] has recently called attention to the frequency of fractures of the acromion, which may be explained as the giving way of the fulcrum itself. I shall call attention, briefly, to other fractures of the fulcrum, later. Mencke found that in some cases the fracture of the acromion was associated with anterior dislocation of the shoulder, which in these cases, at least, is strong evidence that the fractures were due to hyperabduction. Fractures of the greater tuberosity of the humerus are well known to be frequently associated with anterior luxations of the shoulder. I have obtained about ten or twelve typical fractures of the greater tuberosity simply by producing anterior dislocations of the shoulder in the cadaver by hyperabduction. In each instance the capsule tore from its humeral attachment, the continuing abduction tearing the capsule progressively upward to the greater tuberosity which was detached, the varying-sized fragment maintaining its attachment to the corresponding portion of the capsule (Fig. 3) and the overlying rotators. I have operated in several cases and have also had several cadaver dislocations in which the capsule tearing from the glenoid margin carried with it a fragment of the glenoid. These fractures, therefore, seem to depend on the manner in which the capsule tears from hyperabduction.

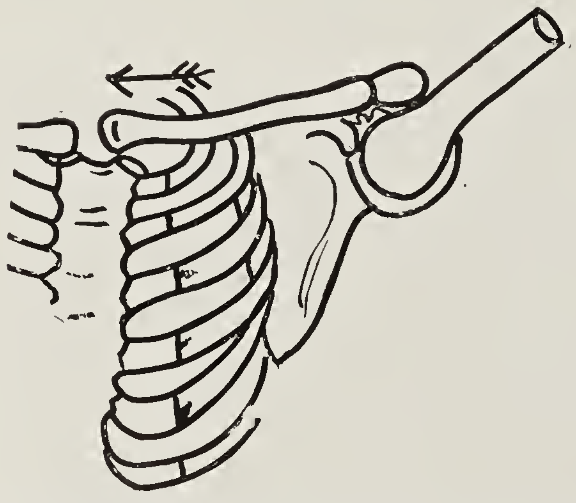


Fig. 10.—Upward dislocation of inner end of clavicle from hyperabduction. The relation of the sternum to the clavicle prevents the downward displacement of the latter.

The fulcrum, in the leverage mechanism of hyperabduction, is the acromion. But the acromion is attached to the rest of the skeleton by the clavicle, which, therefore, becomes an important part of the fulcrum. This may break at any point, but is more liable to do so at some points than at others. Of the two clavicular joints, the outer gives way much more frequently than the inner, while the clavicle breaks most frequently about its middle where it is thinner and least protected by muscles and ligaments. In his fractures of the acromion, Mencke included cases in which a small fragment was detached from its articulating surface with the outer end of the clavicle. I have seen one case of this kind and several others in which the Roentgen ray failed to show such a fracture, but in which the pain following an injury to the shoulder was sharply localized to this joint. I have had two cases in which an upward dislocation of the outer end of the clavicle (by far the most frequent variety) was associated with an anterior dislocation of the shoulder which indicates that both resulted from hyperabduction. The line of this joint is slightly oblique from above downward and inward, the obliquity varying

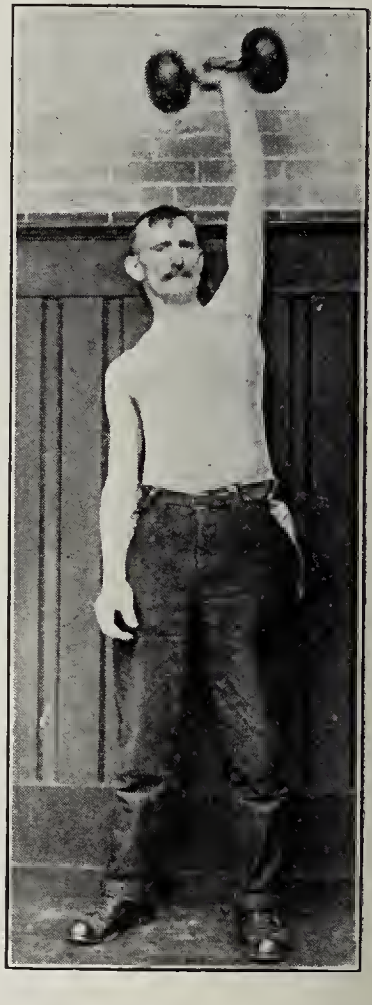


Fig. 11.—Left shoulder injured three years ago. Severe paralysis appeared on following day. Total paralysis of hand four weeks later when shoulder ankylosis was broken up under ether. Returned to work in six weeks with limb weak, especially hand. Normal power and motion in one year. Picture taken one week ago showing patient supporting 40-pound dumb-bell with left arm, which is about as strong as right.

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1. Mencke: Ann. Surg., 1914, lix, 233.

in different cases. The effect of the leverage mechanism at this joint is to crowd the acromion inward against the outer end of the clavicle, and if the force is strong enough, to drive the acromion under the clavicle because of the favoring obliquity of the joint and the tendency of the lever to turn the outer end of the acromion upward and the inner end downward (Fig. 4). The force expended at this joint may be sufficient only to cause a painful joint by the strain on or tearing of the ligaments, the contusion from crowding the bones together, or the fragmentation of the apposed articulating surfaces.†

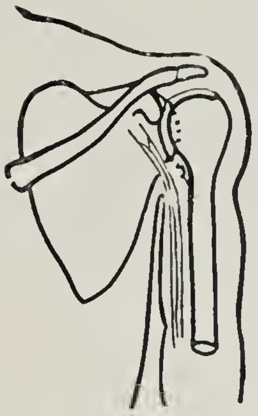
Fig. 12.—Showing relation of branches of brachial plexus to torn axillary portion of shoulder capsule. Hemorrhage from this and other injured tissues with synovial fluid from opened joint extravasates around and into the nerves and with the resulting inflammatory exudate produces a palsy of the limb of varying grade and distribution. The torn and relaxed capsule is shortened by the cicatricial healing.

If we regard these four conditions as fractures of the skeleton with overlapping of the fragments, we shall find that the typical deformity is the same in all. In the anterior dislocation of the shoulder (Fig. 5) and typical fracture of the surgical neck of the humerus (Fig. 6), the lower fragment is displaced upward, inward and forward, while in the fracture of the clavicle (Fig. 7) and dislocation of its outer end (Fig. 4), the proximal fragment is displaced downward, inward and forward. The difference here is only apparent, for if the humerus is abducted until it is in the same plane as the clavicle and acromion, then the upward displacement of the humerus in the fracture of the surgical neck and anterior luxation of the shoulder-joint becomes a downward displacement (Figs. 8 and 9) as in the fracture and luxation of the clavicle. This similarity in the usual deformity in all of these conditions suggests strongly a common mechanism, hyperabduction, which we agree is responsible for one of them, the anterior dislocation of the shoulder. The well-known greater frequency of fractures of the clavicle in children and dislocations of the shoulder in adults could be explained by a relative difference in strength of these two portions of the skeleton at these two periods in life. The great infrequency of dislocations of the inner end of the clavicle and the usual upward displacement of the proximal fragment in this fracture of the skeleton are readily explained by the conformation of the joint (Fig. 10), which absolutely prevents a downward displacement of the proximal bone or fragment as in the other fractures of the fulcrum. It tends to neutralize the effect of the force and thus to diminish the number of dislocations. The leverage mechanism might crowd the inner end of the clavicle upward in rare cases, but it cannot force it downward as it does in the other fractures of the skeleton referred to. I have offered, here, these few brief suggestions concerning other breaks in the skeleton than at the shoulder-joint to show that, probably, we have overlooked the possibilities of hyperabduction in the shoulder region. My particular interest is in its effect on the shoulder-joint.

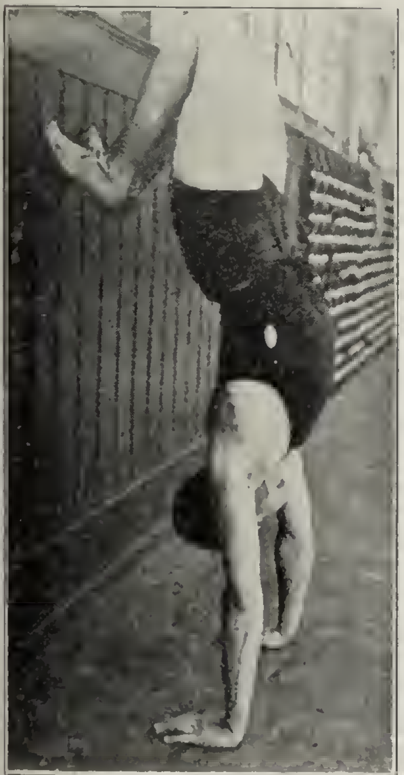
Fig. 13.—Left shoulder operated on for recurrent dislocations, Dec. 29, 1909. Same shoulder dislocated in wrestling, Nov. 25, 1912. Patient has again taken up wrestling. This picture taken a few weeks ago. Obviously more severe strain in getting into than maintaining this position.

STIFF AND PAINFUL SHOULDERS[2]

According to my conception, the very frequent stiff and painful shoulders, which have been so obscure and the subject of so much discussion, represent the same condition at the shoulder as follows sprains and dislocation in other joints. The characteristic limitation of abduction and external rotation results from immobilization of the arm in the "sling" position, that is, in adduction and internal rotation. A varying grade of palsy is always present in the early stages and is due to the inclusion of some or all of the branches of the brachial plexus in the consequent axillary inflammation. This is usually mild and soon disappears with the return of normal motion to the shoulder joint. In some cases it is severe, affects most the muscles of the shoulder region, but in rare cases it involves most the muscles of the forearm and hand (Fig. 11). The therapeutic indication is to restore normal motion by exercises to stretch or forcible manipulations under ether to tear the contracted axillary tissues, especially the capsule (Fig. 12).

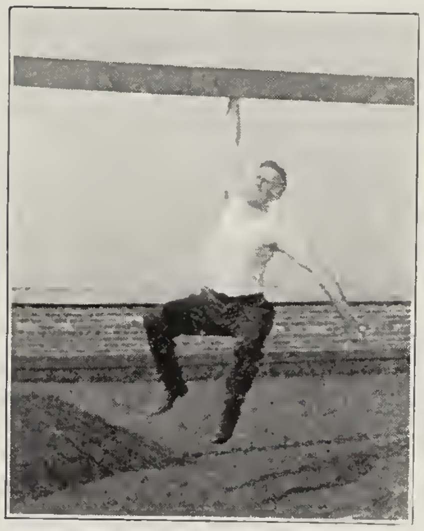
Fig. 14.—Patient operated on six and a half years ago for recurrent dislocations of right shoulder. No recurrence of dislocation since. Patient supporting whole weight by hanging from right hand.

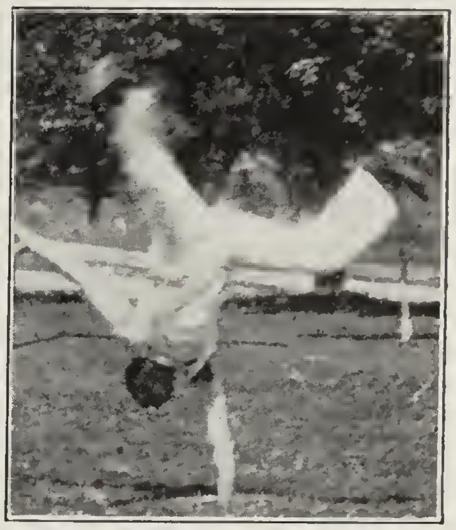
Fig. 15.—Same patient as in Figure 14 supporting his whole weight by standing on right hand.

RECURRENT DISLOCATIONS OF THE SHOULDER[3]

If after the reduction of a dislocation of the shoulder, the arm is not kept at the side and is soon carried forcibly into abduction, particularly if external rotation is added, the humeral head is easily pried out of the socket again because the capsule has not had time to heal. Its torn edges are again forced apart and the repetition of this accident will leave them permanently separated by the width of the gap necessary for a dislocation, the gap becoming filled in by new cicatricial capsule, much as the gap in a divided Achilles tendon is filled in. The lengthened axillary portion of capsule will not now contract and a recurrent dislocation is established. Shortening by overlapping or folding of the lengthened capsule is indicated.

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† Recently, Sievers, in the Trendelenburg Festschrift of the Deutsch. Zeitschrift für Chirurgie, cxxix, 583, presented an extensive study, showing that injuries of this joint are frequent.

[2] Thomas: Am. Jour. Med. Sc., April, 1911; Therap. Gaz., April 15, 1913.

[3] Thomas: Am. Jour. Med. Sc., March, 1909; Recurrent Anterior Dislocation of the Shoulder, The Journal A. M. A., March 12, 1910, p. 834; Surg., Gynec. and Obst., January, 1914.

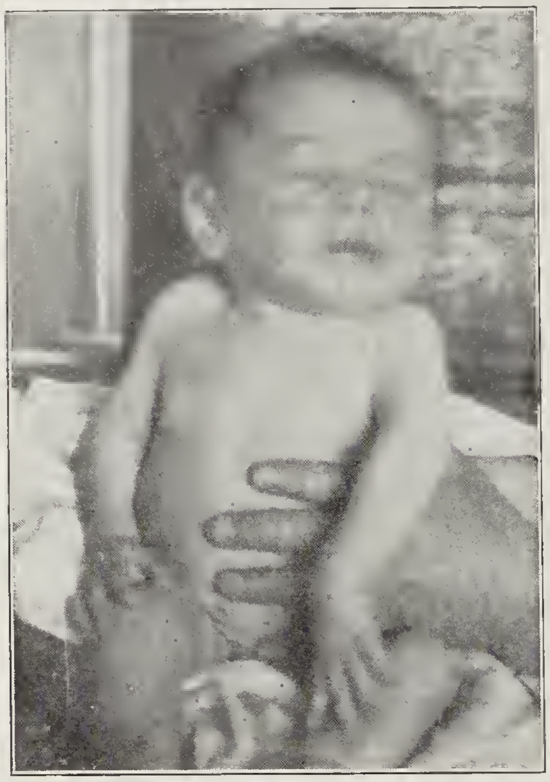


Fig. 16.—Typical position in obstetric palsy. Mother said to have recognized dislocation of shoulder one week after birth.

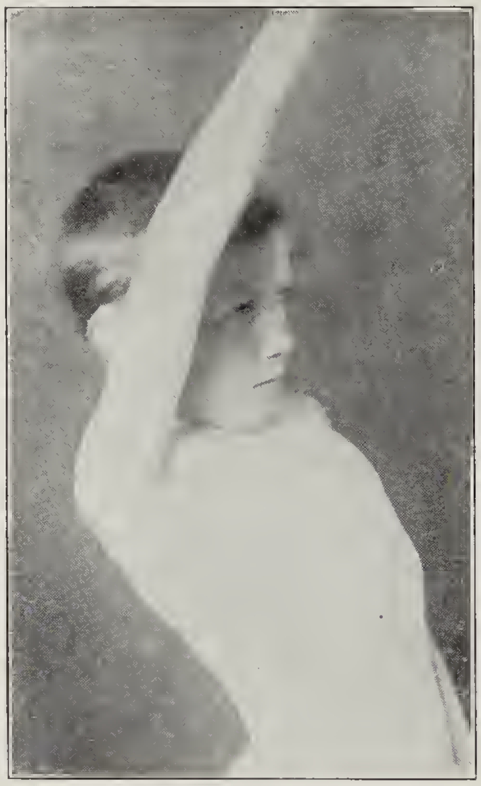


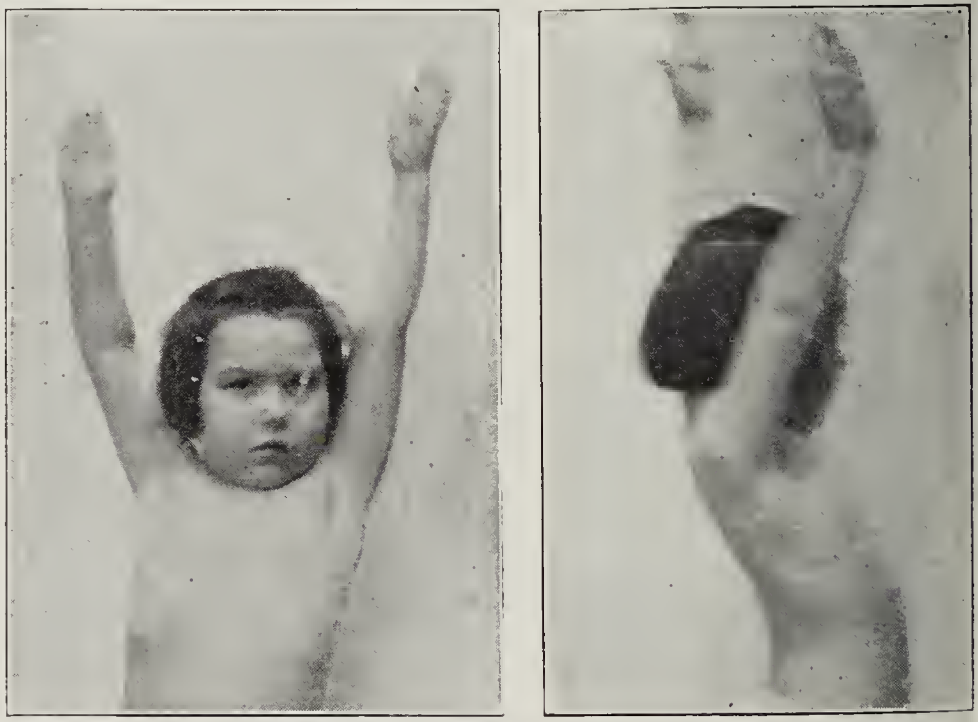
Fig. 17.—Obstetric palsy with posterior subluxation incompletely reduced by operation at 7½ years of age. No paralysis now. Range of movement and power very similar to that in case of old unreduced dislocation of shoulder in adult (Fig. 21).

Five years ago I reported the first case in which the operation was done through the axilla and was the first to exclude all other causes than the lengthened axillary portion of capsule. I have now done the operation on twenty-two shoulders. Telford[4] did it in two cases and recommended it highly. Stimson[5] spoke of it as the ideal operation, and, recently, Schultze[6] excluded all other causes than the relaxation of the axillary portion of the capsule and favored the axillary operation, although it was not done in any of his cases. A 4- or 5-inch incision is made posterior to the axillary vessels, no muscles are divided, no sutures except those in the skin remain, those used to overlap the capsule being withdrawn when the arm is in the Velpeau position so that the overlapping cannot afterward be disturbed, and ligatures are rarely necessary. The only infection was due to a tense capsule suture that grasped too much tissue and was tied too tightly, causing necrosis. This was in the third case operated on and it cannot occur again because no capsule sutures are employed.

In five cases a dislocation occurred after operation from severe violence with the arm in abduction and external rotation, and in one case after two operations in an epileptic with powerful convulsions and a large defect in the humeral head. This was a complete failure. The other four (non-epileptics) were successful later, because the condition produced by the dislocation, with the arm kept at the side four or five weeks, induces a cicatricial contraction of the axillary portion of the capsule just as it does after a recent dislocation. After operation the capsule must tear before a dislocation can take place, so that if advantage is taken of this fact the capsule may become as strong or stronger than before the dislocation. For this reason the patients are encouraged to make the fullest use of the arm and are told that the condition necessary for a recurrent dislocation will not return (Fig. 13). In this way the possibilities of the repaired shoulder are developed and the usual persistent fear of a recurrence is done away with (Figs. 14 and 15).

BRACHIAL PALSY FROM INJURY TO THE SHOULDER REGION[7]

The obvious cause of a brachial palsy following an injury to the shoulder region is an injury to the nerves supplying the part paralyzed. The prevailing view is that they are due to a more or less complete rupture of one or more roots of the brachial plexus. I have tried to show that most of them, in adults, are due to the inclusion of the branches of the plexus in the axillary inflammation consequent on a laceration of the axillary portion of the shoulder-capsule (Fig. 12). I wish to state moreover that nearly all the cases which have come under my observation have been associated with an ankylosis of the shoulder-joint and a characteristic limitation of abduction and external rotation, the disappearance of which was followed by a return of the normal power. The key to the solution of the problem is the anterior dislocation of the



Figs. 18 and 19.—Complete palsy of right arm at birth. Then ascribed to rupture of the brachial plexus. Right limb as strong and as large as left now. Slight limitation of abduction and external rotation due to mild posterior subluxation of shoulder.

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[4] Telford: Lancet, London, Aug. 5, 1912.

[5] Stimson: Fractures and Dislocations, 1912, p. 668.

[6] Schultze: Arch. f. klin. Chir., 1914, No. 1, p. 38.

[7] Thomas: Ann. Surg., January, 1911, ibid., February, 1914.

shoulder in which we know an extensive laceration of the capsule occurs. The brachial palsy in the newborn resulting from injury to the shoulder region during delivery is generally agreed to be of the same nature and due to the same cause as that in the adult, an injury to the brachial plexus. My experience and study lead me to believe that most of them are the results of injuries of the shoulder-joint as in adults. That birth-palsies are due to injuries of the skeleton in the shoulder region and not to injuries of the brachial plexus is not a new suggestion. Küstner,[8] in 1889, argued at length to show that they were due to separations of the upper epiphysis of the humerus and that those with deformity were due to displacement of the diaphyseal fragment backward or forward. The evidence is rapidly growing which will show that these displacements are almost always due to posterior subluxations of the shoulder-joint. Küstner suggested that mild obstetric palsies in which the paralysis disappeared in a few days might have been due to blood extravasations the pressure of which paralyzed the nerves. Von Bramann[9] quotes Vogt to the effect that in congenital dislocations of the shoulder there was a paralysis due to the displacement in the shoulder-joint. Von Bramann believes that the muscles suffer from their inactivity without being paralyzed.

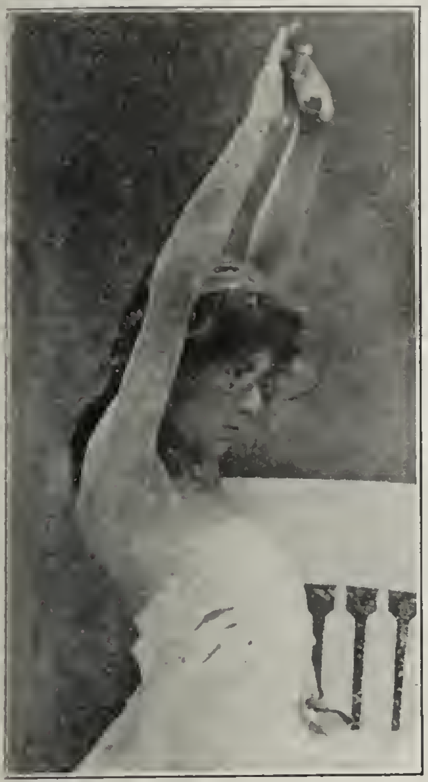

Fig. 20.—Obstetric palsy at birth without dislocation of shoulder. Now has evidence of old injury at elbow and very slight limitation of abduction and external rotation in affected (right) shoulder. No evidence of paralysis now. Uses right arm freely and powerfully as left.

According to my conception, the adult and the birth cases are similar because they are both due to injuries of the shoulder-joint, the basic lesion in both being that of a dislocation of the shoulder. In the adult, when there is no dislocation, complete recovery ultimately results in the great majority of cases. This seems to be true of the birth palsies. When the dislocation persists in the adult, there remains a permanent crippling of the arm and a considerable palsy which in the early stages was much more severe. The condition is very similar in the child when there is a dislocation present (compare Figures 17 and 21). The more delicate muscles and nerves in the child will account for a more severe palsy in all stages, but the improvement in them is also very marked as the years go by. The treatment based on this conception gives far better results than that based on a supposed rupture of the brachial plexus. F. Lange,[10] who has adopted the theory of a shoulder-joint origin, says that the day for the "let alone" treatment of obstetric palsy has passed by. The great need at the present time is to recognize the mild grades of posterior subluxation in these cases. It will often take careful examination to determine the absence of the normal rounded prominence of the humerus in front of the acromion and the slight prominence of the head behind the acromion where there should be a slight depression.

OLD UNREDUCED DISLOCATIONS OF THE SHOULDER[11]

From cadaver and clinical study it was assumed that the chief obstacle to reduction was in the cicatricial changes in the torn and now abnormally arranged capsule, some portions healing short and resisting the reduction. As the head left the socket with the arm in abduction, the best method of reduction should be to drag the head back into the socket with the arm in the same position. This would be applying to the shoulder the Allis principle for the reduction of dislocations of the hip. The Kocher method is the application to the shoulder of the Bigelow principle for the reduction of dislocations of the hip. By fixing the scapula firmly and confining the traction to the humerus, the force applied will be confined to the structure holding the scapula and humerus together, that is, the cicatricially altered capsule which must be torn before the head can be moved from its dislocated position. Very severe traction was made in nine cases (see summary), but caused no troublesome symptoms in any. The same method proved successful in recent dislocations of the shoulder.

BRACHIAL PARALYSIS WITH FLAIL SHOULDER-JOINT[12]

Brachial paralysis without the flail shoulder is much more common than with the flail shoulder. The injury to the brachial plexus is assumed to be responsible for both, but we have no explanation for this very important difference in the results of this lesion. The cases without flail shoulder practically always recover with the return of normal motion to the shoulder-joint. I believe there was not a case on record of recovery of the flail shoulder type until I reported two such recoveries three years ago (Fig. 22). These recoveries followed merely the operative removal of the flail shoulder within eight weeks after the causal injury and the restoration of the normal motion to this joint (see summary). My conception of the etiology of these cases is that they are due to the same mechanism as those without flail shoulder, except that the attachments of the capsule and rotator muscles are so torn that the humerus falls away from the socket until it is supported by the surrounding uniform muscles and other tissues (Fig. 3).

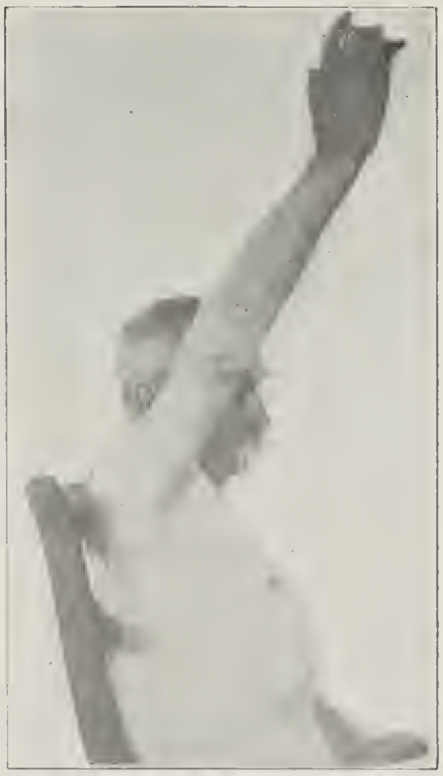

Fig. 21.—Dislocation of right shoulder three years ago. Still unreduced. Movement and power much improved by exercises during past year, favored, probably, by wearing away of dislocated bones where they are in contact (see Fig. 5).

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[8] Küstner: Handbuch der Geburtshülfe, 1889, p. 301.
[9] Von Bramann: Arch. f. klin. Chir., 1906, lxxxi, 357.
[10] Lange, F.: München. med. Wchnschr., 1912, No. 26.
[11] Thomas: Ann. Surg., January, 1913.
[12] Thomas: Jour. Nerv. and Ment. Dis., 1911, xxxviii, No. 4.

SUMMARY OF CASES AND RESULTS OF TREATMENT

The treatment in each condition has been based on new conceptions as to etiology. This is less true of recurrent dislocations than of any of the other conditions, the contraction of the capsule having been done occasionally for about thirty years. In January of this year, I published the results of this operation in eighteen shoulders. In April, Schultze reported the late results in thirteen shoulders operated on in Bier's clinic since 1908. I have now operated on twenty-two shoulders. These are the only two reported groups of cases in which a satisfactory comparison of results can be made.

SCHULTZE'S CASES

Since 1908 capsulorrhaphy done in	16 shoulders
Late results investigated in	13 shoulders
Recurrence of dislocation (regarded as failures) in	7 shoulders
No recurrence in	6 shoulders

Shortest interval since operation, 1¼ years.

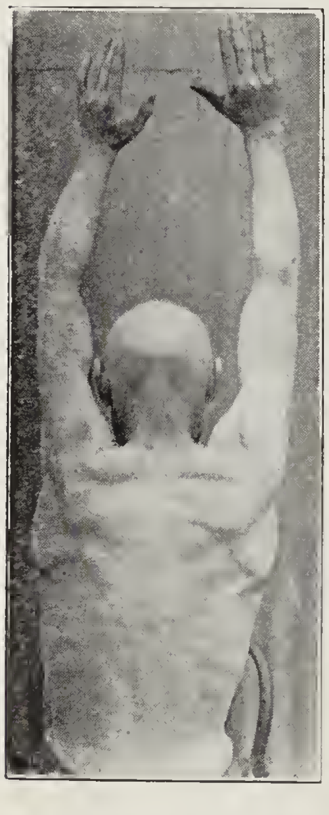


Fig. 22.—Brachial paralysis of left side with flail shoulder joint following shoulder injury five years ago. Relaxation of upper and posterior portion of capsule and overlying rotator muscles overcome by operation, eight weeks after accident. Power and motion of limb practically normal about four months later and have remained so since. Some permanent atrophy of infrascapular muscles from operative shortening.

AUTHOR'S CASES

Since Jan. 18, 1908, capsulorrhaphy in	22 shoulders
Recurrence of dislocation in	5 shoulders
No recurrence	17 shoulders

(Excision later in one of these.)

Of the 5 cases with recurrence after operation, 4 were later made successful without operation and 1 was a failure after two operations.

Operations in epileptics	7 cases
Successful (no recurrences)	6 cases
Failure in	1 case

Old Unreduced Dislocations in Adults

Non-operative reduction successful:

After 8 months; 4 months; 8 weeks (with fracture of shaft of humerus); 25 days, and 16 days.

Non-operative reduction failed after 3 months; excision; fatal from hemorrhage.

Reduction accomplished but not maintained:

After 2 years; 4 years; and 5 years (excision with good results).

Very marked improvement in motion and power from exercises in the two cases not excised.

Obstetric Palsy

Number of cases	13
Without posterior subluxation of shoulder	4
Perfect recovery of power and motion	2
Very slight and negligible limitation of motion at shoulder and old injury at elbow	1
Six months old and excellent promise of complete recovery of power and motion	1
With posterior subluxation of shoulder	9
Incomplete reduction (obstructing portion of acromion not recognized and removed)	2
Complete reduction	2
Almost complete reduction	1
Mild subluxation not reduced	1

Excellent results in these six cases, varying largely with the degree of motion attained and, therefore, with the time since treatment began and completeness of reduction.

Operative reduction of anterior luxation of head of radius; recurrence	1
No attempt at reduction of shoulder luxation and indifferent treatment	2

Brachial Paralysis with Flail Shoulder

Operative Removal of Relaxation:

Adults:

Complete recovery of motion and power	2
Left country early with stiffness of shoulder, but recovery of paralysis	1
Comminuted fracture of middle of humerus with improvement of paralysis, but non-union	1
Stiffness of all joints but recovery of paralysis	2

Children:

Encouraging improvement of paralysis, but far from satisfactory	4

Miscellaneous Operations

Exposure of subacromial bursa	3
Exposure of greater tuberosity	4
Suppurative arthritis (axillary drainage)	1
Second capsulorrhaphy for recurrent dislocation	1
Excision after capsulorrhaphy for recurrent dislocation	1
Total number of operations on shoulder	49

I wish to acknowledge my indebtedness to the artist, Mr. Erwin F. Faber, of the University of Pennsylvania, for his assistance in the preparation of these diagrams.

2005 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. Alfred C. Wood, Philadelphia: As opportunity is rarely afforded to examine a joint by dissection soon after an injury, our knowledge of the joint lesions due to traumatism is very imperfect.

We will be obliged, I believe, to change our views on some of the points that have hitherto been generally accepted concerning these lesions. The suggestion that the several fractures in the neighborhood of the shoulder-joint result from a common mechanism, is ingenious, and, I believe, is sound.

A prolonged or permanent disability of the shoulder after dislocation in certain cases is well known. In addition, however, a large number of cases are met in which a shoulder injury that appears to be relatively trivial is followed by quite as much impairment. These patients have been treated for chronic rheumatism, chronic arthritis, periarthritis, neuritis, etc. We are all familiar with the long and tedious course of these cases when subjected to the ordinary methods of treatment. The explanation just given offers a perfectly satisfactory theory which hitherto has been lacking. The capsule of the shoulder-joint being long enough to permit of a wide range of motion, some portion of it in most positions of the extremity, is relaxed or even thrown into folds. When the elbow is at the side of the chest, the upper surface of the capsule is tense and the axillary portion is lax. If there has been a rupture of this portion of the capsule and the arm is allowed to remain at the side during healing, the tear unites with the capsule more or less plicated and hence the latter becomes unduly shortened. In addition, the circumflex nerve may become involved in the scar. From one or both causes, but chiefly from the shortened capsule, there is greatly restricted motion at the shoulder-joint which it is sometimes difficult to restore to the normal range. To prevent the occurrence of this disability in cases of dislocation or when injury to the capsule is suspected, I have recently been advising that the humerus be kept in a position of partial abduction so that the axillary part of the capsule will be straightened out and smooth instead of lying in folds. If properly carried out I believe this will overcome the restriction of abduction so frequently seen. On the other hand, the abduction must not be sufficient to permit the head of the humerus to drop from the glenoid surface or to cause separation of the capsular tear.

Dr. T. Turner Thomas, Philadelphia: I wish to confirm and, if possible, to emphasize Dr. Wood's statement.

In two cases of anterior dislocation of the shoulder associated with fracture of the surgical neck of the humerus, I observed his operations and I regard his results in these cases as important. We all know how difficult the reduction of the dislocation may be under such circumstances, with or without operation. In both cases he attempted reduction before operation without success and after freely exposing the head with the same result at this stage in both cases, he divided freely the tense, torn margin of the capsule which had been separated from the humeral attachment and had passed over and behind the head under much tension. To reenter the socket the head had to pass under that tense capsule edge, which was almost if not quite an insuperable obstruction. The free division of this portion of the capsule solved the difficulty and in both cases was followed by easy reduction. The principle is the same as that employed in the reduction by operation of those posterior dislocations at the metacarpophalangeal joint of the thumb which are irreducible without operation. Dr. Wood has shown that such devices as the McBurney hook for pulling the head into the socket, and excision of the head, are unnecessary in these troublesome cases.

A SUBSTITUTE FOR POTASSIUM PERMANGANATE TO LIBERATE FORMALDEHYD GAS FROM A WATER SOLUTION

SAMUEL G. DIXON, M.D., LL.D.
Commissioner of Health, Commonwealth of Pennsylvania
HARRISBURG, PA.

Almost immediately after the declaration of war by Germany I requested the department's chemist, Mr. Charles Lawall, to proceed at once to find a substitute for potassium permanganate that would liberate formaldehyd gas from a water solution for the purpose of disinfecting.

In the literature no mention of any other specific substance was found except in an English patent application (4885, J. S. C. I., 1908, page 915), where a combination of sodium bisulphite and formaldehyd solution was acted on by potassium permanganate or other peracid salt and the dry fumigation formula:

Formaldehyd, 37 per cent. solution......	2 parts
Saturated alum sulphate solution.......	1 part

Eight ounces of this solution are used to 1 pound of lime to 1,000 cubic feet.

Dr. George Rosengarten suggested sodium dichromate as a cheap oxidizing agent, and hydrochloric acid to increase its energy. Lawall found on experimenting that sodium dichromate was more energetic and satisfactory in the presence of sulphuric acid.

Numerous experiments, confirmed by calculations on the relative oxidizing power of potassium permanganate and sodium dichromate, and also working out the optimum proportion of sulphuric acid, led to the conclusion that the following proportion gave the best results, which are in every way comparable to those with potassium permanganate:

Sodium dichromate 10 ounces avoirdupois.
Saturated solution of formaldehyd gas 1 pint.
Sulphuric acid, commercial, 1½ fluidounces.

The sulphuric acid and formaldehyd gas form a stable solution. This after it cools should be poured over the crystals of sodium dichromate spread out in a thin layer over the bottom of a vessel having ten times the capacity of the volume of ingredients used.

It was found that the process was more rapid than with potassium permanganate. This would necessitate the health officer's withdrawing promptly from a room in which the process had been started.

Lawall, when working on a small scale, found in every case a corrosive residue. Much to his surprise the residue in ten minutes was dry and pulverulent, and a galvanized bucket which had been used showed very little effect of the reaction after washing out with soap and water.

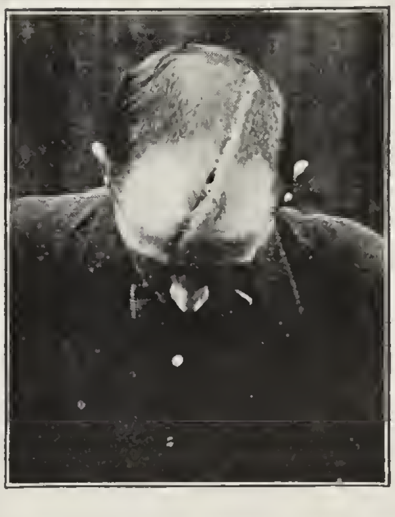
He made a quantitative determination by both the permanganate and dichromate methods to determine the amount of volatile material given off and found that in each case it approximated 8 ounces avoirdupois (or about half the weight of the formaldehyd solution taken).

As formaldehyd solution contains between 35 and 40 per cent. of gaseous HCOH and as the residue in each case was found to be dry and particularly devoid of odor after two hours' standing, Lawall concluded that the two methods are equally effective from the quantitative standpoint.

Formaldehyd solution and commercial sulphuric acid may be kept in stock and shipped in the mixed form (10 parts of formaldehyd solution and 1 part sulphuric acid, both by volume). Lawall found the solution would be perfectly stable.

The solution would have to be handled with more care than the plain formaldehyd on account of the acid making it slightly corrosive.

Extensive Scalp and Brain Wound.—J. P., aged 28, American, while working in a planing mill, crawled under the table of a rip-saw to adjust a set-screw. Apparently forgetting the location of the saw, he raised his head, striking the saw which was making 2,500 revolutions per minute. The saw literally split his head open from well down on the forehead diagonally across the head, a distance of 8 inches, cutting through the scalp, bone, superior longitudinal sinus, membranes of the brain, and considerable brain tissue. The patient walked about one hundred yards when he collapsed. The hemorrhage was terrific. The width of the cut was one-fourth inch. I saw the patient about four or five minutes after the injury, and controlled the hemorrhage temporarily by a sterile gauze pack extending well down through the bone. The patient was then removed to a quiet room at a hotel, no hospital being available. With the assistance of Dr. J. F. Abel, I shaved the scalp, washed the head, removed the one large piece of gauze, and replaced four pieces of iodoform gauze packing, which controlled the hemorrhage and drained the wound. The scalp wound was then closed between the gauze packs with sutures. The patient was kept quiet for four days when he was removed to the Mission Hospital, Asheville, N. C., and treated by Dr. M. H. Fletcher, who removed the gauze packs and gave the wound the necessary attention. Considerable brain tissue oozed from the wound while at the hospital. The patient made an uninterrupted recovery and left the hospital the fifth week. He suffered very little during the whole time of confinement, and showed no signs of paralysis or any bad after-effects. He returned to work the eighth week after the injury.


Patient with extensive scalp injury after recovery.

Sam L. Stringfield, M.D., Sunburst, N. C.

FOREIGN BODIES IN STOMACH

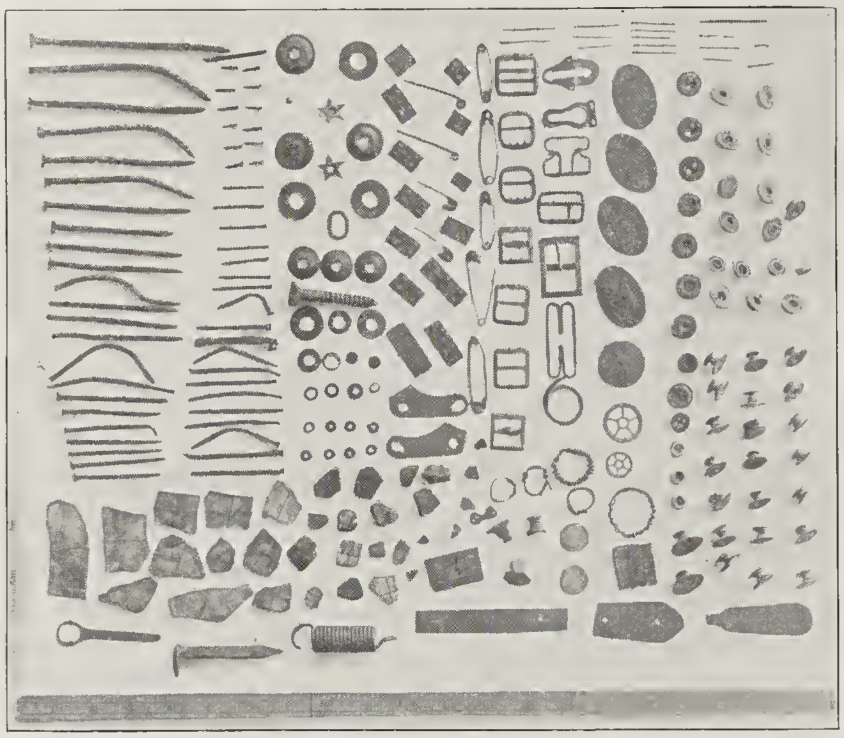
REPORT OF AN UNUSUAL CASE

J. LEWIS DAY, M.D.
Assistant Physician, Oklahoma Hospital for the Insane
NORMAN, OKLA.

Many cases of swallowing of foreign bodies, especially among the insane, have been reported, but I have failed to find a case in which so large a number of articles were found in one stomach.[1]

History.—The patient, M. M., colored man, aged 27, was admitted to the hospital July 9, 1911, for manic depressive insanity. He was born in Mississippi, was illiterate, and had spent one year in Tennessee State Hospital. The physical condition was good.

The patient's history in our hospital was uneventful. He was noted for his robust physique and irritable temper, was violent and frequently engaged in fights with other patients and his attendants. At no time was he discovered picking up nails or glass, or swallowing these substances; consequently he must have used a great deal of cunning in accomplishing his purpose. He had never been reported sick until June 12, 1914, when he complained of dyspnea and abdominal pain. Physical examination at this time revealed marked edema of lower extremities, and ascites. The heart and lungs were normal, urinalysis negative, temperature 98.4, pulse 80, respiration 18. Subjective symptoms were indefinite pain and tenderness in abdomen. After a few days of rest in bed with appropriate diet and good elimination, all symptoms improved, but a moderate amount of ascites remained; there was no indication of intestinal obstruction. There was some dyspnea, but the chief complaint was pain in the abdomen. On account of the patient's mental state it was impossible to obtain reliable subjective symptoms.



Foreign bodies found in stomach at necropsy of insane patient.

June 18, 8 a. m., the temperature was 98, pulse 100, respiration 20. Patient had lost in weight and strength and looked sick but sat up in bed, drank his milk with relish at noon, and asked for meat. He died at 4:15 p. m.

Necropsy Report.—Mulatto, medium height, well nourished, with moderate abdominal distention. Lungs were adherent practically over entire surface to thoracic walls and pericardium. There were no tuberculous lesions. There was extensive anthracosis. Heart was of normal size, with no valvular lesion, and no sclerosis of aorta or other arteries. About 2 liters of straw-colored ascitic fluid were taken from abdominal cavity. The intestines were not markedly abnormal; some adhesions were found about the appendix. The omentum was diminished in size, congested and adherent to stomach, was displaced backward and below the stomach, almost in relation with the posterior abdominal wall. The liver was small, surface smooth, gall-bladder filled, but normal; kidneys normal in size and consistency. Pyloric end of the stomach was displaced upward, backward and to the right, lying under the right lobe of the liver. Cardiac end normally placed, distended with gas. Stomach was removed and 236 separate articles weighing, net, 1 pound 9 ounces were removed (see illustration). The walls of the cardiac end of the stomach were not abnormal. Pyloric end was very much thickened and thickly studded with numerous villiform overgrowths. The foreign bodies were practically all collected in the pyloric end, many being embedded in the stomach walls. Pylorus was patent. No undigested food remained in stomach. Esophagus was not abnormal. Stomach contents and walls of pyloric end were blackened, apparently from action of iron. There was no evidence of recent or remote perforations of stomach walls, unless the abnormally adherent omentum might indicate former perforation.

It was evident that many articles had been in the stomach for a matter of perhaps years. Some of the pieces were never known at our hospital; hence the patient must have brought them with him nearly three years before. The fact that such things could remain in the stomach for so long a time and yet patient go about his duties, eat well, remain well nourished and do, whenever called on, heavy manual labor, should be of interest. As short a time as two weeks before his death he carried 100-pound sacks of flour from trucks to the store-room. We are inclined to think that pins, nails or other large objects and especially glass, when swallowed, may mean death or at least alarming symptoms; but this case shows that an abundance of hardware may be ingested and yet the patient live for months and years, with no apparent distress.

ADDENDUM

[A number of cases are on record in which a considerable number of articles were found in the stomach which had carried them, in some cases for years, without showing signs of serious injury. Perhaps the most remarkable are those in which pieces of broken glass with sharp angles are tolerated by the gastric mucous membrane without perforation resulting. Meisenbach[1] extracted a large number of articles including an ounce of broken glass (electric light globe) from the stomach of a professional glass-eater who styled himself "the Human Ostrich." W. S. Halsted[2] reports a case in which he extracted from the stomach of a professional glass eater 74 gm. of broken glass and 208 articles, consisting of 28 pieces of chain, 99 nails and 81 screws, knives, tacks, pins, etc. G. F. Inch[3] reported a similar case. A. H. Vandivert and H. P. Mills[4] report finding at necropsy of an insane patient, an amount of miscellaneous articles numbering 1,446 and weighing 2,268 gm. There were no signs of trouble with the stomach, digestion being good until a few days before death. These cases show the importance of a Roentgen-ray examination in such obscure conditions. In each instance such an examination would no doubt have revealed the source of the trouble.]

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[1] Meisenbach, A. H.: Gastrotomy for the Removal of Foreign Bodies in the Stomach, The Journal A. M. A., March 5, 1898, p. 513.

[2] Halsted, W. S.: Contributions to the Science of Medicine, the Johns Hopkins Press, 1900, p. 1047.

[3] Inch, G. F.: Am. Med., April 12, 1902, p. 603.

[4] Vandivert, A. H., and Mills, H. P.: Foreign Material in the Stomach, The Journal A. M. A., Jan. 21, 1911, p. 180.

FRACTURE OF THE FEMUR INTO AN ACTIVELY TUBERCULOUS KNEE-JOINT

WITH HEALING OF THE FRACTURE

CHARLES A. PARKER, M.D.
CHICAGO

The following case recently under the care of Dr. Ridlon and myself appears to be of sufficient clinical importance to merit recording:

History.—The patient is a man aged 26, who has suffered more or less continuously from trouble in his right knee since he was 6 years old. It had been pronounced tuberculous. During the last two years he experienced a severe recrudescence of the trouble. In October, 1912, he fell on the knee and a diagnosis of fracture was made by the attending surgeon, and various treatments of the fracture and of the joint were carried out.

He came to our office March 18, 1913, wearing a cast and with a discharging sinus over the inner aspect of the knee. The knee was straight, swollen and had slight motion in flexion. There was more lateral motion and the joint was very sensitive. A roentgenogram was taken and a cast applied.

Figure 1 shows the type and extent of the fracture as well as the amount of destruction in the joint.

It is a typical supracondylar fracture of the femur with a vertical fracture through the external condyle down into the joint, and an oblique fracture extending 2 or 3 inches up into the shaft of the femur.

Whether or not there were more vertical clefts originally present, it is impossible to say from the picture. The picture shows some evidence of callus formation on either side of the femur overlapping the transverse fracture and a large posterior shadow that looks like callus, but without definite outline. The joint surfaces show a typical tuberculous picture. On account of the extreme tenderness of the part no attempt was made to determine the character of the union of the fracture; but the character of the joint and the age of the patient, together with his appearance of suffering from chronic sepsis, influenced us to suggest amputation of the thigh as the best solution of the problem. This was agreed on and the thigh was amputated just above the lower third, April 3, 1913. The operation was performed at the Presbyterian Hospital. A large tuberculous abscess was opened when the muscles of the front of the thigh were cut, four or five inches above the joint. Its walls were removed together with considerable sound tissue and the whole surface sponged with tincture of iodin and the wound entirely closed, a small gutta-percha drain extending into the deeper parts through a stab wound in the posterior flap. Healing was prompt and uneventful.

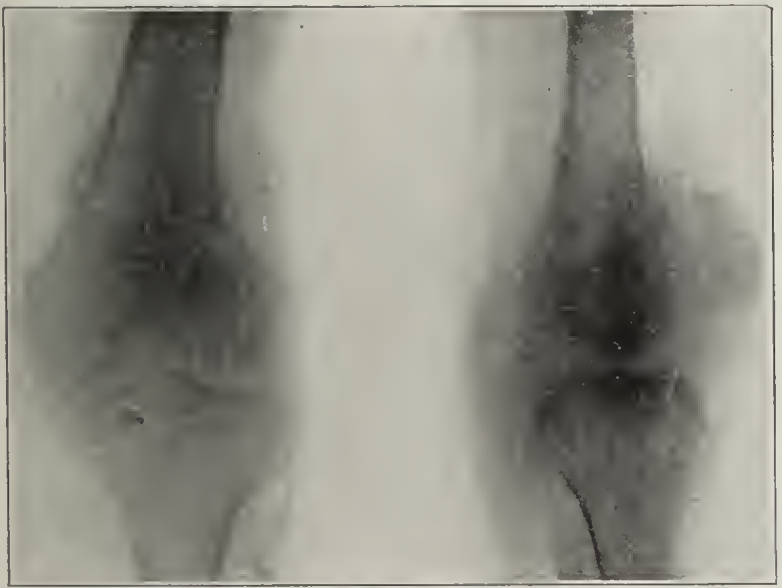


Fig. 1.—Roentgenogram showing fracture of the lower end of the femur extending into the actively tuberculous joint.

The Specimen.—The soft tissues were removed from the specimen and the bone examined. Incidentally it may be noted that the region back of the joint, that is so definitely defined in the roentgenogram and appears as a deposit of lime-salts, showed nothing abnormal to the naked eye, although it was believed that a slight grating on the knife could be detected on scraping the cut surface. It consisted mostly of the popliteal fat in which there were no doubt calcareous elements, but not arranged so as to form any definite calcareous structure. The callus seen on either side of the femur in the roentgenogram was very slight and soft, but the union of all the parts of the lower end of the femur was so firm that no movement whatever could be detected in them on testing the strength in our hands; in fact, there was a definite firm bony union with good position and in the presence of an actively tuberculous joint (Fig. 2). A histologic study of the tissue taken from the region of the posterior shadow failed to show any lime deposits or other conditions that might produce such a shadow. An excess of lime-salt may have been present, but not in a form recognizable by histologic methods.

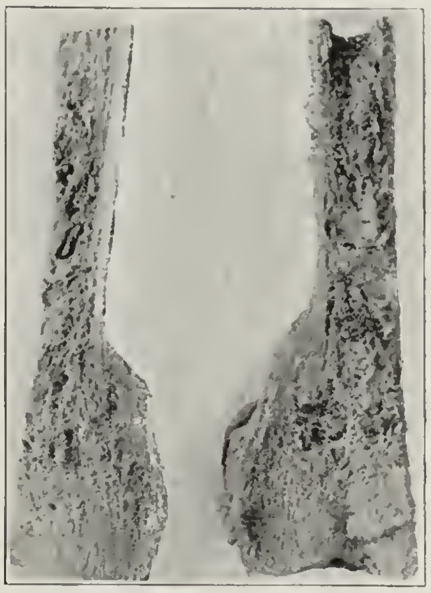


Fig. 2.—Section of lower end of femur in Figure 1, showing union of fragments.

Of course one instance is hardly sufficient on which to base a rule of practice, but it is the best evidence of what has occurred and in so much may influence us as to what may occur again. In other words, a fracture into an actively tuberculous joint can heal in a satisfactory manner, leaving only the original joint trouble for treatment according to the usual methods pursued in such troubles. Possibly another case may not progress so favorably as this case as far as the fracture is concerned, but this case certainly justifies us in expecting the bony union and a final healing of the joint in those cases in which the conservative healing of the joint is ordinarily indicated.

Another fact that should be emphasized in this connection is the presence of a shadow strongly suggestive of callus in a region in which operation demonstrates no callus to be present; or, in other words, what appears to be an insurmountable obstruction to flexion is in reality no obstruction at all.

7 West Madison Street.

The Value of a Pleasant Hospital Exterior.—In the description of a hospital a writer in *Country Life* says: "It is sometimes said that it is wrong to expend any money on the outside of a hospital, and that every halfpenny should be devoted to operating-tables and the like. This is surely a prejudiced idea. No building of a public sort should present a repellent front to the passerby; least of all, a hospital, which owes a smiling welcome to those who approach it with some sinking of heart. There are hospitals enough which suggest by their door faces, 'All hope abandon ye who enter here.' We need not be psychologists to recognize that none more than the sick need the subtle aid, not only of a happy environment within, but of the cheering welcome of an exterior that is homelike rather than 'institutional.'"

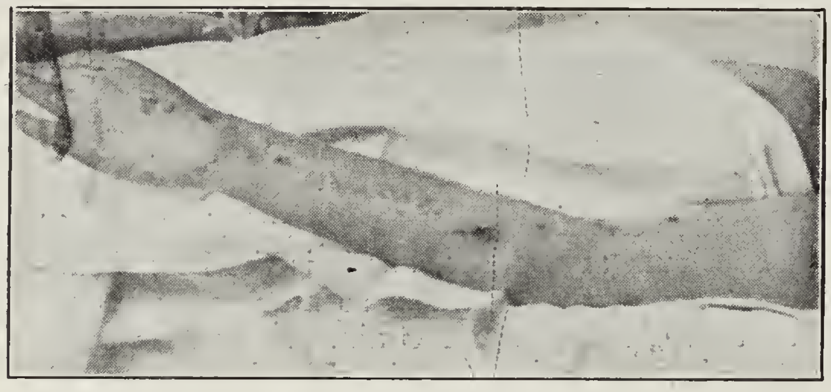
A CASE OF SPOROTRICHOSIS

L. A. Dermody, M.D. and C. McMartin, M.D., Omaha

Mrs. G. G., aged 35, born and residing in Nebraska, with family and past history of no importance, noticed in November, 1913, what she termed a "red welt," pea-sized, oblong and painless, on the dorsolateral surface of the middle finger of the left hand. She can recall no trauma immediately preceding the lesion or at any time previous.

In from four to seven days after the appearance of the "welt," suppuration took place. The pus had no unusual color. One week later the patient noticed a red line extending up the extensor surface of the forearm as far as the elbow. This red line remained one week, gradually faded, and along the exact course it had taken she noticed a number of nodules just beneath the skin, not painful, from the size of a large shot to that of a cherry. These nodules extended about half way up the arm above the elbow, following definitely the course of the superficial lymphatics. There were never more than twelve or thirteen nodules. At this time she consulted her local doctor (about three weeks after the appearance of the initial lesion on the finger). The nodules were gradually growing larger and assuming a purplish color, but were not painful, nor had they suppurated. The physician incised the lesion on the finger, evacuated some pus and applied a moist dressing. Three weeks of this treatment gave no benefit and the patient felt that she was growing worse.

She came to Omaha and on Dec. 26, 1913, the nodules were opened, curetted and cauterized with phenol (carbolic acid) followed by alcohol. Temporary improvement took place, but at the end of two months the patient returned home with the areas of infection draining freely. Three months after this she returned with no improvement. No new nodules had developed.



Sporotrichosis lesions.

At this time Dr. McMartin saw her and made a diagnosis of sporotrichosis. Cultures from the pus were made. A 2 per cent. glucose-agar showed at the end of five days a pure culture of sporotricha, spores predominating. A bouillon culture at the end of five days exhibited abundant growth, mycelium forms predominating.

April 16, 1914, the patient was anesthetized, and a number of curvilinear incisions made, each one exposing two or three of the nodules. These areas were thoroughly curetted, the skin undermined and the flaps stitched back, exposing the infected fields. One hour each day for three successive days the arm was exposed to the sun's rays. At the end of that time a healthy granulating surface had appeared and the flaps were loosened and sutured in place. The wounds were irrigated daily with 50 per cent. Lugol's solution until almost healed. A daily dressing of Lugol's solution was also applied. Gradually increasing doses of potassium iodid were administered until 60 grains daily were being taken. At the end of three weeks the patient was allowed to return home with the arm entirely healed except for one small area which was rapidly closing.

A further report from the patient since leaving the hospital states that the arm is long since healed and is now perfectly well.

2 Creighton Block—419 Brandeis Building.

REPORT OF A CASE OF CEREBRAL HEMORRHAGE

Walter W. Mott, M.D., White Plains, N. Y.

History.—The patient, a girl aged 3, had always been healthy. At 3 p. m., June 18, while playing, she accidentally stepped backward and fell down several steps, striking her head on a stone sidewalk, the exact manner of falling not being observed. She was able to stand up and walk, and after crying for a short time, she drank some water and went to sleep naturally. She awoke about 4:30 p. m., vomited several times, and appeared dazed. She did not recognize her mother. A slight twitching of her left arm was noticed. I first saw the patient at 5 p. m. The only evidence of external injury was a contusion over the right mastoid region. Pulse was 140, weak but regular. Respirations were irregular and shallow, seven or eight a minute. There was no bleeding from mouth, nose or ears. Pupils were equal, dilated and reacted sluggishly to light. There was no strabismus. By 5:30 p. m. the pulse was weaker and from 170 to 180 a minute. Respirations were even more shallow and irregular. There were convulsive movements of the left arm and leg, the eyes were turned to the right, and the pupils did not react. The lesion was evidently, therefore, an intracranial hemorrhage causing a rapidly increasing cerebral compression, with the focus of the damage over the motor cortex of the right hemisphere. Immediate operation was decided on, and the child was removed to the hospital, a short distance away.

Operation.—The head was shaved and tincture of iodin was applied over the right side. By this time no pulse could be detected at the wrist, the convulsive movements on the left side were almost continuous, and the respirations shallow and sighing. No anesthetic was given. A horseshoe incision was made in the scalp over the right temporal region, and a flap turned down. A trephine opening was then made in the skull over the site of the middle meningeal artery. On removing the button of bone, this artery was found intact. The dura bulged slightly, was blue, and did not pulsate. A small incision in the exposed dura showed oozing from beneath the posterior edge. The trephine opening was enlarged posteriorly with rongeur forceps, and the incision in the dura extended in the same direction. This exposed the site of hemorrhage, a rupture in the ascending frontal branch of the middle cerebral artery. As soon as the subdural pressure was relieved, the twitching of arm and leg ceased, the respirations became regular, and the radial pulse became palpable. The hemorrhage was profuse, and persisted in spite of gentle pressure with gauze. The lesion was given better exposure by a short incision in the dura bisecting the original line, and ligatures of fine plain gut on a round curved needle were passed beneath the artery on either side of the rupture, and tied. These controlled the hemorrhage perfectly. A narrow gauze wick was then carried down to the ligated artery, and the other end brought out through a stab in the flap. The dura was closed about the drain with sutures of fine plain gut, and the scalp and pericranium closed with interrupted sutures of silkworm-gut. The patient was awake and crying when the scalp sutures were inserted.

Postoperative Course.—The patient made an uneventful recovery. The drain and sutures were removed on the fifth day, the wound healing cleanly. She left the hospital on the tenth day, and since then has been perfectly well.

SUMMARY

1. The case was one of rapidly advancing cerebral compression, caused by hemorrhage from a branch of the middle cerebral artery.
2. The distinct "free interval" after the injury, and the later rapid increase in the severity of the symptoms, distinguished the condition from one of cerebral concussion.
3. The injury to the artery was caused by indirect violence, the blow on the head apparently being sustained over the right mastoid region.
4. The convulsive movements on the left side of the body pointed to a lesion involving the motor cortex of the right hemisphere.

New Instruments and Suggestions

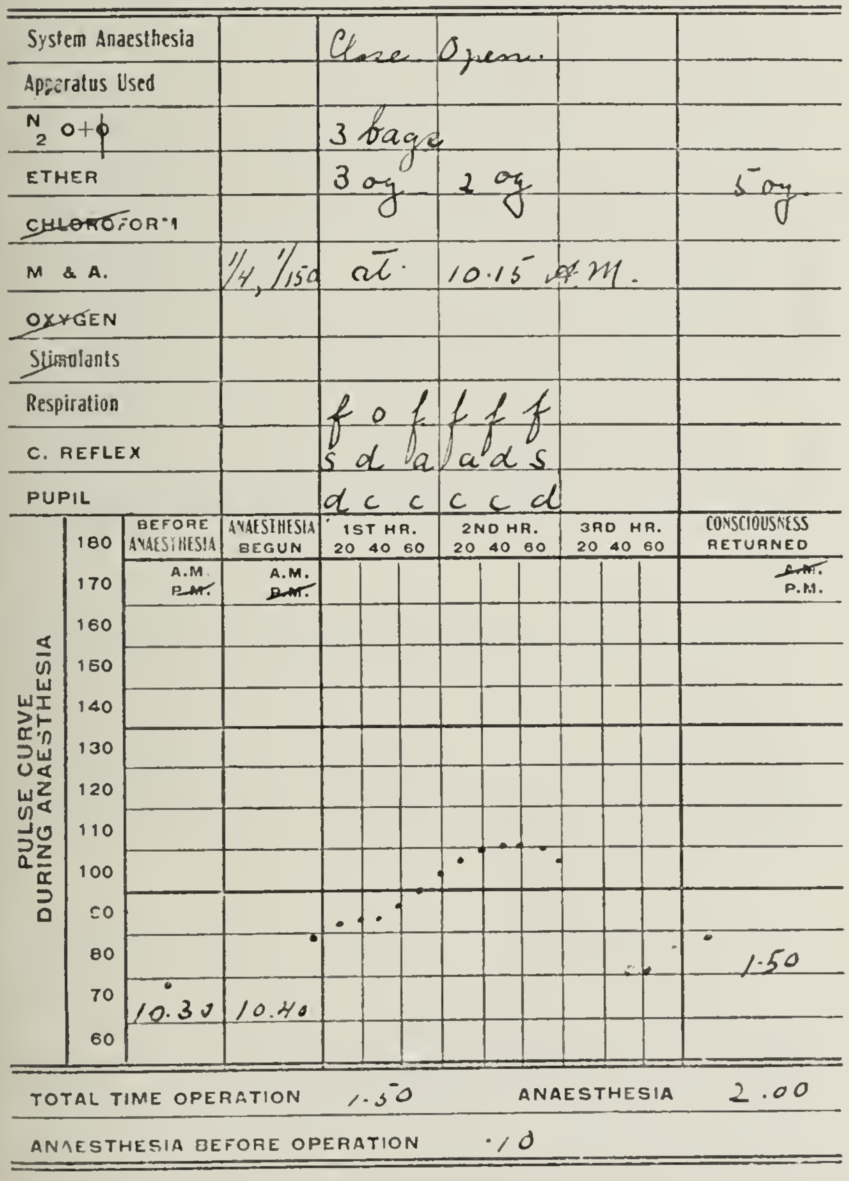
A RECORD CARD FOR THE ANESTHETIST

Paluel J. Flagg, M.D., New York
Instructor in Anesthesia, Fordham University Medical School

Those who administer anesthetics sooner or later find it essential to preserve a fairly comprehensive record of each case. This becomes necessary not alone from a scientific point of view, but also for self protection.

NAME DATE OF OPERATIONS NO.
AGE SEX ADDRESS
NAME AND ADDRESS OF NURSE
OPERATIONS
SURGEON ASSISTANTS
UNCONSCIOUSNESS AFTER OPERATION 10 min. PREVIOUSLY ANAESTHETIZED 1 N_2O
CONDITION OF EYES AFTER OPERATION OK CHAR. OF INDUCTION Excit Moderate
F TEETH 1 set ~~CYANOSIS~~. RIGIDITY. ~~JACTITATION~~. ~~MUCOUS~~. VOMITING ~~BEFORE~~. ~~DURING~~. AFTER
ANAES SUCCESS S. OK P. OK A OK
REMARKS:
CHARGES: BILL SENT. PAID:

Fig. 1.—Front of anesthesia record card.



System Anaesthesia		Close	Open.		
Apparatus Used					
N_2O+O		3 bags			
ETHER		3 oz	2 oz		5 oz
~~CHLORO~~FORM					
M & A.	1/4, 1/150	at	10.15 A.M.		
~~OXYGEN~~					
~~Stimulants~~					
Respiration		f o f	f f f		
C. REFLEX		s d a	a d s		
PUPIL		d c c	c c d		

TOTAL TIME OPERATION 1.50 ANAESTHESIA 2.00
ANAESTHESIA BEFORE OPERATION .10

Fig. 2.—Reverse of anesthesia record card.

It is frequently inconvenient to gather personal data at the time of the operation. To avoid this embarrassment a record card and a self-addressed, stamped envelope may be left with the nurse, who is usually glad to secure the desired information. The accompanying figures illustrate such a card.

The front of the card (Fig. 1) requires but little comment.

Char. of Induction:—Excitement absent, moderate, marked.

Anaes. Success:—S.—Point of view of the surgeon; P.—of patient; A.—of Anesthetist.

Heads for data which are absent should be crossed out.

On the reverse of the card (Fig. 2) attention may be directed to the following points:

System of Anesthesia: Open, closed, pharyngeal, intratracheal, intravenous, rectal, etc.

M. & A.: Morphin and atropin.

Respiration: free, obstructed.

C. Reflex: sharp, dull, absent.

Pupil: normal, contracted, dilated.

Most records are squared off for five-minute pulse-readings. To save space twenty-minute divisions are here used. Five-minute readings may be shown by a dot one-fourth way across the space. These cards may be had from the Surgical Narcosis Supply Co., 13 East Fourteenth Street, New York City.

This record is original only in its arrangement. I wish to express my thanks to Dr. E. M. Hawks and Dr. F. Montgomery for their kind suggestions.

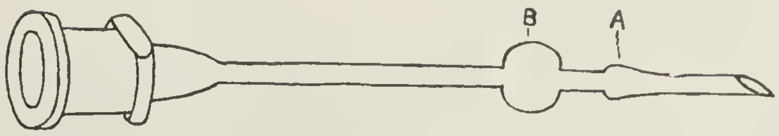
120 Central Park South.

A SELF-RETAINING NEEDLE FOR ADMINISTERING SALVARSAN INTRAVENOUSLY

Henry Eichel, M.D., New York

Those of us who have been giving salvarsan or other closed venous infusions have each developed a preference for a certain needle, which seems to us best fitted for the work in hand. Some of us swear by the straight needle, others are partial to the curved or one of the many modifications of either, and in all cases the esteem in which we hold our special form of needle is the result of the ease with which we seem able to manipulate it.

Not many physicians can give 120 to 200 c.c. of solution by gravity without experiencing a feeling of impatience at having to hold the needle in a fixed position in fear of its slipping out of the vein. And even when employing the latest syringe method, in coupling and applying pressure to the piston, we are still obsessed with the constant fear of dislocating the needle point from the lumen of the vein and getting an infiltration into the adjacent tissues. This uncertainty and its consequent complications can be obviated by the use of a self-retaining needle. The object of this paper is to describe the principle on which any of the existing needles may be modified and made self-retaining.



Self-retaining straight needle; *A*, conical or retention bulb; *B*, backstop.

DESCRIPTION OF NEEDLE

On an ordinary needle about one-quarter to five-sixteenths of an inch from the base of the cutting edge is a conical bulb beginning flush with the sides of the needle, becoming larger gradually till its diameter is about one and one-half times that of the needle and its length is one-eighth of an inch. This might be called the "retention-bulb" (*A* in illustration). A larger globular-shaped bulb, about four times the needle's diameter is placed about one-eighth of an inch distant toward the coupling end. The shape of this "back stop" is of little importance (*B* in illustration).

My own preference is for the straight needle, and I shall therefore describe my method of operation with this improved needle. I puncture the skin and enter the vein, pushing the needle in as far as the "retention bulb," then make a half turn of the needle on its long axis and push to bury the bulb. The bulb becomes firmly fixed in the skin and the needle becomes stationary and practically immovable. This method of fixing the needle may be compared to the venous infusion cannula in which the dilatation is tied within the vein. Here, however, the skin being elastic permits the entrance of the retention-bulb, which is firmly grasped, but does not enter the vein.

I prefer the straight needle because I like to feel that the possibility of puncturing the posterior wall of the vein is at a minimum, and turning the needle, which you can do only with a straight one, accomplishes this end. When the needle point is presenting in the vein, by turning it, the point, being eccentric, is shifted from the line of puncture and puts the cutting edge of the needle parallel to the vein's posterior wall, thus lessening the possibility of passing beyond the venous wall when the retention bulb is pushed under the skin.

CONCLUSIONS

This self-retaining principle, therefore, has the following advantages:

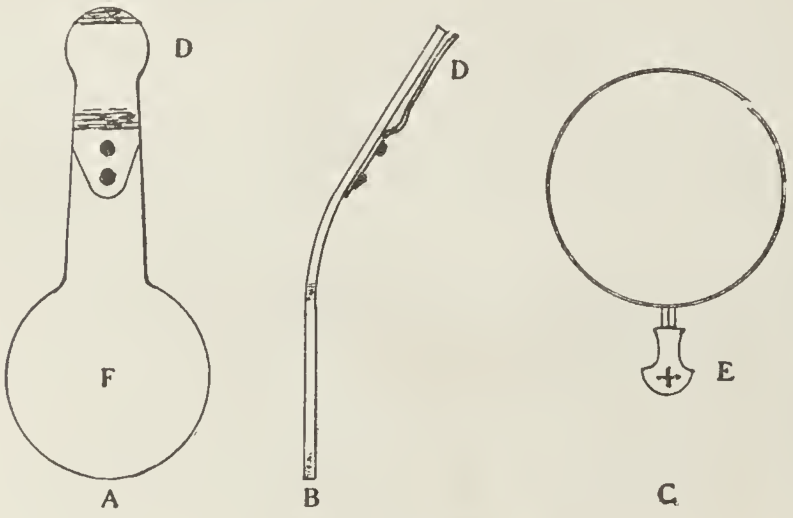
1. It may be applied to any needle.
2. It minimizes the nervous tension on the part of the operator due to the necessity of holding a needle immovable in one position for a tediously long time.
3. The needle cannot be dislocated while it is being coupled to the syringe.
4. Pressure applied to the piston will not dislodge the needle-point.
5. By freeing the hand that would ordinarily be fixed in holding the needle, one may even dispense with the services of an assistant.

54 West One Hundred and Nineteenth Street.

A HANDY MOUTH-FINGER

Edward M. Mikkelsen, M.D., Winnetka, Ill.

It is always difficult, in examining or removing foreign bodies from an eye, to hold the lids apart, focus the condenser, and manipulate a spud or other instrument, all with the fingers of two hands. This led me to devise the little instrument shown in the accompanying illustration.



A handy mouth-finger.

To operate, place shank *E* of condenser under spring clip *D* of mouth-finger, swinging condenser either to right or left, depending on which eye is most convenient for work intended.

Place mouth-piece *F* of instrument between lips and under tongue, without applying teeth to it. The condenser should have a focus of about 2½ inches, which is about 12 or 14 diopters. This gives a working distance between the eye and that of the patient of about 5 to 6 inches. Focus and distance takes care of itself automatically after one becomes accustomed to the instrument, leaving both hands free to do what is necessary.

The instrument is made of aluminum, which leaves no metallic taste in the mouth. The spring clip is made of German silver and the rivets of brass, all non-corrodable on boiling or washing. The instrument is light, fits the vest pocket without bulging, and is a companion piece to the condenser.

A SELF-RECORDING DEVICE FOR TESTING THE COLOR SENSE

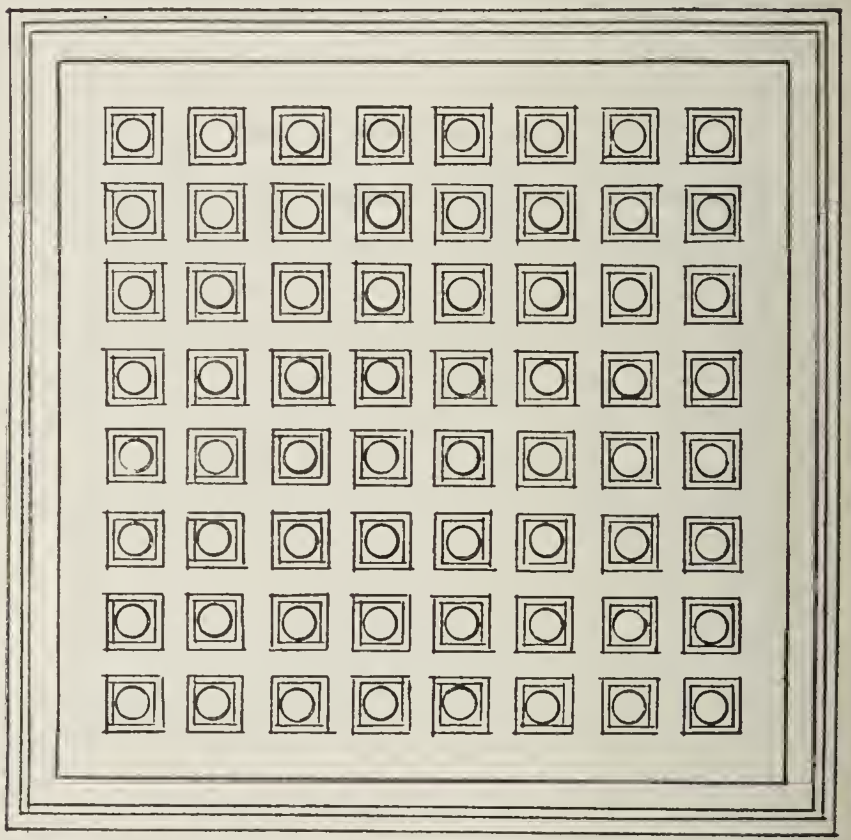
J. Ellis Jennings, M.D., St. Louis

For many years the Holmgren colored worsteds have been used by the railways and marine service of the United States and most foreign countries to test the color sense of their employees. When properly used, according to directions, this test has proved to be practicable and reliable. The most serious objections to it are:

1. The worsteds become soiled by constant handling so that the more delicate shades can hardly be distinguished one from the other.
2. The method of recording the skeins selected by the candidate is crude, laborious and liable to lead to error.

In order to overcome these objections I have constructed a test in which the worsteds are not handled and the candidate makes a permanent record of his own color sense. It consists of a square box divided into an upper and a lower half, each half having a lid—virtually two shallow boxes with bottoms joined together. The upper side of the box is marked "Test No. 1 Green," and contains a color board made up of all the different colors, shades and tints likely to be mistaken by the color-blind for green. The lower side of the box is marked "Test No. 2 Rose," and contains a color board made up of all the different colors likely to be mistaken by the color-blind for rose. The color boards, like the box, are absolutely square and each contains sixty-four patches of worsteds of various colors and shades, making a total of 128 colors used in the test.

In each patch of colored worsted is a circular opening in the color board which is for the purpose of registering the particular patch of color chosen by the candidate. This he does by inserting a pointed pencil of wood or metal through the opening and punching a hole in the record sheet which had previously been placed beneath the color board. The position of the patches of color and the circular openings have been arranged in an absolutely symmetrical design, so that when the box is turned in any one of four positions the same appearance is presented and it is impossible to say which is top or which is bottom. The openings of the color boards are so arranged that the records of both the green and rose tests are made on a single sheet.



Jennings' self-recording color-test.

METHOD OF MAKING THE TEST

The cover marked No. 1 is removed, the color board lifted out, a record blank inserted and the color board replaced. Care must be taken to see that the mark "top" in the box, "top" on the back of the color board and the top of the record blank all correspond. The box is now turned around several times until all sense of direction is lost.

The green test skein fastened to the inside of the box cover is placed at a distance of 2 feet and the candidate is given the pointed pencil and requested to look along each row of colored patches and when he sees the test color or one of its lighter or darker shades, he is to place the point of the pencil in the opening and punch a hole in the paper beneath. Having completed Test 1, the cover is replaced and the box turned over, exposing Test 2, the rose. The record blank having been inserted and the rose skein displayed, the test proceeds as before.

ADVANTAGES

1. The candidate makes a permanent record of his own color sense.
2. The soiling of the worsteds by constant handling is avoided.

3. The worsteds are divided into two groups: in the first group are placed all the colors mistaken for green by the color-blind; in the second group are placed all the colors mistaken for rose by the color-blind.
4. The comparison of colors by placing two or more together is avoided.
5. The large number of colors used, 128, gives free scope in the detection of all cases of color-blindness.
6. The small size of the color patches, while ample to show the color to the normal eyed, may lead to the detection of a central color scotoma.
7. The tedious method of recording the color sense by pulling out a concealed bangle and writing its number on a blank is avoided.
8. An important color cannot be lost.
9. On account of its symmetry it is absolutely impossible for any but those with a perfect color sense to pass the test.
10. It is the only method by which uniform results can be obtained whether the examination is made by the physician or by the layman.
11. Two or more records of the examination can be made at the same time and the official at headquarters is able to see exactly what colors have been selected to match the test skeins.

I am indebted to Dr. Charles H. Williams of Boston for suggesting the method of threading the worsted.

508 Carleton Building.

A NEW PETRI DISH COVER

C. C. Young, M.S., Lawrence, Kan.
Director, Kansas State Water Survey

The ordinary porous Petri dish top has not given satisfaction in our water laboratory. In an attempt to eliminate the troubles a glaze was put on the outside of a few covers for experimental purposes. We were so pleased with the improved results obtained that hereafter porous tops with glazed outer surface will be used entirely in this laboratory.

These glazed covers combine the good features of both the glass and the ordinary porous tops. They are superior to the unglazed tops in many ways and the cost is no greater.

1. Evaporation of the water from the medium is reduced about 60 per cent., but they are still porous enough to absorb all water of condensation.
2. The glass bottoms are not scratched and ground when the plates are stacked in the incubator.
3. The glazed surface affords a convenient place for marking with a wax pencil. The marks can be rubbed off as easily as they can from glass.
4. The glaze adds much strength to the cover; consequently the breakage is reduced to a minimum.
5. They slip one over the other as easily as glass.
6. There is less danger of contamination, as the glaze protects the porous part of the cover so that material spilled on a plate is not absorbed.

The advantages of this new cover over the old appear to be sufficient to warrant all laboratories filling in their stock with this type.

UMBILICAL CORD OR FUNIS RETRACTOR

W. P. Megrail, M.D., Wheeling, W. Va.

There is probably no more serious or fatal complication to the child during its birth than prolapse of the umbilical cord, which renders an otherwise easy and safe birth one of greatest danger to the life of the babe.

Also there is no other place in which the obstetrician finds himself so helpless to save the life of the child if unprepared for this complication when finding on examination a presenting, pulsating umbilical cord, and a half dilated rigid cervix.

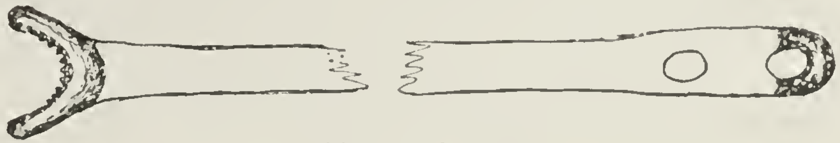
There is usually no sterile catheter at hand, or if there is, it is difficult to thread it with a tape quickly and the babe is going to die in a few minutes unless the umbilical cord is promptly placed where it will be out of the way of the oncoming head.

This simple instrument is constructed of spring steel; 12 inches in length, 5/16 inch in width at the narrowest part, and about 1/60 inch thick except at both ends, where it is 1/8 inch thick, and rounded to prevent the danger of producing a puncture or laceration.

At one end there is a half circle crotch, 3/4 inch in diameter, containing a number of serrations on the inner circle so that it will hold the cord and carry it up into the uterus beyond danger of compression, or if the operator prefers he can use the other end of the instrument and thread it through one or both holes with a tape or strip of narrow bandage and pass it around the cord in the same manner as with the whalebone fillet or the modern catheter or bougie.

The advantages of this instrument are:

1. It can be perfectly and rapidly sterilized.
2. It is quick and easy of application.
3. It combines two instruments in one.
4. It is flexible and will adapt itself to any curve, and yet it occupies less space in the pelvis than a catheter.



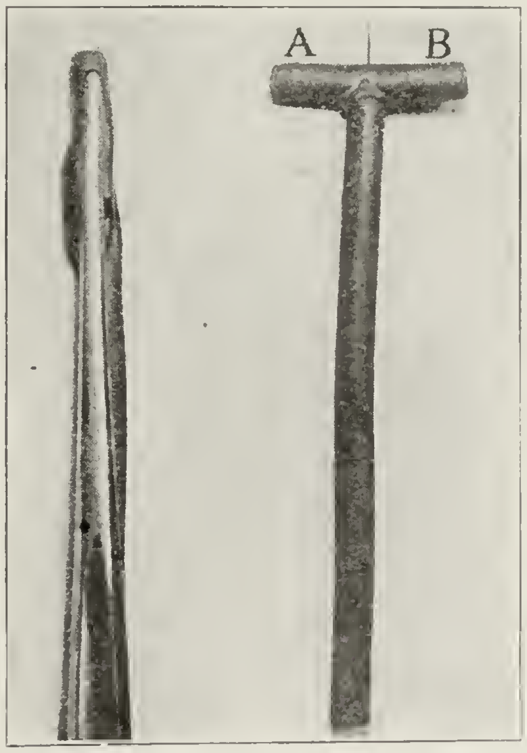
Umbilical cord retractor

5. It is inexpensive, light in weight and occupies no space in the obstetric bag, where some appliance should always be found ready for this emergency.
6. It may also be used with advantage in passing a tape around a foot or leg in doing an internal version.

SELF-RETAINING COLLAPSIBLE T-SHAPED CATHETER FOR SUPRAPUBIC DRAINAGE OF THE URINARY BLADDER

W. L. Chapman, M.D., Providence, R.I.
Surgeon and Pathologist to St. Joseph's Hospital

At the left of the illustration the catheter is shown folded pencilwise in the grasp of an ordinary dressing or dissecting forceps ready to be introduced into the suprapubic incision. When the forceps is withdrawn the catheter immediately springs into position with but slight adjustment. Withdrawal is easy on account of the soft material of the catheter. At *A* and *B* are shown the oval apertures for drainage which may be readily enlarged with the scissors if desired. In case larger drainage openings are needed the ends of the T arm may be snipped off. The catheter is practical, does not readily become clogged, allows but little leakage around it, may be removed or reinserted with but little pain to the patient, and may be used for prostatic as well as suprapubic drainage. It is made for me by the Davol Rubber Company of this city and may in a short time be obtained from dealers.



Self-retaining catheter for suprapubic drainage of the bladder.

254 Benefit Street.

Hydrobromid of Quinin in Whooping Cough.—I have had a pleasing experience in the use of neutral hydrobromid of quinin (gr. v four times a day in adults). It allays the spasmodic cough, relieves the sense of depression and conduces to rest. It seemed rational, that if it produces so happy an effect, as it often does in Grave's disease, it would be of service in whooping cough and it has proven so with me.—E. A. Hildreth, M.D., Wheeling, W. Va.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, SEPTEMBER 19, 1914

RELATION OF VACCINE VIRUS TO POST-VACCINATION TETANUS

From time to time cases of tetanus following vaccination are being reported. These infections have been attributed to various causes; carelessness on the part of the operator, infection of the vaccination wound by uncleanly habits of the patient, a vaccine virus contaminated with tetanus, and, at times, a tetanus-infected wound of another part of the body received about the time of vaccination.

The Pennsylvania State Vaccination Commission[1] have reported on the relation of vaccine virus to tetanus following vaccination. They have given the subject much attention and some important facts have been determined. Of especial interest were the data with regard to the period of incubation and the case mortality of tetanus following vaccination, as compared with tetanus in general. It was shown before the commission that of 870 cases of tetanus studied by Anders and Morgan, the disease developed in 568 between the first and tenth days after infection. In 302 cases the incubation period was from ten to twenty days or more. Of the 568 cases with an incubation of ten days or less, 419 were fatal, giving a mortality of 73.8 per cent. Of the 302 cases with an incubation period of more than ten days, 45 patients died, a mortality rate of only 11.5 per cent.

The significance of these figures, in their bearing on vaccinal tetanus, is at once obvious. The great majority of cases of vaccinal tetanus have an incubation period of over two weeks, counted from the date of vaccination, while the fatality of vaccinal tetanus is 78 per cent., as shown by Wilson's[1] 52 cases. This closely corresponds with the mortality of 73.8 per cent. found by Anders and Morgan for tetanus with an incubation period of less than ten days, and hence lends much weight to the assumption that cases of vaccinal tetanus contract their infection subsequent to vaccination and not from the vaccine virus.

These data and the inferences drawn therefrom, however, while extremely suggestive, are not convincing unless supported by other data, such as laboratory experiments. These latter, up to the present, have been lacking in a measure. In a recent bulletin of the Hygienic Laboratory, however, Francis[2] reports the results of extensive laboratory studies on tetanus, especial attention being given to the relation of vaccine virus to tetanus.

Under the Federal law regulating the manufacture and interstate sale of viruses, serums, etc., it has become necessary to examine a large number of samples of vaccine virus. Since the law went into effect, in 1902, there have been examined in the Hygienic Laboratory over 1,500,000 doses of vaccine virus with especial reference to the presence of tetanus spores. In not a single instance has the tetanus bacillus or its spore been found in vaccine virus.

In many instances, samples of vaccine virus of the same lot as that used in cases of vaccinal tetanus have been examined, but the result was negative for the presence of the tetanus organism. For this reason, and to be sure of his materials, Francis resorted to artificial contamination of vaccine, in order to carry out his experiments. He discusses well-known difficulties encountered in growing tetanus bacilli from vaccine virus, and shows that no single cultural method or animal test will invariably detect the presence of tetanus, but that a combination of different methods is effective.

A number of attempts were made to infect monkeys with tetanus by vaccinating them with a virus which had been heavily contaminated artificially with tetanus spores, but in no instance did the animal develop tetanus, although typical takes were produced. From these experiments it would appear that even if virus contains tetanus organisms, it is improbable that infection with tetanus will follow. The great importance of guarding the vaccination site from contamination cannot, therefore, be too greatly emphasized. Interesting information is given with regard to the results of cleanliness in collecting vaccine virus from a calf that had been vaccinated with virus artificially contaminated with tetanus spores. After carefully washing one portion of the vaccinated area with sterile water and brush, the virus was collected under aseptic conditions from the washed area and also from the unwashed part. The virus from the unwashed area showed, when examined culturally, tetanus in 100 per cent. of the cultures, while cultures from the washed area gave only 22 per cent.

If washing the vesiculated skin of the calf's abdomen with sterile water is sufficient to remove 75 per cent. of the tetanus spores artificially implanted thereon, it would certainly seem that before vaccinating, we should be able to remove 100 per cent. of tetanus spores from the smooth skin of the arm, should they chance to be present. With a tetanus-free virus and a tetanus-free site for vaccination, and with reasonable after-care, there should be no vaccinal tetanus.

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[1] Report of the Pennsylvania State Vaccination Commission, March, 1913.

[2] Francis, Edward: Laboratory Studies on Tetanus, Bull. Hyg. Lab., 95, August. 1914.

In spite of the evidence submitted by Francis, we should not neglect rigid asepsis in performing vaccinations in the belief that the vaccination sore will not absorb tetanus infection. His work should serve as a warning to us not to be too ready to put blame on the virus, the operator or the patient if we should be so unfortunate as to have a case of tetanus following vaccination. To put the blame in the wrong place does not alleviate the suffering of the patient or relatives in the least. It does allow a case to go into medical history which leaves the true avenue of tetanus infection unsuspected, to cause perhaps a repetition in another case at some future time.

Most of the accidents associated with vaccination can be attributed to the failure on the part of the physician or patient to realize that vaccination is a surgical operation and that the vaccine wound is a wound that must receive the same care and asepsis that any other operation wound should receive.

THE ADJUSTMENT OF THE DIETARY TO ECONOMIC CONDITIONS

The migration of a large fraction of the population of the civilized parts of the world from the country to the cities is one of the phenomena attending the "industrialization" of modern nations. Whereas formerly the city was essentially a center for trade and office life, of late the factory with its large working population has become an adjunct of city life. From the point of view of nutrition, which plays a dominant part in determining the fitness of the individual for work, it is unfortunate that the less opulent laboring classes should be drawn away from the region of cheap food in the country to homes where new standards of living are imposed on them. The altered distribution of the population has brought with it certain problems of nutrition that cannot be dismissed as inconsequential or solved by restrictive legislation. Economic laws sometimes are far more effective than educational propagandas or governmental interference.

The industrial worker who migrates from the country to the city, like the immigrant, soon finds that he must alter his accustomed diet. The simplicity of an adequate diet obtainable in the country regions cannot readily be continued in the city. The cheapest articles of food, such as bread and potatoes, available in the larger centers, do not satisfy the protein requirements sufficiently as a rule. But even if cheap forms of protein were procurable, the demand for a special source, namely, meat, soon becomes a dominating factor in the selection of the ration. Meats, whether of mammals, birds or fishes, have always entered prominently into the dietary of the well-to-do; and in this country, where the tendency to wipe out the distinctions between social classes is always in operation, the poor and the less favored groups are continually striving to imitate the ways of their more fortunate neighbors. A national sentiment fosters this ambition in a country where "every man is a king." The urban workman wants good cuts of meat not because they are absolutely indispensable to health, but because the example of his neighbor has encouraged the habit. It is quite different on our farms and in rural communities, where local produce enters more largely into the home.

With an impending rise in price and increasing scarcity of meat making itself felt throughout the country, and with the growing tendency of the industrial workers coming from the country to the cities to try to provide the table which is demanded by their well-to-do neighbors, a household problem inevitably arises. Either the dietary habit must be materially changed to include a different type of ration—a scheme almost impossible of accomplishment where food customs are in part dictated by usage—or retrenchment in expenditures must be sought in some other way.

At present the cheapest articles of food include potatoes, peas and beans, and certain cereals in the form of coarse bread; cabbage forms a cheap green vegetable; among animal products, milk and cheese are comparatively inexpensive; fish furnish the cheapest forms of flesh foods; and dried apples are among the cheapest fruits. Expensive butter can be in part replaced advantageously by less expensive, yet thoroughly wholesome animal and vegetable fats. Beef, which is always expensive, might well be replaced more liberally by fish than it has been in the past. Without having statistics at hand to support the statement we nevertheless venture the opinion that the popularity of fish is growing rapidly in America. Potatoes are not yet competing with the cereals as extensively as they might well do; but cheese is likely, as we have intimated before,[1] to find increasing favor.

The adequate dietary is a decidedly flexible affair, and it is well that this fact should become widely inculcated. The idea that even radical departures from acquired food habits are likely to lead to nutritive disorder and decreased efficiency needs to be eradicated. The foods of nations vary widely and yet support creditable human specimens. When once this fact is thoroughly appreciated there will be less dismay when a rise in the price of some supposedly indispensable product is announced. The adjustment of the dietary to the pocketbook will be further facilitated when intelligent marketing becomes recognized as a household art that deserves cultivation.

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[1] Cheese—a Neglected Nutrient, editorial, THE JOURNAL A. M. A., April 6, 1912, p. 1016.

SODIUM VERSUS POTASSIUM COMPOUNDS

The beds of potassium salts in Stassfurt and other localities in Germany have been shut off from commerce by the war, and we are threatened with a shortage of potassium salts. As the supply of sodium salts is practically inexhaustible in this country, why should we not prescribe them? While many of us in prescribing the bromid have fallen into the habit of prescribing potassium bromid, we know of no reason why sodium bromid would not be just as good, at least in practically all cases.

Though it may be difficult to get out of the habit of prescribing potassium iodid, it is doubtful whether it is any more effective than sodium iodid. Sodium acetate could easily be substituted for the potassium acetate. The potassium salts are slightly more stable than the sodium salts, but in general the salts of the one base have no marked therapeutic advantage over the corresponding salts of the other. The pottasium compounds are more active and are said to possess a more marked diuretic effect; but the sodium salts are less depressing to the heart and in some instances less disagreeable to the taste.

In this matter we have to consider the therapeutic effect, the side effects and the pharmaceutical reasons for preference of one salt over the other. In the case of the bromids and the iodids the therapeutic effect is derived from the negative element; that is, iodin or bromin. This being the case, it is a matter of indifference whether we use potassium bromid or sodium bromid, or whether we substitute sodium iodid for potassium iodid, except that the relative amount of iodin and bromin is a little greater in the sodium compounds than in the potassium. With regard to side effects, sodium compounds are thought to be less irritating to the stomach, and in large doses potassium bromid or iodid might be somewhat more depressing to the heart. With regard to physical properties, sodium iodid and bromid are less permanent in the air, but this concerns the pharmacist more than the physician, as these salts should be prescribed in solution.

Potassium acetate and citrate are used as diuretics, but can be conveniently replaced by sodium salts, as the therapeutic aim is reached just as well by prescribing sodium citrate or acetate as by the use of the corresponding potassium salts. Here there appears to be no difference on account of side actions or of physical properties.

It seems possible that the vogue of the potassium compounds has a historical cause, and is at present due largely to habit. The earliest source of sodium carbonate, from which most of the other sodium salts are derived, was the ashes of seaweeds; the earliest source of potassium carbonate was wood ashes. Wood ashes were plentiful and cheap, inland as well as on the seacoast; hence the natural preference for potassium compounds. It is of interest now to recall that the first impetus to the general employment of sodium salts was given by another devastating war. During the French revolution the important soap industry in France was seriously crippled because all the available potash in France was required for gunpowder, and the importation of soda-ash made from kelp and wrack was suspended. A prize offered by the Directory for the best method of producing sodium carbonate from sodium chlorid was won in 1794 by Le Blanc. The sodium carbonate produced by his process, however, was not cheap enough to withstand the competition of the Spanish kelp-ash, which was imported into France as soon as commercial relations with other countries were reestablished, and the unfortunate Le Blanc died by his own hand in a poorhouse. The value of one of its by-products, hydrochloric acid, saved the Le Blanc process from extinction, and it is still extensively used in Great Britain; but the price of sodium carbonate did not become reduced to anything like its present level until the Solvay process came into general use in the latter part of the nineteenth century.

How much effect, if any, these commercial factors have had on the therapeutic use of potassium compounds is not easy to prove. It seems probable, however, that the original high cost of sodium carbonate, the source of most other sodium compounds, has not been without influence on pharmacy. The pressure of necessity caused by the present war probably will have the effect of rationalizing this branch of our therapeutics. The sodium salts, being less irritating than those of potassium, will be given the preference except in cases in which the latter are specifically indicated.

INDUSTRIAL HEALTH

The importance of the problem of industrial sanitation is gradually becoming more fully realized. Some employers, indeed, even yet apparently take the ground that, if workmen are willing to labor under insanitary conditions, it is no concern of their employers. The New York State Factory Investigating Commission, which has carefully studied the conditions under which about two hundred thousand wage-earners work, reports that "there is a tendency on the part of many employers to economize not only in matters of legitimate expense but also in space, light, air, and certain other safeguards to the health and lives of the workers." The report of the State Board of Health of Louisiana indicates that over 50 per cent. of all the manufacturing establishments in the state are in "poor" or "bad" sanitary conditions. Most states have no available figures, but New York and Louisiana are so far from each other geographically, economically and socially, that, for lack of better, we may take these two reports as an index of industrial health conditions generally throughout the United States. On the whole, however, we believe that with each year employers tend to appreciate more and more the commercial value to them of sanitary working conditions for their employees.

B. S. Warren of the United States Public Health Service, who has been deputed as sanitary adviser to the United States Commission on Industrial Relations, points out[1] that the false economy involved in neglect of sanitation inevitably leads to greatly lessened efficiency and is thus really expensive for the employer in the end. The highest efficiency is possible only when the health of workers is favored by good air and light, proper arrangement of hours of labor and the maintenance of the safeguards of health.

With regard to hours of labor particularly, some recent experience is valuable as indicating that shortened hours of labor may actually conduce not only to the health of employees but also to greater production. In the Engis Zinc Works the hours of labor were cut down from twelve to eight per day, yet the men earned as much and did as much work in eight hours as they did formerly in twelve. Besides there was a marked decrease in the calls on the sick fund, the men no longer felt the need of stimulation, and sobriety was markedly increased. Almost the same thing happened at the Zeiss Optical Works in Germany. Abbe kept a careful record for the years when the plant was operating on a nine-hour day. When the working day was reduced to eight hours, the record showed the men earned over 3 per cent. more than during the previous year, the output of the work was increased 3 per cent. and the power-plant was able to shut down an hour earlier, thus effecting a very material saving in fundamental expense. The record was for 233 men at an average age of 31 years, and many different occupations on a piece-work basis were represented in the shop.

Both employers and employees need to be convinced of the evident fact that the healthy man is the most efficient and the cheapest employee and that any reasonable expense to maintain him in health is a profitable investment. The public health worker can act as a mediator between capital and labor and aid greatly in the amicable adjustment of the prevalent industrial strife. Warren suggests that it is regrettable that medical men have neglected so long to teach methods of disease prevention. "Their study must include the total environment and, if possible, untangle the bundle of influences that in effect are producing disease more surely than the germs which are the direct agents." Physicians as impartial investigators can present the facts and suggest the remedies to both sides and thereby accomplish great good for social improvement and public health.

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[1] Warren, B. S.: Industrial Conditions, Their Relation to the Public Health, Pub. Health Rep., May 29, 1914, p. 1348. Paper read before the Health Officers' Conference of the State of Louisiana.

METABOLISM IN FEVER

The construction of the ideal dietary schedule for fever patients will not be accomplished until the nature of the disturbance of metabolism in diseases attended with rise of body temperature is clearly ascertained. It is agreed that the increase in total metabolism in fever is ordinarily associated with increases in protein metabolism. The cause of the latter, however, has given rise to much speculation and contradictory views. At least three explanations of the higher catabolism of protein have been ventured. First, it has been ascribed to the high temperature. We have previously referred to the investigations of Graham and Poulton[1] on this point. Living on a ration abundant in carbohydrates whereby they easily reached a low plane of nitrogenous equilibrium, these investigators subjected themselves to heated steam sufficient to raise their body temperature to as high as 40 C. (104 F.). During this artificial state of high temperature no alteration whatever in protein metabolism was noted; therefore the physical factor of rise in body temperature cannot be postulated as the primary cause of the considerable and constant augmented destruction of protein noted in true clinical fevers.

As a second cause of the increased protein metabolism noted in fevers an alleged condition of undernourishment of the body cells has been postulated, an impoverishment of the store of glycogen in particular being held responsible. It is, of course, a well-known fact that lack of carbohydrate occasions increased destruction of protein in the organism under any condition. It was the distinct merit of Shaffer and Coleman in this country to have attempted to forestall the depletion of the non-protein energy reserve of the body in typhoid fever by instituting their now widely known high-calorie feeding in this disease.[2] With a diet abundant in carbohydrate and fat it was shown that, even with a low protein intake, patients may be maintained in almost complete nitrogenous equilibrium throughout the duration of the typhoid infection. The brilliant results achieved raise the question whether the success is due to the provision for a compensatory regeneration in the organism or to a prevention of what may here be referred to as the third possible cause of protein catabolism in fever, namely, destruction of protein by the action of the special toxins produced.

Dr. Rudolph A. Kocher[3] of Baltimore, working in Friedrich Müller's clinic at the University of Munich has questioned the interpretation of the results of Shaffer and Coleman. He notes that the excellent protein-sparing results achieved by their high carbohydrate diets were as a rule not attained until the fever had progressed into the second or third week of the disease. It is quite conceivable, as Kocher maintains, that the favorable effect does not manifest itself until after the first or severe stage of the infection; that is, until a period when the organism has acquired ability to resist the deleterious consequences of the noxious agencies. Accordingly Kocher has reinvestigated the protein metabolism in the earlier stages of febrile disease. He reports that even very liberal diets yielding as much as 80 calories per kilogram cannot retard the protein catabolism in the early period of the fevers as they do later. The conclusion is therefore forced on Kocher that, contrary to some of the more recent contentions of other clinical students of metabolism in fever, a considerable destruction of protein not chargeable to the high temperature *per se* or to insufficient energy intake, actually takes place. In the words of Kocher, infectious fever must be pictured as a clinical syndrome of rise in temperature and protein destruction, the latter perhaps due to special (toxic) effects on the protoplasm. It should be clearly noted that this conclusion in no way contra-indicates the essential changes in the dietary that have found their way into practice in this country, especially in the management of typhoid fever. More liberal feeding in suitable cases has come to stay. It merely brings the question of the quota of protein desired into the foreground once more.

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[1] Graham and Poulton: Quart. Jour. Med., October, 1912, p. 8. Metabolism in Fever, editorial: The Journal, A. M. A., Dec. 7, 1912, p. 2070.

[2] Shaffer, Philip A.: Metabolism in Typhoid Fever, The Journal A. M. A., Sept. 19, 1908, p. 974; Shaffer, Philip A., and Coleman, Warren: Protein Metabolism in Typhoid Fever, Arch. Int. Med., Dec. 15, 1908, p. 538. The Utilization of the High-Calorie Diet in Typhoid Fever, editorial, The Journal A. M. A., Oct. 12, 1912, p. 1378.

[3] Kocher, R. A.: Ueber die Grösse des Eiweisszerfalls bei Fieber und bei Arbeitsleistung. Untersuchungen mittels des Stickstoffminimums, Deutsch. Arch. f. klin. Med., 1914, cxv, 82.

THE ABSOLUTE AND PERCENTILE AMOUNTS OF SUGAR IN THE BLOOD

In the chemical pathology of sugar metabolism, there are numerous anomalies which have long been confusing because of their apparently conflicting character. The hyperglycemia of the typical diabetic individual may be regarded as an undisputed fact. There are, however, cases of glycosuria in which the percentage of sugar in the blood is certainly not increased above the normal. It is these which have furnished the basis for the claims of a form of renal diabetes in which the chief distinguishing characteristic appears to be an increased permeability of the kidney for blood-sugar.[1]

To help explain the presence in certain individuals of glycosuria without hyperglycemia, and, conversely, the absence of glycosuria when hyperglycemia is present, Epstein and Baehr[2] have offered a new hypothesis, based on a series of experiments in the Pathological Laboratory of the Mount Sinai Hospital in New York City. Their observations on the hyperglycemia following hemorrhage lend themselves to a new interpretation. It has long been known that after removal of blood the concentration of sugar in the circulating fluid subsequently increases. Some investigators incline to attribute the resulting hyperglycemia to psychic causes. It is doubtless true that an increased percentage of sugar results from the manipulation and operative interference — an increase probably associated with the adrenal disturbances to which we have referred editorially in the past.[3] Very marked hyperglycemias following blood-letting doubtless involve such factors. But it is quite possible to obtain smaller increases in the percentage of sugar even when the psychic disturbances are avoided. Epstein and Baehr have now pointed out that the increase in the percentage of sugar in the blood is indicative only of a relative, that is to say, percentile, but not an absolute, hyperglycemia. Although the percentage concentration rises after bleeding, the total amount of sugar present in the circulation, calculated on the assumed blood-volume, remains surprisingly constant. For example, in one animal, the total blood-volume before the bleeding was computed at 105 c.c. (5 per cent. of the body-weight). The amount of blood drawn was 30 c.c.; in other words, 75 c.c. of blood was left in circulation. The percentage of sugar in the blood as drawn was 0.105 per cent.; two hours after the bleeding the sugar-content rose to 0.154 per cent. By comparing the total volumes of blood in the animal before and after the bleeding, they are seen to bear the ratio to one another approximately as 3:2. On the other hand, the percentages of sugar in the blood before and after the bleeding are to one another as 2:3. In other words, the percentage of sugar in the blood is inversely proportional to the blood volume.

The increase in the percentage of sugar in such experiments with hemorrhage is usually seen to bear a striking relationship to the proportion of blood left in circulation after the bleeding. To test the hypothesis regarding the constancy of the absolute amount of blood-sugar, Epstein and Baehr also replaced the blood withdrawn by an equal quantity of physiologic saline solution. Under these conditions no change in the percentage concentration of the sugar occurs; for in most cases the sugar concentration of the diluted blood rapidly rises to what it was before the hemorrhage. In other words, the total sugar in the circulation remains unchanged.

Commenting on the cases of so-called renal glycosuria, the New York investigators remark that these may be dependent on an increase in the total blood-sugar and that the absence of any hyperglycemia could be accounted for by the existence in these individuals of an abnormally large blood-volume. They suggest the advisability of studying blood-volumes and computing therefrom the total blood-sugar in cases of diabetes mellitus. It seems somewhat far-fetched to conclude, as Epstein and Baehr propose, that in such studies may lie the explanation for the disproportion which occurs so frequently in this condition between the degree of hyperglycemia and the intensity of the glycosuria. It is not easy to understand how any tissue-cells can distinguish or appreciate the total amount of circulating sugar, whereas it is quite in line with other chemical experience to find modifications in physiologic reaction induced by altered concentration of components of the blood. The fact of the apparent normal constancy of the absolute quantity of circulating sugar in individuals is of interest, whatever the validity of the appended theory may be.

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[1] Renal Diabetes, editorial, The Journal A. M. A., Nov. 1, 1913, p. 1632.

[2] Epstein, Albert A., and Baehr, G.: Certain New Principles Concerning the Mechanism of Hyperglycemia and Glycosuria, Jour. Biol. Chem., 1914, xviii, 21.

[3] Newer Views of the Functions of the Adrenals, editorial, The Journal A. M. A., July 25, 1914, p. 322.

Current Comment

SCIENTIFIC MEDICINE IS "PRACTICAL" MEDICINE

A letter received by The Journal reads: "What is the best treatment for diabetes mellitus?" That is all. There is nothing unique about the letter or the question; it is a sample of queries that come every few days, and illustrates the fact that some men are still treating names. There is a popular notion that a definite treatment has been laid down to correspond to every disease name and that having learned the name of the disease, one has but to apply the treatment prescribed in the text-book. The idea is crude and fallacious that when the diagnosis is made, the treatment is easy, the fallacy arising from the fact that diagnostic analysis is not carried far enough and names alone suffice without a determination of the pathologic condition in all its details. Our present querist appears satisfied with the name "diabetes," qualified, to be sure, by the adjective "mellitus." A little reflection should indicate that this name includes a number of different conditions, the presence or absence of which must decide the plan of treatment to be adopted. Thus diabetic patients differ much in their tolerance of carbohydrates. Some have acidosis and are threatened with coma, others are in no immediate danger. Before deciding on the treatment for any disease the actual conditions requiring relief must be determined, and then the appropriate remedy prescribed. In the case of diabetes it must be determined to what extent carbohydrates can be tolerated by the individual patient, as there may be present so great a degree of acidosis that to exclude carbohydrates would be dangerous. If the danger is from intoxication by sugar in the blood, the diet must be regulated to reduce the sugar to a minimum. If acidosis threatens, the proper remedies must be chosen to avert the danger. We are taking this particular letter and the disease it specifies to emphasize a principle; for the principle applies to other diseases—to all diseases, in fact. There is no specific treatment for typhoid fever; even the diet of a typhoid patient must vary according to conditions. The same is true of pneumonia: what will benefit one pneumonia patient may injure another. Those who conduct the so-called "practical journals," and more particularly the readers of these journals who love so-called "practical matter," should note that more is required of the physician than a diagnosis of the disease by name only. If it were otherwise doctors would not be necessary, for the majority of people can tell a case of whooping-cough, of measles, of typhoid fever, and of other common diseases. The people would need merely to look in a book and see the treatment. The doctor is supposed to treat, not a name, but the individual patient and the particular conditions in that patient. There is no "best treatment for diabetes," but what is best for each patient must be settled first by determining the actual pathologic conditions in the individual affected.

NEW FACTS ABOUT THE CEREBROSPINAL FLUID

There has taken place of late a commendable revival of interest in the normal and morbid physiology of the cerebrospinal fluid. A superabundance, rather than a diminution, of this fluid is the predominant factor in every morbid process of the central nervous system in which it is affected. In hydrocephalus, congenital and acquired, and in the various forms of meningitis, the excessive accumulation of fluid not only plays a part in the clinical expression, but also is often the determining factor in the high mortality-rate of these diseases. That there must be a disturbance of the balance between secretion and absorption to account for the abnormal increase is self-evident, but which of the two factors is the more potential has been a matter of conjecture. As a contribution to this problem, the work of Dandy and Blackfan[1] is significant. They were able to demonstrate by the production of an artificial hydrocephalus, not only that practically all the fluid was generated within the ventricles, but also that there was no absorption within the ventricles. Furthermore, by the injection of phenolsulphonephthalein, these observers were able to establish a normal standard for the excretion of phenolsulphonephthalein after its injection into the ventricles or subarachnoid space, and have further used the phenolsulphonephthalein test to distinguish clinically between two forms of hydrocephalus, one with, and the other without, obstruction to the ventricles. In a similar series of experiments Frazier was able to demonstrate by the phenolsulphonephthalein test that the venous channels play the most important part in absorption, and that the lymphatic absorption is a negligible factor. When the phenolsulphonephthalein was injected into the ventricle, the dye-impregnated cerebrospinal fluid appeared in the torcular herophili in two minutes, whereas it took almost twelve hours for it to reach the lymph-nodes of the parotid group when injected into the subarachnoid space. Of the earlier contributions, the most important by far were those of Faivre, Luschka, Francini, Levaditi and Mott, who by histologic evidence have shown that the cerebrospinal fluid is a secretory product of the choroid plexus, or as Mott describes it, the "chorioid gland" with an external secretion and an internal destination. Dixon and Halliburton[2] and Frazier[3] have been conducting independently a series of experiments in their laboratories on the hypothesis that inasmuch as the choroid plexus is a gland with a secretion, its function might be increased or decreased by certain influences. Dixon and Halliburton found that the injection of brain extract and more particularly the extract of choroid gland caused a hypersecretion, attributed to the specific action of some substance—possibly a hormone product of brain metabolism—on the secretory cells of the choroid gland. Of greater significance is the finding by Frazier of a substance which has a distinctly inhibitory effect. In marked contradistinction to all other glandular extracts, the extract of the thyroid gland was unique in that it caused a continued and prolonged decrease in the flow of cerebrospinal fluid, wholly irrespective of the effect on blood-pressure. It is often a far cry between laboratory demonstration and clinical application, but these experiments offer a hope of dealing with the problem of perverted secretion at its source. This, it seems, is the significant feature of these researches.

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[1] Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, The Journal A. M. A., Dec. 21, 1913, p. 2216.

ONCE MORE THE LEAGUE FOR MEDICAL FREEDOM

The National League for Medical Freedom has again exercised its divine right of protesting against anything and everything beneficial to the public health. As those familiar with the history of the League know, protesting is one of the best things it does. Readers of The Journal may recall the first appearance in the public eye of this organization which suddenly burst, meteor-like, on the public, through the medium of half and full page display advertisements in the leading newspapers of the country, setting forth the awful dangers and deep laid plots of "The Medical Trust." Incidentally, as nearly as can be estimated, this campaign, costing about $50,000, was inaugurated before the newly organized "League" had any membership that any one had ever heard of. Just where the money came from to finance such an extensive campaign has never been explained. For several months during the summer and fall of 1910, the "League" protested to its heart's content, after which (whether due to exhaustion of its funds or of its lungs, it is impossible to say) it lapsed into the condition immortalized by Grover Cleveland as "innocuous desuetude." It has not been heard of since except that in a few localities where particularly ardent disciples dwelt and kept the fire burning on the altar, it has intermittently lifted up its voice in protest against everything in the way of sanitary progress and disease prevention, claiming in all cases that the efforts of physicians to diminish disease are a diabolical and deep laid scheme on the part of the "medical trust" to secure complete control of the nation. Just why the "medical trust" should want control or what it would do after it got it, the League has never divulged any more than it has its proof of the existence of such a "medical trust." These things are locked deep in the bosoms of the devoted partisans who make up this organization. The latest protest on the part of the League is directed against the United States Bureau of Education. In the report of the Commissioner of Education for 1913, in a series of twenty-five or thirty papers by experts on the progress of education in different fields, appears an able summary of the progress in medical education, by the secretary of the Council on Medical Education of the American Medical Association. This Council, it is hardly necessary to state, has for eight years past carried on an extensive study of medical education in this country. It appears that about the time this report was being prepared, an Iowa member of the National League for Medical Freedom wrote a paper objecting to the medical inspection of schoolchildren, which was sent to the Commissioners of Education with the demand that it be printed as a part of the Bureau of Education publications. The United States Commissioner of Education, it seems, declined to publish the article, wherein the National League for Medical Freedom sees evidence of a dark and awful conspiracy between the American Medical Association and the United States Government, and proceeds to protest. Of course, there may be such a plot, although the evidence on this point seems to be conspicuously lacking; but one explanation for the action of the Bureau of Education has apparently not occurred to the National League for Medical Freedom. It is barely possible that the reason why the report on medical education was gladly accepted and the tirade on medical inspection of schools was declined was that the report was the result of eight years of careful study, while the "protest" was the usual jumble of vague charges, exaggerated statements and unsupported assertions. In a word, it is barely possible that the Bureau of Education acted as it did because one paper was worth publishing and the other was not. This explanation has evidently not occurred to the National League for Medical Freedom, and simple as is this explanation, it is hardly to be expected that it would.

THE WINE OF CARDUI LIBEL SUIT

In last week's issue, attention was called to the fact that the manufacturers of "Wine of Cardui" have filed suit against the American Medical Association and the editor of The Journal. The Chattanooga newspapers, in noting the fact, state that the Chattanooga Medicine Company has engaged a firm of attorneys in Chattanooga, another attorney in Knoxville, still another in St. Louis and a fourth in Chicago, giving the names in each case. Such wholesale retaining of lawyers as that described probably comes high, but doubtless the Chattanooga Medicine Company can afford it. Defrauding the sick has in the past been an easy road to wealth, although we venture to prophesy that it is likely to be less easy in the future. The Wine of Cardui concern hires the lawyers, but the ailing women of the country pay the bill.

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[2] Dixon and Halliburton: Jour. Physiol., 1914, xlviii, Nos. 2 and 3.

[3] Frazier, Charles H.: The Cerebrospinal Fluid as a Problem in Intracranial Surgery, The Journal A. M. A., July 25, 1914, p. 287.

Medical News

ILLINOIS

Teachers Must Be Examined.—The Board of Education of Springfield stated that all teachers in public schools must undergo physical examination and obtain certificates of health before being allowed to take positions.

Chicago

Faculty Changes.—Dr. Daniel A. K. Steele has been appointed senior dean and head of the department of surgery in the College of Medicine of the University of Illinois; Dr. Charles Spencer Williamson, professor of medicine and head of the department; Dr. Charles Sumner Bacon, professor of obstetrics and head of the department of obstetrics and gynecology; Dr. Julius Hays Hess, associate professor of pediatrics and head of the division of pediatrics; Dr. Norval Pierce, professor of otology; Dr. Joseph C. Beck, associate professor of laryngology and rhinology and head of the division; Dr. Oscar Eugene Nadeau, instructor in surgical pathology; Dr. A. O. Shoklee, associate professor of pharmacology; Dr. Roy L. Moodie, instructor in anatomy and Dr. C. S. Smith, instructor in physiological chemistry.

INDIANA

State Society Meeting.—The annual meeting of the Indiana State Medical Association will be held in Lafayette, September 23 to 25.

Suit to Get Physician's Estate.—The suit for $80,000 against the estate of the late Dr. Michael A. Jordan, Logansport, brought by John Jorden, Nolen, claiming to be the natural son of Dr. Jordan, is said to have been compromised for $8,000.

Personal.—Dr. Brown S. McClintic, Peru, has received an appointment as surgeon under the American National Red Cross and will sail for Europe this week.——Dr. Andrew W. Smith, Hammond, has been appointed director of athletics in Throop College, Pasadena, Cal.——Dr. Charles Melvin Mix, Muncie, has returned from abroad.——Dr. James H. Walker, Henryville, has been appointed social superintendent of the Indiana State Reformatory, Jeffersonville, vice Prof Rufus B. von Klein Smid, elected president of the University of Arizona.——Dr. W. N. Williamson, Indianapolis, has been appointed supreme medical examiner of the Order of Larks.

IOWA

Society Offers Service.—The Fort Madison Medical Society, at its meeting August 31, offered the services of its members free to the school board for the examination of schoolchildren.

Demand for Small-Pox Pamphlet.—The State Board of Health of Iowa recently issued an edition of 42,000 copies of a bulletin regarding small-pox, and during the first week after the issue 37,000 copies were asked for.

Tuition Fees Not Raised.—An official statement from the State University of Iowa says that the tuition fees to both the College of Medicine and the Homeopathic College of Medicine for the four years, respectively, are $60, $50, $50 and $60. Reports previously sent in erroneously gave the figures as nearly twice those amounts which were published in the Educational Number of The Journal.

Personal.—Dr. Charles E. Glynn has been appointed president of the Davenport Hospital.——Dr. Vernon L. Treynor has been elected medical inspector of the Council Bluffs schools.——Dr. Percival B. Glew, Des Moines, has been appointed instructor in physical hygiene in the public schools of that city.——Drs. Mary K. Heard, Iowa City, and Louis G. Patty, Carroll, have returned from abroad.

KENTUCKY

Antityphoid Inoculation.—At the request of Senator James, Surgeon-General Rupert Blue, U. S. P. H. S., is forwarding a sufficient supply of antityphoid serum to Pineville for the inoculation of 400 persons. Typhoid fever is prevalent in camps around Pineville.

Personal.—Dr. Joseph N. McCormack, Bowling Green, who has been ill for several months, recently underwent an operation at Rochester. His many friends will be glad to know that he is doing well, and that the outlook is promising that he will soon be restored to health.

Campaign against Trachoma.—The recent government survey showed about 250 cases of trachoma in Jefferson County outside of Louisville, 75 per cent. being curable. Wide-spread infection is present also in Breathitt, Clay, Jackson, Lee, Leslie, Onsley, Perry and Clark counties, almost every county in Kentucky being more or less affected. The State Board of Health has accordingly prepared a proclamation excluding from the schools all children with trachoma until they have been treated and pronounced cured. In Louisville free treatment is to be given at the Emergency Hospital and free transportation will be afforded the patients to the hospital. Dr. Mullins of the U. S. Public Health Service will come to Louisville to take personal charge of the work. Each patient will be expected to remain in the hospital for a week or ten days, and the course of the case will be supervised by the physicians or a nurse for several weeks after the patient returns home. Teachers are to be instructed in the symptoms of trachoma and given authority to send home any child with suspicious sore eyes. The children will not be allowed to return until pronounced free from infection after medical examination.

LOUISIANA

Home from Abroad.—Dr. and Mrs. H. F. Ader and Drs. Robert C. Kemp and John A. Caruthers, Baton Rouge, have returned from Europe.

Dispensary Open.—It has been decided by the board of directors of the Sickles Fund for the Dispensing of Medicine to the Poor to open an additional dispensary at the Touro Infirmary, New Orleans.

Personal.—Dr. Frederick W. Parham has resigned from the Board of Administration of Tulane University of Louisiana, in order to accept the chair of surgery in the New Orleans Polyclinic for the coming session.——Dr. Edmund D. Martin has been appointed to the chair of gynecology in the New Orleans Polyclinic.

Maternity for Touro.—The Touro Infirmary, New Orleans, will build a maternity hospital through the beneficence of Mrs. Henry Newman, who has donated $25,000 for the purpose. The building is to be known as the Henry Newman Maternity Hospital, as a memorial to the donor's late husband.

Medicine Practice Act.—At the recent assembly of the Louisiana State Legislature a very complete medical practice act was passed. One of the features embodied in the act is a physician for examination in the following branches: "Anatomy, physiology, chemistry, obstetrics, gynecology, physical diagnosis, surgery, pathology, materia medica, theory and practice of medicine and hygiene, providing that any person not using internal medication in his or her practice shall be exempt in examination in materia medica." In a concluding section there is a provision: "That nothing in this act shall be construed as applying to the practice of osteopathy or dentistry, or as effecting or changing existing laws on these subjects."

MARYLAND

Personal.—Drs. Charles W. Hartwig and Ridgely B. Warfield, Baltimore, have returned from abroad.——Dr. Louis A. Sexton, newly appointed admitting physician and third assistant superintendent of the Johns Hopkins Hospital, Baltimore, assumed his new duties September 11.

New Hospital Opened.—The Du Pont Maternity Hospital, erected at Cambridge, through the generosity of Mrs. Alfred I. Du Pont of Wilmington, Del., has been opened to the public, although the formal opening will not occur until later. The building has cost about $35,000, the gift being made through Dr. Brice W. Goldsborough. It is a three-story brick building with concrete floors. It is erected near the Cambridge-Maryland Hospital, with which it is connected by an inclosed corridor. There are two wards with eight beds in each and nine private rooms.

Banner Centennial.—The following Baltimore physicians composed the Medical Relief Committee during the Star Spangled Banner Centennial, September 6 to 13, and rendered assistance to those who were injured or ill: Dr. George L. Wilkins, chairman, and Drs. John W. Chambers, Thomas R. Chambers, Thomas S. Cullen, Cecil W. Vest, William S. Baer, Alexius McGlannan, John D. Blake, Herbert C. Blake, George A. Hartman, Frank J. Kirby, Robert Parker Bay, Thomas J. O'Donnell, Joseph E. Gichner, John R. Abercrombie, Albert T. Chambers, G. C. Threine, Walter D. Wise, Archibald C. Harrison, D. Webster Cathell, John Staige

Davis, William T. Watson, George Heller, Archibald M. Shipley and Monroe A. Maas.

MASSACHUSETTS

Personal.—Dr. Vincent Y. Bowditch, Boston, is reported to be at Liverpool awaiting passage to the United States.——Dr. Edward P. Worth, Edgartown, has been appointed medical examiner for Dukes County.

Home from Europe.—Drs. Francis D. Donoghue, Boston; Rufus A. Kingman, Brookline; George B. Buehler, Cambridge; Dr. and Mrs. Edward F. Himmins, Boston, and Frank B. Granger, Boston, have returned from Europe.

Hospital Open.—The new St. Elizabeth's Hospital, Brighton, opened September 1. The building is fireproof, three stories in height, has been erected at a cost of a quarter of a million dollars and has accommodations for more than two hundred patients. Dr. John R. Slattery is superintendent of the institution.

MICHIGAN

Personal.—Dr. Emil Amberg, Detroit, and Collins H. Johnston, Grand Rapids, have returned from abroad.——Dr. Fritjof E. Berge, Grand Rapids, announces his intention of remaining in England for considerable time.

Board of Health Train.—The trip of the Michigan health train just finished is said to be the most successful expedition thus far undertaken. During the month, the train was exhibited to more than 40,000 people.

State Medical Society Meeting.—The forty-ninth annual meeting of the Michigan State Medical Society was held in Lansing, September 10 and 11, under the presidency of Dr. Guy L. Kiefer, Detroit. Grand Rapids was selected as the meeting place for 1915 and the following officers were elected: president, Dr. Reuben Peterson, Ann Arbor; vice-presidents, Drs. Louis W. Toles, Lansing; Alfred W. Hornbogen, Marquette; Colin D. Munro, Jackson, and Vernon A. Chapman, Muskegon; councilor for third district, Dr. Starr King Church, Marshall; delegates to the American Medical Association, Dr. Louis J. Hirschman, Detroit; and Herbert E. Randall, Flint; and alternates, Drs. Jacob D. Brook, Grandville, and Alford E. W. Yale, Pigeon.

MINNESOTA

Home from Abroad.—Dr. Muhlenberg Kellar Knauff, Two Harbors; Dr. and Mrs. Arthur T. Mann, Minneapolis, and Dr. Olaf J. Hagen, Moorhead, have returned from abroad.

Personal.—Dr. John E. Crewe is acting at present as health officer of Rochester.——A banquet was tendered Dr. William E. Harwood, Eveleth, by his professional associates of the Range Medical Association, at Hibbing, September 4. Dr. Harwood is about to move to Peoria.

Cancer Committee Named.—Drs. Warren A. Dennis, St. Paul; William J. Mayo, Rochester, and James E. Moore, Minneapolis, the committee on cancer of the Minnesota Public Health Association have been invited to act as the Minnesota State Committee on Cancer for the American Society for the Prevention and Control of Cancer.

Selection of Sanatorium Site.—At a meeting of the commissioners of the Southwestern Minnesota Antituberculosis Sanatorium Association which includes the counties of Lincoln, Lyon, Pipestone, Murray, Cottonwood, Rock, Nobles and Jackson, held in Windom recently, it was decided to name a first, second and third choice of sites, leaving the final selection to the State Board of Control. The first choice is that offered by Windom on Fish Lake, about 4 miles east of Windom, 54 acres in extent, at $110 an acre; the Currie site of 123 acres is located 100 miles north of Currie on the shores of Lake Shetek and is offered at $150 an acre, and the site offered by Worthington is 1½ miles south of that place on the shores of Lake Okebena and consists of 60 acres offered at $150 an acre. It is proposed to construct buildings costing about $100,000.——The Wabasha County Tuberculosis Commission has selected Wabasha as the site for the State Sanatorium.

NEW YORK

District Society Meeting.—The Eighth District Branch Medical Society will hold its annual meeting at Niagara Falls, September 23 and 24, under the presidency of Dr. Arthur A. Bennett.

Medical Club Organized.—The Miamonides Club, a private medical club recently organized in Buffalo, held its first meeting at the Hotel Statler, recently, under the presidency of Dr. Marcell Hartwig.

Mallein Test Required on Imported Horses.—Beginning September 1, this state will not permit any horses to enter its borders unaccompanied by a certificate of freedom from glanders, established by the mallein test.

Personal.—Drs. Lucien Howe and Ray Johnson, Buffalo, have returned from abroad.——Drs. Lester Levyn and Milton H. Goldberg, Buffalo, are reported to be still in the war zone in Europe.——Dr. Abraham S. Tepper, house surgeon at St. Joseph's Hospital, Far Rockaway, Long Island, was operated on for appendicitis in the hospital, September 1, and is reported to be doing well.——Dr. Harold K. Faber, Westfield, has accepted a position on the staff of the Rockefeller Institute for Medical Research in New York City.

Epidemic Sore Throat in Rockville Centre.—In Rockville Centre, a town of 4,250 inhabitants, during the first half of June over 200 cases of septic sore throat developed. About 90 per cent. of the sick were found to have used milk from a single dairy. Altogether about 400 quarts were delivered daily from the dairy to about 173 customers. A milk supply making up one-fourth of the total was shown to be in use in at least nine-tenths of the cases. Over 200 cases occurred among 173 customers and about one case is recorded for every 2 quarts of milk delivered.

New York City

Personal.—Dr. Walter Booth Adams, Beirut, Syria, is spending a furlough of eight months in the United States.——Dr. William H. Luckett and Dr. and Mrs. George A. Tuttle, and Dr. Jacob L. Maybaum have returned from Europe.

Typhoid Fever in Brooklyn.—Typhoid fever has developed in the Park Slope section of Brooklyn since September 1, and up to September 10, twenty-nine cases have been reported. Vigorous search is being made to find the source of the infection.

Health Department Official Dies.—Mr. Alfred T. Metcalf, for twenty-eight years connected with the Health Department of Brooklyn and recently chief clerk, died in his summer cottage at Sheepshead Bay, September 2, from cerebral hemorrhage, aged 61.

For a Health Home.—The bulk of the estate of Jacob Langeloth, estimated at more than $10,000,000, has been bequeathed as a foundation for a home, to be known as the Valeria Recreative and Convalescent Home. The institution is designed as a home for people of refinement and education who cannot afford to pay the charges exacted at health resorts. It is to be non-sectarian.

The Death-Rate of Children Under 5 Years of Age.—A recent *Bulletin* of the Health Department states that the question is often asked "Why do all organizations direct their efforts to saving babies under 1 year of age only to allow them to die during the second or third year?" The department has therefore made an investigation of the death-rates of children at the various age periods under 5 years. A comparison of the five-year yeriod from 1904 to 1908, previous to the establishment of the Bureau of Child Hygiene, with the five-year period from 1909 to 1913, shows that there has been a decrease in the death-rate of 23 per cent. in children under 1 year of age, of 25 per cent. between 1 and 2 years, 27 per cent. between 2 and 5 years, and a total of 26 per cent. under 5 years of age.

OHIO

In the War Zone.—Dr. and Mrs. James G. Grant, Akron, are on their way home from Europe by way of Denmark.——Dr. Martin Stamm, Fremont, is reported to be serving with the hospital corps of the Swiss army in Berne.——Dr. Miloslav Francisci, Cleveland, has returned from Europe.

Toledo Will Grade Restaurants.—In future every restaurant in Toledo will be graded by the City Board of Health. Cleanliness, absence of odors, personal hygiene of employees and equipment of kitchen will be taken into consideration. Each restaurant will be given a card with its grade, "A," "B," "C," marked thereon. Those below "C" will be barred

District Tuberculosis Hospital.—Ashtabula, Geauga, Lake and Trumbull counties have been placed in Tuberculosis Hospital District No. 4, by the Division of Tuberculosis of the State Board of Health. Under the amended district hospital law, passed last winter, the cost of the erection and maintenance of the hospital is assessed against each county in direct proportion to its tax duplicate.

To Urge Health Laws.—Dr. Benjamin R. McClellan of Xenia will be chairman, and George V. Sheridan of Columbus, secretary, of a committee of the Ohio State Medical Association, Ohio State Board of Health, Ohio State Dental Association, Ohio Commission for the Blind and Ohio State Pharmaceutical Association, to urge various changes in, and additions to, the health laws at the next session of the legislature.

Conference on Public Health.—The Ohio State Medical Association, the Ohio Society for the Prevention of Tuberculosis and the State Board of Health were represented at a conference on public health held in Columbus September 3. The conference discussed suggested legislation dealing with the division of the state into health districts, strengthening the act under which the commission for the blind operates, and amendments to the tuberculosis law providing for easier entrance to the Mount Vernon Tuberculosis Sanatorium.

Cincinnati

Abroad and Returned from Abroad.—Drs. William C. Herman, J. Henry Schroeder and son, Julien E. Benjamin and John M. Withrow have returned from abroad.——Dr. and Mrs. Adolf F. Morgenstern are reported to be in Koenigsberg.——Dr. and Mrs. William Gillespie are waiting in Edinburgh for an opportunitiy to return to this country.

Personal.—Dr. E. Gustave Zinke has been appointed a member of the Municipal Board of Health in place of Dr. Edward W. Walker, term expired.——Dr. Charles F. Sanborn has resigned as superintendent of the Cincinnati City Hospital, to take effect November 1.——It is stated in the daily *Press* that Dr. Arthur C. Bachmeyer is to succeed Dr. Sanborn as superintendent and that Dr. Walter E. List, at present assistant superintendent at the hospital, will be appointed superintendent of the Branch Hospital in place of Dr. Bachmeyer.——Dr. U. G. Senour, Pleasant Ridge, has been appointed district physician for Kennedy Heights.

PENNSYLVANIA

New Medical Club House.—Plans have been completed for the new club house at Wilkes-Barre, for the Luzerne County Medical Society. It is to be of stone and brick, 48 by 65 feet, fireproof and will cost $20,000.

New Buildings for State Hospital.—At a meeting of the trustees of Rittersville State Hospital, plans were adopted for the erection of a reception building, two buildings for tuberculosis patients and a nurses' home and an isolation cottage.

Personal.—Dr. Henry J. Benz has succeeded Dr. Henry B. Burns as superintendent of the Bureau of Child Welfare of the Department of Health of Pittsburgh.——Dr. Adolph Koenig, Pittsburgh, has been reappointed a member of the State Bureau of Medical Registration and Licensure.——Dr. W. D. De Long, Reading, and J. Clayton Weidman, Mercer, have been reappointed members of the State Dental Board.——Dr. Henry B. Burns, retired superintendent of the Child Welfare Bureau of the Pittsburgh Department of Health, was given a dinner by the employees of the Bureau, August 31, and was presented with a traveling bag. Dr. Burns began his work as head of the Medical Department of the Board of Education of Pittsburgh.

Philadelphia

Hospital News.—Charity Hospital announces, in addition to the Roentgen-ray room, the remodeling of operating-room and alterations in different parts of the building. Alterations and additions are to be made to the Rush Hospital for Consumptives.——Ground has been broken for a four-story addition, 44 by 36 feet, to the Kensington Hospital, at a cost of $19,000.——In order that colored orphans and deficients may receive vocational training under the most favorable conditions and that colored convalescents may be guaranteed a restoration of health, the authorities of the Mercy Hospital are planning to remove their social service department to the country. So soon as a desirable farm site can be found in Philadelphia County, buildings will be erected for one of the most complete, scientifically equipped institutions conducted by colored people in the United States.

WISCONSIN

European Travelers.—Dr. Urban J. Durner, Milwaukee; Dr. Charles W. Giesen, Superior, and Dr. William Webber Kelly, Green Bay, have returned from abroad.

Personal.—Dr. William F. Lorenz of the staff of the Mendota State Hospital for the Insane has returned after a six months' trip of research in the South, devoted to the study of the causes and effects of pellagra.——Dr. R. Jay Elliott, National Home, has been elected surgeon-general of the United Spanish War Veterans.

State Hygienic Laboratory Enlarged.—The entire top floor of south hall in the University of Wisconsin, Madison, has been given up to the state laboratory of hygiene which is maintained out of university funds and is under the supervision of a special committee composed of Dr. Cornelius A. Harper and William F. Whyte, representing the State Board of Health, and president, C. R. VanHise and Prof. Charles R. Bardeen, dean of the medical school representing the university. The laboratory is under the immediate charge of Dr. W. D. Stovall, chief bacteriologist, and E. J. Tully, chief chemist.

GENERAL

District Society Announcement.—The Iowa and Illinois District Medical Association announces through its program committee that at the regular fall meeting to be held the first week in October in Davenport, Dr. William J. Mayo and his guests will address the society, and that at the meeting to be held October 23 in Rock Island, Ill., Dr. Albert J. Ochsner, Chicago, will be the guest of the society.

Railway Surgeons Convene.—At the annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association held in St. Paul last week, the following officers were elected: president, Dr. Alexander J. McCannel, Minot, N. Dak.; vice-president, Dr. John B. Darling, St. Paul; secretary-treasurer (ex officio), Dr. John H. Rishmiller, Minneapolis. Minneapolis was selected as the next place of meeting.

Conference on Tuberculosis.—The second Mississippi Valley Conference on Tuberculosis, in cooperation with the National Association for the Study and Prevention of Tuberculosis, will be held in St. Louis, October 6 to 8. This is the first of four sectional conferences being held on tuberculosis, the others being at Bangor, Maine, Philadelphia and Atlanta. For information write to Mr. W. A. Jones, Jr., Mississippi Valley Conference on Tuberculosis, St. Louis, Mo.

Cumberland Valley Physicians Meet.—At the annual meeting of the Cumberland Valley Medical Association held at Boiling Springs Park, September 3, the following officers were elected: president, Dr. Charles M. McLaughlin, Greencastle, Pa.; Drs. S. Seibert Davis, Boonesboro, Md.; Samuel E. Mowery, Mechanicsburg, Pa., and John W. Croft, Waynesboro, Pa.; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected); treasurer, Dr. Paul P. Allen, Chambersburg, Pa.

Colored Practitioners' Meeting.—The Tristate Association of colored physicians, dentists and pharmacists of Ohio, Kentucky and Indiana met in Indianapolis, September 7 to 9, and perfected an organization and elected the following officers: president, Dr. William A. Method, Columbus, Ohio; vice-president, Dr. William J. Woodlin, Columbus, Ohio; secretary, Dr. Henry W. Armistead, Indianapolis, Ind.; treasurer, Dr. Abram L. Cabell, Terre Haute, Ind. The next meeting of the association will be held in Columbus, Ohio, in July next.

A Warning.—A subscriber writes that a certain Donald McCormick is soliciting subscriptions to a bureau called the "American Bureau (or Institute) of Medical Research," at Indianapolis, Ind. The purpose of this bureau, he states, is to receive all medical journals of the world and to make reprints of each individual article which are kept in stock and lent to subscribers to the bureau. The cost of membership is $5 a year. A physician in Iowa who addressed the bureau had his inquiry returned with the announcement that no such institution existed, and that the addressee was not at the place named.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mt. Sinai Hospital, German Hospital and Manhattan Eye and Ear Hospital, each $5,000; the Isabella Heimath and St. John's Home, New York City, each $1,000 by the will of Jacob Langeloth.

Mt. Sinai Hospital, Montefiore Home, Lebanon Hospital and Beth Israel Hospital, New York City, each $5,000 by the will of Renno Neuberger.

Montefiore Home, New York City, $2,500 for endowment of a bed in memory of his parents, by the will of Albert Rich.

German Hospital, New York City, $1,000 by the will of Adam Schulz.

St. Vincent's Hospital, New York City, $2,307, the proceeds of a lawn fete.

Mt. Sinai Hospital, $5,000, and the New York Institute for the Instruction of Deaf and Dumb, New York City, one-half of the residue of the estate up to $5,000, by the will of Moses Weinstein.

Children's Hospital, Boston Floating Hospital and Hospital Cottages at Baldwinville, Mass., each $500 by the will of Francis F. Sears.

Mercy Hospital, Chicago, $250,000 by the will of Charles Heines, St. Charles, Ill.

FOREIGN NEWS

Postponement of Pan-American Student Congress.—Business and finance are so demoralized in South America by the war in Europe that the Chilean minister at Washington has been officially notified that the international Pan-American congress of university students will not be held as announced at Santiago, in September, and is indefinitely postponed. A press dispatch states that three delegates from the United States are already on their way to Chili. The scope of the meeting was mentioned in these columns recently, page 696.

The Propaganda in Germany.—The recent annual representative assembly of the organized medical profession in Germany—the so-called Aerztetag—adopted a resolution to increase the dues a trifle in order to raise a fund of about $6,200 annually to be expended in fighting quackery and nostrums. Part of the sum, also, is to be given to further the efforts of the German Council on Pharmacy and Chemistry. An editorial in the *Therap. Monatshefte* comments on this action of the Aerztetag as of far-reaching import, saying that such a decided practical measure taken by the profession itself to combat medical frauds cannot fail to exert an influence on the authorities above and on the rank and file of the profession below, and produce more of an effect than any amount of appeals to legislative factors.

Deaths in the Profession Abroad.—Dr. Gutierrez, count of San Diego, senator, director of the Institute Rubio and a leading practitioner at Madrid, aged 63.——Dr. G. Vianna, assistant at the Oswaldo Cruz Institute for Infectious Diseases at Rio de Janiero and author of the successful method of treating infection with species of *Leishmania* by intravenous injection of tartar emetic, has succumbed to infection professionally acquired, aged 30.——Surgeon-General Sir Anthony Dickson Home, V.C., K.C.B., probably the most distinguished officer on the retired list of the Royal Army Medical Corps; died in London, August 9, aged 87. He entered the medical corps in 1848 and served in the Crimean War and during the Indian Mutiny where he won the Victoria Cross by his heroic defense of the wounded left behind at Lucknow by the relieving column of Havelock. After this he served through the China, Maori and Ashantee campaigns and in 1880 was made surgeon-general and appointed Principal Medical Officer of Her Majesty's Forces in India. He was retired in 1886.——A. E. Cordes, a leading obstetrician and gynecologist connected with the university of Geneva, Switzerland, aged 69. He was a frequent writer of articles on his specialty, not only in French, but in British medical journals, and was one of the delegates to the international medical congress held in Washington in 1887 and secretary of the international congress on gynecology and obstetrics which met at Geneva in 1896.——Alfred Hegar, professor of obstetrics and gynecology at Freiburg i. B. until 1904, aged 84. Almost the last article from Hegar's pen was reviewed in THE JOURNAL, Nov. 8, 1913, warning that the catheter should never be used in examining the uterus, even when a pregnancy seems wildly improbable; he was discussing the lessons to be learned from the Niebergall case. He founded the *Beiträge zur Geburtshilfe und Gynaekologie,* now in its nineteenth volume.

CANADA

Personal.—Prof. Irving Heward Cameron has returned to Toronto.——Dr. William Grant Stewart, Montreal, and Dr. Maxwell Luterman, Montreal, have returned from Europe.——Dr. H. C. Wetmore, St. John, N. B., has been appointed deputy receiver-general at the port of St. John, N. B.

Toronto's Health.—Dr. Charles J. Hastings, municipal officer of health, has reported to the local board of health that during the past five years the death-rate in Toronto per 1,000 of population has decreased approximately 25 per cent. In August the total deaths were fourteen less than in August of last year. During the first eight months of the present year there were 421 fewer deaths than in the corresponding period of the past year. Owing to the establishment of the Child Welfare Department, there has been a marked decrease in infant mortality.

WAR NOTES

Medicine Embargo Raised.—The Russian government has authorized the Red Cross Society to import drugs and surgical instruments free of duty during the war.

Roentgen Returns Decoration.—Berlin papers state that Professor Roentgen has given back the gold medal presented him by the Royal Society in honor of his discovery, the reason assigned being the attitude of England in this war.

Red Cross Funds to Servia.—The president of the Serb-American Red Cross Committee has sent by cable $20,000 to the Red Cross Committee in Servia, and also $10,000 collected by the Serb-American Alliance of California. This money is being transmitted by way of Greece.

Hospital Unit Offered to Canada.—Dr. Kendall, secretary of the Edinburgh University Club of New York, has offered a hospital unit to the Canadian government composed of graduates of the university in the United States, the unit to be fitted out and equipped by its own members.

American Women's Hospital in London.—The American Women's Hospital in London, with accommodation for 200 patients and fully equipped through the efforts of American women in London, has been turned over to the War Office and is housing a large number of wounded soldiers.

Red Cross Surgeons Expect Call.—Surgeons available for Red Cross work and who have indicated their willingness for duty have been advised by the relief board to hold themselves in readiness for a call to duty at any time. A similar notice has been sent to the 5,000 Red Cross nurses registered in the United States.

Emigrant Station Turned Over to Red Cross.—The North German Lloyd Emigrant Railway Station at Bremen, which was completed in April last, has been turned over to the Red Cross for hospital purposes, and the package room of the station has been set apart as a depository for articles of food and clothing to be distributed by the Red Cross to the soldiers.

Daughters of Empire Equip Hospital.—Dr. Donald Armour and Sir William Osler are to have charge of the Queen's Canadian Military Hospital to be established in London, England, with the money raised by the Imperial Daughters of the Empire in Canada. Dr. Phillippe Pelletier, agent-general for the province of Quebec in England, has been appointed a member of the medical staff of this hospital.

To Safeguard Soldiers' Health.—The specific request from the minister of militia for the services of Toronto's bacteriologist, Dr. George G. Nasmith, has been assented to by the Toronto Board of Health. Dr. Nasmith will, therefore, go to Europe with the first Canadian contingent to see that the soldiers have a good water-supply and to advise on all matters of sanitation.

No Dum-Dum Bullets.—French medical officers who were captured by the Germans at Namur and are on their way back to France by way of England, are said to have reported that they saw no evidence of soldiers having been wounded by dum-dum bullets on either side. The medical service of the Germans and allies was said to be excellent, but it was noted that the German wounded were often discharged too early from the hospitals.

The American Hospital.—The American Hospital which is housed in the Lycee Pasteur at Neuilly received its first lot of wounded, September 5. On the first sound of firing, the ambulances of this hospital dashed to the front, picked up the wounded and returned them rapidly to Neuilly. About fifty patients were accommodated at this time. An appeal has been made by prominent women of New York for $250,000 for the hospital so that it may be able to provide 1,000 beds for wounded soldiers.

Our Austrian Exchanges.—The Vienna exchanges of THE JOURNAL arrive irregularly and with comparatively few pages, but the Association of Medical Publishers announce that they will make every effort to keep issuing their publications regularly, although in these troublous times it will not be possible to issue the medical periodicals in their complete form. They add that the lack of articles to publish would prevent this any way. Delays in distribution and transmission will be inevitable.

Red Cross Expedition Sails.—The American National Red Cross steamer, *Red Cross,* whose approaching departure was noted in last week's issue of THE JOURNAL, left her anchorage in Gravesend Bay, September 13. The delay in sailing was due to fear of international complications over the make-up of the crew. In addition to the thirty surgeons and 125 trained nurses on the *Red Cross*, she carries a cargo of thousands of pounds of absorbent cotton, bandages, drugs and surgical instruments. Her first stop will be at Falmouth, England, where twenty-four nurses and six surgeons will be landed. She then proceeds to Rotterdam, where surgeons and nurses for Austria, Germany and Russia will disembark, and the balance will be taken to some French port, probably Cherbourg.

The Potassium Supply.—On another page mention is made of shortage of potassium compounds due to the interruption of commercial intercourse with Germany. Although the German monopoly of the market for potassium compounds is practically complete, commercial possibilities of potash exist in other countries. There are said to be resources in Spain, which, however, are undeveloped and likely to remain so for some time. After numerous false rumors it appears that a source of potash supply in this country is really about to be developed. The Secretary of the Interior has recently announced that within the next three months American potash would be produced at Searles Lake, Cal. The maximum production of the plant is expected to be between 37,000 and 38,000 tons a year. The amount of German potash annually imported is estimated to exceed 230,000 tons, so that this source of domestic supply will not of itself meet the demands of the country. Economy will still be necessary with reference to potassium compounds.

PARIS LETTER

Paris, Sept. 4, 1914.

The War

The seriousness of the political events which have occurred since my last letter have drawn universal attention to the war. As a matter of course, medical life has also felt the effects of the great European conflagration. The readers of The Journal will therefore pardon me if my present letter is devoted altogether to matters connected with the war.

Patriotic Devotion of the Medical Profession

A large number of physicians with no military connection have offered their services to the war department. Especially notable is the case of Dr. Darroze, who took part in the campaign of 1870 as a physician and who to-day aged 68, has gone to the front, resuming the position that he occupied forty-four years ago. The army is at present well supplied with physicians. A detachment of the French Red Cross, composed of sixteen physicians, has set out for Servia.

The services of the Assistance Publique, having been reduced by mobilization, have already been completely reorganized. On the other hand, some sections of the country being completely deprived of physicians by the mobilization, it is recommended that physicians who have no military obligations, and who are able to leave their customary residences, should inform the director of the sanitary service of the army corps in their vicinity, who will dispose of their services according to the needs that may arise.

Resources of the French Red Cross

The French Red Cross is composed of three societies, the Société de secours aux blessés, the Association des Dames françaises and the Union des Femmes de France. The first of these societies can put at the disposal of the war department 260 auxiliary hospitals with 17,000 beds; the second has 160 auxiliary hospitals with about 6,000 beds; the third has 180 auxiliary hospitals with 12,000 beds; altogether 600 auxiliary hospitals provided with about 35,000 beds and a staff ready to act. Moreover, each one of these societies receives fresh offers of assistance every day. The supplementary nurses, who are already offering their services in great number, will make it possible to open supplementary hospitals in many private buildings already placed at the disposal of the Red Cross as well as in college and other educational buildings. The Union des Femmes de France has organized sixty flying detachments each composed of a head nurse and six nurses under her, ready to leave for the front or for the military hospitals. The 10,000 nurses that the union has trained, many of whom have already had experience in Morocco, are prepared to start.

Advice to Surgeons with Regard to Wounds in War

August 10, Dr. Edmond Delorme, inspector general of the military health service, read a paper on this subject before the Académie des Sciences in which he emphasized the fact that at present military surgery ought to be conservative in almost all cases, especially of bullet wounds. The small caliber of the wounds made by the bullets now used, the fact that the practice now is to refrain from probing the wounds, and the antiseptic and aseptic methods in use, have transformed the prognosis of most military wounds, have lessened complications and losses and have improved the results. The surgeon, therefore, ought to strive to cure, leaving the fewest possible ill effects. The methods of military surgery at the front necessarily differ from ordinary surgery, but in the hospitals at the rear they approach those of ordinary surgery.

Dr. Delorme reviewed successively the treatment of wounds of the soft parts produced by the pointed German bullet—wounds which are generally very narrow, not soiled with fragments of clothing and which are cured in a few days or weeks; treatment of wounds produced by the round ball of shrapnel and the treatment of fractures. For the latter conservation ought to be the rule. It insures recovery in the vast majority of cases, no matter what the bone affected or what the extent of the degree of comminution of the fracture. In abdominal wounds with intestinal lesions, though there may be room for argument as to the advisability of immediate laparotomy in ordinary surgery, it is altogether inadvisable in military surgery. The most recent wars, those in the Transvaal, Manchuria and the Balkans, have shown the harmfulness of laparotomy. In the Transvaal, laparotomy, though practiced by eminent surgeons, under most favorable conditions, gave fewer recoveries than did non-operative treatment.

The German bullet makes a small orifice in entering the abdomen and carries with it no infecting substance from the clothing. In the intestinal loops it makes only the smallest perforations which tend to close spontaneously. For such injuries the old treatment seems sufficient, namely, absolute rest, the patient not being transported to any distance, and complete abstinence from food and drink, especially the latter, for several days. This régimen is rendered endurable by constantly rinsing out the mouth, employing rectal or subcutaneous injections of artificial serum with opium and keeping the patient in Fowler's position.

When, on the other hand, the speed of the projectile has been greater, when the bullet has ricochetted or when in case of the large shrapnel ball, the orifice of entry is larger, the intestinal wound or wounds are also larger and less apt to close spontaneously. Also the introduction of shreds of clothing is frequent. In such cases peritoneal infection is certain. The proper treatment is, in addition to measures already indicated, the use of the drop method of proctoclysis; the abdomen is opened rapidly and cleansed with ether after Morestin's method (The Journal, June 21, 1913, p. 1971) and drainage instituted.

Dr. Delorme emphasizes especially the fact that this operation is no longer the complicated procedure of classic laparotomy, which a staff of trained surgeons cannot perform more than three or four times a day while neglecting other wounded men, a fatiguing operation, increasing shock, liable to destroy reparative adhesions, demanding special surroundings and minute aseptic precautions in order that it may not give fewer recoveries than non-operative treatment. It is, on the other hand, a very simple, rapid procedure, within the ability of any practitioner. The Académie des Sciences has decided to suggest to the war department that Dr. Delorme's paper be printed for distribution to all the military physicians and surgeons of our army.

The Academy of Medicine and the War

The Académie de médecine has decided unanimously that all its members would place themselves at the disposal of the government for any purpose for which they may be useful to the country. It has asked to be given the necessary animals and apparatus for manufacturing small-pox vaccine. In view of the possible danger of small-pox epidemics, so common during war, the academy believes that not only children ought to be vaccinated, but all persons who have not been vaccinated within seven years. Instructions have been issued to the director of primary instruction and to the medical inspectors of schools to have all children attending the public and private schools revaccinated as soon as possible. Instructions have also been given to the general administration of the Assistance Publique (public charities) to have every applicant for help vaccinated or revaccinated.

In view of the possible danger of the spread of typhoid, the Académie de médecine has drawn the attention of the interior department to the opportunity for antityphoid vaccination, suggesting that such vaccinations be accomplished as soon as possible.

The Academy of Sciences and the War

In view of the serious situation of the country, the Académie des sciences has decided, as suggested by its president, Professor Appell, dean of the Faculté des sciences, to place itself at the disposal of the national defense. This resolution having been communicated to the government, some of the members were immediately placed, respectively, on commissions on the subjects of wireless telegraphy, aviation, explosives, hygiene and medicine.

The Jean-Jacques Berger prize having been awarded by the five academies of the institute successively to the most meritorious work affecting the city of Paris, was turned over by the Académie des sciences to the marquis de Vogüé, president of the Red Cross, for the military hospital of the institute at the hôtel Thiers.

Prohibition of Absinthe

The prefect of police of Paris forbade the sale of absinthe during the first days of mobilization. The Académie de médecine unanimously voted its congratulations to the prefect of police for this measure. Some of the prefects of the departments promulgated the same rule. At last the sale of absinthe, either to be consumed on the spot or in bottles to be carried away, has been forbidden by order of the minister of the interior throughout all France.

An American Organization

A Franco-American committee has been formed to assist in protecting from the horrors of war the children and young girls in the zone of operations. It will give its aid to such organizations as appear to be able to give the best care to such children and young girls during the war. It will reserve the right of advice and control in the name of its subscribers. The bureau of the committee is the following organization: president, Mrs. Cooper Hewitt; vice-president, Mrs. Robert Bliss; secretary, M. Auguste F. Jaccaci; treasurer, Mr. Frederic R. Coudert. Subscriptions may be addressed to MM. Coudert frères, boulevard Haussmann, 39, Parie, and Coudert Brothers, 2 Rector Street, New York.

The Offer of the Deaf-Mutes

M. Tournade, deputy of the Seine, has sent to the minister of war a letter in which deaf-mutes demand the honor of being utilized for the national defense. They explain that their infirmity is more apparent than real. Most of them are well built, healthy and strong and accustomed to take part in sports and gymnastics. There have formerly been deaf-mute soldiers, some of them volunteers; many of them are excellent shots, sight being more necessary for this than hearing. It is thought, however, that they may be better utilized for military purposes in the capacity of cyclists for carrying secret messages, as members of the ambulance corps, or in the auxiliary services in the national factories of arms and ammunition (where some of them are already employed) or in the national printing establishment, where others are also employed to fill the vacancies caused by mobilization.

War and the Medical Journals

On the fourth day of mobilization, the *Semaine Médicale* informed its subscribers that publication was indefinitely suspended. The *Presse Médicale,* though unable to continue to appear in its regular form, has been continued as a sheet of medico-military information.

Personal

Dr. Augagneur, formerly professor of the Faculté de médecine de Lyon, whose appointment as minister of public instruction I have already mentioned (The Journal, Aug. 1, 1914, page 415), has just vacated this position, having been appointed minister of the marine.

BERLIN LETTER

Berlin, Aug. 22, 1914.

Personal

August 6, Alfred Hegar, a prominent German gynecologist, died at the age of 84. Hegar may be regarded as the founder of modern gynecology, especially of operative gynecology. In 1864, he was called to Freiburg as the successor of Professor Spiegelberg, without having previously held a university position. At this place he was for forty years the regular professor and director of the gynecologic clinic. His scientific works extend over the entire field of gynecology. A number of his treatises have a close relation to psychology and social medicine. His principal work is the text-book of operative gynecology which he wrote in conjunction with his pupil, Kaltenbach. A number of years ago, in spite of his advanced age, he founded a journal entitled *Beiträge zur Geburtshilfe und Gynäkologie,* which contributed markedly to his reputation.

The War

Since the numerous bloody encounters, the activity of the surgeons has already begun. Under the specially favorable conditions of transportation, the effort will prevail, I believe, to treat the wounded not in the field hospitals but, so far as possible, to convey them in the hospital trains to their homes where they can doubtless be better cared for in the roomy and orderly regular hospitals. Already hospital trains carrying wounded have reached Stuttgart, Frankfort and even Berlin. There are plenty of surgeons ready for their treatment. In the general enthusiasm, helpfulness and readiness for self-sacrifice which possess the entire German people in a remarkable way, physicians, as a matter of course have not remained the hindmost. Physicians to a far greater extent than necessity demanded have voluntarily offered themselves for the army in the field as well as for service in the hospitals. To be sure, gradually every force which is available may be demanded because in battles between armies numbering millions, the number of wounded will be enormous provided that peace is not concluded sooner than one can dare to hope for. In our army, evidence of whose brilliant organization is shown on all sides in the wonderfully rapid and smooth mobilization, the army medical service is certainly not in the lowest place and one may be sure that it will be completely equal to the task. Unfortunately, already some army surgeons have fallen on the battle-field. Naturally also, the sons of many physicians have already fallen. For instance, a son of Erb, the Heidelberg clinician, as well as the son of Surgeon-General Scheibe, formerly medical director of the Charité.

Since a large part of the civilian physicians who have gone into military service are not familiar with military surgery and military service in general, courses of instruction by active army surgeons will be held in all university towns, especially in Berlin, for the voluntary army surgeons.

Marriages

Oswald Swinney Lowsley, M.D., Santa Barbara, Cal., to Miss Katherine V. Staples of Troy, N. Y., at Round Lake, N. Y., August 20.

Leonard Forrest Woodworth, M.D., to Miss Bertha Victoria Fickling, both of LeSueur Center, Minn., September 8.

Solon Washington Cornish, M.D., Everett, Mass., to Miss Beatrice Melbourn Hosking of Chelsea, Mass., September 7.

Arthur Monroe Calvert, M.D., Chicago, to Miss Anna May Gorby of Cave City, Ky., at Indianapolis, September 5.

Thomas Patrick Hennelly, M.D., Pittsfield, Mass., to Miss Helena E. Wickham of South Lee, Mass., August 11.

John Campbell Morfit, M.D., St. Louis, to Miss Sallie Hockaday Van Deventer of Mexico, Mo., September 1.

Dana Frank Cummings, M.D., Cherryfield, Maine, to Mrs. Blanche R. Day of Rockland, Mass., September 1.

Norman Marshall Smith, M.D., to Miss May Louise Durst, both of Minneapolis, Minn., September 2.

Harry Stark Holmes, M.D., Glendive, Mont., to Miss Leota Robinson of Forsyth, Mont., August 29.

Howard Norton Flexer, M.D., Lakeview, Mich., to Miss Irene E. Singer of Sycamore, Ill., August 24.

Earl H. Snavely, M.D., Cedar Grove, N. J., to Miss Elizabeth C. McMahon at Newark, N. J., June 25.

Lawrence Jeus Kaasa, M.D., to Miss Julia Olivia Thompson, both of Lake Mills, Iowa, September 2.

Archibald Cary Lewis, M.D., to Miss Ruth D. Hatton, both of Memphis, Tenn., about June 2.

Leon Brayton Harris, M.D., to Miss Rosemary Laveck, both of Saginaw, Mich, September 7.

Oswald Patrick Goodall, M.D., to Miss Harriet Blake, both of Los Angeles, September 1.

James R. Harvey, M.D., Footville, Wis., to Miss Helen Langdon of Chicago, August 26.

Deaths

Martin Hayward Post, M.D. Washington University, St. Louis, 1877; a prominent oculist of St. Louis; a Fellow of the American Medical Association and a member and once president of the American Ophthalmological Society; a member of the staff of St. Luke's Hospital, St. Louis Protestant Hospital, Missouri Baptist Sanitarium and ophthalmic surgeon to the Missouri School for the Blind; who went to Castle Park, Mich., in the middle of the summer to recuperate after an attack of pneumonia; died in Castle Park, September 2, from heart disease, aged 63.

George F. Jenkins, M.D. Missouri Medical College, St. Louis, 1867; a Fellow of the American Medical Association and fourth vice-president in 1903-1904; twice president of the Keokuk Medical Society and president of the Iowa State Medical Society in 1891; president and professor of principles and practice of medicine and clinical medicine, and physiology in Keokuk Medical College; chief of staff of St. Joseph's Hospital; eminent as a teacher and practitioner and universally beloved; died in St. Joseph's Hospital, Keokuk, September 4, aged 72.

Alexander Shirley Leverty, M.D. College of Physicians and Surgeons in the City of New York, 1890; clinical instructor in medicine in Cornell University Medical College; a member of the New York Neurological Society; visiting physician to St. Luke's Hospital; died suddenly in his apartment in New York City, about August 28, from cerebral hemorrhage, aged 48.

Joseph S. Sutphen, M.D. New York University, New York City, 1865; for nearly half a century a practitioner of Newark, N. J., and for many years physician to the Essex County prison; from 1878 to 1880 a member of the Board of Freeholders, and in 1891 a member of the Board of Education of Newark; died at the home of his sister in that city, August 20, aged 74.

William Freeman Nye, M.D. Northwestern University Medical School, 1878; for nearly forty years a practitioner of Minneapolis; a Fellow of the American Medical Association; for four years a member of the board of aldermen and for several years deputy coroner of Hennepin County; died at the home of his daughter at Mound, Lake Minnetonka, Minn., August 30, aged 63.

William Lofland Dudley, M.D. Miami Medical College, Cincinnati, 1885; of Nashville, Tenn.; formerly dean of Vanderbilt University, Nashville, Tenn.; once president of the Southern Intercollegiate Athletic Association and known as the "father of Southern athletics"; died September 8, on a train near Clifton Springs, Mich., from cerebral hemorrhage, aged 55.

Enoch Wood Keegan, M.D. Rush Medical College, 1861; surgeon in the Federal service during the Civil War; for more than half a century a practitioner of Crawfordsville, Ind.; a member of the city council and for one term coroner of Montgomery County; died at his home in Crawfordsville, August 29, from cerebral hemorrhage, aged 78.

Milton M. Walker, M.D. University of Maryland, Baltimore, 1867; a charter member of the Medical Society of Virginia, and corresponding secretary of the society from 1880 to 1882; a Confederate veteran and also surgeon of U. S. Volunteers during the Spanish-American War; died at his home in Oldhams, Va., June 27, aged 71.

William C. Gouinlock, M.D. College of Physicians and Surgeons in the City of New York, 1865; University of Toronto, Ont., 1879; for more than thirty years a resident of Warsaw, N. Y., and identified with the salt industry of that place; died in the Warsaw Hospital, August 30, after an operation for disease of the intestine, aged about 70.

Joseph Henry Byrne, M.D. College of Physicians and Surgeons in the City of New York, 1885; of New York City; a Fellow of the American Medical Association and the New York Academy of Medicine; died suddenly from heart disease in New York City, August 27, aged 49.

Helen DeWitt Justin, M.D. Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1879; of Castile, N. Y.; a member of the Medical Society of the State of New York; died in Rochester, Minn., July 19.

Thomas B. Owings, M.D. University of Maryland, Baltimore, 1852; died at his home in Ellicott City, Md., August 28, from senile debility, aged 84.

Alexander Hazard, M.D. University of Pennsylvania, Philadelphia, 1867; a medical cadet during the Civil War; formerly a practitioner of Ouray, Colo., and later a resident of Philadelphia; died at his summer home in Atlantic City, N. J., August 25, aged 67.

Richard P. Walker, M.D. Kansas City (Mo.) Medical College, 1883; Jefferson Medical College, 1855; a member of the Missouri State Medical Association; died at his home in Belton, Mo., August 26, from cerebral hemorrhage, aged 54.

Alexander Hunter, M.D. University of Colorado, Boulder, 1894; University and Bellevue Hospital Medical College, 1899; local surgeon for the Northern Pacific Railroad at Coeur d'Alene, Idaho; died at his home in that city, August 7, aged 47.

Samuel R. Bird, M.D. University of Pennsylvania, Philadelphia, 1853; formerly a member of the Maryland House of Delegates from Calvert County and later in the customs service; died at his home in Baltimore, August 17, aged 86.

Levi D. Sheets, M.D. New York University, New York City, 1849; surgeon with the cavalry division of the Second Army Corps during the Civil War; died at his home in Glen Ridge, N. J., August 24, aged 88.

William D. Flack, M.D. Northwestern University Medical School, Chicago, 1912; of Farmington, Ill.; died in Wesley Hospital, Chicago, August 26, from meningitis following a mastoid operation, aged 31.

Dudley Leavitt, M.D. College of Physicians and Surgeons in the City of New York, 1890; of West Stockbridge, Mass.; died in a hospital in Pittsfield, Mass., August 23, from malignant disease, aged 50.

William L. Gaboury, M.D. Queens University, Kingston, Ont., 1912; of Pembroke, Ont.; while driving across a railroad track recently, was struck by a train and instantly killed, aged 25.

Henry Greggs Farish, M.D. University of Pennsylvania, Philadelphia, 1849; for sixty-four years a resident of Liverpool, N. S.; died at his home in that place, June 30, aged 88.

Elwin H. Damon, M.D. Cleveland University of Medicine and Surgery, 1878; of Rittman, Ohio; died in a hospital in Cleveland, August 20, after a surgical operation, aged 63.

James Henry Sanderson, M.D. College of Physicians and Surgeons in the City of New York, 1890; died at his home in Worcester, Mass., August 28, from pneumonia, aged 47.

James Bruce Coleridge, M.D. Trinity Medical College, Toronto, Ont., 1901; three times mayor of Ingersoll, Ont.; died at his home, July 7, from nephritis, aged 35.

Samuel D. Griffith, M.D. Starling Medical College, Columbus, Ohio, 1886; of Columbus; died at the home of his brother in Worthington, Ohio, August 19, aged 53.

John N. Wilkins, M.D. National Medical University, Chicago, 1896; formerly of Chicago; died at the home of his daughter in Oakland, Cal.; recently, aged 83.

Frederick Parker, M.D. Trinity Medical College, Toronto, Ont., 1895; of Stratford, Ont.; died suddenly in his automobile, July 11, from heart disease, aged 50.

Arthur Watson Grover, M.D. Western University, London, Ont., 1907; formerly of Brandon, Man.; died at his home in Dresden, Ont., June 28.

Stephen H. Cloyd, M.D. Eclectic Medical Institute, Cincinnati, 1887; died at his home in West Alexandria, Ohio, July 29, aged 53.

Henry Walmsley Welch, M.D. Trinity Medical College, Toronto, 1890; of Okotoks, Alta.; died in Calgary, Alta., July 7, aged 48.

Addison Alexander Armstrong, M.D. University of Michigan, Ann Arbor, 1883; died at his home in Athens, Pa., June 10, aged 55.

Robert Boyd, M.D. Barnes Medical College, St. Louis, 1897; died at his home in Weatherford, Texas, July 10, aged 45.

Almena Jane Baker Flint, M.D. Boston University School of Medicine, 1876; died recently in her apartment in Boston.

John W. Bronaugh, M.D. Washington University, St. Louis, 1861; died at his home in Mounds, Okla., August 6, aged 80.

Charles Edward Winslow, M.D. Rush Medical College, 1882; died at his home in Monrovia, Cal., June 19, aged 59.

Arthur Vaillancourt, M.D. Laval University, Quebec, 1899; died at his home in Waterloo, Que., July 2, aged 38.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

PATENT MEDICINES IN GREAT BRITAIN

The Report of the Select Committee on "Patent Medicines" with Its Findings and Recommendations

More than two years ago the British government appointed a Select Committee on Patent Medicines to investigate the nostrum evil in that country. The Journal has, from time to time, called attention to the fraudulence of the "patent medicine" business across the water, and has emphasized the fact that Great Britain is some years behind the United States in attempting to curb one of the greatest evils that menace the public health. Long after the Food and Drugs Act brought about a certain moderation in claims on the labels of American "patent medicines" as sold in this country, the same nostrums were sold in Great Britain under claims that obtained in this country in pre "pure-food-law" days. In other words, the nostrum labels on the British market contained the same false and fraudulent claims that characterized the labels of the same product in this country before the passage of the Food and Drugs Act.

These facts were brought out in detail in the article, "American and British Labels," that appeared in this department in The Journal for July 20, 1912. At about the same time a series of educational charts dealing with "patent medicines" and quackery were prepared by the Propaganda Department for the American Medical Association's exhibit at the Fifteenth International Congress on Hygiene and Demography. Some of these charts called attention specifically to the difference in the claims made for the same product on American and British labels, respectively. During the summer of 1912 the British embassy through the British consulate at Philadelphia, requested the American Medical Association to furnish the Select Committee with such data as it had on the subject of "patent medicines" and quackery. A full set of the literature prepared in the Propaganda Department was forwarded, together with some of the educational charts that dealt specifically with the difference in labeling of "patent medicines" in Great Britain and the United States, respectively.

The hearings before the Select Committee were exceedingly interesting and brought out many facts long known to those who had investigated the subject, but little appreciated by the general public. Some of these have been referred to at different times in The Journal. Those of our readers who are interested in the propaganda against fraud in medicine will appreciate the value of the report that has recently been presented by the Select Committee on "patent medicines," whose findings and recommendations we quote in full.

THE FINDINGS OF THE COMMITTEE

After carefully considering the evidence that was laid before it the committee reported its findings as follows:

"1. That there is a large and increasing sale in this country of patent and proprietary remedies and appliances, and of medicated wines.

"2. That these remedies are of widely differing characters, comprising (*a*) genuine scientific preparations; (*b*) unobjectionable remedies for simple ailments, and (*c*) many secret remedies making grossly exaggerated claims of efficacy, causing injury by leading sick persons to delay in securing medical treatment, containing in disguise large proportions of alcohol; sold for improper purposes; professing to cure diseases incurable by medication; or essentially and deliberately fraudulent.

"3. That this last-mentioned class (*c*) of remedies contains none which spring from therapeutical or medical knowledge, but that they are put on the market by ignorant persons, and in many cases by cunning swindlers, who exploit for their own profit the apparently invincible credulity of the public.

"4. That this constitutes a grave and widespread public evil.

"5. That in British Dominions and foreign countries severe legal restrictions exist, and that there is a tendency still further to strengthen the law against these articles.

"6. That no department of state and no public officer is charged with the duty of controlling the sale and advertisement of proprietary remedies in this country; that the home office and the local government board are virtually powerless in this respect; that the privy council office, though supposed to be specially concerned with the sale of drugs, has no initiative in the matter, and, in fact, it fulfils no useful function in this connection.

"7. That the existing law is chaotic and has proved inoperative, and that successful prosecution for fraud in the advertisement and sale of secret remedies is fraught with the greatest difficulty, though the public prosecutor has perhaps not sufficiently tested the powers of the existing law in respect to such cases.

"8. That consequently the traffic in secret remedies, except as regards scheduled poisons and the grosser forms of impropriety, is practically uncontrolled in this country.

"9. That this is an intolerable state of things, and that new legislation to deal with it rather than merely the amendment of existing laws is urgently needed in the public interest.

"10. That grave injury is caused to the public by the existing large sale of medicated wines.

"11. And that while, for reasons already given, it is not desirable to require the exhibition of formulas of every secret remedy, nevertheless it is improper that under the protection of the law enormous quantities of alleged remedies should be sold the composition of which is unknown to any person except the manufacturers of them; and that, therefore, the formulas of all secret remedies should be required to be communicated to a competent officer appointed under the authority of a minister of state, but that such formulas should not be divulged to any other person except as hereinafter recommended."

THE RECOMMENDATIONS OF THE COMMITTEE

The committee therefore recommends:

"1. That the administration of the law governing the advertisement and sale of patent, secret and proprietary medicines and appliances be coordinated and combined under the authority of one department of state.

"2. That this administration be part of the functions of the ministry of public health when such a department is created, and that in the meanwhile it be undertaken by the local government board.

"3. That a competent officer be appointed to this department, with the duty of advising the minister at the head of the department concerned regarding the enforcement of the law in respect of these remedies.

"5. That there be established at the department concerned a register of manufacturers, proprietors and importers of patent, secret and proprietary remedies, and that every such person be required to apply for a certificate of registration and to furnish (*a*) the principal address of the responsible manufacturer or representative in this country, and (*b*) a list of the medicine or medicines proposed to be made or imported.

"6. That an exact and complete statement of the ingredients and the proportions of the same of every patent, secret and proprietary remedy; of the contents other than wine, and the alcoholic strength of every medicated wine, and a full statement of the therapeutic claims made or to be made; and a specimen of every appliance for the cure of ailments other than recognized surgical appliances be furnished to this department, such information not to be disclosed except as hereinafter recommended, the department to control such statement, at their discretion, by analyses made confidentially by the government chemist.

"7. That a special court or commission be constituted with power to permit or to prohibit in the public interest, or on the ground of non-compliance with the law, the sale and advertisement of any patent, secret or proprietary remedy or appliance, and that the commission appointed for the purpose be a judicial authority, such as a metropolitan police magistrate sitting with two assessors, one appointed by the department and the other by some such body as the London Chamber of Commerce.

"8. That the president of the local government board (or minister of health) have power to institute the necessary proceedings to enforce compliance with the law, the sale and advertisement of any patent, secret or proprietary remedy or appliance.

"9. That a registration number be assigned to every remedy permitted to be sold, and that every bottle or package of it be required to bear the imprint 'R.N. . . .' (with the number), and that no other words referring to the registration be permitted.

"10. That in the case of a remedy the sale of which is prohibited the proprietor or manufacturer be entitled to appeal to the high court against the prohibition.

"11. That the Department be empowered to require the name and proportion of any poisonous or potent drug forming an ingredient of any remedy to be exhibited on the label.

"12. That inspectors be placed at the disposal of the department to examine advertisements and observe the sale of proprietary remedies and appliances.

"13. That an annual fee be payable in respect of every registration number issued."

Believing that some of the existing laws could be so amended as to give greater protection to the public, the committee recommended:

"1. That the Stamp Acts be consolidated and amended to remove the numerous existing anomalies and unreasonable exceptions. In this connection pure drugs vended entire under a fancy name should no longer be exempt from duty; the distinction between the name of an ailment and the name of an organ the seat of that ailment should be abandoned; and the exemption of medicines generating carbonic-acid gas should be omitted. Further, any reference in advertising matter to the government stamp should be prohibited, and a name of a proprietor or firm should be printed on the stamp.

"2. That the Indecent Advertisements Act be amended on the lines of Lord Braye's Bill."

In addition to the foregoing amendments, the committee recommends the following legislative enactments:

"1. That every medicated wine and every proprietary remedy containing more alcohol than that required for pharmacological purposes be required to state on the label the proportion of alcohol contained in it.

"2. That the advertisement and sale (except the sale by a doctor's order) of medicines purporting to cure the following diseases be prohibited:

Cancer
Consumption
Lupus
Deafness
Diabetes
Paralysis
Fits
Epilepsy
Locomotor ataxia
Bright's disease
Rupture (without operation or appliance)

"3. That all advertisements of remedies for diseases arising from sexual intercourse or referring to sexual weakness be prohibited.

"4. That all advertisements likely to suggest that a medicine is an abortifacient be prohibited.

"5. That it be a breach of the law to change the composition of a remedy without informing the department of the proposed change.

"6. That fancy names for recognized drugs be subject to regulation.

"7. That the period of validity of a name used as a trade mark for a drug be limited, as in the case of patents and copyrights.

"8. That it be a breach of the law to give a false trade description of any remedy, and that the following be a definition of a false trade description:

'A statement, design, or device regarding any article or preparation, or the drugs or ingredients or substances contained therein, or the curative or therapeutic effect thereof, which is false or misleading in any particular.'

"And that the onus of proof that he had reasonable ground for belief in the truth of any statement by him regarding a remedy be placed on the manufacturer or proprietor of such remedy.

"9. That it be a breach of the law:

"(*a*) To enclose with one remedy printed matter recommending another remedy.

"(*b*) To invite sufferers from any ailment to correspond with the vendor of a remedy.

"(*c*) To make use of the name of a fictitious person in connection with a remedy. (But it should be within the power of the department to permit the exemption of an old-established remedy from this provision.)

"(*d*) To make use of fictitious testimonials.

"(*e*) To publish a recommendation of a secret remedy by a medical practitioner unless his or her full name, qualifications and address be given.

"(*f*) To promise to return money paid if a cure is not effected.

"In conclusion, the committee believes that departmental and legislative action as outlined above will not inflict injustice on any patent or proprietary medicine or appliances; that it will, alike by its operative and its deterrent effect, afford the public efficient and urgently needed protection against injury and fraud; and that no measures of a smaller scope will secure this result."

Correspondence

The Levator Ani versus the Bulbocavernosus in Pelvic Floor Repair

To the Editor:—On page 540 of The Journal of Aug. 15, 1914, appears the following statement by Goldspohn: "The bulbocavernosus, surrounding the vulvar opening, reenforces the inner margin of the trigon; and these together are what some operators have mistaken for the levator ani, whose anterior median edges lie farther within, are less distinct and extend more in an inward and upward direction. This mistake is apparent from the illustrations and *described technic* [italics mine] of Robert T. Morris, Arnold Sturmdorff, C. A. Hall, George B. Somers and C. W. Barrett." It is true that these names were not read in the presentation of his paper, no doubt to spare our feelings.

In the printed discussion he says: "While Dr. Barrett *may now be going deep enough to seize the levator,* he has repeatedly mistaken the inner edges of the trigon and the bulbocavernosus muscle as the levator ani in his illustrations." Dr. Goldspohn's comment, in closing the discussion after my lantern-slides were shown at Atlantic City, was, "Dr. Barrett's illustrations *now show that he goes deep enough but,*" etc. [italics mine].

As I have laid stress for years on the importance, not only of going deep enough to get the levators, but of actually picking up the levators as we would pick up the definite anatomic structures in doing an inguinal herniotomy, I must insist that Dr. Goldspohn is mistaken, and present the following description of my work as it appears in the article quoted by him as proof thereof:

The first part of the article takes up the anatomy, embryology, comparative anatomy and variations of the levator ani muscle and its importance as a part of the closure of the abdomen in upright animals, and the importance of dealing with this muscle in pelvic floor repair. It lays stress on the importance of starting the flap at the vaginovestibular junction so as not to close the vagina with vulvar structures. It then reads: "The dissection is carried between the vagina and rectum until we are above the levator ani muscle (about 1½ inches) and well to the sides to uncover these muscles. The guide is not to be indicated in inches, however, as the test is to be able to find the muscle. With the flap held forward the index finger of the left hand crowds the rectum backward and puts the levator on the stretch. With a strong round curved needle that would about fit the three-eighths circumference of a silver half dollar, and threaded with catgut, we pick up a good bite of the left levator ani muscle as far forward as we wish to unite it; we then include a little of the deep part of the flap, after which the needle picks up a corresponding portion of the levator muscle on the right side. With the same suture and needle we now go back to the left side and pick up the levator ani muscle one-half inch nearer the rectum; the needle is then made to pick up a portion of the rectal wall, after which it picks up a corresponding portion of the levator muscle on the right side" (Barrett: Obstetrics and Diseases of Women, April, 1909). The description continues in detail to the complete closure of the wound. Conclusion 10 reads: "Two points should be observed in the herniotomy of the pelvic floor: (*a*) The levator ani muscles should be reunited. (*b*) Superficial vulvar structures should not be reunited but left with the natural vulvar opening into the vagina, which may easily be accomplished by making the V-shaped incision at the lower end of the vagina instead of the usual incision in the labia majora."

This form of perineal hernioplasty has been demonstrated to many who have honored me by their presence, and is not so complicated as Dr. Goldspohn seems to think.

Channing W. Barrett, M.D., Chicago.

The above correspondence was referred to Dr. Goldspohn, who replied:

To the Editor:—I read my paper at the Atlantic City meeting in more abbreviated form than was needed to remain within the time limit. I said in closing the discussion, in substance, that I believe that Dr. Barrett is now (meaning recent years) going deep enough within the pelvis to deal with the levator, or that he probably does so; but that he has an illustration in his first publication on this subject (*Am. Jour. Obst.*, etc., April, 1909, p. 565), in which he represents the levator ani muscle as lying in an altogether more conspicuous and superficial position than it is possible to show it in any normal dissection, unless the urogenital trigon and the bulbocavernosus muscles have first been dissected off. This is an anatomic fact, which Dr. Barrett cannot deny without taking issue with the authorities on anatomy cited in my paper; and criticism is in order as long as he does not admit the mistake set forth in that illustration.

Albert Goldspohn, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TEST FOR PURITY OF WATER

To the Editor:—1. Please inform me as to a simple test for purity of water.

2. What is best to use to rid a well of unpleasant odors arising, I think, from the overflow into it of surface water impregnated with alkali earth.

James D. Kennedy, M.D., Ganado, Ariz.

Answer.—1. If by "purity" of water is meant inability to convey disease, there is no simple test. Determination of the relative abundance of *Bacillus coli* in a water is perhaps the most important single method now in use, but it must be employed with great care and the results can be properly interpreted only after long experience in water analysis.

2. Unless the source or nature of the unpleasant odor is known it is impossible to tell how to prevent it. Surface water should not be allowed to enter any well. Consult your State Board of Health in regard to the whole question. The board will perhaps make analyses or inspection for you.

CAUSE OF EYELID QUIVERING—COMPOSITION OF "MUM"

To the Editor:—1. I have a patient, woman, aged 52, who for three months has had a marked "quivering" of the right eyelid. Several physicians have tried "practically everything" without giving any relief. At times these contractions of the lower lid and cheek muscles are so violent that the patient is unable to work or sleep. Physical examinations have proved negative. A slight refractive error was corrected two months ago.

2. Can you give me the composition of "Mum," a deodorant of perspiration made by the Mum Manufacturing Company of Philadelphia? I have recently seen a case of a peculiar axillary dermatitis in which this preparation may have caused the trouble. What is the usual deodorizing substance in these toilet articles?

E. E. Wisehart, M.D., Snow Hill, Md.

Answer.—1. It is rather difficult to offer any very intelligent advice without knowing more about the daily life and habits of the patient. Has an examination of the accessory nasal cavities been made? Have the teeth been examined, especially those on the right side of the upper jaw? Have the physical examinations failed to show the presence of any general toxemic condition? Does the woman use her eyes excessively for close work of any kind: reading, writing, sewing, etc.? If the foregoing examinations prove negative, it would be wise to have her eyes thoroughly examined under complete cycloplegia so that the refractive error as well as the amount of presbyopia present can be absolutely corrected and the muscle balance carefully worked out. A greatly diminished power of prism convergence especially in eyes under excessive strain, could easily produce reflex symptoms of this kind.

2. This query was answered in The Journal, Nov. 30, 1912, p. 1993.

LITERATURE ON STATE CONTROL OF TUBERCULOSIS

To the Editor:—I have been appointed one of a commission of five to draw up a comprehensive plan for a thorough antituberculosis campaign in this territory, which plan we are to submit to the Governor not later than Jan. 1, 1915. I wish you would give me a list of books on the subject from which I might get the best idea about hospital formation, sanatoriums, etc., and the various methods of handling this subject by the State Board of Health. With our delightfully even climate we should be able to eradicate this disease almost entirely.

A. I., M.D., Hawaii.

Answer.—The following is a list of books and pamphlets; further references are contained in most of these:

Some Plans and Suggestions for Housing Consumptives, National Association for Study and Prevention of Tuberculosis, 105 East Twenty-Second Street, New York.

Battling for Health at Mont Alto, *Pennsylvania Health Bull.*, October, 1912.

A Preliminary Abstract of the Final Report of the California Tuberculosis Commission, *California State Board of Health Bulletin*, January, 1913.

Howard, B. F.: The Bureau of Tuberculosis: Its Work and Plans (California), *California State Jour. Med.*, August, 1914.

Report of the Kentucky Tuberculosis Committee, State Board of Health, Frankfort, Ky.

Taylor, H. L.: Advantages of State Control over Tuberculosis Hospital, *Modern Hospital*, July, 1914.

Kress, G. H.: California State Tuberculosis Commission, *California State Jour. Med.*, August, 1912.

Hinsdale, G.: Atmospheric Air in Relation to Tuberculosis, Smithsonian Institution, Washington, D. C., $1.

A LETTER BY JENNER

To the Editor:—Pasted to the back of the title-page of a book entitled "Professional Anecdotes, or Ana of Medical Literature" (London, 1825, in three volumes, I having Volume II), is an original letter written by E. Jenner. I enclose a copy.

Max Isenberg, M.D., New York.

The letter reads:

Cheltenham, Jan. 16, 1807.

Dear Sir.—I congratulate you and Mrs. Phillips on the addition to your flock. It is my intention to be in town soon; but how soon I cannot at the present moment positively say. My movements will be regulated by those of the College of Physicians and the House of Commons. The former have not yet finished their inquiry, which will, when completed, be laid before the House.

This inquiry will lay all those troublesome ghosts which have so long haunted the metropolis with their *ox-faces*, and dismal hootings against vaccination. However, tis all for the best—you may depend upon it the new investigation will prove the touchstone of the vaccine discovery.

I have not yet seen your monthly magazine for the present month. Probably you may not have inserted the very curious and interesting piece of intelligence I recd. from Madrid. This supposition induces me to enclose it. What a glorious enterprize! I have made peace with Spain, and quite adore her philanthropic monarch. Could not this be touched upon by some of those who, *thro' you*, introduce [I cannot decipher the next word] into the world? A word more respecting your little one. Altho' I should be happy to shield it myself from the speckled monster, yet I would advise you not long to wish my coming to town. I will just add that I consider the vaccine lancet in the hand of John Ring, just as safe as in my own.

Pray present my best wishes to Mrs. Phillips and tell her I have not forgotten her civilities.

Yr. very faithful St.

E. Jenner.

LIGHT AUTO FOR PHYSICIAN

To the Editor:—I am seeking information regarding the experience of those who have driven the lighter makes of automobiles. The car I use weighs about 2,000 pounds, and while it gives excellent service as far as speed and power are concerned I find the up-keep expensive as to tires. The country in my section is somewhat rocky and hilly, the territory is rather large and we find a fast car a necessity. Any information I may receive will be much appreciated. Does any one know anything about or use the lately advertised tandem seated cars?

M. J. S., Kansas.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Colorado: Denver, October 6. Sec., Dr. David A. Strickler, Empire Bldg., Denver.

District of Columbia: Washington, October 13-15. Sec., Dr. George C. Ober, 125 B St., S. E., Washington.

Georgia: Atlanta, October 13-15. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Wallace, October 6. Sec., Dr. John F. Schmershall, Jerome.

Illinois: Chicago, October 6-8. Sec., Dr. C. St. Clair Drake, Springfield.

Kansas: Topeka, October 13-15. Sec., Dr. H. A. Dykes, Lebanon.

Louisiana: New Orleans, October 29-31. Sec., Dr. E. L. Leckert, New Orleans.

Michigan: Lansing, October 13-15. Sec., Dr. Beverley D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, October 6-9. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

Mississippi: Jackson, October 27-28. Sec., Dr. E. H. Galloway, Jackson.

Missouri: Kansas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, October 6. Sec., Dr. William C. Riddell, Helena.

New Jersey: Trenton, October 20-21. Sec., Dr. H. G. Norton, Trenton.

New Mexico: Santa Fe, October 12. Sec., Dr. W. E. Kaser, East Las Vegas.

New York: September 22-25. Chief of Examination Division, Mr. Harlan H. Horner, Department of Education, Albany.

Oklahoma: Muskogee, October 6-8. Sec., Dr. John W. Duke, Guthrie.

Rhode Island: Providence, October 1-2. Sec., Dr. Gardner T. Swarts, State House, Providence.

West Virginia: Clarksburg, October 13. Sec., Dr. S. L. Jepson, 81 Twelfth St., Wheeling.

Requires Hospital Intern Year

The annual announcement of the University of Vermont, College of Medicine, just received, states that all students matriculating after Jan. 1, 1915, in addition to the usual four-year course will be required to take a fifth year as an intern in some approved hospital before they are eligible for the degree of Doctor of Medicine. This is the fourth college which has adopted this requirement. The complete list and the session when the requirement became or will become effective are as follows:

	Session of
University of Minnesota Medical School	1910-11
Leland Stanford Jr. University School of Medicine	1914-15
Rush Medical College (University of Chicago)	1914-15
University of Vermont College of Medicine	1915-16

One state licensing board, that of Pennsylvania, now requires that every candidate to be eligible for a license to practice medicine in that state, must have served at least one year as an intern in an approved hospital. The requirement became effective in 1914.

University Graduate Schools of Medicine.

The annual announcement of the University of Minnesota Medical School, just received, includes information regarding a Graduate School of Medicine. The complete list of university graduate medical schools and their location is as follows:

	Location
University of Alabama, Graduate School of Medicine	Birmingham
University of California, Graduate School of Medicine	Los Angeles
Tulane University Post-Graduate School of Medicine	New Orleans
Harvard University Graduate School of Medicine	Boston
University of Minnesota, Graduate School of Medicine	Minneapolis

The opening of such schools in this country by high grade universities is very encouraging and gives assurance that graduate medical instruction on a high plane is rapidly becoming more available in this country.

New York Reciprocity Report

Mr. H. H. Horner, chief of the Examination Division of the New York Education Department, reports that 7 candidates were licensed through reciprocity and one candidate on exemption, from January to June, 1914. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Dunham Medical College, Chicago	(1902)	Indiana
Univ. of Mich., Dept. of Med. and Surg.	(1910); (1912, 2)	Michigan
Eclectic Med. Coll. of the City of New York	(1912)	New Jersey
Miami Medical College	(1908)	Ohio
Medico-Chirurgical College of Pennsylvania	(1899)	New Jersey

LICENSED ON SPECIAL EXEMPTION CLAUSES

	Year Grad.	Indorsed Total No.
Jefferson Medical College	(1886)	1

Book Notices

Die Prognosenstellung bei der Lungentuberculose mit eingehender Berücksichtigung der physikalischen und serologischen Befunde und der therapeutischen Prognostik. Bearbeitet von Priv. Doz. Dr. D. O. Kuthy und Dr. A. Wolff-Eisner. Paper. Price, $4.50. Pp. 572, with 21 illustrations. New York: Rebman Company, 1914.

The authors discuss one of the most important questions of medicine, namely, the prognosis of pulmonary tuberculosis. The importance attached to prognosis is indicated by the fact that it is about the first question to be asked by the patient, who values diagnosis chiefly because it enables the physician to predict correctly the outcome of the disease. The former opinion made the question of prognosis depend almost entirely on the correctness of the diagnosis, since a positive diagnosis of pulmonary tuberculosis was held to mean an absolutely unfavorable prognosis. The advance of science showing the frequency of recovery from pulmonary tuberculosis has made this simple prognosis untenable. The diagnosis must be more carefully made to discover conditions which may have favorable or unfavorable influences on the final outcome. The heredity must be thoroughly worked out and the past history of the patient diligently explored for indications. The authors discuss first these historical data. The prognostic significance of sex, age, occupation, financial situation, temperament, etc., are considered. In a similar way, the present condition of the patient is inquired into and the prognostic significance of the individual symptoms and objective findings thoroughly discussed. The authors then take up the effect of various treatments on prognosis, such as the tuberculin treatment in all its forms. Spengler's I. K. is regarded as still on trial but must not, as has been done, be set down as inactive. It is evidently capable, in some cases, of doing harm. It is possible in the space at command only to indicate the scope of the work. To consider critically the various aspects of the subject and the multitude of various questions raised is impossible. The volume is completed by a list of more than a thousand references to the literature. Considering that most of these references are accompanied in the text by brief abstracts of the respective articles, an idea may be gained of the research whose results are embodied in this volume.

A Manual of Infantile Paralysis with Modern Methods of Treatment, Including Reports Based on the Treatment of Three Thousand Cases. By Henry W. Frauenthal, A.C., M.D., Surgeon, New York Hospital for Deformities and Joint Diseases, and Jacolyn Van Vliet Manning, M.D. Cloth. Price, $3. net. Pp. 374, with illustrations. Philadelphia: F. A. Davis Company, 1914.

The authors have here collected a large amount of information concerning infantile paralysis (anterior poliomyelitis) —historical, epidemiologic, etiologic, diagnostic and with reference to its management and treatment—together with a discussion of various theories that have been formulated about it. Interesting are epidemiologic studies of Manning of the Wisconsin epidemics, the statistics with reference to coincident animal paralyses, tables of epidemics and pandemics and the results of animal experimentation. The chapter on differential diagnosis, containing descriptions of the different types of cases, is a valuable one. The considerable portion of the book is devoted to treatment in the acute and preparalytic stages and of the paralyses and deformities resulting from the disease. This is of practical worth to the practitioner as well as to the orthopedist; it offers definite advice, justified by a large experience in an institution for the treatment of such cases. The high-frequency current is recommended as soon as paralysis has occurred, and other physical measures are emphasized and persistence in their employment insisted on. Especially is it important to employ and persist in measures or exercises which require voluntary effort on the part of the patient, no matter how feeble the response may at first be. Scoliosis, one of the deformities discussed, is attributed to poliomyelitis as the etiologic factor in most instances. Mechanical and surgical measures are set forth, the latter including tendon, nerve and muscle transplantation, though the authors have not much that is new to offer along these lines, and, indeed, insist that the other methods of treatment should first be given the most extended and patient trial. The book is quite satisfactory on account of its definiteness of statement regarding the management of a disease whose sequelae are most deplorable and whose treatment has hitherto not been productive of much success in the way of results.

Das Ulcus Duodeni. Von Dr. J. Schrijver, Arzt für Magen- und Darmkrankheiten in Amsterdam. Paper. Price, 10 marks. Pp. 184, with 16 illustrations. Berlin: S. Karger, 1914.

The new interest in ulcers of the digestive tract which has followed the investigations of Moynihan and of the Mayo brothers found gastrologists in general, and particularly those of the Continent, rather unprepared for the revelations of the surgical clinic. The profession of England and America readily accepted the new views, especially as to the frequency of ulcer of the duodenum to which Moynihan assigned so characteristic a clinical history, but the clinicians of Germany have been somewhat slow to acquiesce. Schrijver adds his testimony to that of others as finding in a large proportion of cases an ulcer of the duodenum as the cause of chronic dyspepsia from which the patients were happily relieved by timely surgery. His book gives a systematic account of the disease and closes with the histories of a series of thirty-seven cases selected from ninety-five cases occurring in his experience in the last three years. The book is illustrated with a number of plates and several roentgenograms, the latter, however, having an indefiniteness which impairs their utility to most readers.

Abnormal Psychology. By Isador H. Coriat, M.D., Second Assistant Physician for Diseases of the Nervous System, Boston City Hospital. Second Edition. Cloth. Price, $2 net. Pp. 428. New York: Moffat, Yard & Co., 1914.

The whole field of abnormal psychology is undergoing modification, influenced by the introduction of Freud's theories and the psychanalytic method of study. This new edition of Coriat has been enlarged by some general outlines of Freudian principles. "For reasons of space" and "because such material does not really lend itself to popular presentation" the author does not go into the subject fully. He is evidently troubled by qualms of which some exponents of the newer psychology have not complained. The theory of dreams is explained in simple language, and there is a new chapter on the prevention of the neuroses and a reprinted article on colored hearing. The book has advanced parallel to recent studies in abnormal psychology and is a worthy publication for those especially interested in the subject.

The Practice of Surgery. By James Gregory Mumford, M.D., Lecturer on Surgery in Harvard University. Second Edition. Cloth. Price, $7. Pp. 1032, with 683 illustrations. Philadelphia: W. B. Saunders Company, 1914.

Three years have elapsed since the publication of the first edition of this book. The author has revised the text to keep it abreast of progress, although in the past few years no revolutionary change in surgery has occurred. New cases are cited to illuminate the text and new pictures are added. The book is therefore strictly up to date, and as a clinical surgery cannot fail to prove of value to the reader. The author's style is pleasing, clear, direct and concise in exposition. The many beautiful illustrations are a valuable addition to the text.

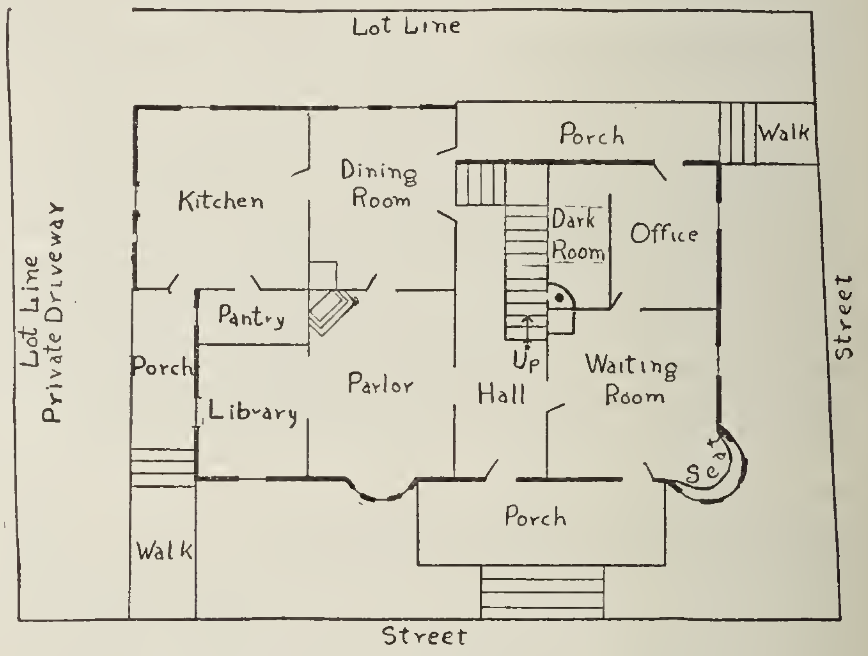
Miscellany

A Combined Office and Residence

To the Editor:—My wife and I have been interested in the views and ground-floor plans of physician's offices and residences printed in The Journal from time to time. While many of them are convenient and attractive, we have failed to see one yet that we like so well as ours. I am enclosing a drawing of the first floor plan.

This building was designed by ourselves about twelve years ago, and, since the residence part pleases Mrs. Dunn and the office suits me, there must be many good features about the house as both of us are rather particular. The office has a conspicuous place in the house without relegating the living rooms to the rear, commands a view of two streets and their corner, and is easy of access from the front. The parlor and library both front a street also. The hall separates the two departments of the house from each other entirely. The kitchen is entered by a walk and porch from one street and the dining room by the same arrangements from the other street. The house is built on a lot 67 by 50 feet and the outside dimensions are 50 by 32 feet. The upper story is not shown, as physicians would hardly be interested in this, but I will say that every room upstairs fronts one of the streets, excepting the bathroom, and all are of good size. While we admit that the house is not built along conventional lines, we believe it has many features that will commend it to the physician planning to build a combined home and office.

James W. Dunn, M.D., Cairo, Ill.



First-floor plan of combined office and residence.

Is Loco-Weed Disease a Myth?

Poisonous properties have long been ascribed to the pretty, luxuriantly blooming leguminous plants known to the Western cattle ranges as loco or crazy weeds. Being hardy and able to maintain themselves in poor soil, these plants, of two or three main types, are found widely distributed from British America to Mexico and from Kansas to California. Stock-raisers have attributed great losses to the disease caused in horses, cattle and sheep by the eating of this weed, and the state of Colorado paid out nearly $200,000 in bounties for attempts at its extermination between 1881 and 1885.

The theory of Crawford (Crawford, A. C.: Barium, a Cause of the Loco-Weed Disease, Bull. 129, Bureau Plant Ind., U. S. Dept. Agric., 1908. Editorials, The Journal, Feb. 8, 1908, p. 458, Oct. 17, 1908, p. 1338) that barium causes loco poisoning was rejected by Marsh and Alsberg and Black (Marsh, C. D., Alsberg, C. L. and Black, O. F.: The Relation of Barium to the Loco-Weed Disease, Bull. 246, Bureau Plant Ind., U. S. Dept. Agric., 1912. Editorial, The Journal, Dec. 21, 1912, p. 2258) on the grounds (1) that barium poisoning does not produce the symptoms typical of "locoed" animals; (2) that antidotes to barium have no effect on loco poisoning; (3) that admittedly harmless plants occupying the same areas as the loco-weed contain barium in comparable quantities, and (4) that the barium found in dried loco-weeds is present in almost insoluble form. These investigators, however, do not question the existence of loco-weed disease; in fact, they claim to have produced it experimentally in horses and cattle. They merely leave the question of its cause an open one.

H. T. Marshall, in a recent article (A Summary of Studies of Loco-Weed Disease of Sheep, *Johns Hopkins Hosp. Bull.*, August, 1914, p. 234), based on studies of the sheep of Montana, begun eleven years ago for the Department of Agriculture, though not published by the department, takes the point of view that the condition designated as loco disease is not a single clear-cut malady. In his experience the descriptions given by various ranchmen of the symptoms and cause of the disease did not tally with each other; and necropsy studies on supposedly locoed sheep from different flocks disclosed different conditions. Some sheep were heavily infected with a liver tapeworm (*Thysanosoma actinioides*), others with the sheep-fly (*Oestrus ovis*). Marshall found the ranges too frequently grazed over and the flocks too large for the available grazing-grounds. In his opinion, all the symptoms attributed to loco poisoning could be accounted for by undernourishment and infections. In an attempt to produce loco disease experimentally, four lots of sheep were segregated. One group was fed abundantly on alfalfa, another on half rations of alfalfa, a third on loco-weed without alfalfa, and a fourth on loco and alfalfa. It was found that the sheep fed on loco-weed without alfalfa suffered from starvation; but those fed on alfalfa and loco kept in better condition and gained more in weight than any of the others. None of the animals receiving loco showed any characteristic symptoms. Sheep-fly disease attacked all the flocks during the course of the experiments. The starved animals suffered most, those fed on loco and alfalfa least. Marshall's conclusions are that there are several diseases masquerading under the name of "loco disease," that the existence of any disease definitely attributable to the loco-weed remains to be proved, and that the interests of Western stock-raisers can be best served, not by a campaign against the presumably innocent loco-weed, but by combating the parasitic diseases prevalent on the ranges, as well as the overstocking of ranches and the underfeeding of stock.

It may occur to the reader that Marshall's experiments and observations appear to indicate that sheep are not susceptible of loco poisoning, but not necessarily to prove that this disease has no existence. Marshall says that he could find no locoed animals other than sheep for study even after extended search on the Montana ranges. It seems regrettable that his experimental work did not include cattle and horses.

Efficacy of Tartar Emetic in Superficial Leishmaniosis

G. Vianna of the Instituto Oswaldo Cruz at Rio de Janeiro relates that in Brazil nothing seems to act so effectually on leishmania lesions of the skin and mucous membranes as antimony and potassium tartrate by intravenous injection. The experiences there with salvarsan and neosalvarsan have been entirely negative as far as curing lesions of this nature in the integument. The efficacy of tartar emetic in trypanosomiasis having been thoroughly established in his experimental and clinical experience, he applied it also in a number of cases of destructive leishmania lesions of the face and nasal mucosa, and gives a series of illustrations "before and after," in his article on the subject in the *Annales Paulistas de Med. e Cir.*, 1914, ii, 167. The maximum dose was 10 c.c. of a 1 per cent. solution of the tartrate in physiologic saline sterilized by filtration. He commenced with small doses and in the chronic cases kept up the smallest doses for a long time. He gave the intravenous injections by this technic even to children of 5 and to patients over 60, and never noticed any untoward by-effects except in two cases of nephritis in which the albumin increased in the urine and edema developed under the large doses; on reducing the dose no further injury was apparent even in these cases. The symptoms showing that the limit of tolerance has been passed are pains in joints and muscles or headache. In the patient shown before and after treatment, the destructive affection in the nose and larynx was of five years' standing and was accompanied by extensive ulcerative processes on the legs, all completely cured under the antimony and potassium tartrate treatment.

Fundamentals in Teaching Sex Hygiene

Most of the plans for introducing the subject into the home and school insist that the facts of human reproduction should be taught to the child by an indirect method. This indirect method J. C. Hollister (*Cal. State Jour. Med.*, July, 1914) believes to be wrong, because it does not rest on what to his mind are the fundamentals of sex education. The fundamentals are not to be found in general biology or nature study; they are not plant or animal reproduction; they are not cells nor evolution nor life itself. They are human anatomy and physiology. Any plan that does not recognize the truth of this, any plan that does not rest on these foundations, is inherently weak. It is unnatural, illogical, and has not a sound psychologic basis. If this be true, the child should have a knowledge of human anatomy and physiology before it can appreciate the matter in sex education.

Hollister claims that: 1. Human anatomy and physiology can be taught successfully to the young child. 2. The knowledge of normal human anatomy and physiology is particularly advantageous to the child. 3. There are no important reasons why the genital system should not be taught as part of general anatomy and physiology. 4. Such a plan rests on a sound psychologic basis.

An Economic Aspect of Vaccination

In a recent bulletin of the Rochester (N. Y.) Chamber of Commerce appears the following note from G. W. Goler, the health officer:

"You have noticed that it is our intention to temporarily use the small-pox pavilion at our Municipal Hospital for the treatment of drug habitues. One of the reasons for our being able to do this is because our city has been so remarkably free from small-pox that the small-pox pavilion is vacant most of the time. Rochester is unique in that respect, from the fact that a large number of the large employers have refused to employ men unless they have been successfully vaccinated. Now if we could get more firms to insist on vaccination as a prerequisite for employment we might be able to go for a much longer period without cases of small-pox, and thus be able to use our small-pox pavilion for other purposes."

In these days of stringent economy it will be found that the most important economy is the conservation of the public health.

Mistakes and Sins

"We make mistakes; other people commit sins." A wrong diagnosis after due examination (a thing that happens to all of us) is a mistake, and a pardonable one; a wrong diagnosis arrived at without due examination (a thing that happens to the other fellows) is a sin; medically speaking, it is "the unpardonable sin." That an examination was not allowed is no excuse for a wrong diagnosis. If you cannot convince the patient that an examination is necessary, quit the case; for it is better to lose a patient than to lose reputation. Moreover, do not treat first and examine afterward; for then you may be called on to treat, not only the disease, but also the effects of your own treatment. After an examination has been made, if still in doubt, admit it. If you do not know enough about the case to satisfy yourself, it is not safe to assume that you know enough about it to satisfy the patient; this is not only indifferent ethics, but also bad policy. —Arthur E. Giles. *Clinical Journal.*

Medicolegal

Validity of Statute Providing for Licensing of Practitioners of Specialties

(Bohannon vs. State Board of Medical Examiners et al (Cal.), 140 Pac. R. 1089)

The District Court of Appeal of California, First District, reverses a judgment which sustained the defendants' general demurrer to the complaint in this action wherein the plaintiff claimed that it was the duty of the defendants, as the Board of Medical Examiners, to issue to him a certificate authorizing him to practice a special branch of medicine and surgery. He based his claim on the amendment of 1911 to the medical practice act which provided in substance that the medical examiners might issue a certificate to any person who had practiced a special branch of medicine and surgery for a period of not less than thirty-five years, fifteen years of which time had been within the state of California. The trial court was of the opinion that the amendment, so far as it provided for special certificates, was unconstitutional, for the reason that the classification was unreasonable. The court of appeal however holds otherwise, and a rehearing has been denied by the Supreme Court of California.

The court of appeal says that the provisions of the act complained of clearly show a legislative intent to admit certain persons to practice a special branch of medicine and surgery who have previously violated the law, not because they have violated the law, but because of an acquired experience in given branches of medicine or surgery. It is conceded that the act of the legislature may not have been the most expedient or salutary, but the courts are not concerned with the good or bad policy exercised by that branch of the government. The only argument against the classification here adopted is that it extends a certain exemption to a particular class who for a certain period have been practicing illegally. Does this illegal practice of itself deprive the legislature of the right to adopt regulations under which the persons in this class as such may gain the right to practice medicine and surgery? This court is of the opinion that the question must be answered in the negative. Moreover, the applicant is not qualified for practice by the number of years of his violation of the law, but he must pass an examination, and in addition thereto give a practical demonstration of his successful practice in a special branch, and even then, if he successfully pass these tests, a right to practice the special branch in which he is experienced and proficient only is conferred on him.

The applicant in this case specified as the "special branch of medicine and surgery" which he desired to practice, "the treatment of cancers, tumors, malignant growths and cutaneous diseases." This court cannot judicially say that these disorders are not so correlated that they cannot be classed as a "special branch of medicine and surgery." This question is a matter for determination by the trial court under competent evidence.

Loss of Eye Due to Infectious Disease

(McCoy vs. Michigan Screw Co. (Mich.), 147 N. W. R. 572)

The Supreme Court of Michigan says that several small pieces of steel from the lathe machine on which the claimant was working lodged in his eye. This, it was claimed, caused an irritation and caused him to rub his eye. At the time he was being treated for gonorrhea. Six days after the accident he went to another physician, who removed four pieces of steel from the eye. The next day the physician removed another piece of steel and discovered that the eye had become infected with gonorrhea. The man was then sent to a hospital and subsequently lost the sight of the eye. The industrial accident board affirmed an award made by an arbitration committee of $6.49 a week for 100 weeks, under the workmen's compensation act. But the decision of the board is reversed by the court, which holds that the facts were not capable of supporting the inference that the injury arose out of and in the course of the employment. The court says that the claimant contended that the germs would not have entered the eye had not the steel caused "(a) an inclination to rub—the inciting cause—(b) inflamed condition which made the eye susceptible to the entry of the germs, as in the case of blood-poisoning and erysipelas." It was not reasonable to say, however, that he would not have rubbed his eye if the steel had not lodged there. He might not have rubbed his eye, it was true; but it was just as reasonable to suppose that he might have had occasion to rub his eye without this particular inciting cause. By the medical testimony it conclusively appeared that the infection could have taken place if the steel had not been there. It must be said, from this record, that the loss of the eye was directly and immediately due to the infection caused by the gonorrhea, which it could not be claimed was a risk incident to the employment.

Practice of Medicine by Christian Scientist

(People vs. Cole (N. Y.), 148 N. Y. Sup. 708)

The Supreme Court of New York, Appellate Division, First Department, affirms a conviction of the defendant of practicing medicine without lawful authorization and registration. The court says that the defendant testified that he had been for eight years an authorized practitioner of the Christian Science Church, and that he had maintained an office in a certain building for five years; that when he received his first knowledge of Christian Science he was a sculptor and a poet; that he had never studied medicine in any way; that his average income from his practice was about $5,000 or $6,000; that he did not ask people for money for treating them, but when they tendered it he took it.

The statutory definition of the practice of medicine is broad enough to cover the acts of the defendant because he "holds himself out as being able to . . . treat . . . any human disease," and he did "undertake to treat." The language of the statute is "by any means or method." This covers the means or method used by him. While he denied the material existence of disease and said it was merely mental, yet he undertook to treat people he called patients for what they told him was the matter with them; in other words, what they thought were diseases. He had an office for that purpose; he received fees therefor; he habitually termed what he did his "treatment." He conducted a pecuniarily successful business. He called himself a practitioner, but admitted that the popular phrase was healer. Whatever the believers may think about disease, the law regards it as a fact.

The one question presented here was whether the defendant was permitted to do what he did under the clause of the statute which provides that "This article shall not be construed to affect . . . the practice of the religious tenets of any church." Is the commercialized use of prayer for the avowed purpose of treating all persons seeking cure for all kinds of bodily ills the practice of the religious tenets of a church? In this case this court has no right, and does not presume, to pass on the faith, belief or religious tenets of the Christian Scientists or the efficacy of the methods of their practitioners in treating disease or error. Its sole concern is whether on the facts proved the defendant was properly convicted of practicing medicine without being licensed and registered, and whether the conceded acts come within the exception as to the practice of the religious tenets of any church. "Tenet" is defined by the Century Dictionary as "any opinion, principle, dogma or doctrine which a person, school or sect holds or maintains is true." A man's right to hold and express such is unquestioned. But when he advances from the realm of thought to that of action, he must obey the law. The court reaches the conclusion that the acts complained of constitute the practice of medicine, were not the practice of the religious tenets of any church, and to authorize the defendant to administer the treatment, which he conceded he did, he must have first been duly licensed and registered in accordance with the provisions of the public health law.

Society Proceedings

COMING MEETINGS

Amer. Academy of Ophthal. and Oto-Laryn., Boston, Oct. 19-21.
American Association of Railway Surgeons, Chicago, Oct. 14-16.
Association of Military Surgeons of the U. S., Cincinnati, Sept. 29-Oct. 2.
Delaware State Medical Society, Wilmington, Oct. 13-14.
Idaho State Medical Association, Boise, Oct. 8-9.
Indiana State Medical Association, Lafayette, Sept. 24-25.
Kentucky State Medical Association, Newport, Sept. 23-25.
Minnesota State Medical Association, St. Paul, Sept. 30, Oct. 1-2.
Mississippi Valley Med. Assn., Cincinnati, Oct. 27-29.
Nevada State Medical Association, Reno, Oct. 13-15.
New Mexico Medical Society, Albuquerque, Oct. 5-7.
Pennsylvania State Medical Society, Pittsburgh, Sept. 21-24.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Vermont State Medical Society, Rutland, Oct. 8-9.
Virginia Medical Society, Washington, D. C., Oct. 27-30.
Washington State Medical Association, North Yakima, Sept. 21-23.
Wisconsin State Medical Society, Oshkosh, Oct. 7-9.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (New York) Medical Annals

August, XXXV, No. 8, pp. 415-478

1 Pathogenesis and Symptomatology of Syphilitic Aortitis. G. Blumer, New Haven, Conn.
2 *Spasmodic Closing of Cerebral Arteries in Its Relation to Apoplexy. A. Gordon, Philadelphia.
3 Analysis of Deaths Occurring in Course of 1,573 Surgical Operations. E. MacD. Stanton, Schenectady.

2. **Spasmodic Closing of Cerebral Arteries.**—Gordon has followed up fourteen cases of this character. Six of the patients are still living; eight died and Gordon succeeded in obtaining permission for autopsies. Every one of the patients was seen by him in each attack. A close analysis of both groups of cases demonstrate one common fact that besides embolism, thrombosis and hemorrhage which are considered as the classical causes of apoplectic strokes there is also a condition which is of hemiplegic or hemiparetic character, but which is produced not by a material lesion of the blood-vessel, but by such a functional disturbance of the vessel wall as to interfere with the circulation and therefore with the function of the nerve tissue supplied by this blood-vessel. The temporary character of this disorder of function, the prompt or rapid recovery from the interfered function, finally and especially the intermittence and frequent repetition of the attacks—all these facts speak in favor of a condition which is totally different from a material obstruction of a vessel with an embolus or thrombus or from a hemorrhage. Intermittent closing and opening of the cerebral vessels are in Gordon's opinion, the only possible explanation of the temporary paralysis. Hemorrhage, embolism and thrombosis could not possibly be taken into consideration in the production of brief and intermittent attacks. Diminution or possible avoidance of arterial irritability is the prime factor in the management of cases of this character.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

August, II, No. 2, pp. 99-153

4 *Relationship of Renal Lesions of Asiatic Cholera to Ordinary Nephritis with Special Reference to Acidosis. A. W. Sellards, Baltimore.
5 How War Has Been Waged in Mexico against the Mosquito. E. Liceaga, Mexico City.
6 Superiority of Intramuscular Injection over Administration by Mouth in Treatment of Malarial Infections by Quinin. S. S. Cohen, Philadelphia.

4. **Renal Lesions of Cholera and Acidosis.**—Investigation of the ordinary forms of chronic and acute renal disease have shown that the increase in tolerance to bicarbonate which was found to occur in the uremia of asiatic cholera is not specific for the nephritis of cholera. It occurs not only in nephritis arising from other infections, but also in nephritides which are free from infection. The cause of this increase in tolerance in cholera Sellards believes is almost certainly due to an acidosis; that is, to an impoverishment of the sources of fixed bases in the body. It is conceivable that this deficiency in carbonates is perhaps due to two factors, namely, (1) a diminished excretion of acid on account of the urinary changes; (2) and a loss of alkali directly by the bowel. The conditions in asiatic cholera afford evidence of the inadvisability of distinguishing between relative and absolute acidosis.

The cause of the increased excretion of ammonia in cholera is not known. Two factors must be considered in its explanation namely, (a) the possibility of a primary disturbance of protein metabolism with defective synthesis of urea, and (b) a secondary disturbance of metabolism with an accumulation of ammonia to compensate for an acidosis. The evidences of acidosis in the uremia of cholera are sufficiently definite to constitute a rational basis for treatment of this condition with alkalies. The examination of the urine or the blood affords a rational guide of the amount of bicarbonate to be administered. The available evidence indicates that it is advisable to give a mildly alkaline solution (½ of 1 per cent. of sodium bicarbonate) early in the course of the disease, before an out-spoken uremia has developed, increasing the quantity if symptoms of uremia appear. As much as 100 gr. of bicarbonate may be required in the course of two or three days. The quantities which have been recommended in the text-books, Sellards says, are wholly inadequate to restore the body to its normal content in carbonates. Moreover, the dosage is determined without any guide other than the general condition of the patient. The modifications of alkaline therapy for cholera, suggested by Wherry, is unnecessarily intensive. A limited use of the normal carbonate in cholera has led Sellards to believe that it is distinctly dangerous, especially in the early stage of the disease, when the administration of alkaline therapy promises most.

Archives of Pediatrics, New York

August, XXXI, No. 8, pp. 561-640

7 Etiology of Whooping-Cough. A. W. Williams, New York.
8 Clinical and Sociologic Aspects of Whooping-Cough. J. L. Morse, Boston.
9 *Treatment of Whooping-Cough. E. E. Graham, Philadelphia.
10 *Vaccine Treatment in Whooping-Cough. W. M. Hartshorn and H. N. Moeller, New York.
11 *Use of Blood-Serum of Immunes in Treatment of Malignant Scarlatina. W. S. Barker, St. Louis.
12 Hemiparesis and Hemiplegia as an Early Symptom in Tuberculous Meningitis. P. S. Chancellor, Chicago.
13 Jackstones Impacted in Esophagus. Report of Three Cases. G. M. Coates, Philadelphia.

9. **Treatment of Whooping Cough.**—The medicinal treatment of pertussis is divided by Graham into two parts: First, drugs or other methods that *per se* have a tendency to lessen the number and severity of the paroxysms. Second, drugs or other methods that are directed to the treatment of the complications of pertussis. To the first an unusual amount of attention has been given; to the second, comparatively little. Among the drugs that *per se* are useful in pertussis is mentioned belladonna. Graham prefers using the tincture, beginning with 1 drop, three times a day, and increasing the daily quantity by 1 or 2 drops until mild physiologic effects of the drug appear, when the increasing of the dose must be cautiously continued.

Antipyrin Graham has never used in the frequent doses so often advised. A single dose at bed-time, or a morning and evening dose has been, in his experience, as much as it was wise to employ. To a child 2 years he gives 2 or 3 grains each night, or morning and night. Bromid of soda, grains v, 3 or 4 times a day, to a child of 3 years, is often of benefit, and codein, trional, heroin, and chloral are often of benefit in allaying cough and inducing sleep. They may be given in a single dose at bed-time, or, if necessary, 2 or 3 times a day.

Quinin has been used in large doses and when so given may reduce not only the number, but also the severity, of the paroxysms. It is not an antispasmodic, and if it produces any effect in these large doses, Graham says, it must be due to some effect on the causal bacillus. Quinin lactate, 10 gm. saline solution, 100 gr. of which 2½ c.c., warm, is injected intravenously, may be used. If given hypodermically into the muscles the effect is favorable, but not as prompt nor as satisfactory as when given intravenously. Hydroquinin has been employed both intravenously and intramuscularly, but its action is more favorable when injected into the vein. A daily dose is given for five or six days, then a dose every second day. No disagreeable local or constitutional symptoms follow either the intravenous or muscular injections. Hydroquinin has been used both intravenously and intramuscularly as a prophylactic with satisfactory results.

From the close study of his own series, as well as many cases seen in consultation in which the vaccine treatment has been used, Graham is convinced that it is a distinct addition to treatment, and is also of more or less use as a prophylactic. In a case of moderate severity in either an infant or an older child, when the number of the paroxysms is small and of a mild character, the vaccine treatment is not necessary, but is often of distinct benefit, in the severe cases, in children of all ages, and its influence as a prophylactic, especially in which infants have been exposed, or in which a frail or possibly tuberculous child has been infected with the pertussis bacillus, should be carefully worked out, and its prophylactic power tested by its use, in a large number of cases.

10. **Vaccine Treatment of Whooping Cough.**—A review of the literature by Hartshorn and Moeller shows that 1,445 cases have been reported. There is not an universal endorsement of pertussis vaccine. A variety of vaccines are being used without definite knowledge of the bacteriology of the individual cases treated. There is a striking lack of negative reports. Apparently the vaccine is harmless in uncomplicated cases. There has been established no definite standard for dosage or for treatment. The dosage generally has been apparently too small. The course of the disease in the majority of cases reported has not been much under six weeks. Its value as a prophylactic agent is still undetermined. It is generally conceded that the earlier the treatment is given the better the result. The vaccine treatment is worthy of a more extensive trial.

The authors have treated eighteen cases of pertussis with vaccine. They conclude that a certain number of cases will respond favorably to a commercial vaccine. Where a commercial vaccine has not proved successful it would seem desirable to try an autogenous vaccine. The initial dose should be at least 50,000,000 in older children, and this may be doubled at subsequent treatments up to 40,000,000 at five days intervals. Further observations regarding dosage indispensable. A certain number of cases will not respond favorably to a vaccine, and in those it should be continued after a trial of 4 doses. The relative value of the combined vaccine as compared to the single culture vaccine is undetermined. In that the improvement in a few cases was immediate and striking, it seems fair to the authors to suggest but not to recommend, its use.

11. **Blood-Serum of Immunes in Malignant Scarlatina.**—Barker cites four cases with three recoveries and endorses this method of treatment. As described in one case the procedure adopted was as follows: At 10:30 p. m. (February 10) about 1¾ ounces of blood was extracted from the mother's arm. Allowing this to stand, after sterilizing with a little boric acid they were able to secure next morning 1½ drams of supernatant serum, which was injected hypodermically in the child at 10:40 a. m. (February 11). This injection of serum was repeated evening and morning until 4 injections, each between 1½ and 2 drams, were given. The condition of the patient at the time of the blood-serum injection was at its worst—in fact it would have been hard to conceive of how it could have been worse. For twelve hours thereafter no change could be noted. Then it first became evident that not only was the case not retrograding, but slightly ameliorating. The cold baths were followed by not so rapid and marked return of hyperpyrexia, dyspnea was less agonizing, the reflexes formerly abolished began to assert themselves and coma grew less profound. This improvement by twenty-four hours, after the first injection was very manifest and continued progressively to convalescence. What was worth noting also in the case was the fact that aural and cervical sequela were absent, although both adenitis and otitis of no mild type had been present.

Florida Medical Association Journal, Jacksonville

August, I, No. 2, pp. 33-64

14 Quackery, Superstition and Robbery, Ancient and Modern, in Treatment of Disease. W. R. Warren, Key West.
15 Cystitis—Symptom. Report of Cases. J. C. Vinson, Tampa.
16 Abuse of Curet. J. K. Simpson, Jacksonville.
17 Medical Inspection and Education of Schoolchildren Most Probable Solution of Hookworm, Malaria and Other infectious Diseases. J. C. Davis, Quincy.

Georgia Medical Association Journal, Augusta

August, IV, No. 4, pp. 107-135

18 Gaseous Edema. H. J. Williams, Macon.
19 Present Status of Pediatric Teaching in Sixteen Southern States Forming Southern Medical Association. C. A. Rhodes, Atlanta.
20 Cacodylate of Soda. J. T. Stukes, Americus.
21 Diagnosis of Pellagra. G. M. Niles, Atlanta.
22 Sanitary Disposal of Human Waste. T. A. Mann, Brunswick.
23 Case of Morbus Ceruleus in an Adult. J. E. Sommerfield, Atlanta.
24 *Experience with Anoci-Association Anesthesia. E. C. Davis, Atlanta.

24. Abstracted in The Journal, May 2, p. 1428.

Journal of Nervous and Mental Disease, Lancaster, Pa.

August, XLI, No. 8, pp. 489-552

25 *Paralysis Agitans Syndrome with Syphilis of Nervous System. C. D. Camp, Ann Arbor, Mich.
26 *Epilepsy Chiefly from Roentgenologic Standpoint. T. M. T. McKennan, G. C. Johnston and C. H. Henninger, Pittsburgh.
27 Spasmodic Closing of Cerebral Arteries in Relation to Apoplexy. A. Gordon, Philadelphia.

25. **Paralysis Agitans Syndrome with Syphilis.**—A study of the spinal fluid of cases of paralysis agitans has been made by Camp. In ten cases, typical in all respects, it was normal. The cell count in all cases averaged under four, the globulin and albumin were not increased and reducing substance was present. Six of these patients received intravenous injections of neosalvarsan. One patient, age 45, having the disease about two years claimed that the tremor was lessened that his appetite was better and he had less stiffness; objectively, there was a slight lessening of the rigidity but the characteristic tremor persisted. In two other cases there was an improvement subjectively but no objective change. One patient developed severe nausea and vomiting after the second injection and refused further treatment. In two the treatment had no effect whatever. Camp states that a typical Parkinson syndrome may coexist with and be caused by a syphilitic lesion in the central nervous system but that this is not the etiology of the disease paralysis agitans and, furthermore, that any lesion in the central nervous system causing a Parkinson sydrome is likely an irritative rather than destructive one.

26. **Epilepsy Chiefly from Roentgenologic Standpoint.**—Ninety-five cases have been studied by the authors. Seven of these cases were found to be pituitary tumors, and in only one of these was there any other evidence of involvement of the pituitary gland aside from the epileptic attacks. In these tumor cases there was no local bony thickening at the base of the skull, in fact local thinning of the body of the sphenoid or the clinoid processes from pressure was found almost constantly. In sixteen cases there was local thickening of bony tissue that was confined to enlargement alone of the clinoid processes, or to thickening in the anterior fossa of the base of the skull. In 22 cases the local bony change was found in two situations, namely, the clinoid processes and the base of the anterior fossa. In 35 cases there were bony changes in three situations, namely, the clinoid processes, the

anterior fossa and the body of the sphenoid bone. In these cases there is an appearance of thickening along the entire base of the skull. In 15 cases no bony alterations were found.

An analysis of these latter cases shows that six gave clinical evidence of being cerebropathics; two gave clinical evidence of being paresis. One case showed a calcareous degeneration in the center of the pituitary region. One case showed on the roentgenogram that it was a case of internal hydrocephalus. In one case the picture was taken one week after the first attack. In another case, six months after the first attack. The three remaining cases had been epileptic from three to five years with infrequent attacks.

In the first class of cases, namely, in which the clinoids alone were involved or the base of the anterior fossa alone was involved, the average length of time of the existence of the epilepsy was five and a half years. In these cases 14 per cent. showed frequent attacks, as often as once in two weeks. In the second class of cases, namely, with changes in the clinoid processes and the base of the anterior fossa, the average length of time of existence of the epilepsy was seven and a third years. Twenty-five per cent. of these cases had frequent attacks. In the third class, namely, with changes in three places, the average length of time of existence of the epilepsy was four and two-third years. Sixty-six and ⅔ per cent. of these cases had frequent attacks. It would seem evident, therefore, that frequency of attacks has more to do with producing local bony changes than the length of time of existence of the epilepsy. Age does not appear to signify as far as bony changes are concerned. For instance, 1 patient, 5 years of age, exhibited all the features, whereas 1 patient, 56 years of age, showed only one feature.

In the examination of an equal number of roentgenograms in which there was no history of epilepsy, 4 were found with marked clinoids, 2 with a thick anterior fossa, 2 with two features and 1 with three features, about 10 per cent. of alteration, whereas leaving out the cases of tumor the percentage of bony changes found in the epileptics is 80. Only 2 plates showed the three features markedly in cases in which there was no history of epilepsy. It would seem probable from these observations, that the bony changes in epileptics are found only in the so-called essential or idiopathic epilepsy. To sum up: The authors found a condition of local acromegaly in essential epilepsy, which they believe can only be due to venous stasis. This stasis can only come in one way, namely, from pressure within the box-like structure that contains the pituitary gland. The evidence appears to be in favor of a crippling of this gland by pressure. Hypopituitarism would consequently be the result. It is known that epilepsy accompanies this condition. Therefore, it would appear that so-called idiopathic or essential epilepsy is due to a mechanical injury of the pituitary gland.

Kentucky Medical Journal, Bowling Green

August 15, XII, No. 15, pp. 475-508

28 Every-Day Orthopedics. W. O. Humphrey, Louisville.
29 Indications for Cerebral Decompression. G. A. Hendon, Louisville.
30 Diagnosis and Relief of Genito-Urinary Affections. D. Y. Keith, Louisville.
31 Phases of Anesthesia. J. A. Kirk, Louisville.
32 Surgical Treatment of Cancer. R. L. Ireland, Louisville.
33 Two Cases of Puerperal Eclampsia. H. L. Read, Louisville.

Laryngoscope, St. Louis

August, XXIV, No. 8, pp. 709-772

34 Orbital Approach to Cavernous Sinus. H. P. Mosher, Boston.
35 Freezing Interior Turbinate. H. S. Gradle, Chicago.
36 Submucous Operation for Correcting Nasal Deformities. N. P. Stauffer, Philadelphia.
37 Nystagmus Through Closed Eyelids. E. P. Fowler, New York.
38 Operative Treatment of Meningitis. S. J. Kopetzky, New York.
39 Proper Fields of Medicine and Surgery in Diseases of Upper Air Passages. J. A. Thompson, Cincinnati.
40 Air We Breathe. T. Hubbard, Toledo, Ohio.

Michigan State Medical Society Journal, Grand Rapids

September, XIII, No. 9, pp. 515-572

41 *Abderhalden's Sero-Enzyme Test for Syphilis. H. R. Varney and P. F. Morse, Detroit.
42 Gastro-Enterology and Its Problems. B. R. Corbus, Grand Rapids.
43 *Use of Omentum in Abdominal Drainage. L. S. Ramsdell, Manistee.
44 Suggestions in Purchasing and Dispensing of Drugs by Physicians. E. H. Foust, Ithaca.
45 Ectopic Gestation with Rupture into Large Bowel—Report of Case. J. A. Attridge, Port Huron.
46 Case of Marked Indicanuria in Psychopathic Patient. J. H. Agnew, Ann Arbor.
47 Case of Hydrocephalus. A. H. Beifeld, Ann Arbor.
48 Prognostic Value of Functional Test of Kidneys in Case for Prostatectomy. K. M. Scott, Ann Arbor.

41. **Abderhalden's Syphilis Test.**—On the basis of observations made in 75 cases, Varney and Morse claim that the specificity of the Abderhalden technic applies to syphilis. Syphilitics have in their blood-serum enzymes which react with the protein of the organism. Tissue derived from active human lesions are more specific than syphilitic tissue of the rabbit. Mixed infection in the human lesion gives rise to error in mixed infections as shown in their cases of sinus disease, furunculosis, etc. Further work will be required to determine whether all syphilitics have the power of developing ferment and at what stages of the disease the test is present or absent.

The authors believe that polyvalent antigens prepared from several stains of pure culture of the spirochetes offer the best hope for further success with this technic. The degree of the success with the test varies in proportion to the care and precision exercised in its execution. No matter how carefully the material is prepared or the test carried out, this method does not by any means approximate the Wassermann reaction for practical usefulness.

43. **Use of Omentum in Abdominal Drainage.**—Tucking the omentum around the infected area and securing by a stitch or two with fine gut, either to itself in such a way it will stay *in situ*, or often by putting a stitch from the omentum through the lower portion of the infected mass, being careful not to puncture into an abscess cavity, is the safeguard adopted by Ramsdell. When the omentum is not available he often uses the parietal peritoneum in the same way, so that any free pus that may be liberated will lodge outside the abdominal cavity. The procedure protects the rest of the abdominal cavity from free pus which would result in general peritonitis or secondary abscesses. It requires less packing and handling of bowels, which is always desirable. It requires a smaller incision and assures better and quicker drainage. It does away with too large a drain and localizes any secondary hemorrhage. It causes less liability to the formation of undesirable adhesions which would later cause functional disturbances.

New Orleans Medical and Surgical Journal

August, LXVII, No. 2, pp. 95-210

49 Early Cases of Bubonic Plague in New Orleans. H. W. Wade and H. L. Staring, New Orleans.
50 Value of Gibson Chart in Diagnosis and Prognosis of Acute Intra-Abdominal Affections. F. B. Gurd, Montreal.
51 Death during Tonsillectomy from Reflex Inhibition. H. Dupuy, New Orleans.
52 Case of Trichono-Cardiasis Rubra. F. M. Johns, New Orleans.
53 Roentgen Examination of Digestive Tract. A. Henriques, New Orleans.
54 Treatment of Early Tubal Pregnancy. Report of Case. W. Kohlmann, New Orleans.
55 Hexamethylenamin in Urologic Therapy. H. W. E. Walther, New Orleans.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

August, XIX, No. 2, pp. 41-75

56 Early Diagnosis and Prevention of Tuberculosis as Factors in Public Health Work. J. J. Lloyd, Jr., Catawba Sanatorium.
57 Defects and Diseases in Schoolchildren and Their Significance. N. T. Ennett, Richmond.
58 Purpura Hemorrhagica. J. M. Hutcheson, Richmond.
59 Hypopituitarism. J. M. Tompkins, Richmond.

Ophthalmology, Seattle

July, X, No. 4, pp. 591-686

60 Neurology of Fusion Faculty. J. F. Burkholder, Chicago.
61 Chorioidal Sarcoma. G. O. Ring, Philadelphia.
62 Melanosarcoma of Chorioid. D. W. Wells, Boston.
63 Efficiency of Eye under Different Systems of Lighting. C. E. Ferree, Bryn Mawr, Pa.

64 Causes of Far-Sightedness, Long-Sightedness and Cataract. F. Schanz, Dresden.
65 Examination for Color Blindness by Lantern Tests. G. H. Taylor, Sydney, New South Wales, Australia.
66 Sympathetic Ophthalmia. Report of Three Cases. W. Pyle, Jersey City, N. J.
67 Operation for Ptosis. J. H. Claiborne, New York.
68 Crossed Cylinders: Are They Scientific Aid in Refraction? E. L. Kniskern, Centralia.
69 Unusual Case of Ophthalmic Migraine. E. W. Alexander, San Francisco.
70 Auto-Intoxication and Eye Diseases. C. W. Hawley, Chicago.

Surgery, Gynecology and Obstetrics, Chicago

September, XIX, No. 3, pp. 303-426

71 *Fate of Transplanted Bone and Regenerative Power of Its Various Constituents. D. B. Phemister, Chicago.
72 Intravenous Ether Anesthesia. H. Kümmell, Hamburg-Eppendorf, Germany.
73 Results of Operation (Laryngofissure) for Intrinsic Cancer of Larynx. E. Schmiegelow, Copenhagen, Denmark.
74 Typhoid Perforation. G. E. Armstrong, Montreal.
75 Suture of Levator Ani Muscle in Perineorrhaphy Operations. H. Jellett, Dublin, Ireland.
76 Hyperthyroidism: Results of Operation. C. H. Mayo, Rochester, Minn.
77 *Origin and Nature of Fetal Movements. E. A. Graham, Chicago.
78 Mastitis Lactantia. A. B. Keyes, Chicago.
79 Chronic Perforation of Peptic Ulcer. Report of Four Cases. J. R. Verbrycke, Jr., Washington, D. C.
80 *Observations of Inguinal Lipomata Based on One Hundred and Fifty-Four Herniotomies. K. Speed, Chicago.
81 Concerning Formation of New Vagina in Case of Congenital Vaginal Malformation. G. Schubert, Beutben, Upper Silesia.
82 Results of Neglected Chronic Intestinal Stasis. A. C. Jordan, London.
83 Recent Experiments Defining Dangers of Anesthesia. Y. Henderson, New Haven, Conn.
84 *Gonococcus Complement-Fixation Test Employing Specific and Non-Specific Antigens. B. A. Thomas, R. H. Ivy and J. C. Birdsall, Philadelphia.
85 Vesico-Uterine Transposition. T. J. Watkins, Chicago.
86 *Roentgen Diagnosis of Duodenal Ulcer. A. W. George and I. Gerber, Boston.
87 Open Method in Reduction of Fractures. W. R. MacAusland, Boston.
88 Roentgenographic Diagnosis of Prostatic Enlargement by Means of Air Inflation of Bladder. A. Hyman and L. Jaches, New York.
89 *Woven Catgut Splints for Open Treatment of Fractures. D. C. Straus, Chicago.
90 Surgical Treatment of Complete Prolapse of Uterus. E. Novak, Baltimore.
91 Hemostasis: Its Employment in Surgery of Brain. C. E. Dowman, Jr., Birmingham, Ala.
92 Malignant Disease of Retained Testicle. Report of Case. A. P. Butt, Davis, W. Va., and A. Arkin, Morgantown, W. Va.
93 Surgical Helps. G. P. Coopernail, Bedford, N. Y.
94 Two-Eyed Aneurysm Needle. G. T. Tyler, Greenville, S. C.

71. **Fate of Transplanted Bone.**—Basing his observations on a large number of experiments, Phemister states that osteogenesis in bone repair occurs from the inner layer of the periosteum, from the endosteum, and to a much less extent from bone-cells and the fibrous content of the haversian canals. Viability of the cells of the transplant is dependent largely on their ability to get nutrition and to some extent on their degree of cell specialization. Periosteum and endosteum, being superficially located, receive sufficient nutrition to survive and proliferate. The great mass of bone-cells being away from the surface and surrounded by an extensive and difficulty permeable calcified matrix gradually undergo necrosis and absorption. A few about the periphery and lining the larger vascular spaces as well as the fibrous elements of the latter may survive and proliferate. Blood-forming cells of the marrow, despite their favorable nutrition and probably because of their greater degree of specialization, gradually undergo necrosis. The subsequent changes which the transplant undergoes depend on its composition and location.

Transplantation into a bony defect: Functional demand stimulates the surviving cells of the transplant to osteogenesis. Callus forms at either end which helps unite the transplant and the fragment. Creeping substitution of the dead cortex gradually occurs by the ingrowth of capillaries with dilatation of the haversian and Volkmann's canals, absorption of the old bone, and deposition of new bone in its place. When periosteum and endosteum are left on, the transplant contains the greatest number of living osteogenetic cells. Consequently, union between the ends and substitution of the dead cortex occurs most constantly and rapidly. When periosteum is removed, osteogenesis producing union and substitution occurs from the endosteum and few surviving cells of the cortex, but the process is much slower than when periosteum is left on. When both periosteum and endosteum are removed, new bone formation from the few surviving cells is slight, and union with the ends of the fragments and substitution of the dead bone are very much delayed. If such a transplant is cut into small pieces before implantation more cells survive because of the increase in surface and facilities for nutrition and greater functional irritation. Consequently, considerable callus forms from each piece and, fusing with that from the others and from the ends of the shaft, rapidly restores the continuity of the shaft. Ossification of the callus proceeds from the surface of each piece and substitution of their dead portions gradually occurs. Periosteum transplanted into ulnar defects and in subperiosteal ulnar resection failed to regenerate bone and restore the shaft, but in subperiosteal resections with reimplantation of cortex either alive or after boiling it formed a layer of callus about the reimplanted portion. Subperiosteal resection of the humeral shaft in the young was followed by regeneration of the shaft. Periosteum gets its chief impulse for osteogenesis not from any injury to itself but from the injured bone to which it is attached or intimately related and which demands repair.

Transplantation into soft parts: The same portions survive as in a bony defect but since there is no functional demand for bone in this location little proliferation or substitution occurs and the transplant is gradually absorbed. Transplanted periosteum produces little or no new bone for the same reason. The presence of an infection, if severe, results in death and failure of the transplant; if mild, there is set up in it an osteomyelitis with excessive proliferation and absorptive changes, but the transplant takes and is functionally a success. The details of all the experiments are given by Phemister.

77. **Origin and Nature of Fetal Movements.**—All Graham's experiments were made with guinea-pig far advanced in pregnancy. The method adopted for direct observation of the fetal movements has been opening the uterus but leaving the membranes and placenta attachment undisturbed. The methods used to produce asphyxia of the fetus have been: (1) ligation of uterine vessels, (2) occlusion of the trachea of the mother, (3) direct inhalation of CO_2 by the mother. In all the experiments which involved opening of the abdomen a light ether anesthesia was maintained throughout; and the animals were killed with ether at the close of the experiments without being allowed to regain consciousness.

Graham found that asphyxia of the fetus of sufficient grade will result in the production of fetal movements, more or less severe. The movements thus produced vary from mere attempts at respiration, sometimes resembling the fetal hiccup of Mermann, to more muscular contractions, simulating the general convulsions of CO_2 poisoning seen in the adult. At times these are sufficiently violent to be seen through the abdominal wall as distinct shocks. All of the generally recognized varieties of fetal movements, except those concerned with swallowing and sucking, have been produced experimentally by methods which induced an asphyxia of the fetus. The intra-uterine respiratory efforts are not accompanied by an aspiration of any appreciable quantity of fluid into the lungs and hence are not incompatible with life after birth. The explanation of this is not clear, but probably the contact of the skin with the air is an important factor in opening up the respiratory passages. The hypothetical intra-uterine rhythmical respiratory movements of Ahlfeld (*physiologische intra-uterine Athmungsbewegungen*) were not observed. The suggestion is made that the various active movements of the fetus experienced by many pregnant women in the latter part of pregnancy are expressions of a more or less severe, but usually transient, asphyxia of the fetus.

80. **Inguinal Lipomata.**—Of 154 herniotomies performed by Speed, lipomata were found present in the opened canal 73 times, giving a percentage of 47.4.

84. **Gonococcus Complement-Fixation Test.**— Reviewing the results of their work to date with especial reference to a study of specific versus non-specific antigens to be reported in detail in a later communication, the authors have deduced the following facts: 1. Very rarely have polyvalent antigens prepared from meningococci, pneumococci, streptococci, staphylococci, colon bacilli or cornybacteria sufficed to fix complement. This does not jeopardize the specificity of the gonococcus antigen, since it is explained on the basis of supervention of a mixed infection. 2. In 10 per cent. of serums examined a weakly positive result was obtained with polyvalent *Micrococcus catarrhalis* antigen; in these cases the reaction was much more marked with the various gonococci antigens. Thus it may be inferred that the association between the gonococcus and the *M. catarrhalis* is not positively and absolutely defined; and it is not unlikely, on the other hand, that a culture of the *M. catarrhalis* is occasionally included in a supposedly specific polyvalent gonococcus antigen, while on the other it is undoubtedly true that a mixed infection, often due to the *M. catarrhalis*, exists in patients suffering from gonorrhea and its complications.

3. A negative gonococcus fixation test does not necessarily mean that the patient is not infected with the gonococcus; in a primary uncomplicated acute case the authors have never observed a positive reaction prior to the sixth week, nor have they obtained positive reactions in which the anterior urethra or vagina alone were involved. 4. A positive result apparently is more specific than the Wassermann reaction, since thus far the authors have found no disease other than gonorrheal in which a positive result was obtained. 5. A positive reaction has been discovered in 21 per cent. of patients supposedly clinically cured; such patients, therefore, should not be discharged from treatment or observation until a negative response is obtained, provided the patient has not been the recipient of immunotherapy. Thirty-three per cent. to 75 per cent. of patients with chronic posterior urethritis, prostatitis, and seminal vesiculitis, with recurrent exacerbations, demonstrate a positive reaction. Sixty-six per cent. of all stricture cases have shown a positive result. 8. Approximately .100 per cent. of cases of active epididymitis or arthritis, at least by the fifth week, have demonstrated a positive gonococcus complement-fixation reaction. The test has proved of value in gynecology in the differential diagnosis of various pelvic inflammatory diseases from one another and from neoplastic formations; also in the differentiation of certain acute and chronic arthritides. Sociologically, the gonococcus complement-fixation test seems destined, along with the Wassermann, to play an important rôle in the future in determining the matrimonial fitness of candidates.

86. **Roentgen Diagnosis of Duodenal Ulcer.**—Of 82 operated cases of duodenal ulcer an exact diagnosis was made by George and Gerber in 78 cases. In 3 cases duodenal ulcer was reported, but there were minor errors and diagnosis. In 1 case there was a complete failure of diagnosis. Of 150 patients operated on in whom a negative roentgen diagnosis was made, duodenal ulcer was not found in any case. In 1 necropsy a duodenal ulcer was found, in which the previous report had been negative.

89. **Woven Catgut Splints for Treatment of Fractures.**—Straus uses catgut woven in the form of a rug with long fringed ends, the rug to be just a little shorter than the circumference of the bone, and the fringed ends to be used to tie the rug about the bone as a splint. These ends when tightly tied stretch the rug about the bone, holding it firmly in place. The idea has been carried out in a number of experiments on dogs. The splints have been made of rough raw German catgut No. 4 and No. 5. The raw gut has been given to an expert oriental rug weaver, who weaves it on a hand-loom, the gut being wet during the process of weaving to soften it so that it is possible to make a very closely woven rug. The rugs are long enough to encircle the femur of a large dog, and are so woven that the length of the rug can easily be reduced to exactly fit any bone of a smaller circumference. This is of great practical importance and is accomplished by having the strands that run the long way of the rug (the warp) consist of separate fibers, while the cross fibers of the rug (the woof) are made of one long, continuous strand of gut which is alternately woven over and under the long parallel strands. To shorten the rug to fit any given bone, it is only necessary to cut one end of this cross-strand free, unravel a sufficient amount, and then tie the free end again. Thus in human work it would be necessary to have only two sizes of rugs, one for large bones (femur, humerus) and one for small bones (radius, ulna). When the finished rug is dry it is cut from the loom and is ready to be sterilized. This has been done by the Bartlett iodin method only.

The bone ends are exposed by a free linear incision and the muscles gently separated from the bone; the catgut rug is then introduced around the bone, care being taken not to injure or displace the periosteum. Being sure that the line of fracture is at the center of the splint, begin tying the two opposite free ends of each of the longitudinal strands of the rug. If it seems desirable to reenforce the splint, the free ends after having been tied are long enough to make it possible, after having tied the first series of suture ends to carry the free ends around the tied splint and tie each pair of ends again over the original row of knots, so as to thus double the thickness of the splint. When all the strands have been tied and cut, the soft parts are united over the bone with No. 0 plain catgut, the fascia and skin each similarly closed, and the limb put up in a plaster cast, which is left in place for three or four weeks. The result in the ten dogs on which this procedure has been tried have been encouraging. However, with the splints as they have so far been used there is some interference with external callus formation, the only apparent external callus being just beyond either end of the splint in the form of a collar of callus; the internal and intermediary callus seem well developed. There have been three cases of non-union. One was due to local infection. The second was in a dog that died from an infected struma. The third was in a dog that contracted the mange and was killed. No trace of the splint is to be seen at the end of three weeks and no inflammatory reaction seems to be produced by the presence or absorption of the splint, except in a few cases in which a serous oozing occurred soon after the operation. This ceased shortly, however, and the healing was *per priman.*

United States Naval Medical Bulletin, Washington

July, VIII, No. 3, pp. 357-540

95 Economy and Waste in Naval Hospitals. E. M. Shipp and P. J. Waldner, U. S. Navy.
96 New Method of Physical Training in U. S. Navy. J. A. Murphy, U. S. Navy.
97 Study of Etiology of Gangosa in Guam. C. P. Kindleberger, U. S. Navy.
98 Unreliability of Wassermann Tests Using Unheated Serum. E. R. Stitt and G. F. Clark, U. S. Navy.
99 Laboratory Note on Antigens. G. F. Clark, U. S. Navy.
100 Prevention of Mouth Infection. J. Head, Philadelphia.
101 Medical Department at General Quarters and Preparations for Battle. A. Farenholt, U. S. Navy.
102 Bacteriologic Index for Dirt in Milk. J. J. Kinyoun, U. S. Navy.
103 Brief Description of Proposed Plan of Fleet Hospital Ship, Based on Type Auxiliary Hull. E. M. Blackwell, U. S. Navy.
104 Diagnostic Value of Cutaneous Tuberculin Test in Recruiting. E. M. Brown, U. S. Navy.
105 Sanitary Mess Table for Hospitals. F. M. Bogan, U. S. Navy.
106 Suggested Improvement of Navy Scuttle Butt. E. M. Blackwell. U. S. Navy.
107 Malaria Cured by Neosalvarsan. F. M. Bogan, U. S. Navy.
108 Case of Rupture of Bladder with Fracture of Pelvis. H. F. Strine and M. E. Higgins, U. S. Navy.
109 Use of Succinimid of Mercury. T. W. Reed, U. S. Navy.
110 Points in the Post-Mortem Ligation of Lingual Artery. O. J. Mink, U. S. Navy.
111 Wounded at Vera Cruz. H. F. Strine and M. E. Higgins, U. S. Navy.
112 Case Reports from Naval Hospital, Portsmouth, N. H. F. M Bogan, U. S. Navy.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

August 22, II, No. 2799, pp. 349-384

1 Evolution of Shockless Operation. (Anoci-Association). H. M. W. Gray.
2 Opium and Omnopon. H. Sahli.
3 Treatment of Wounded in Naval Warfare. D. W. Hewitt.
4 Hygiene of Reading and Near Vision. J. H. Parsons.
5 Teaching of Ophthalmology. A. M. Ramsay.
6 Case of Disseminated Sclerosis Treated by Inoculation. H. L. Smith. Clinical Report. T. G. Stewart.

Journal of Pathology and Bacteriology, London

July, XIX, No. 1, pp. 1-138

7 Histology of Some Lesions Present in Pneumonic Plague. W. Lien-Teh and G. S. Woodhead.
8 *Cytology of Blood in Passive Immunity. J. S. C. Douglas.
9 *Excretion of Urinary Solids: Urine in Nephritis of Scarlet Fever and Diphtheria. J. P. Kinloch.
10 Employment of Fat Stains for Differentiation in Preparing Museum Specimens. R. H. Malone and L. Heddick.
11 Differential Staining of Fats. E. T. Bell.

8. **Cytology of Blood in Passive Immunity.**—Evidence is adduced by Douglas that in rabbits, as in man, the leukocytes are more numerous at 2. p. m. than at either 10 a. m. or in the evening, and that this is independent of the time of feeding. The increase in the number of leukocytes in man was proportionately the same at noon and at 3 p. m. when an artificial leukocytosis was produced. The introduction of horse-serum subcutaneously into man produces no change in the amount of hemoglobin or in the number of red cells, but produces a leukocytosis.

The injection of antitoxin in man produced no specific recognizable alteration in the cytology of the blood, the rate of the rise and of the fall in the leukocytes being the same whether a normal or an antitoxic serum was injected. The introduction of antimicrobial (antistreptococcic) serum was followed by an absence of any leukocytosis in the case of man. This probably depends on a failure of the body to respond with a leukocytosis to an injection of serum which follows a series of previous ones, each of which has succeeded in producing such a change, comparable to the failure in the power of antibody formation described by Axel Jörgensen after repeated daily inoculations of antigen, the two phenomena being possibly closely related.

The varieties of cells taking part in the leukocytosis as a response to serum injections in the case of man are (1) the polymorphonuclear and the eosinophilous group, and (2) the transitional and large mononuclear group, no change being demonstrable in (3) the lymphocyte group or (4) the mast cell group. No change could be detected in the hemoglobin percentage or in the numbers of red corpuscles in rabbits as the result of injecting rabbit-, goat- or horse-serums, whether normal or containing antibodies, by whatever route they were introduced.

No change could be demonstrated in the numbers of leukocytes in rabbits as a result of the introduction of rabbit- or goat-serums, whether normal or containing agglutinin, by whatever route they were injected, while a leukopenia may be found to follow the introduction of horse-serums, whether normal or containing antibodies. No evidence has been found that the antibodies as such have any influence on the cytology of normal blood in the case of either man or rabbits.

9. **Excretion of Urinary Solids.**—Kinloch found that a typical diminution in the quantity of urine occurs in the glomerular nephritis of scarlet fever and diphtheria, and this diminution is present at the very commencement of nephritis. In the pure forms of interstitial nephritis in scarlet fever and diphtheria, no diminution of urine occurs other than can be explained by the elimination of an extra amount of water by the lungs and skin in the presence of pyrexia. In the glomerular nephritis of scarlet fever, nitrogen is diminished both in percentage constitution and in daily output during the acute period of the illness. In the glomerular nephritis of diphtheria, no initial percentage diminution occurs. In the interstitial nephritis of scarlet fever and diphtheria, nitrogen is freely eliminated from the onset, and this continues throughout the nephritis.

An immediate and long-continued diminution of chlorin occurs in glomerular nephritis in scarlet fever. The elimination of chlorin is free and regular in the interstitial nephritis of scarlet fever. A diminution of chlorin occurs at the onset of glomerular nephritis in diphtheria, and with the early diuresis the chlorin output is at once increased. The output of chlorin is free in the interstitial nephritis of diphtheria when uninfluenced by diet or pyrexia.

The daily output of phosphorus in the whole series of cases is commonly low. No general ratio between the output of nitrogen and sulphur can be determined. In the glomerular nephritis of scarlet fever and diphtheria the daily output of ethereal sulphates is commonly large in the acute stage of the nephritis.

The examination of the urine in various forms of nephritis indicates certain functions of the kidney. The glomerulus normally passes out by far the greater part of the water of the urine. This action of the glomerulus is in great part destroyed in glomerular nephritis. The glomerulus may excrete a larger proportion of nitrogen than has hitherto been assumed. This would explain the diminished nitrogen percentage and daily output in the acute period of glomerular nephritis in scarlet fever in which the glomerular lesion is extensive. The retention of nitrogen might, however, be explained by supposing that it is dependent on secondary body changes resulting from the renal disease. A special secretory function is to be attributed to the glomerular epithelium in order to explain the excretion of chlorids. This is well shown in the glomerular nephritis of scarlet fever, in which the diminished chlorid phase continues in the presence of free urinary excretion, with augmented diet, and in the absence of pyrexia. The excretion of chlorids follows a definite course in each type of nephritis.

The glomerulus appears to have little effect on the excretion of phosphates. With increased diuresis in glomerular nephritis the percentage of phosphates in the urine tends to be diminished, and the total daily output tends to be increased. The glomerulus excretes sulphates independently of the excretion of nitrogen. This is found early in the glomerular nephritis of scarlet fever in which a high percentage of sulphur accompanies a low percentage of nitrogen. In cases of nephritis in which nitrogen is freely eliminated from the first, a high sulphur output accompanies the high nitrogen excretion. The excretion of nitrogen appears to be unaffected by the degenerative changes found in the tubular epithelium.

Reabsorption of chlorids in the renal tubules does not explain all the variations of chlorid excretion. The lesions found in the cells of the convoluted tubules in interstitial or glomerular nephritis do not appear to influence the excretion of phosphates. Any reabsorption in the renal tubules has not been shown definitely to influence the percentage or total daily output of phosphates and sulphates.

Lancet, London

August 22, II, No. 4747, pp. 481-536

12 Heredity in Man. W. Bateson.
13 *Diagnostic Value of Complement Fixation Reaction in Tuberculosis. J. McIntosh, P. Fildes and J. A. D. Radcliffe.
14 Sepsis in Recognition and Non-Recognition of Syphilis. E. M. Corner.
15 Importance of Very Thorough Examination in Cases of Foreign Body Alleged to Have Been Swallowed or Inhaled. E. D. Davis.
16 Case of Congenital Atresia of Bile-Ducts. S. Wyard.

13. **Complement Fixation Reaction in Tuberculosis.**—The technic employed by the authors in carrying out the tests resembles in principle that elaborated for the Wassermann reaction. As an indicator they used both sheep and ox corpuscles, and found the latter to be of advantage when the test serum contains an excess of the so-called "normal amboceptor" for sheep's corpuscles. Further, they allow one and one-half hours instead of one hour as in the Wassermann reaction for fixation to occur. The antigen was a simple emulsion of living tubercle bacilli. The strain

employed in the tests was of the human type isolated from a case of phthisis, and was grown on Dorset's egg medium. Group 1. "Pathologically certain" cases: In this group are included only those cases of tuberculosis in which there was definite histologic or bacteriologic evidence of tubercle. An analysis of 85 cases gives the following results: Phthisis, 43 cases, 33 positive, 76.7 percentage, surgical tuberculosis (with the exception of tuberculous glands), 26 cases, 21 positive, 80.7 percentage, tuberculous glands, 16 cases, 6 positive, 37.5 percentage. Group 2. "Clinically certain" cases: In this series the diagnosis of tuberculosis rests on clinical examination only, as opposed to bacteriologic or histologic. In this series the results were as follows: Phthisis and pleurisy, 18 cases, 10 positive, 55.5 per cent., surgical, 42 cases, 30 positive, 71.4 per cent. Group 3. Tentative cases: The serums of 74 cases in which the diagnosis of tubercle was purely tentative were examined, and of these 18 were positive. The positive results included cases of pulmonary fibrosis, pleurisy, enlarged cervical glands, ulceration of bladder, synovitis, persistent pyrexia, etc. Group 4. Controls: The control cases, 87 in number, were taken without any selection and included a great variety of disease conditions in addition to normal individuals. All were negative with the exception of 3 cases, these being 2 cases of leprosy and 1 of Addison's disease. The serums of 18 syphilitic patients with positive Wassermann reactions were tested and all reacted negatively. In the face of these controls the reaction is regarded as being highly specific.

Annales de Médecine, Paris

June, I, No. 6, pp. 593-680

17 Epithelioma of the Thymus in a Case of Myasthenia. H. Claude, L. Géry and R. Parak.
18 Unusual Location of Murmur with Mitral Insufficiency. C. Pezzi and E. Bordet.
19 *Resistance of Blood-Corpuscles to Hemolysis by Saponin. E. May.
20 The Crisis in Pneumonia. L. Cotoni. Commenced in No. 5.
21 Signs of Interlobar Pleurisy. (Syndrome pseudopleurétique de la base dans les pleurésies interlobaires.) G. Laroche, Brodin and Huber.
22 Abscess in Side of Pharynx. A. Broca.
23 Urobilinuria as Sign of Liver Disease. M. Labbé and P. A. Carrié.

19. **Test Hemolysis with Saponin.**—May reports extensive study of the hemolysis induced by a 1 to 10,000 solution of saponin in a 9 to 1,000 solution of salt. The reaction depends on the cholesterin and lecithin content, and hence the corpuscles present a normal resistance to saponin in disease not affecting the lipoidemia, such as pernicious anemia and Bright's disease.

Archives des Maladies de l'App. Digestif, Paris

July, VIII, No. 7, pp. 361-420

24 *Functioning of Gastro-Enterostomy Opening with Permeable Pylorus. (Les bouches gastro-intestinales dans le cas de pylore perméable.) H. Hartmann.
25 *Fatal Acute Ulcerative Colitis. C. Flandin.
26 *Treatment of Hemorrhagic Rectocolitis with Tendency to Erosions. G. Friedel.

24. **Gastro-Enterostomy Opening with Permeable Pylorus.**—Hartmann reports a number of experiments on dogs and the roentgenoscopic findings in nineteen patients after gastro-enterostomy. In all the clinical cases the motor functioning of the stomach had not been impaired and no evidence of stenosis of the pylorus had been found at the operation. Recently reexamined after an interval ranging from one to eleven years, it was found that all the stomach content was evacuated through the pylorus in one case, and all through the artificial opening in eleven; in the others part passed through each opening. These clinical experiences confirm his experimental conclusion that the fact that the pylorus is and remains permeable does not inevitably render the artificial opening useless. A gastro-enterostomy in the antrum of a permeable pylorus amounts to the physiologic exclusion of the pylorus and the duodenum. But when the artificial opening is made nearer the cardia, in the reservoir part of the stomach, then this opening is useless for evacuation of stomach contents if the pylorus is permeable.

25. **Acute Fulminating Colitis.**—Flandin's patient was a previously healthy woman of 44 taken suddenly with acute dysenteriform colitis, fatal in less than four weeks, during which her sufferings were extreme. Some improvement followed exclusion of the large intestine, an artificial anus having been made in the small intestine, but the condition already was beyond repair and fatal perforation soon followed. The course is usually rapid and menacing in these cases of acute ulcerative colitis. Mummery has compiled eighty cases with 50 per cent. mortality.

26. **Hemorrhagic Rectocolitis.**—Friedel refers to cases in which there does not seem to be any ulceration and the blood gathers on the walls of the bowel like the sweat on the brow. There seem to be minute erosions, scattered or confluent, and the bleeding occurs at these points. He describes nine cases in detail. Hemorrhagic colitis of this type develops with intervals of apparent health; after fifteen or twenty days of diarrhea and hemorrhages all seems to return to normal. With cancer in this region there is usually less loss of blood at one time but the slight hemorrhage keeps up continuously. Treatment should act on the colitis and the rectitis, healing the erosions and supplementing or correcting insufficient gastric digestion or other dyspepsia by appropriate measures. Water and oil, he says, are seldom tolerated by the rectum but a mucilaginous vehicle is tolerated and acts as a kind of dressing for the inflamed mucosa. Surgical treatment is a comparatively serious matter and the outcome is not always satisfactory, while it entails danger of a permanent fistula. Medical measures, on the other hand, have always given him good results, while the technic is simple, easy and within the reach of all.

Journal de Chirurgie, Paris

July, XIII, No. 1, pp. 1-144

27 *Operative Treatment of Ankylosis of the Knee of Gonococcal Origin. (Traitement sanglant des ankyloses du genou d'origine gonococcique.) J. Okinczyc.
28 Fracture of Bones and Wounds of Joints during Balkan War. Laurent.

27. **Ankylosis of the Knee of Gonococcal Origin.**—Okinczyc deplores the too frequent custom of publishing cases before a decisive judgment on the outcome of operative treatment is possible, and the tendency to publish only the favorable cases. He recently encountered a man whose stiff knee had been resected a few months before with interposition of a flap of aponeurosis, but the knee is now stiff again. He has been able to find only eighteen cases on record of operative treatment of ankylosis of the knee of gonococcal origin, including Murphy's two cases, and the ultimate outcome is known in only five. Even in these the results of treatment were generally poor, so that there is little evidence to encourage operative interference unless the knee is severely crippled by the ankylosis or when both knees are affected, or, with incomplete ankylosis, there is pain when the leg is used. On the whole, it is much safer to respect a solid ankylosis and not to try to restore functioning to the knee. The gonococcal process is peculiarly prone to recur as the lesion usually extends into the tissues around the joint. Payr waited a year after the last symptoms before operating and then removed the capsule, ligaments, and fibrous tissue around the joint, leaving the musculature intact, and interposing pedunculated flaps of aponeurosis lined with cellular-fat tissue from the vicinity, and he has reported perfect functioning of the knee two years after the operation at two sittings, seven weeks apart. In his two other cases, with less extensive operations, the ankylosis has recurred in one. Okinczyc cites in conclusion two cases successfully treated by Morestin with arthrectomy to insure firm ankylosis after failure of various other measures.

Lyon Médical

July 26, XLVI, No. 30, pp. 141-180

29 Foreign Body in Left Bronchus; Harmless Extraction with Bronchoscopy; Three Cases. J. Garel, A. Gignoux and Arcelin.
30 Delivery of Living Pygopagus. Lafourcade and Pfeiffer.

August 2, No. 31, pp. 181-220

31 Gastro-Intestinal Disturbance from Kidney Calculi. L. Tixier.

Presse Médicale, Paris

August 1, XXII, No. 61, pp. 585-596

32 Paralysis of the Quadriceps Muscle. Ducroquet.
33 Apparatus to Correct Overriding of Stumps with Fracture of Long Bone. H. Hantcher.
34 Periodicity in Biology. (Les phénomènes périodiques.) Techoueyres.
35 *Auscultation Findings with Heart-Block. (Dissociation auriculo-ventriculaire complète.) G. Clarac and C. Pezzi.

35. **Auscultation Findings with Heart-Block.**—Clarac and Pezzi regard as most important the appearance now and then of a reenforced explosive first sound whenever it happens that the auricle and ventricle contract together; that is, when the systole of the auricle coincides with the first part of the contraction of the ventricle. This occasional explosive first sound always testifies to total heart-block if the ventricle beat is regular. Other significant auscultation findings are a systolic murmur at the mitral and tricuspid orifices, and also faint, dull, brief auricle sounds during the diastole, heard as the patient holds his breath.

Semaine Médicale, Paris

August 5, XXXIV, No. 31, pp. 361-372

36 *Serodiagnosis of Syphilis by the Coagulo-Reaction. L. Hirschfeld and R. Klinger.

36. **Serodiagnosis of Syphilis by the Coagulo-Reaction.**—Hirschfeld and Klinger call attention to an inhibition of coagulation which seems to be specific to syphilitic serum alone. Coagulation is the result of precipitation of the fibrinogen in the plasma by the thrombin. The thrombin itself is the product of the interaction of a serozyme (an albuminoid), a cytozyme (a lipoid), and a calcium ion. The organ extracts used for the Wassermann test represent an active cytozyme and this property is not affected by normal serum; coagulation occurs with them whether normal serum is added to them or not. But addition of syphilitic serum arrests all coagulation. This is the principle of the new test, the inhibition of coagulation in oxalated beef blood-plasma when syphilitic serum has been added to the organ extract previously diluted with rabbit or other serum and a 1 per cent. solution of calcium in physiologic salt solution. The findings with this coagulation test in 750 cases paralleled those of the Wassermann test except that the coagulo-reaction seemed perhaps a little more sensitive.

Beiträge zur klinischen Chirurgie, Tübingen

June, XCII, pp. 1-866. Eppendorf Hospital Festschrift

37 Surgical Pavilion of Hamburg-Eppendorf Hospital. H. Kümmell.
38 *General Anesthesia for Patients Who Dread the Operation Extremely. (Narkotisieren ängstlicher Menschen.) Scholz.
39 Intravenous General Ether Anesthesia. H. Kümmell.
40 *Postoperative Tetany. Wiebrecht.
41 Therapeutic Puncture of the Corpus Callosum. (Ueber den A. v. Bramann'schen Balkenstich.) Ringel.
42 *Operative Treatment of Epilepsy. Weispfenning.
43 Ankylosis of Jaw Causing Chin to Recede; Two Cases. (Kiefergelenksankylose mit "Vogelgesicht"-Bildung.) H. Hoffmann.
44 Pathologic Anatomy and Symptoms of Exophthalmic Goiter. (Morbus Basedowii.) P. Sudeck.
45 *Operation for Cancer of the Lower Esophagus. Hauch.
46 *Operation for Ruptured Aneurysm of the Aorta. H. Kümmell.
47 Gunshot Abdominal Wounds. (120 Bauchschussverletzungen aus dem Balkankrieg.) Wieting-Pascha.
48 *Infection of Gunshot Wounds. Kayser.
49 Diaphragmatic Eventration and Hernia. Hildebrand.
50 Pain in the Shoulder as Remote Phrenic-Nerve Symptom with Acute Surgical Abdominal Disease. Löffelmann.
51 *Operations on the Stomach. E. Roedelius.
52 Operative Treatment of Duodenal Ulcer; Sixty-Five Cases. H. Kümmell.
53 Acute Pancreatitis; Seventeen Cases. H. A. Dietrich.
54 *Disturbances after Cholecystectomy. (Warum bleiben nach Exstirpation der Gallenblase so häufig Beschwerden zurück?) Graff and A. Weinert.
55 *Gall-Stone Surgery. (Zur Gallensteinchirurgie.) J. Schulz.
56 Deformity of the Bile-Ducts. (Abnormitäten der Gallenwege.) J. Oehler.
57 Operations on the Spleen; Seventeen Cases. (Zur Chirurgie der Milz.) H. Hoffmann.
58 Appendicitis in Eastern Asia. E. Birt.
59 Connection between Pericolitis and Chronic Inflammation of the Cecum. (Blinddarmentzündung.) Vorderbrügge.
60 Cancer of Large Intestine, Rectum excepted; Thirty-Nine Cases. (Zur Chirurgie der malignen Dickdarmgeschwülste.) A. Welter.
61 Improved Murphy Button. (Der Stachel-Murphyknopf: Zeitsparende Veränderung am Murphyknopf.) A. Flockmann.
62 *Operative Treatment of Tuberculosis of Abdominal Cavity; Eighty-One Cases. (Bauchhöhlentuberkulose.) P. Kayser.
63 Importance of Surgical Training for the Gynecologist. F. Engelmann.
64 Ruptured Tubal Pregnancy; One Hundred Cases, All with Recovery. (Geplatzte Tubargravidität. A. Wepfer.
65 Alexander-Adams Operation; One Hundred and Eighty-Two Cases. H. S. Pfeiffer.
66 Traumatic Rupture of Pregnant Uterus. Thöenes.
67 Case of Tardy Rachitis. O. Bickel.
68 *Tabetic Arthritis. (Zur Klinik, Unfallbegutachtung und Behandlung tabischer Gelenkerkrankungen.) F. Oehlecker.
69 Bone-Plastic Operation for Enchondroma of the Hand. F. Oehlecker.
70 End-Results of Bloodless Treatment of Intracapsular Fracture of the Neck of the Femur. (Intrakapsuläre Schenkelhalsfrakturen.) Pohrt.
71 Curable Muscular Deformity of the Forearm in the Newly Born. (Eine Supinations-Extensionsbehinderung der Vorderärme resp. Hände bei Neugeborenen.) J. G. Chrysospathes.
72 Treatment of Talipes Calcaneus. (Hackenfuss.) W. Böcker.
73 Dislocation-Fracture of Head of Humerus. Janz.
74 Dislocation-Fracture of the Talus. Goldammer.
75 Impalement Injuries; Five Cases. Bengsch.
76 *Diagnosis and Treatment of Cancer. (Krebsstudien.) A. Stammler.
77 *Digestion Leukocytosis in Differentiation of Gastric Ulcer and Cancer. F. Bonhoff.
78 Operations for Arthrodesis on Shoulder, Hip-Joint and Knee. H. Gocht.
79 *Roentgenotherapy at the Eppendorf Hospital. H. Gocht, Kotzenberg and H. Derks.
80 *Radiotherapy and Anion Therapy. P. Steffens.
81 Technic for Radiotherapy of Cancer of Throat and Esophagus. Albanus.

38. **General Anesthesia for the Badly Frightened.**—Scholz refers to patients whose dread of the operation is worse for them than the operation itself. The mere entering the hospital and the preparations frighten them. Whatever the cause, their fright may be so intense that the anesthetic actually fails of its effect at first. They may conceal their dread but it is generally revealed by some sign on the part of the vasomotor and visceral innervation, which is peculiarly unstable in patients of this category. They are inclined to tachycardia, false angina pectoris, polyuria, glycosuria, nervous diarrhea, transient numbness, angioneurotic edema, shallow, rapid breathing with occasional deep breaths, tremor, pallor and dryness of the mouth. Carbon dioxid seems to be a special product of extreme dread.

Scholz has been making a special study of the influence of the above factors on the action of general anesthetics. The blood-pressure in such patients suffered a constant and regular decline as the ether or chloroform was administered, until consciousness was entirely lost. The average drop in sixteen cases was 44 mm. mercury in fifteen minutes. In one case the decline was 69 mm. In such a condition of low blood-pressure the patient is exposed to various dangerous reflex processes, especially to reflex syncope from irritation by the anesthetic of the terminals of the trigeminus in the nose, the reflex action from this involving the vagus terminals in the heart and the respiration center in the medulla. Rosenberg has found that this reflex can be warded off by cocainizing the nose. The fatalities as general anesthesia is just commenced are undoubtedly due to this dangerous reflex, although they are usually ascribed to an "idiosyncrasy to the chloroform or ether." The action of the reflex is exaggerated further by the abnormally small amount of carbon dioxid supplied to the respiration center owing to the shallow and fluctuating breathing, as Henderson has explained.

Another important reflex is shown in the extreme dilatation of the pupil from the first moment of the anesthesia, and its persisting thus instead of gradually contracting under the influence of chloroform. This should be regarded under all circumstances as a sign of a menacing idiosyncrasy to chloroform. He has encountered two such cases this year; in one, under 3 gm. of chloroform and 25 gm. of ether given with extreme caution, the appendix was removed without mishap from the badly frightened boy of 12; the other patient, a much-excited man of 32, had a profound collapse. Scholz regards this symptom as the only one which points from the very first to impending danger. Another set of reflex symptoms are like those noticed in a person who has fainted from fright. They can be brought on by forcibly holding the patient, pressing down the inhaling mask, or other procedure that frightens him. These symptoms occur mostly in young, half-grown patients whose hearts are especially liable to fail under sudden fluctuations in blood-pressure.

Still another set of reflexes may be elicited from the abdomen: if the operation is commenced before all reflex action is abolished. In a very nervous woman of 32 the blood-pressure dropped from 152 to 87 in fifteen minutes. The chloroform was then dropped and ether given and the blood-pressure went up. Eight minutes later, in profound anesthesia with blood-pressure of 110 mm., the peritoneum was incised and the appendix drawn out. The blood-pressure dropped as this was done to 75, a minute later to 66, and then to 62 mm. The anesthetic was then discontinued and the pressure rose to 77 mm. and the appendix was removed without mishap. If the heart had been less able to stand the strain in this case, there might have been a fatality. The trouble was probably a sudden relaxation of the tonus of the vessels of the viscera superposed on the injury already inflicted on the heart by the toxic action of the anesthetic. This last set of symptoms includes the reflexes elicited by abrupt changes of position. Scholz gives a number of roentgenograms of anesthetized dogs first reclining and then suspended with the head down, showing the remarkable displacement of the diaphragm possible in these conditions, and the resulting obstruction to the pumping action of the heart. In his two most serious clinical cases of collapse from change of position under general anesthesia the patient was in a dentist's chair.

He expatiates further on the remarkably long persistence of the reflexes in extremely frightened patients. Even after the corneal reflex is abolished, the pulse fluctuates with every tug at the viscera, and the anesthesia has to be made deeper. This encroaches on the margin of safety, and extreme care is necessary to give the anesthetic as regularly as possible and not to allow any wavering between the arousing of the reflexes and syncope. After the reflexes are abolished there may be collapse from overdosage, but this is always ushered in by a disturbance in the breathing—any change from the tranquil deep breathing is a signal for stopping the anesthetic. When tranquil deep breathing is restored, the anesthetic can be resumed. The whole secret is to tranquillize the patient, avoid anything suggesting force, and refrain from beginning to operate too early. Persons with an exceptional dread of the operation are exposed to peculiar dangers at the first whiffs of the anesthetic.

40. **Tetany after Operations for Goiter.**—Wiebrecht urges to refrain from injuring the parathyroids in operating on the thyroid. If tetany develops, he advises the implanting of fresh human parathyroid gland tissue or administering horse or beef parathyroids by the mouth. If neither of the above is practicable, parathyroid tablets might be given, along with calcium lactate. Curschmann advocates giving 20 drops of a 10 per cent. solution three times a day, gradually increasing the dose until the patient is taking several teaspoonfuls daily.

42. **Operative Treatment of Epilepsy.** — Weispfenning reviews the experiences in this line in Kümmell's service, a total of 31 cases of epilepsy without known trauma, 11 of traumatic epilepsy, and 2 of the Jacksonian type. Of 26 true epileptics, 11 per cent. were cured and 10 per cent. materially improved. Transient improvement was noted in 4 of the 13 listed as unmodified by the operation. In 11 of them the epilepsy was of long standing—in 7 over nine years. In the 11 traumatic epilepsy cases only one patient was cured and one improved. One of these patients developed general epileptic seizures for the first time after a large defect in the skull had been closed with a celluloid plate. The intervals were at first only four weeks but have been growing much longer and the seizures much milder.

45. **Cancer of the Lower Esophagus.** — Hauch gives an illustrated description of eighteen cases of cancer in the middle and lower esophagus in which he succeeded in removing the growth. One patient succumbed to a recurrence a year after successful resection of the cancer in the lower esophagus and cardia. None of the other patients survived the operation or the following few days. The operative shock was evidently too great, possibly from the very efforts to shorten the operation.

46. **Operation for Ruptured Aneurysm of the Aorta.**—The man of 52 succumbed to heart weakness a few hours after Kümmell had sutured the aorta after cutting and remodeling the artery so that it approximated the normal size. The circulation was shut off for twelve minutes by compression with the fingers and was then gradually released. The suture held perfectly and the patient was in good condition after the hour operation. It was done under intravenous ether anesthesia, keeping the heart action good with saline and ether. The previous loss of blood, however, had reduced the patient's strength so that he succumbed to gradual heart failure. The operation was done from the rear, resecting ribs (four to ten) and pushing the unopened pleura out of the way. This affords ample access to the intrathoracic esophagus and aorta. The aneurysm in this case was above the diaphragm.

48. **Infection of Gunshot Wounds.**—Kayser declares that modern experiences and science have reconciled theory and practice and shown that immobilization is the most powerful means at our command to ward off and fight sepsis. Fixation, he reiterates, is the key to success; fixation of the bacteria in the vicinity of the wound, and fixation of the dressings; fixation of broken limbs by supporting dressings, and fixation of the patient to his bed so that he will be transported on the one litter from the battle-field to his home. Bacteria are always with us, and the organism is generally able to cope with them if left unmolested and perfectly quiet.

51. **Operations on the Stomach.**—Roedelius reviews 312 operative cases in the last three years for gastric ulcer, cancer or other affection; resection was done in 43 cases and excision in 3, in 33 merely an exploratory laparotomy. The outcome was excellent as a rule in all but the 130 cases of cancer. Of 38 treated by resection, 39.5 per cent. have been clinically cured to date. The Roentgen rays were systematically applied in a large number of cases of malignant disease and although no benefit was apparent in many of the advanced cases, yet the unmistakable favorable effect in a few instances justifies further work in this line.

54. **Why Patients Still Have Disturbances after Cholecystectomy.**—Graff and Weinert sent question-blanks to 130 patients whose gall-bladder had been removed, inquiring as to their present condition. They had 124 blanks returned and 87 of the patients stated that the operation had cured them once and for all, and 4 others said that they had had no disturbances since the first month. That is to say, 73.4 per cent. had been permanently cured by the operation. About 78 patients mentioned that their previous tendency to constipation had been cured by the operation; stomach disturbances as a rule also subsided permanently afterward. In four cases attacks of pain and jaundice indicated that gall-stones had been left behind, but two had only a brief single attack and have been well since. In ten cases at least, adhesions are evidently responsible for the disturbances and the technic should be planned to ward off production of adhesions. Subserous enucleation of the gall-bladder and roofing over the bed of the gall-bladder with peritoneum aid in preventing the development of adhesions, as also restricting tamponing to the minimum. If adhesions have already formed, the wounds left when they are broken up will give cause for still more adhesions to develop—another reason for operating early.

55. **Gall-Stones.**—Schulz regards the interference with the free circulation of bile during pregnancy as the chief cause for the development of gall-stones later. Not only mechanical, but chemical and other factors, aid in the process, including passive hyperemia, exaggerated destruction of red corpuscles and the toxic effect of fetal excrementitious matters. Among the 584 women in his 654 gall-stone operative cases in the last three years only twelve had not borne children among the 572 who were married. A tendency to

obesity was noticeable in a large number. Gall-stone trouble does not develop, however, as a rule until the influence of infection and trauma is superposed on the damage done by the pregnancy. In 145 cases the first attack of gall-stone colic occurred during a pregnancy, in forty-eight during the puerperium. This is in the proportion of 66 per cent. of his 385 operative cases in the last five years. Whether trauma alone could bring on cholelithiasis is still a question. In several of his cases there was a history of contusion of the upper abdomen. Most of his patients were between 28 and 48 but two were girls of 3 and 5. In one a stone weighing 3 gm. was found in the neck of the gall-bladder, which was much irritated, the walls thickened, with bleeding erosions and tubercle bacilli at various points. She was given iron, iodin and cod-liver oil systematically for the first three of the five years after the gall-bladder was removed, and seems to be in perfect health. The symptoms in the other child indicated acute septic cholecystitis and the gall-bladder was removed. Staphylococci were found in the bile but no concrements were discovered. A small abscess was found in the liver at the operation. The child has since been well and strong with no further abdominal symptoms.

In one of Schulz' cases the gall-stone was 10 by 3 cm. and weighed 72 gm. It had been palpated and mistaken for a cancer in the stomach. In another case he found a double gall-bladder, and in another no gall-bladder at all. The common bile duct was much dilated in this case. Reexamination of 145 patients whose gall-bladders he had removed showed all entirely free from disturbances, while 10 in 25 cholecystostomy cases complained of more or less persisting trouble. In 59 another operation had to be done and concrements were found in 14; suture threads were evidently responsible for the recurrence of gall-stones in 7.

62. **Tuberculosis in Abdominal Cavity.**—Kayser states that 48 (59.3 per cent.) are still living of the 81 patients given operative treatment and 29 have been cured for more than four or five years and an additional 10 for nearly as long. The others were not improved by the operation or have been lost track of. The tuberculous process was in the peritoneum or intestine in all but 2 mesenteric-gland and 10 uterine-adnexa cases. The 81 cases are described in detail; 40 of the patients had fever when the operation was contemplated and 50 per cent. of these are among the permanently cured. This experience is in sharp contrast to most of the literature on the subject.

In 26 cases there was a tuberculous process in the lungs and 10 among the permanently cured patients had complicating lung disease, and yet they recovered after operative treatment of the abdominal focus. He did not remove the uterus in operating on tuberculous tubes or ovaries, trusting that the uterus would return to normal after removal of the focus above; 7 were permanently cured in his 10 cases of this kind. He emphasizes the importance of measures after the operation to stimulate peristalsis and induce hyperemia, allowing the patient to leave the bed early, and supplementing operative treatment with a course of sanatorium treatment. He explains the benefit from operative treatment as the result of removing the effusion which has been mechanically hindering the circulation in the region besides exerting a toxic action. The benefit from getting rid of this is enhanced by the hyperemia which follows the irritation from the operation. It acts like an acute aseptic inflammation and in turn exerts a powerful antibacterial action. Infiltration occurs in the tubercles and they become destroyed, and shriveling connective tissue forms around and over them.

68. **Tabetic Arthritis.**—Oehlecker remarks that the arms are the seat of the neuropathic joint affection in syringomyelia while the legs are affected more often in tabes. The lack of pain in the tabetic joint affection is its most striking feature. No other joint process, not even a mild tuberculous or deforming arthritis, not even a syphilitic process, is so free from pain and other disturbance as arthritis of neuropathic origin. The neuropathic arthritis very rarely is recognized as such by the general practitioner; it sails along for years under the flag of rheumatism, tuberculosis, a sprain, or the like until other symptoms reveal the underlying tabes. As the patients feel so little disturbance from their joint trouble, no one pays much attention to it, while in fact the severest destructive processes are going on in the bones. There is seldom pain until pressure or suppuration involves the skin over the joint. The absence of pain in an arthritis should suggest possible tabes in every case.

Another characteristic of the neuropathic arthritis is the abnormal movability of the joint, especially hip and knee. A sudden swelling of the joint is usually from a complicating sprain or dislocation. The bones in and around the joint may feel grotesquely thickened and the whole aspect suggests something different from ordinary joint trouble. The pupil reflex is generally lost by this time and the tendon reflexes are modified, but the tabes has not reached the stage of ataxia, although the patients may have lancinating pains in the legs. A spontaneous fracture may be the first manifestation of the disease; the Wassermann reaction in the serum and spinal fluid is an aid in differentiation. He gives an illustrated description in detail of eleven cases and emphasizes the necessity for putting an end completely to all functional use of the joint, excluding it from use by appropriate orthopedic apparatus or casts, and starting a vigorous course of antisyphilis treatment. He has never witnessed any influence from the latter on the neuropathic arthritis, but it is indispensable to strive to arrest the tabes. When an operation is necessary, he resects the knee or amputates the foot and reports eleven cases in which he obtained solid healing of the bone, and says that this should be the aim. The neuropathic arthritis does not seem particularly predisposed to infection unless a fistula is already installed. He insists that the joint capsule and the synovia must be entirely removed when an operation is attempted, and the bones should be shaped in such a way that they will not slide on each other. The after-care is even more important than the operation itself, giving the bones the stimulus to repair from weight bearing. In many cases a solid Pirogoff stump is better than to have recurring trouble in the foot, but orthopedic treatment is the main reliance in nearly all cases.

76. **Cancer Research.**—Stammler reports trials with various drugs in treatment of cancer, all giving disappointing results. He found that none of the biologic tests can be relied on implicitly.

77. **Digestion Leukocytosis Differentiates Gastric Ulcer and Cancer.**—Bonhoff states that in his 14 cases of cancer and in 77 cases of cancer in the literature there was no digestion leukocytosis in 90 per cent. of the total 91 cases. When a leukocytosis did occur during digestion, the increase was only 1,100 and 1,400. On the other hand, a positive leukocytosis was observed during digestion in all but 3 of the 15 cases of gastric ulcer examined. The increase was usually about 2,000, but it sometimes ran up to 5,000. These findings confirm the value of digestion leukocytosis in differentiating cancer from an ulcer in the stomach, although the test is not infallible.

79. **Roentgenotherapy of Cancer.**—Kotzenberg calls attention to the more intensive action of the Roentgen rays the more blood there is in the region being exposed. This is one reason for the elective action of the rays, he says, as malignant tumors usually contain exceptional quantities of blood. He describes the technic in use at the Eppendorf hospital and his experience with 53 cases of cancer of the breast (including 3 men). In 31 cases a series of exposures was made after amputation of the breast but the results were not encouraging; recurrence has followed in 54 per cent. of the 22 whose later history is known. Five of the 13 patients with inoperable uterine cancer were clinically cured by the roentgenotherapy alone, one for three years to date. The outcome is not known in 2 other cases. Among the 20 cases of uterine cancer recently reexamined, 10 of the patients were found materially improved and 2 clinically cured. All the patients spoke of the relief of pain after the Roentgen exposures; life was rendered bearable and lengthened by two or three years in many cases. The exact details

of the total material are tabulated. The histologic structure of the tumor does not seem to influence the results. The experiences with prophylactic after-exposures were so discouraging that it seems as if they actually brought on recurrence.

80. **Radiotherapy and Anion Treatment.**—Steffens ascribes great therapeutic efficacy to the beta rays. He was led to this conclusion by studying the effect of climatic conditions, such as the reason why a rheumatic joint feels twinges when damp weather is impending, even before it has arrived. This may be owing to free ions in the atmosphere, which affect the sensitive joint. He has worked out from this a method of treatment based on the assumption (the reasons for which he explains in detail), that certain rheumatic, gouty and nervous disturbances become aggravated when the number of negative ions in the air falls below a certain limit. A radio-active bath supplies the negative ions and enables them to penetrate into the body in the form of beta rays. These rays can be generated artificially and applied in different ways, and he claims to have obtained fine results from them. Among his various tests he relates that fresh, virulent, pure cultures of typhoid bacilli are killed by the anion radiation while the culture medium is not modified by it. The affections amenable to anion treatment are those due to sluggish elimination of waste or disturbance in the vasomotor system. Increased amounts of uric acid are thrown off in the urine under its influence.

Monatsschrift für Kinderheilkunde, Leipzig

July, XIII, No. 3, pp. 113-164

82 Diphtheria Bacilli Carriers. G. van't Hoff.
83 Treatment of Pylorospasm in Infants. J. Peiser.
84 Metabolism with Osteogenesis Imperfecta; Especially Calcium Metabolism. (Stoffwechsel bei Osteogenesis imperfecta mit bes. Berücksichtigung des Kalkumsatzes.) A. Bookman.
85 *Dissemination of Scarlet Fever by Fomites. R. Weigert.
86 An Unusual Case of Meningocele Complicating Whooping-Cough. R. Weigert.
87 Alcoholic Extract of Vegetables as a Treatment for Scurvy. (Zur Frage des Barlow-Schutzstoffes.) E. Freudenberg.
88 Growth and Development of Full-Term, Under-Weight Infants. (Wachstum und Entwicklung untergewichtiger ausgetragener Neugeborener.) H. Opitz.

85. **Mode of Transmission of Scarlet Fever.**—Recently the tendency has been to attribute the greatest danger in the spread of scarlet fever to the nasal and buccal secretions of the patient or of persons who come in contact with him during sickness or convalescence. Weigert describes two cases which show that there is greater danger of infection from inanimate objects, such as clothing and toys, and that these should be thoroughly disinfected always. In one of his cases the infection took place eight years after the original case of scarlet fever.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 30, XXXV, No. 91, pp. 953-960

89 *Tincture of Iodin for Sterilization of Hands. (La disinfezione delle mani dell' operatore col metodo Grossich.) P. Costantini.

89. **Iodin in Sterilization of the Hands.**—Costantini applies a 30 per cent. alcoholic solution of iodid to his hands, swabbing them with cotton, or rinses his hands freely in a 3 per cent. solution and has found this amply sufficient for all purposes. In one emergency he had to reduce a prolapsed uterus with purulent cervicitis and rectocele and then proceed at once to a laparotomy for operative correction of the prolapse. It was all done without gloves, and his trust in the iodin sterilization of his hands was amply justified by the healing by primary intention. As also in a case in which just after resecting an epithelioma on the scalp, he had to clear out the woman's uterus from the relics of a twin abortion.

Riforma Medica, Naples

July 25, XXX, No. 30, pp. 813-840

90 *Stretching the Sciatic Nerve in Treatment of Sciatica. (Cura della sciatica, mediante lo stiramento cruento del nervo sciatico.) G. Nannini.
91 Chronic Hemorrhagic Inflammation of the Prepatellar Bursa. (Studio della borsite emorragica cronica prepatellare pseudoncoplastica.) G. Campora.

90. **Treatment of Sciatica by Stretching Sciatic Nerve.**—Nannini reports the cure by this means in six cases of chronic sciatica which had long resisted all other measures. The cure was prompt and permanent and he marvels that practitioners in general do not resort oftener to this comparatively simple procedure instead of letting their patients' sufferings drag on for months and years. The nerve must be reached by pushing the muscles out of the way, through an incision in the rear of the root of the thigh, just below the edge of the buttocks. The nerve must be freed from adhesions and isolated over a certain stretch and then the peripheral and the central ends pulled in turn, gently and continuously, without sudden jerks liable to injure the nerve. The traction should be applied under general anesthesia and in such a way that the mechanical effect can be felt the entire length of the nerve. The effect is enhanced by having the limb flexed and then stretched to the utmost by an assistant as the traction is being applied several times. There are vague pains at first for a few days and then paresthesia in the lower leg, possibly a sensation as if the leg were gone; then all symptoms fade away and by the tenth or twelfth day the patient can get up and begin to use his leg. One patient had sciatica on both sides and the nerve was found fastened with numerous stout adhesions. The second leg was treated six months after the first; this patient was a woman of 45 and the sciatica was of three years' standing.

Rivista Ospedaliera, Rome

July 15, IV, No. 13, pp. 609-651

92 Modern Treatment of Acute Peritonitis. A. Cimoroni.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 25, LVIII, No. 17, pp. 1347-1430

93 *Action of Lactagogs. G. J. Huet.
94 Anthropology of the Inhabitants of Niassa. J. P. K. de Zwaan.
95 The Financial Burden of Workmen's Compensation. (Het lastenpercentage der ongevallenwet.) J. A. Korteweg.

May 2, No. 18, pp. 1431-1510

96 Indications for Tonsillotomy or Tonsillectomy. H. Burger.
97 *Case of Alkaptonuria. M. W. Scheltema.
98 *Cancer in the Netherlands. C. A. V. Stuart. Commenced in No. 18.

May 9, No. 19, pp. 1511-1598

99 Coxa Vara. B. Brand.

May 16, No. 20, pp. 1599-1686

100 Diabetes Mellitus; Cause and Treatment. C. von Noorden.
101 *Recurrence of Gall-Stones after Cholecystectomy. (Herhaling van galsteenlijden na operatie.) H. J. Lameris.
102 *Inheritance of Color-Blindness. (Erfelijkheid van kleurenblindheid.) P. J. Waardenburg.

May 23, No. 21, pp. 1757-1844

103 *Infants Suffering from Deficient Nourishment. (Uitgehongerde zuigelingen.) C. de Lange.
104 *Treatment of Paraphimosis. D. van Capellen.
105 Modern Belief in "Miracles." (Hedendaagsch Mirakelgeloof.) G. van Rijnberk. Commenced in No. 18.

93. **Action of Lactagogs.**—Huet tested on four healthy women some widely advertised lactagogs, and states that no influence from their use was apparent either on the quantity or composition of the milk secreted.

97. **Alkaptonuria.**—Scheltema's patient was a thin little girl of 6. The aspect of the urine was normal when voided but it turned dark brown on exposure to light and left brown spots on the linen. This was noticed soon after birth, and further that the stains appeared especially pronounced about the third day after cow's milk had been given for a day. The child was rather pale but otherwise apparently normal, with no tendency to discoloration of the ears or sclera (ochronosis), but the cerumen was almost black and responded positively to the iodate reaction, which he commends highly for this purpose. The child's urine contained a number of brown tube-casts and calcium-oxalate crystals but no cystin, leucin or tyrosin crystals. On boiling the urine or cerumen with a few crystals of potassium iodate the fluid turns red, showing the presence of alkapton. He knows of only four cases on record in which the alkaptonuria proved transient. In all the others the alkaptonuria persisted unmodified by any measures.

98. **Cancer in the Netherlands.**—Stuart states that the mortality from cancer in the Netherlands has increased

from 0.5 to 1.1 per 1,000 inhabitants since 1875. During this period the number of cases of malignant disease under the age of 20 has increased by 315 per cent.; between 20 and 50, by 246 per cent.; between 65 and 80, by 446.1 per cent.; and over 80, by 890.2 per cent. The proportion of cancer deaths to the total mortality has increased under the age of 20 from 0.43 to 2.05 per cent.; between 20 and 50, from about 24 to 77; between 50 and 65 from 82 to 216; between 65 and 80, from 38.12 to 147.40 and for over 80 from 11.02 to 54.55 per cent. The total increase in the proportion of cancer deaths to the mortality at large has been from 21.49 per cent. in 1875 to 81.37 per cent. in 1912. One fact stands out in his tables, namely, that the increase in cancer at all ages, except between 20 and 50, has been greater among men than among women. The increase in men between 20 and 50 has been from 2.09 to 3.4 per cent.; in women, from 3.13 to 4.26 per cent. for each 10,000 inhabitants.

101. **Recurrence of Gall-Stones after Operations.**—Lameris' case was apparently an instance of recurrence, as the woman's gall-bladder had been removed two years before and the bile duct carefully searched. The structure of the gall-stone found at the second operation, however, disproved the idea of recurrence, as the structure in the center unmistakably indicated that it was a calculus overlooked at the first operation, which had gradually enlarged by incrustation to its present size. The patient was a woman of 43 who had borne ten children.

102. **Inheritance of Color-Blindness.**—Waardenburg has noticed that the sex plays a part in the inheritance of color-blindness as it may be transmitted through normal daughters to grandsons. He urges physicians to investigate conditions in regard to heredity among the color-blind; whether the taint dies out, and whether when a woman is color-blind there was a familial tendency in both parents, also the different forms which the color-blindness may assume in different members of the family. He says that the first cases of color-blindness on record were in three brothers (Huddart, 1777), while the other children were normal. It is estimated that about 3 per cent. of all men are color-blind but only 0.25 per cent. in women.

103. **Starving Infants.**—De Lange refers to infants kept on rice water or barley water—possibly by a physician's orders—for some transient illness but which the mothers in their mistaken zeal continued long after the necessity for it had passed. The child is actually starving to death on this inadequate nourishment. De Lange has encountered twenty-four cases of the kind in the last two years, and she tabulates them in instructive fashion to show the present status; the exact causes; the measures applied, and the recovery under them; only four succumbed. De Lange remarks that she had never supposed there was any call in the Netherlands for an organization like the British Society for the Prevention of Cruelty to Children but since she has found two dozen infants thus starving to death, usually from blundering solicitude, she thinks there is certainly a call for reform. They resembled in appearance infants with relative acidosis from loss of water and salts—the condition which the Germans call "decomposition"—but the starved babies were not so apathetic and their livid tint was not so pronounced. Great caution is necessary at first in giving nourishment to an actually starving infant. Buttermilk renders good service here.

104. **Treatment of Paraphimosis.**—Van Cappellen injects into the edematous internal layer of the prepuce a weak solution of an anesthetic containing a little epinephrin. Under the influence of this the swelling subsides and the retraction of the foreskin can be readily overcome. He has applied this procedure in several cases and with constant satisfaction. The operation for the phimosis can then be done at leisure.

Semana Medica, Buenos Aires

May 7, XXI, No. 19, pp. 1005-1064

106 Filterable Viruses. R. Kraus.
107 *Toxic Neuroretinitis and Iridocyclitis under Salvarsan; Seven Cases. R. Argañaraz.
108 Vaccine Therapy of Typhoid. (Vacuna tifica Dessy.) F. L. Grapiolo.
109 *Gelatine Tampon after Operations on the Nose. (Hemostasia nasal post-operatoria.) A. Ferreyra.
110 Symptomatology of Circulatory Apparatus. A. Viton.
111 Position of the Bed in relation to the Magnetic Meridian, Rotation of Earth, etc. (Orientacion de nuestro lecho.) S. V. de Castro.
112 *To Render Finger Prints Visible. (Nuevos reactivos para la revelacion de huellas digitales invisibles.) Maestre and Lecha-Marzo.

107. **Toxic Neuroretinitis and Iridocyclitis.**—Argañaraz reported in 1912 six cases of severe optic neuritis following on the use of salvarsan; two were encountered in his own practice and the others were clients of other local physicians. He now reports a similar group of a severe toxic affection following the use of salvarsan or neosalvarsan; four in his own practice and three from the experience of other local physicians—the disturbances affecting the uveal tract and the sensory apparatus of the eye in these cases. The symptoms observed suggest a toxic action from the drug. In the cases in which the salvarsan was continued after they had developed—assuming that they were the work of spirochetes that had escaped the action of the salvarsan—the symptoms grew progressively worse as the drug was continued. One patient became blind and another suffered such intense pains that he pleaded to have his eye enucleated. The iridocyclochoroiditis became progressively worse with hemorrhages and secondary glaucoma, entailing the destruction of the eye. This fate also confronts another patient and no benefit has been derived from vigorous mercurial treatment. This young man had been given systematic mercurial treatment at the time he contracted syphilis, in 1912, and then was given two intravenous injections of salvarsan with an eight-day interval. Twelve days later his right eye developed iritis and he was given a systematic course of mercurial treatment, with iodid, but the serous iridocyclitis continued to progress, the iris became atrophied and adherent and vision from 1/4 had dropped to mere perception of outlines at about 7 inches. The further course in this case is not known.

In one of the group previously reported the syphilis was of fourteen years' standing, and had been kept under control with mercury. Then a single injection of salvarsan was given and bilateral optic neuritis developed at once, entailing almost total blindness. In conclusion Argañaraz cites from the literature various cases of amblyopia consequent on arsenical medication before salvarsan was discovered. The assumption that the eye affection in his cases would not have developed if the dosage had been adequate is disproved by two of the cases related in which the doses had been large and pushed after the first signs of trouble, the patient receiving six intravenous injections of neosalvarsan in four months, each of 0.9 gm. This is the patient, a man of 44, who begged to have the eye removed on account of the persisting pains; corneal sclerotomy was done twice and gave considerable relief.

109. **Gelatine Tampon after Operations on the Nose.**—Ferreyra injects about 10 gm. of a 10 per cent. gelatinized serum into the nose after an operation, having found that it spreads and rapidly hardens, forming an ideal tampon to arrest and prevent all hemorrhage. It leaves a passage open, while it is free from the danger of secondary hemorrhage later, such as is always to be feared when an ordinary tampon is removed.

112. **To Render Finger Prints Visible.**—More than twenty-one different methods for this purpose have been devised, but Maestre and Lecha-Marzo call attention to the superior value of zinc oxid to show up a finger print on a black background. For prints on paper, glass, etc., they recommend a mixture of iodin and eosin, heated until it vaporizes. The violet vapor then applied to the finger print brings out the lines very distinctly and permanently enough for the purpose. On paper, platinum black is even better. It has revealed finger prints not detectable by any other means in several criminal cases in their experience. Before anything is applied, the supposed finger print is photographed under oblique illumination.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. LXIII, No. 13 Chicago, Illinois September 26, 1914

CHONDRECTOMY OR OPERATIVE TREATMENT OF BRONCHIAL ASTHMA *

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The term "rigid dilatation" aptly defines a condition of the thorax wall often seen in old cases of emphysema and bronchial asthma. The bony, cartilaginous and muscular framework of this wall in young and normal subjects is united into an elastic lattice or basketwork, semirigid yet yielding, called very picturesquely by the Germans the basket of the chest (*Brustkorb*).

Functionally the thorax may be contrasted with the entirely rigid pelvis on the one hand and the nonrigid abdomen on the other, being intermediate in character—more flexible than the former and less flexible than the latter. Unlike the abdominal wall, which has powerful compression but only passive dilating power, the thorax wall has active expansion, creating negative pressure or suction and relatively little compressive force—chiefly passive.

In bronchial asthma and vesicular emphysema the chest becomes dilated or barrel-shaped and loses its power to contract when relaxed. The cartilages connecting the ribs to the sternum may take on a new hardness, due to partial ossification or calcification. They become asbestos-like and relatively firm and brittle in texture in some old patients, so that passive or elastic contraction of the chest is lost. The dilatation of the alveoli and lung tissue is so great that the chest wall remains fully expanded and the thorax loses nearly all power of lateral contraction. This produces or exaggerates the well-known symptom of expiratory dyspnea. Respiration must be carried on almost wholly by the diaphragm, which of itself has little control except over the inspiratory act. This is helped in part by the neck muscles which can fix and raise the clavicles and first rib, thereby lifting the whole thorax.

LOSS OF EXPANSION

In numerous cases examined in our clinic expansion was less than 1 cm., and in several it was nil, or too small to measure with the tape.

We owe what we know of the mechanical or surgical treatment of emphysema and apical tuberculosis to certain studies of a young Breslau physician over fifty years ago—1858. Freund, later a celebrated gynecologist at Strassburg developed this subject in eight papers from 1858 to 1910. These suggestions, though published, lay almost unnoticed until after Listerism and the perfection of thoracic surgery, when he himself began to put his theories into practice and had the unusual satisfaction of seeing his technic adopted by Von den Velden, Garré, Hansemann and numerous other clinicians and freely credited as the Freund operation.

The term "Freund's operation" defines two distinct procedures, namely, the operation to relieve the barrel-shaped chest or rigid dilatation of old asthma and emphysema, and the operation to expand the upper outlet of the chest in certain types of apex tuberculosis. Both these operations, I am certain, have proved beneficial and even life-saving in my experience, but the latter—the one for emphysema—is of more practical importance so far in my work because more frequent.

MECHANICS AND PATHOLOGIC ANATOMY

Von den Velden, following Freund's classical work, shows the importance of defining clinically the various forms of rigid thorax, as the senile, or presenile, which is not in the form of dilatation or due to cartilage changes, the paralytic form and that due to kyphosis or rachitis, etc. The anatomic picture of rigid dilatation of asthma is peculiar and this form only is suitable for surgical treatment.

The essential feature is the calcification of the rib cartilages. They become bone-like and rigid, so that the chest wall cannot contract. Certain observers, as von Hansemann, take the rather extreme position that this bony condition rather than the asthma is the primary cause of the disease, the lung changes, such as thinning and atrophy of the alveolar walls, being secondary.

It is not necessary to believe this to admit the value of Freund's operation of chondrectomy. Surgical relief is possible in a certain type of these cases and ought promptly to be employed before dyspnea, cyanosis and too grave secondary changes have made all measures futile. I have found that these patients, usually old people with confirmed bronchial asthma and arteriosclerosis, nevertheless stand the interference remarkably well and are rapidly, almost instantly relieved, so as to be conscious of a betterment in their breathing and to show it in diminished cyanosis.

The method employed is a thoracoplasty which removes the costosternal joint and costal cartilages and substitutes a fibrous or hinge-like union of ribs to sternum, restoring at once full expansion to the thorax wall. Thoracic surgery has lost its terror, which was due largely to the dread that hangs about the unknown, and we no longer hesitate to open a pleural cavity without any cabinet or differential pressure. This operation need not endanger the pleura or pericardium, although both are exposed, and does not, in my experience, cause any great amount of shock or present any serious technical difficulties.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

REASONS FOR CHONDRECTOMY

It is the aim of the operator to detach from their sternal connections four of the ribs,—the second, third, fourth and fifth, and to make them permanently mobile by cutting out their cartilages. These four ribs are the only ones directly uniting the sternum, except the first, which will be referred to later. The diastasis of ribs from sternum is to be permanent. The intervening 3 or 4 cm. of non-rigid chest wall make a hinge joint to take the place of the excised hardened cartilages. Immediately after the operation there is more than a hinge action, a bellows or back-and-forth movement. The rib ends move longitudinally, alternately widening and narrowing the space between their cut ends and the sternum. This is lost later as the space narrows in healing. It is even difficult to maintain the hinge action because the cartilages tend to grow again unless all traces of perichondrium are extirpated. Special means of preventing this are a part of the plan of operation.

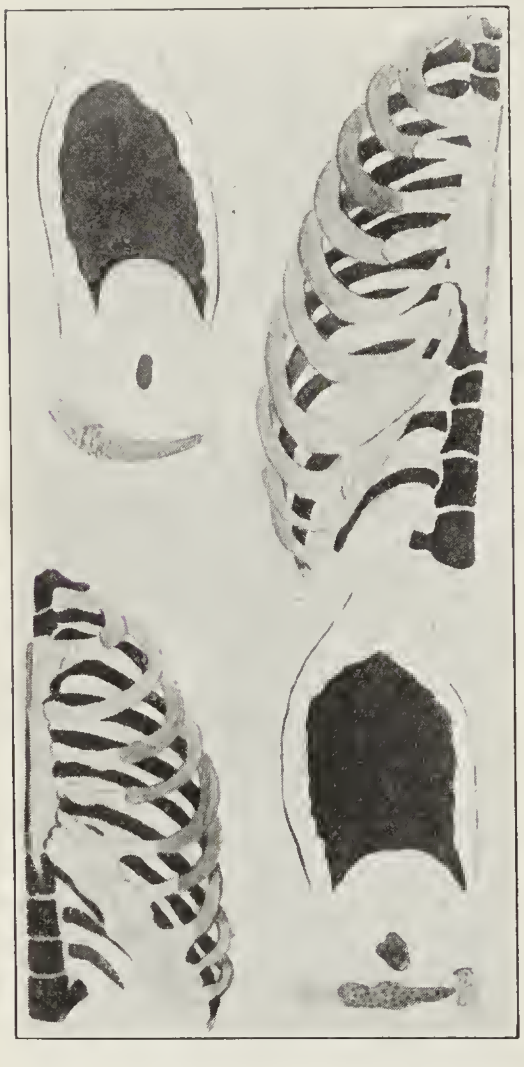

Fig. 1.—Normal chest wall and form of pleural cavity (above) contrasted with rigidly dilated wall and cavity (below) as sketched by Freund, Garrè and others.

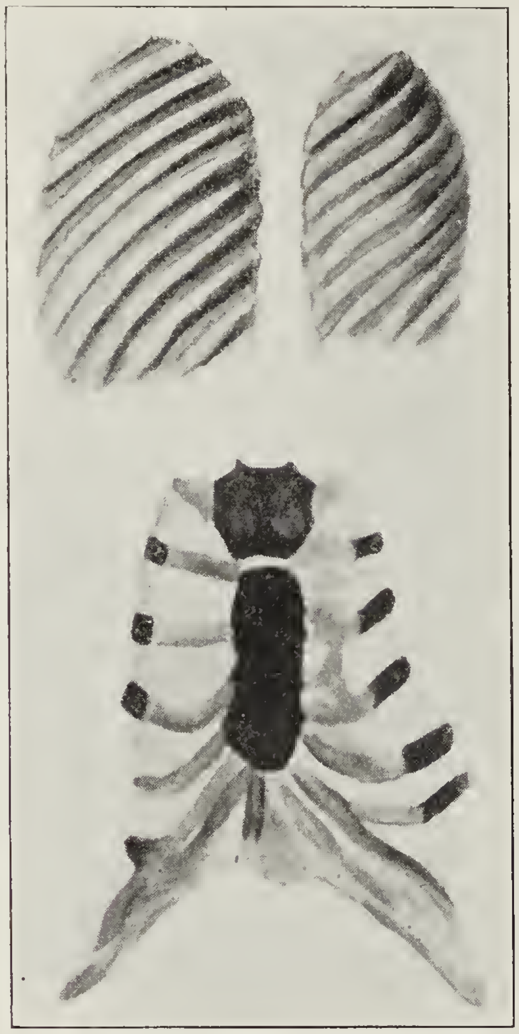

Fig. 2.—Barrel-shaped cast of chest and normal chest (above); roentgenogram of cartilages before and after resection (below) after Sauerbruch.

TECHNIC OF CHONDRECTOMY

The operation is relatively simple to any one familiar with rib-resection in general. The pericardium is not exposed to injury in operating on the right side. Unilateral chondrectomy is usually sufficient to give relief. Bilateral operations are always done in two stages. A longitudinal or parasternal incision is more conservative in my experience. The operation can also be done equally well through four short transverse cuts parallel to the four ribs removed.

The second, third, fourth and fifth costal cartilages are divided from the sternum and at or near the attachment to their rib ends. A little of the bony rib is best removed with each cartilage if the latter is short.

Unlike the Erstländer operation or ordinary rib-resection for carious rib or in empyema cases, in this operation the periosteum or perichondrium must be destroyed with the rib. This makes the dissection less easy, but not very tedious. In case of accidental puncture of the pleura no harm results. On its anterior surface, of course, this membrane comes easily with the rib; posteriorly, care must be taken by blunt dissection to make a line of cleavage between perichondrium and pleura, leaving the former intact on the cartilage. A spatula or Kocher director does this safely. Fragments of perichondrium seem prone to be left behind so that later more or less rigid cartilage reforms and makes the chest again inelastic. To prevent this I like to obliterate the groove left by each cartilage with a circular stitch of catgut. At least four other methods have been tested by followers of Freund in efforts to prevent this recurrence:

1. Hoffman sutures carefully the ends of the perichondrial tube over the stump of the cut-off rib, as is done in ordinary amputations through bone.
2. Axhausen applies the actual cautery to the remnants of these membranes in the grooves. This seems to me a grave danger to the adjacent pleura and lung and an obstacle to primary healing.
3. Bircher applies 95 per cent. phenol (carbolic acid) with the same intent. I have not tested this method.
4. Seidel uses slips or ribbons of adjacent muscles crossed like a letter X to fill the cavity between the rib end and the sternum. This I like very well, but find the lateral approximations of the groove just as effective.

A surprising feature of this work is the instantaneous relief obtained, not only after the operation but before its completion when the first cut through the cartilage is made. Instantly the chest wall expands and contracts as it has not done for years and the gap in the rib opens and shuts with an excursion of 1 or 2 cm. As each section is made the expansion is increased, until when all four are divided they move apart and come together freely. In fact, the first relief is the best, and subsequent healing, as noted above, tends to impair the elasticity gained. In spite of the soreness of the incision the patient makes deep inspiratory and expiratory movements and his cyanosis disappears on the table. He can lie down as he has not done for years — resting his overstrained diaphragm and neck muscles which have been vainly trying to compensate for his reduced contraction.

WHEN CHONDRECTOMY IS CURATIVE

The proper selection of cases means success or failure of this as most other surgical operations. Not all asthmatics—not even all cases of emphysema—are to be so treated.

Only cases of rigid and dilated chest are helped by it. The diagnosis rests not alone on cough and dyspnea, but we have certain objective conditions of the thorax wall. It becomes cylindrical. The ribs assume a more horizontal position than normal and do not sink in expiration. The sternum is pushed forward and the cartilages are bowed and rigid. This means that the lower thoracic outlet is enlarged. The epigastric angle is, therefore, widened from 100 to 140 degrees. Inspiration does not increase the chest circumference. Expiration is slow and stridulous. There is cyanosis and capillary venous stasis. The diaphragm is flattened and the right heart area is widened. Vital capacity is reduced from 3,000 or 4,000 c.c. (normal) to 2,500 or less; in extreme cases as low as 800 or even 400 c.c. (Franzenheim's case).

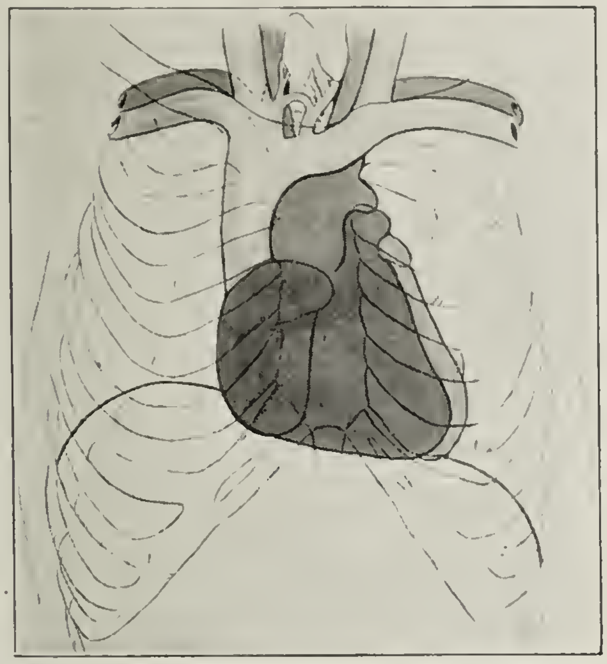

Fig. 3.—Relations (normal) of pericardium, pleura, rib and great vessels showing greater safety of chondrectomy on right side.

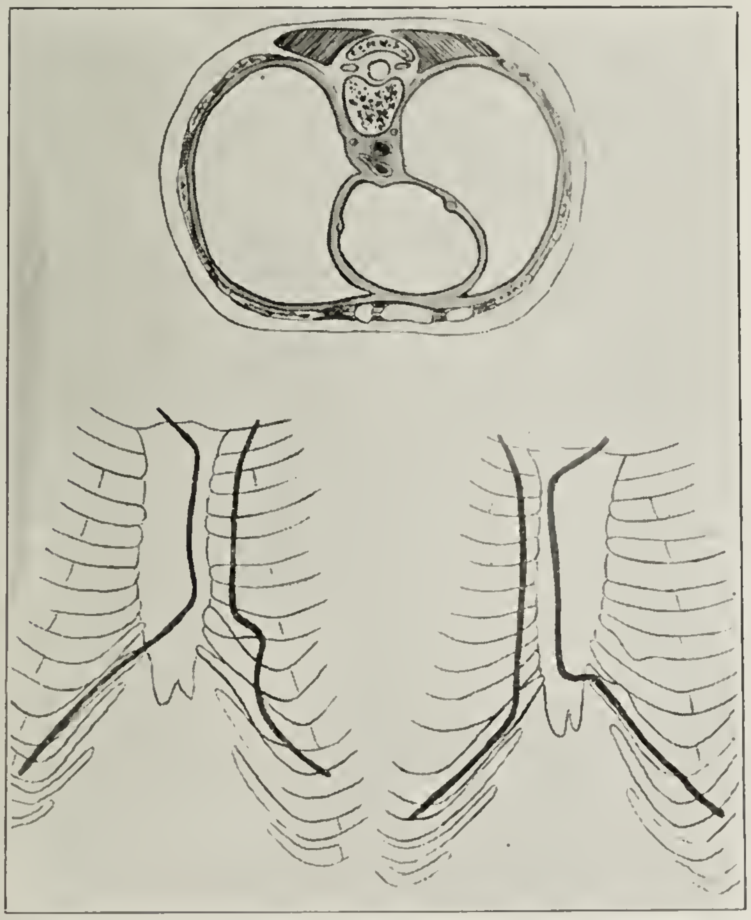

Fig. 4.—Reflections of pleura in inspiration and expiration, showing extreme excursion.

INDICATIONS AND CONTRA-INDICATIONS

To sum up our knowledge of this new therapeutic measure, the indication for its adoption is the presence of the emphysematous chest rigidly held in the "inspiratory position," that is, dilated. The operation restores the lost power to take the "expiratory position," that of contraction.

As contra-indications may be mentioned severe cardiac and vascular disease, fetid bronchitis or bronchiectasis. Lambert warns against Freund's operation in cases due to costo-vertebral ankylosis, in which it can do only harm. Also Mohr warns us to exclude two other types of rigid thorax: (1) cases of tonic rigidity due to abnormal tension of the inspiratory muscles in nervous and cardiac asthma; (2) cases of rigidity following paralytic chest wall.

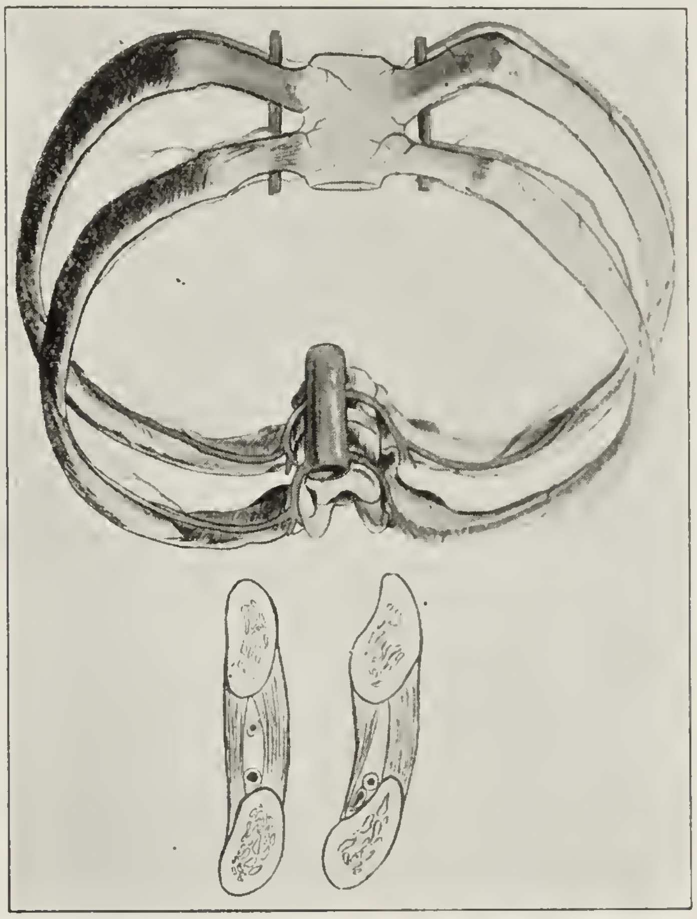

Fig. 5.—Relations of internal mammary and intercostal vessels. Sections of asbestos-like cartilages. After Garrè.

WHAT MAY BE EXPECTED OF THE OPERATION

The true type for operation having been found—the barrel-shaped, rigid chest, with little or no expansion measured by the tape—much hope of relief is offered by chondrectomy. The operative mortality is almost nil. It is an operation very well suited to local anesthesia. With nerve-blocking of the intercostals it is absolutely painless. Relief begins when the first cartilage is cut through. It is an impressive sight to see the divided ends move freely in the wound where there had been no movement for years. Giving the stretched but still elastic lung tissue a chance to contract, we see that it proves its own elasticity after long overstrain. It is proper to remove the bony rib as well as the cartilage, if it seems to help the contraction. In one case I excised 6 cm. of the third and fourth ribs.

The diaphragm also acts more fully after the section, but in bad old cases we cannot always expect a perfect restoration of its cupola or dome, it having been flattened out by long stretching.

Vital capacity in good cases will be increased 50 or 100 per cent. Franzenheim reports one extraordinary case in which he gained from 400 up to 2,000 c.c. by operation. The dyspnea improves, as also the bronchitis. Even deep lung changes, atrophy and dilated vesicles may be favorably influenced so that health and strength are restored in a marked degree.

THE QUESTION OF THE FIRST RIB

Tuffier included the first rib in performing chondrectomy for asthma. This is found by Von den Velden, Axhausen and others, including myself, to be unnecessary. The first rib has little influence on inspiratory or expiratory position.

Freund's operation, however, included the removal of the first rib cartilage for cases of early apical tuberculosis, especially in childhood.

Certain pathologic and anatomic facts are coming to be recognized which support the claims of chondrectomy of the first rib as a curative measure in early tuberculosis. My own experience and even that of the whole profession is too limited to give this operation a firm position in surgery. The following facts as summarized by Garré, Tuffier and others are somewhat convincing in pointing the way to chondrectomy of the first rib as a measure of great promise.

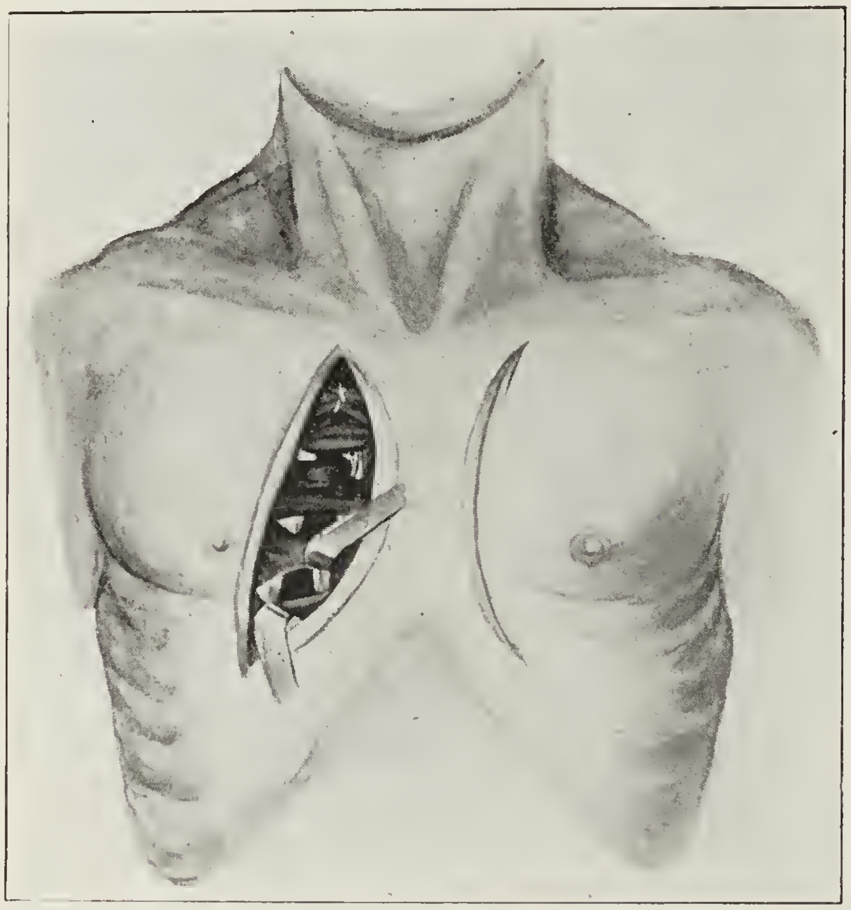

Fig. 6.—Details of chrondrectomy. The slips of muscle after division are best utilized by crossing their ends over the cut ribs to make fibrous hinge joints and prevent regeneration of cartilages.

1. Want of development or ossification of the first rib cartilage causes loss of mobility of the "upper chest aperture."
2. The consequent constriction of the bronchi above causes catarrh and favors tuberculosis in the bronchial mucosa.
3. A furrow often appears where the first rib crosses the apex. This may indicate injurious pressure.
4. Asymmetrical stenosis causes curvature of the dorsal and cervical vertebrae.
5. Spontaneous cure is sometimes seen in apical tuberculosis after natural pseudarthrosis of the first rib has occurred.

32 North State Street.

ABSTRACT OF DISCUSSION

Dr. Samuel Robinson, Boston: It is rather interesting to group Freund's operation with that of Brauer, namely, cardiolysis, or the resection of ribs, to relieve back pressure on the veins entering the heart from below, in cases of adhesive mediastinal pericarditis. The technic of that operation is not unlike this of Freund's in chondrectomy, and the relief is correspondingly great. The operation is really a conversion of an ankylosis into pseudarthrosis. We are not dealing with a true arthrosis, but operative success consists in producing a pseudarthrosis by the formation of a real joint instead of a resected cartilage. This can only be done, as in all work on ankylosed joints, in such a way that cartilage or bone from the end of the rib or from the sternum cannot recur, and if possible a false joint is produced. The permanency of the relief of the symptoms depends on the extent of this pseudarthrosis. If that is supplied by sewing the posterior perichondrium over the ribs or introducing fascia, that permanency is procured. I disagree with Dr. Andrews on one point only—that the cartilage resection is a simple procedure, and that any one accustomed to rib resection in general could do it with perfect ease. After undertaking a series of rib resections in animals with normal pleura, and after performing Brauer's operation of cardiolysis, I have great respect for the complications incident to rib resection. When the posterior perichondrium or the periosteum is removed, as it is in the dissection from the pleura, it taxes one's technical skill. I watched one surgeon do the cardiolysis operation for the first time, and, naturally skilful in his technic, he removed the cartilages and three ribs for several centimeters without puncturing the pleura; the next surgeon who tried it did puncture the pleura. I would caution against Dr. Andrews' remark, that if the pleura is punctured, it does not matter. Puncturing the pleura in a case of this sort does not mean catastrophe, but if we resect the rib with this view, we will puncture the pleura much oftener than if we realize that it is best not to do so. In following convalescence in a good many thoracic cases after operation, I am convinced of the importance and the seriousness, on many occasions, of the presence of postoperative pneumothorax. When air has been admitted into the pleural cavity, in a great many cases it amounts to nothing. Convalescence is complicated by the presence of air in the chest. We do not know why. The changes which may occur in the respiratory function are of significance. In a series of forty-four cases of Freund's chondrectomy there is evidence in the fatal cases that death was hastened by puncture of the pleura.

Dr. Charles Goodman, New York: In 1907 Bramann and Seidel reported the first operation recommended by W. A. Freund for pulmonary emphysema with rigidity of the chest. During that same year I, with assistance of Dr. Wachsmann, at the Montefiore Home, resected the third, fourth and fifth costal cartilages in a case of chronic emphysema with asthma and rigidity of the chest. The immediate results were certainly striking. The patient, who had not been able to sleep for many weeks, was able, following the operation, to lie on his bed without a pillow and get a quiet night's rest. Shortly after this we operated at the Home on three other patients but had changed our technic. In our first operation we had followed the technic of Bramann and Seidel, and simply removed the costal cartilage with the overlying perichondrium. We did not feel at that time the necessity of going any further. After six weeks, rigidity of the ribs returned. In a secondary operation in this case and in the treatment of three others our technic was the following: exposing the costal cartilages on one or both sides, peeling up the anterior layer of perichondrium, then resecting 1 or 2 cm. of the offending cartilage and peeling the posterior layer of perichondrium from the pleura. One flap of the perichondrium was then reflected over one end of the resected rib and the other layer was reflected and fastened over the other end, so that we had two contiguous layers of perichondrium forming an artificial joint. It has been gratifying to be able to note lasting results from this method. Our first four cases were presented before the New York Academy of Medicine the following year and reported in the *Medical Record* in April, 1908. In two of my more recent cases, one patient having been operated on before the American Clinical Congress, the expansion of the chest, the asthma and the general condition of the patients were decidedly improved. About two years after our report Hoffman of Meran, mentioned by Dr. Andrews, reported two cases operated on successfully by him. He had used the technic as described in the *Medical Record* but had not mentioned the American author of the operation. Wilms of Heidelberg had suggested instead of resection of the costal cartilages, resection of the ribs posteriorly near the angle. I am not entirely in accord with Wilms' suggestion because I have found the cartilages when degenerated and thickened to be readily accessible and easily removed. The operation is comparatively simple. The pleura is usually thickened underneath the diseased cartilage and there is little danger from perforating it.

Dr. George N. Jack, Buffalo, N. Y.: I would like a more definite explanation as to the indications for this operation. I can see no excuse for a thoracic-wall operation in uncomplicated asthma. For the last fourteen years I have maintained that asthma is a functional or biochemical metabolic disturbance resulting in an unstable hypersusceptible blood that is sensitized to numerous food and weather conditions, and that the dyspnea of asthma is due to a plugging of the air-tubes through an effort of nature to eliminate the waste products of a disintegrated blood. Out of 618 cases of uncomplicated asthma treated according to these principles none thus treated has had asthma bad enough to require this operation, and in 75 per cent. of these cases the food and weather conditions to which they are sensitized have been sufficiently determined to educate them how to live without asthma. The dyspnea of chronic fibrinous bronchitis or chronic fibroid consumption is often mistaken for asthma. For the dyspnea of either of these two conditions or for similar dyspneas, any operation that will give relief, if only temporary, is justifiable no matter how radical the operation may be.

Dr. E. Wyllys Andrews, Chicago: Mechanical troubles require mechanical relief and this is not an operation for an old case of emphysema or a bronchial asthma itself, but for rigid and dilated chest. The result is almost instantaneous, but as time goes on the improvement is less marked. It remains less flexible than we would like to keep it. The probabilities are that only such cases as have been worked out carefully by our friends, the internists, will ever be suitable for the mechanical procedure.

Society and Sex Problems.—The intricate problem of the regulation of sex relationship in modern society is showing signs of a rapid progress through the normal evolution of all social problems out of the sphere of ethics into the sphere of sociology. The primitive state in which men at first approach all such problems is the ethical and emotional. They are filled with a repugnance, say, to prostitution, and they loudly demand measures for its regulation or suppression without realizing the underlying conditions. The failure of these measures, where obtained, after a while leads up to the second stage. The condition of emotional animosity gives way to the spirit of scientific inquiry; the primitive axiom, "Something must be done," is succeeded by a desire for a knowledge of the actual facts and the collection of information from all sources that are open: the problem, in short, passes from the sphere of ethics to the sphere of sociology; from the sphere of emotional but ignorant action to the sphere of intellectual inquiry. It is only later that the social problem finally passes back once more to the sphere of ethics; but the action taken is no longer blind and emotional, it is guided by the results obtained from the impassive sociologic investigations. Whereas the problem of marriage is still restricted within the first or ethical stage, the problem of prostitution has now fairly emerged into the colder air of sociology.—*Lancet*, London, April 25, 1914.

THE SURGERY OF THE KNEE-JOINT [*]

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LONDON, ENGLAND

The abdominal surgeons planned their incisions to give exposure and gain access to the part desired, to minimize the hemorrhage and the interference with nerves, blood-vessels and lymphatics, and to cause the least subsequent inconvenience to the patient. Those are the principles on which surgeons have based their operations, and in order to attain similar success it is needful to plan our incision into the knee so that it gives the operator the maximum of exposure, access to (the most difficult part) the back of the joint, the minimum of hemorrhage, the minimum of injury to nerves, vessels, muscles, tendons, etc.

Do the operations on the knee, as usually performed, agree with these propositions? First, let us consider the horseshoe-shaped incision reaching below the patella and dividing the ligamentum patellae. The flap is turned upward, the exposure and access (with flexed knee) are excellent; there is no attempt to close the synovial cavity; the sutured tendons take some time to unite and during that period get matted to other structures. Consequently, the knee which was so damaged as to require operation is usually further damaged by the operation. When it is remembered that the great majority of operations on the knee are operations of choice rather than of necessity, the operation to be offered to the patient must not damage the joint. To overcome this difficulty surgeons have divided the patella transversely or cut the muscles above the patella, turning down the flap containing that bone. These methods require so much suturing and satisfactory healing that no surgeon who performs them has the right to offer them as an operation of choice to any patient desirous only of an operation to improve the usefulness of his knee in life. There is one modification of this horseshoe method of arthrotomy of knee which deserves more consideration. In it, the skin incision is made, to

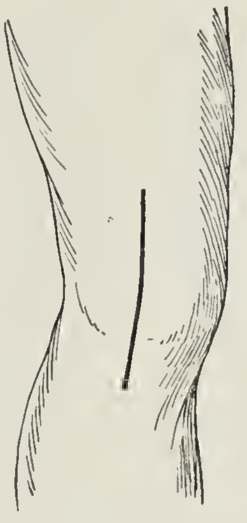

Fig. 1.—Skin incision for median arthrotomy of knee.

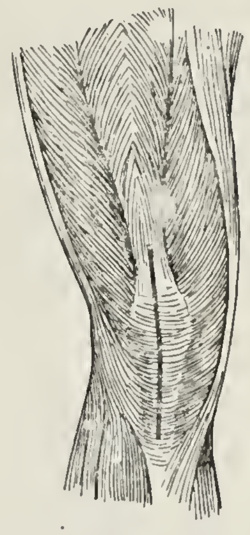

Fig. 2.—The same incision marked to show the treatment of the rectus femoris, the patella and the ligamentum patellae in median arthrotomy of knee.

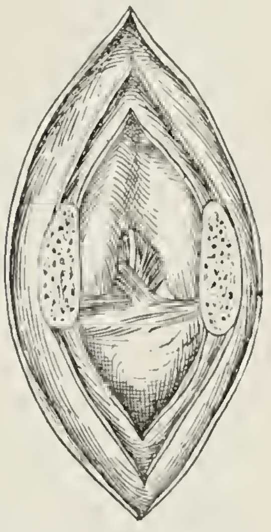

Fig. 3. — Exposure of joint through median arthrotomy.

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[*] Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[*] Because of lack of space this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints.

cross the front of the knee below the tubercle of the tibia. That bony prominence with the ligamentum patellae attached to it, is sawn off obliquely as in Sabanijew's amputation. The flap with the patella is then turned up. At the conclusion of the operation the tubercle of the patella is fastened to the tibia again. As with all these anterior horseshoe methods of arthrotomy, excellent exposure and access to the joint is obtained at the price paid for much division of soft parts at right angles to their line of action with consequent lengthening of the convalescence and increased postoperative disability. The position may be summed up by saying that transverse incisions in front of the joint are second-best, giving marked disability afterward from the necessary division of the soft parts.

Let us now consider longitudinal incisions, such as that of Professor Kocher, along the outer side of the patella. These are three in number: along the outer side of the patella, along the inner side of the patella and through a longitudinally split patella. Both of the lateral incisions are excellent, but, in my opinion, from their asymetry they are not so efficient as the median incision and do not give so good a functional result as that into the joint through the longitudinally split patella. In it the rectus muscle, patella, and ligamentum patellae are split in the axis of the limb, no fiber being divided, thus having advantage over all other methods of opening the knee. It gives excellent access to all parts of the joint, even the posterior parts can be explored by sight, when the knee is flexed; and it does away with the need of that "septiciferous" process, putting a finger into the joint. To use fingers at the operating-table is usually as bad manners as to use them at the dinner-table—a very important point, for unless certain of his aseptic technic no surgeon has the right to recommend a patient to allow him to open his knee-joint. This operation was advocated recently in the first number of the *British Journal of Surgery* by Mr. Robert Jones of Liverpool for access to some results of injuries to the spine of the tibia. He has now extended its application with satisfaction and success.

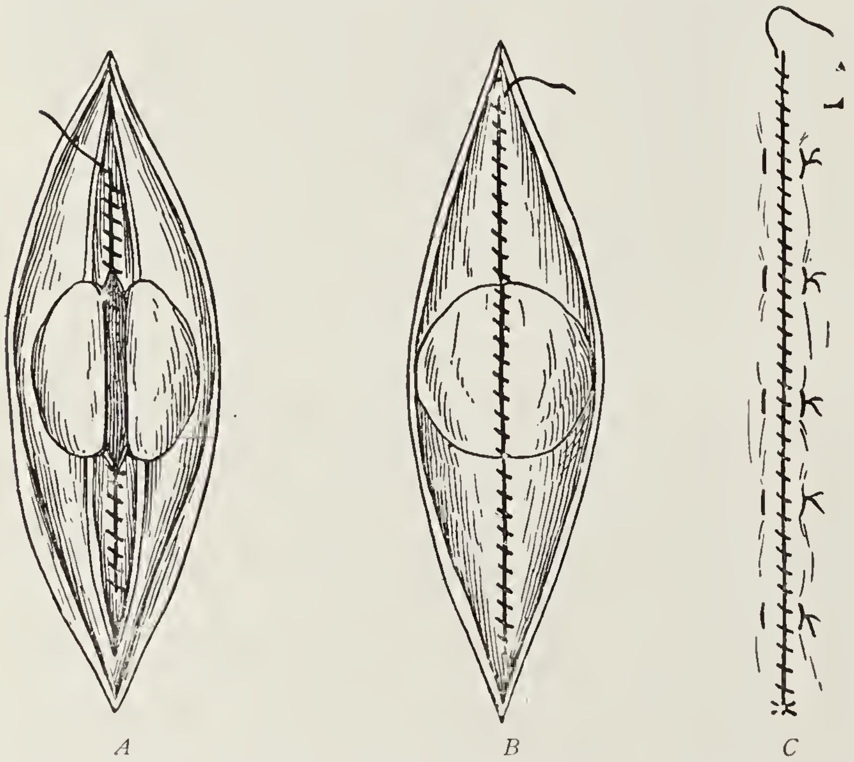

Fig. 4.—A method of closure of the wound in median arthrotomy. *A*, the synovial membrane closed by two (one suprapatellar and one infrapatellar) continuous catgut suture. *B*, closure of the rectus, patella and ligamentum patellae with a continuous catgut suture. *C*, skin wound closed with a continuous catgut suture and some tension stitches.

The conclusion of the operation is simple and quick. The synovial membrane above the patella is closed by a fine continuous catgut suture. This is important as it prevents blood from the loose areolar tissue above the subcrureus pouch from entering the joint. The split in the rectus muscle and ligamentum patellae is closed by another continuous catgut suture, which also holds the two halves of the longitudinally split patella together and holds it so efficiently that a roentgenogram taken a day or two after the operation shows "no injury to the patella obvious." Sides of the wound are approximated by three or four rectangular (mattress) sutures of catgut, and the edges coapted by a continuous suture of fine catgut with the stitches close to the skin and to one another. These stitches need never be removed. No splint is necessary but its use for twenty-four hours is beneficial. After that a nervous patient can have the limb bandaged in wood-wool. The wood-wool can be removed from time to time and the patient allowed to move the leg. I never hurry convalescence, the patient remaining in bed about three weeks. Massage and electrical stimulation of the muscles can be begun a few days after operation. Passive movements are hardly ever necessary. Active movements by the patient are much better, and even a nervous patient may be encouraged to make them.

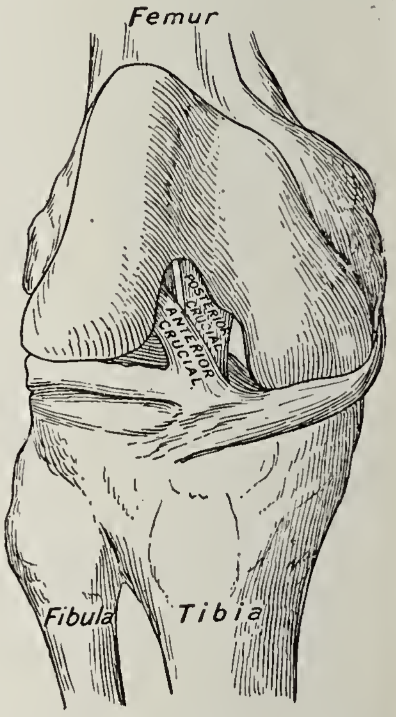

Fig. 5.—The crucial ligaments in a flexed knee, anterior view.

A study of the physical geography of the knee will give some clues to the parts played by the various component structures in the physiology and pathology of the joint. At the knee a convex bone (the femur) is held to a flat bone (the tibia) by a capsule of fibrous tissue, thickened at the lines of stress at the sides into ligaments, the external and internal lateral ligaments. But if this was all, the length of the capsular ligaments would allow the tibia to move in all directions on the femur, as well as backward and forward. Such a joint would be horribly unstable and unsafe. To remedy this there are placed inside the knee-joint two sets of structures, the crucial ligaments and the semilunar cartilages. These are united in part at their tibial attachments, both in front and behind. Together they give strength and firmness to the joint, limiting the gliding of the femur on the tibia. In the normal movements of a joint they will sustain no harm, but should the movements become exaggerated, as in a wrench or sprain, they will be damaged. Naturally also the structure which bears most strain in ordinary life will be most liable to sustain damage in extraordinary movements. It will also be the strongest and therefore the best able to withstand a shock. The crucial ligaments are the strongest ligaments in the knee-joint and bear by far the greater part of the strain. In an accident, as in ordinary life, the severest strain will fall on them. Hence it is to be anticipated that injuries to them will be both frequent and important. We know little about such injuries, probably because they would not be fatal, and the deep situation of the ligaments renders their inspection difficult. There are clinical signs, however, which would indicate their lesion.

1. Movement of the tibia on the femur.
2. Any dropping back of the tibia of the femur.
3. Any rotation of the tibia on the femur, almost always external.

In all these three signs the leg must be carefully compared with that of the other side, which should not previously have sustained an injury. In an old knee injury none of the above-mentioned signs need be found so that a most valuable symptom is the patient complaining of lack of stability in the joint, the knee giving way, the patient feeling afraid to trust to it. Such knees are well known clinically as "slipping knees," and are, I believe, produced by the sliding of the femur on the tibia. If a group of patients in whom the result of the operation for the removal of the semilunar cartilage is unsatisfactory are examined, a very large number will be found to have slipping knees. Normally a little rotation of the tibia on the femur is permitted. But this should be the same on both sides and can be easily seen if the patient sits down with legs extended and heels on the ground. Look to the position of the feet. This rotation is not limited by the crucial ligaments only, but also by the semilunar cartilages. Two general remarks may be made.

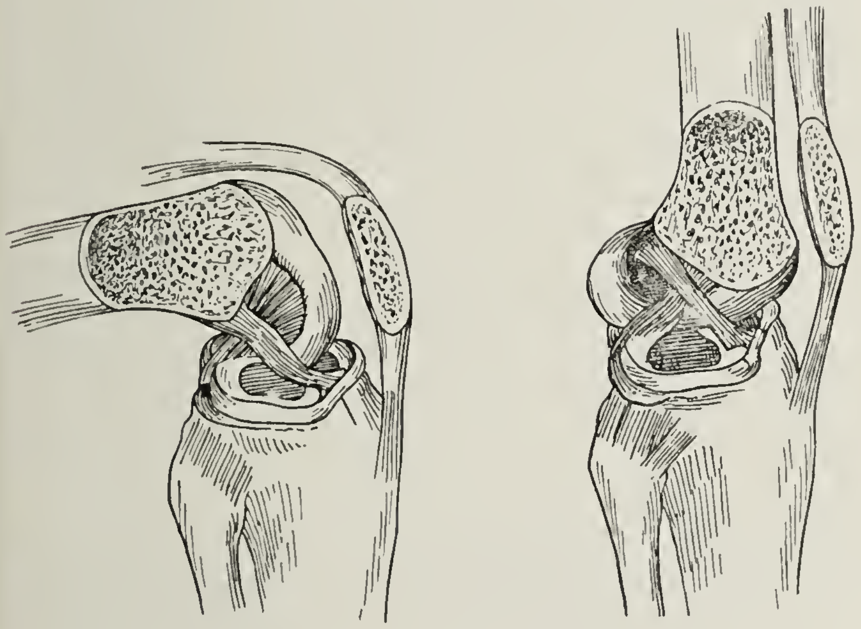

Fig. 6.—The crucial ligaments in a sagittal section of the knee; *A*, flexed, *B*, extended. This is taken from a standard text-book of anatomy and is designed to show the anterior crucial ligament tight in extension (*B*) and the posterior crucial ligament tight in flexion (*A*). This is wrong; both are taut in full flexion and full extension and both are slack in semiflexion.

1. The *crucial ligaments* bear considerable strain in all movements of the knee and seem most prone to injury in exaggerations of flexion and extension of the knee, that is, by movements in a vertical plane, the patient standing. With lateral movements an injury of the lateral ligament, almost invariably the internal lateral, must sustain damage, partial rupture, before the crucials are dangerously stretched.[1] Rotation movements of flexed knees are more likely to produce injuries to the semilunar cartilage, which injuries are made permanent or increased by subsequent movements of extension. For instance, by it the displaced cartilage may be fractured.

2. The *semilunar cartilages* bear most strain and are most likely to be injured with movements of rotation with semiflexed joints.

Other ligaments of the knee are not likely to be injured with the exception of the internal lateral ligament, whose injury I believe to be a preface to, when partial, that of the crucial ligaments; and when complete, a sequel to the complete rupture of the crucial ligaments.

Before we leave this subject it will be well to recall to mind that when the crucial ligaments bear a strain their bony attachments bear that strain also. Partial rupture of these ligaments is often overlooked. I must confess that I have encountered one instance which I believe to be due to the bony union of an overlooked and partially detached spine of the tibia. So far as our knowledge goes at present, the anterior attachment of the anterior crucial ligament is most often detached alone. The other three attachments of these ligaments often seem to escape. Such ideas must be received with great caution, however, as the tibial attachment of the anterior crucial ligament is the one which is more easily seen than the others and naturally we come to knowledge of it first. It is said that with rupture of the anterior crucial ligament there is pain and disability on extension of the limb; while with a lesion of the posterior crucial ligament there is pain and disability on flexion of the knee. I do not think that it is possible, clinically, to dissociate tension on these two structures. With injury to these ligaments there is pain both on full flexion as well as on full extension of the joint. In fact, there is pain on all extremes of movements of the knee, flexion extension or rotation, because the crucial ligaments are tightened by all these movements; hence their liability to injury.

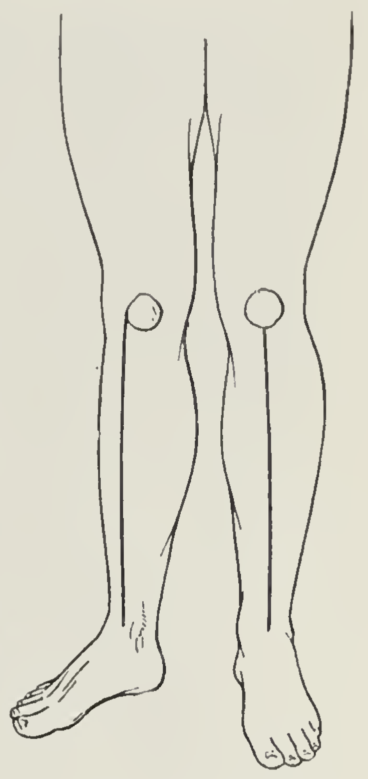

Fig. 7. — Semidiagrammatic sketch to illustrate the skin-line with and without partial rupture or stretching of the crucial ligaments produced by the external rotation of the tibia of the femur, right leg.

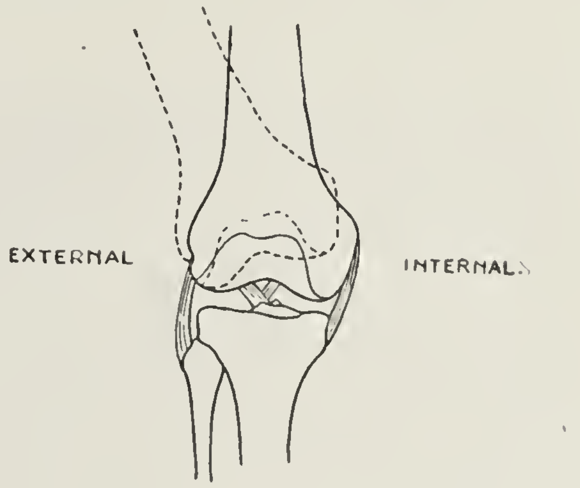

Fig. 8.—Showing the strain placed on the crucial ligaments in movements of the knee-joint.

The strain on the crucial ligaments is not all. The synovial membrane is loosely attached round the front of the knee, where it must move with movements of the joint, but is closely attached to it as it covers the crucial ligaments and the back of the joint where there is no need for it to move. Stresses and strains in that situation easily tear it even if there is nothing but a slight and temporary stretching of the crucial ligaments. The roentgenograms of the artificial (wire) anterior crucial ligament show that the loops separate with flexion and extension of the joint,[4] thus giving some idea of the amount of stretching which the crucial ligaments are constantly undergoing. Bleeding thus caused will lead to the joint becoming filled with blood and, later, synovia, a condition of hemarthrus. Formerly it was never quite understood why blows on the knee should give rise to synovitis, the joint becoming full of bloody fluid. Now it is intelligible. The force of the blow is transmitted, say, from the patella to the femur, which it attempts to drive backward, but is prevented from doing so, in part, by the crucial ligaments. These ligaments, particularly the anterior one, are stretched, and the tightly bound-down synovial membrane over them is torn. Hence hemarthrus and traumatic synovitis. The blood comes from some small intra-articular lesion caused by some slight displacement of the femur on the tibia, or *vice versa;* and the effused blood acts as an irritant to the synovial membrane, inducing inflammation and hypersecretion. From this we may learn that the sooner the effusion of blood ceases and the effused blood is removed from the joint, the better for the patient. Mere tapping cannot do this. The joint should be opened and washed clear. The tear in the synovial membrane, or otherwise, can be sutured or not according to the case. I would commend to your notice the possibility of taking this unusual step in what seem to be "bad" cases, and for this reason. The synovial tear, or tears, will heal by a layer of fibrin being deposited on it, like healing under a blod clot or scab. If this fibrin becomes displaced by a movement of the joint another layer of fibrin will form. The displaced fibrin may be removed by the leukocytes, or it may be shed into the joint. If it does the latter, it may form the nucleus of a loose body in the joint. I would suggest that in many cases the signs of the inflammatory origin of a "joint-mouse" are secondary to the repair of some trauma.

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[1] Corner, Edred M.: The Rôle of the Crucial Ligaments in Hemarthrus and Injuries to the Knee, Lancet, London, May 9, 1914, p. 1317.

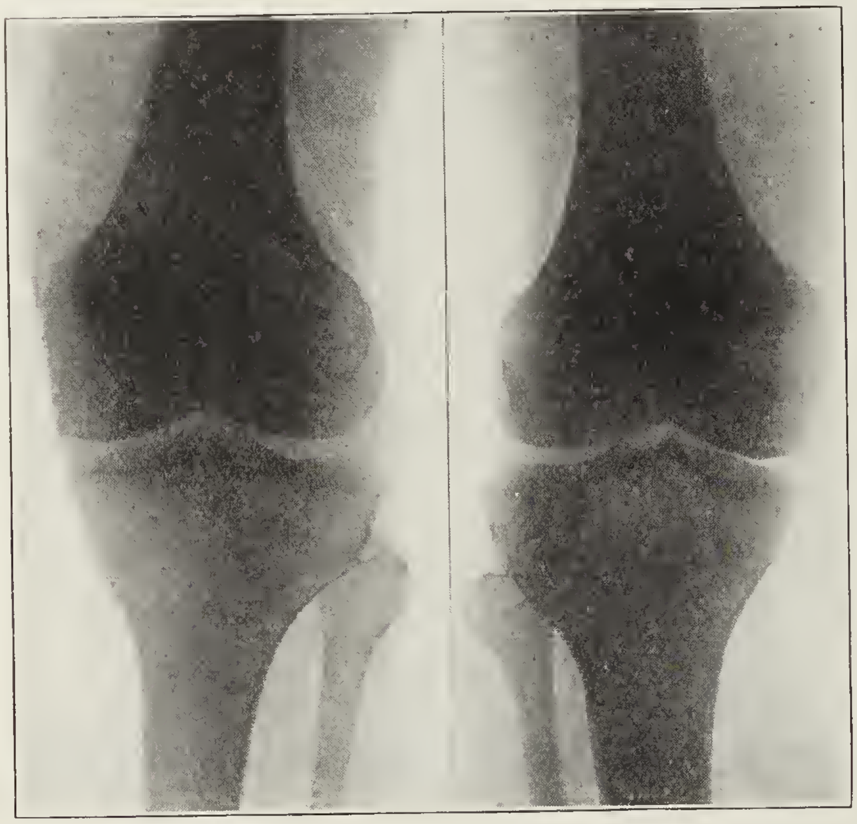

Fig. 9.—The roentgenogram of both knees is shown so that the external tubercles of the tibia may be compared as they exist in each knee. That on the left side is much sharper and more slender; possibly it was broken and partly detached by the accident, uniting with extension of ossification into the anterior crucial ligament.

On looking through the records of sixty-one cases in which loose bodies were removed from the knee-joint and recorded in the St. Thomas' Hospital Surgical Reports, one cannot avoid being struck by six things:

1. How uncommonly the origin of these loose bodies is ascertained.
2. How often they are multiple.
3. How often they are called recurrent.
4. How often they consist of fibrin.
5. How often they are temporarily lost in the joint.
6. Apparently how long they can be present without causing any urgent symptoms.

The detached fibrinous plaque grows like a crystal in a saturated solution of its own salt. It becomes triturated and rolled by the movements of the joint and it would appear that at times it undergoes bony or cartilaginous changes. I have found bodies, previously felt loose in a joint, attached to the synovial membrane. For a loose body to become so attached is a distinct reversal of the generally accepted idea that nodules in the synovial membrane may become detached and form loose bodies.

I would suggest that the majority of loose bodies in the knee-joint have an origin in a tear in the synovial membrane of the posterior part of the knee-joint, particularly in the thin and tightly bound-down synovial membrane over the crucial ligaments. Such an idea suggests that a free exploration of the knee-joint be done more often in cases of hemarthrus. This is alone justifiable with modern technic. The knee-joint is not more prone to grow foreign bodies than other living tissues. Yet such bodies are rare in other joints! Can it be so because they have no such arrangements as there are about the crucial ligaments of the knee?

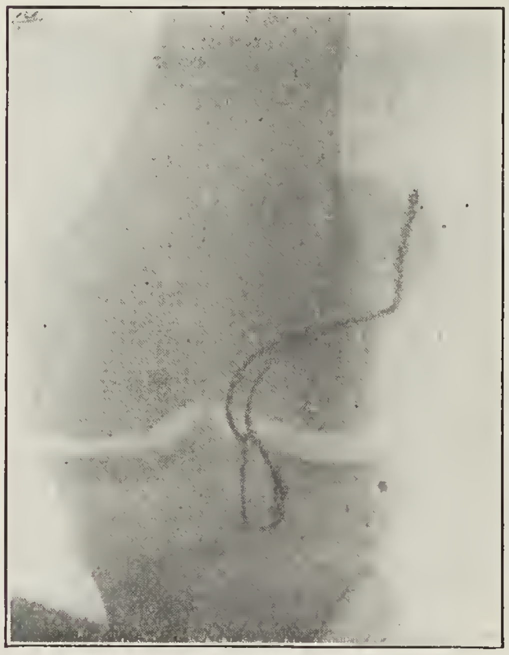

Fig. 10.—Anterior-posterior roentgenogram of a knee in a case of ruptured anterior crucial ligament in which a new anterior crucial ligament was made with two loops of silver wire. The patient was shown to the Clinical Section of the Royal Society of Medicine, London.

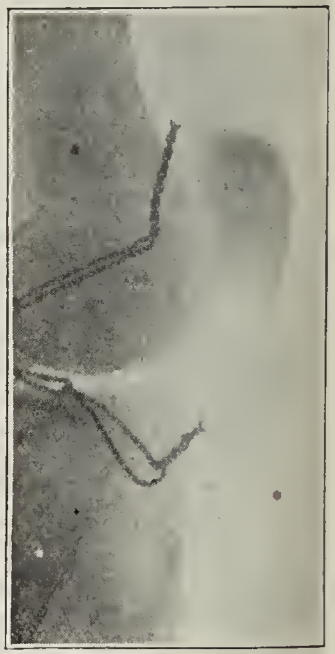

Fig. 11.—Lateral view of the knee shown in Figure 10.

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4. Corner, Edred M., and de Mowbray, R. M.: Fractured Spine of the Tibia, Proc. Roy. Soc. Med., Clin. Sec., April, 1914, p. 122.

To the question when to open a joint after an injury the answer is either at once or as soon as the hemorrhage has ceased. To do all this satisfactorily I would urge the use of the method of opening the joint by splitting the patella longitudinally. The method reveals a further series of problems, commencing with the question of tapping the joint.

When the patella is split longitudinally, it is seen that the knee-joint consists of three cavities, two simple and one complex. The first cavity, the suprapatellar, lies on the femur, above the patella, whose contact with the femur very largely divides it off from the middle chamber of the joint. The middle chamber is formed by the patella above and by the ligamentum mucosum with its alar ligaments below forming a diaphragm across the joint by extending from the front of the joint to the condyles of the femur behind. The third or posterior chamber lies behind this diaphragm, between it and the posterior ligament of the knee-joint. It is complex, as the crucial ligaments project into it from the posterior wall, like a partition which does not reach the anterior wall and imperfectly divides the chamber into two lateral halves, communicating in front.

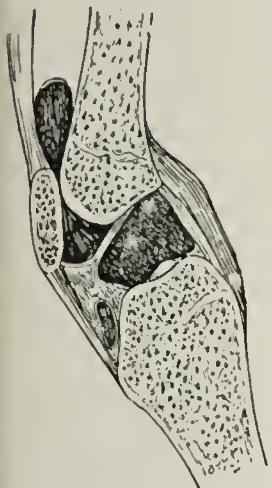
Fig. 12. — Sagittal section of knee, showing the three main chambers in it: suprapatellar, middle, and posterior.

When the knee is distended all three chambers communicate with each other. The patella is raised from the femur by the fluid distending the joint, throwing the upper and middle chambers of the joint into wide communication. The progress of the communication is directly proportional to the tension in the joint; but as the joint is tapped and the distention lessened these cavities cease to communicate so freely. It is quite impossible to empty the knee-joint by tapping. The suprapatellar and the middle chamber can be emptied but not the posterior. It is in the nooks and crannies of the complex third and posterior chamber that the organisms of infection will find most peace and quiet to enable them to multiply and grow strong. This is the most important chamber to empty and at the same time the most impossible. Who wonders that treatment by the tapping of the knee-joint is ineffective? It is like removing the smoke but allowing the fire to burn. Almost its only use is to supply a specimen of fluid for examination.[5]

Let us apply this knowledge to the lavage of a septic joint. For success it is desirable, if not absolutely necessary, to wash out thoroughly the posterior chamber of the joint. This cannot be done while the ligamentum mucosum and the alar ligaments are intact, so they must be cut away or the femoral attachment of the ligamentum mucosum separated, then carefully all the nooks and crannies of the complex posterior chamber of the joint washed out, this being done, if at all possible, without cutting away the ligamenta alaria, because of the oozing of blood which may take place afterward. For similar reasons the synovial membrane above the patella should be closed with continuous catgut suture. It prevents blood from the loose tissue between the crureus muscle and the suprapatellar pouch of synovial membrane entering the joint cavity. The surgeon should avoid, if possible, splitting the synovial membrane over the pads of fat below the patella. If he does split them, the edges must be sutured. I suture the rectus muscle above the patella with another suture, which is continued over the patella to join the halves of that bone and of the ligamentum patellae (Fig. 4). The bone requires nothing more. Wiring is not needed. Yet in the great majority of cases a roentgenogram taken shortly after operation shows no obvious injury to the patella. The skin is closed by a method devised to insure the complete and rapid closure of the wound. The sides of the wound are approximated with two, three, or four mattress sutures of catgut. These edges are then coapted by a continuous suture of catgut, the stitches being inserted close to the skin edge and to each other, securing the almost immediate sealing of the wound. Movements may be commenced at once; and after twenty-four (or twelve) hours all dressings can be discarded.

I have experimented with many catguts. Those whose sterility is acquired with chemicals, for instance, chromic acid, mercuric chlorid, etc., are unsuitable. As the catgut is absorbed minute doses of these chemical irritants are set free in the wound, yielding in many cases a moist, almost eczematous, condition of the superficial wound. Iodin catgut is better, but the gut can be so hardened by iodin as to be almost unabsorbable. The wounds, however, are drier. In fact, plain iodized catgut sterilized by heating in some nonirritant fluid, for instance, xylene (xylol), seems to be best suited for this purpose. The stitches need never be removed. Suture without drainage is best; but the wound, not the joint, can be drained in the upper part of the wound by a tube inserted into the areolar tissue between the quadriceps muscle and the joint. If drainage should become necessary later it can be done in the popliteal space and always a few days after operation.

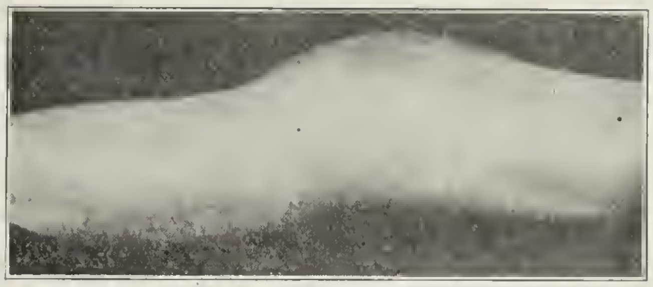
Fig. 13.—Leg fourteen days after operation, extended.

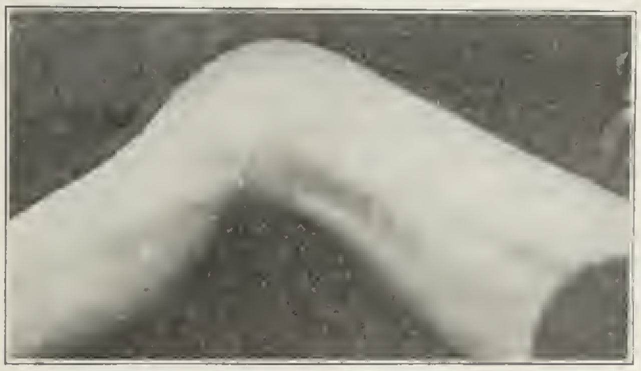
Fig. 14.—Leg fourteen days after operation, flexed.

In all cases with pyrexia the popliteal space should be examined at every dressing and compared, for fulness, with the popliteal space of the other leg. Pus escapes easily from the posterior chamber of the knee-joint along the azygos vein into the popliteal space. In the popliteal space it is shut in by the dense, tough popliteal fascia which forms a roof over it, causing it to travel by the way of least resistance up the thigh under the hamstring muscles and down the leg under the gastrocnemius. The overlooking of the escape of pus or any infective material from the knee-joint into the popliteal space is very easy and its results, owing to its deep extensions, are very disastrous, often leading to the loss of the limb or to pyemia. I would strongly urge that it is better to make even an unnecessary incision in the popliteal space than run the risk of overlooking this escape.

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[5] Corner, Edred M.: Clinical Lecture on the Treatment of Joint Disease, Med. Press and Circular, May 13, 1914, p. 484.

TREATMENT

1. *Stretched or loose crucial ligaments.* This is almost invariably the anterior. With a drill a hole is driven through the external condyle and through the loose ligament. On it an unabsorbable suture is threaded and one end drawn through the condyle. The other end is passed once around the ligament and the end withdrawn, *secundum artem,* through another hole made through the external condyle, not far from the first. By tightening this suture the corresponding crucial ligament is tightened or reefed. A similar maneuver would tighten a loose posterior crucial ligament, but I have never found it necessary to do so. That ligament seems almost invariably to escape and it would seem that the anterior crucial ligament is stretched and ruptured before the posterior can be hurt.

I do not believe that there can ever be a stretching or rupture of the posterior ligament unless the anterior yields first.

By tying the suture the ligament is reefed and made tighter. The suture is tied with the knee a little flexed, as when the ligament is tightened in this position, the joint will be extended subsequently but little beyond it. Patients all admit that this strengthens their knee. The holes are drilled through the external condyle to tighten, or reef, the anterior crucial ligament; because that ligament is attached to that condyle. The posterior crucial ligament would be "reefed" through the internal condyle.

2. *The semilunar cartilages.* When a knee-joint is injured many structures within it may be affected, and from time to time it becomes necessary or advisable to remove a semilunar cartilage. The figures for St. Thomas' Hospital, London, show that it is sixteen times more frequent to operate on the internal cartilage than on the external. The operation of removal of the cartilage can best be done through a comparatively small incision on the corresponding side of the joint. Clinically one is sure that if the cartilage suffered sufficient damage to fracture or dislocate it, other structures in the joint will also have been injured. If the injuries to these structures cannot be put right, the result of the operation on the cartilage will be unsatisfactory. I would urge that, in certain cases, the asymmetrical local incision for removal of the cartilage be not made, but a median one, such as that of splitting the patella longitudinally, be made so that everything in the joint can be examined. Particularly is this so where the clinical diagnosis is vague, such as "internal derangement of the knee." By this method there is very excellent demonstration of the joint and I have found wonderful and undiagnosed fractures and dislocations of the cartilage, intra-articular fractures of the femur, "foreign" bodies, injuries to the crucial ligaments, fractures of the spine of the tibia, and so on. If the work is done thoroughly there is less danger of doing it without satisfaction to the surgeon or patient.

3. *Internal derangement of the knee.* When the knee is injured the resultant traumatism falls on many structures, not on one. It is more or less comparable to internal derangement of the abdominal viscera, enteroptosis. It is therefore necessary to open the joint thoroughly and see what is the matter and take steps to correct it. The faults in a knee-joint may be many: injury or dislocation of the semilunar cartilages, injuries to the crucial or other ligaments, intra-articular fractures of the femur, fractures of the tubercles of the spine of the tibia, and, if the case has gone on long, hypertrophied fringes of the synovial membrane, or loose bodies may be present. One must not be satisfied with finding one fault, many may need to be corrected. From the point of view of prognosis, diagnosis and treatment, the median and general incision is to be recommended, as it allows of a wider and more exact line of conduct.

There is one point especially to which I would like to refer. Certain patients feel that the knee is not strong, is not to be trusted, gives way unaccountably. In these patients at operation it is found that the anterior crucial ligament is "slack," having been injured, stretched, or partially torn, and that an elevator is easily thrust between the internal condyle of the femur and the tibia. The condyle, by slipping on the tibia, gives the patient the feeling of insecurity and untrustworthiness in the knee and accounts for the knee giving way and the patient falling. Let that crucial ligament be rendered taut, or reefed, and the knee will be much strengthened. In fact, the surgeon may feel sure that at the operation the ligament will be "overreefed" and the patient slow in recovering full movements of the joint because of the overtight ligament. This merely necessitates a longer convalescence but with as good result. I would say that it is better to overreef than underreef the ligament. By overreefing the surgeon has something in hand which he can afford to let go—his patient is above the line of security; an underreefer has not, and his patient is below the line of security.

Of recent years, since it has been proved that the operation can be done safely, it has unfortunately become the custom to remove internal cartilages from the knee-joint with comparatively little thought. Indeed, one feels that at times the cartilage is removed with even less consideration than the appendix. The patient is almost always better temporarily, owing to the postoperative stiffness and apparent strength of the knee. The existence of such a state of affairs is perfectly natural in the evolution of surgery; but it is no great credit and the sooner it is modified by some method enabling the surgeon to take a wider and more general view of injuries to the knee, the better. To how many doctors is injury to the knee synonymous with injury to the semilunar cartilage?

4. *Intra-articular fractures of femur.* They consist of fragments broken off, usually from the internal condyle. This part of the femur is much more liable to injury than the external condyle. Hitherto the practice has been to remove the fragment, and I have followed it, but I believe that the proper treatment is to replace the fragment and maintain it in position by a rectangular catgut stitch passed through the condyle of the femur. I cannot think that depriving the

articular surface of the condyle of a square inch or more of cartilage can be beneficial to the joint. Indeed, I believe it to be a common cause of chronic synovitis after injury to the joint.

It is noteworthy that both the internal condyle and the internal semilunar cartilage are much more often injured than are the corresponding parts of the other side. The explanation is found in the more extensive movement of the internal condyle of the femur on the tibia, the greater amplitude of movement offering more chances of injury. Rupture, complete or partial, of the crucial ligaments, particularly the anterior, would result from the superlative exaggeration of such rotation of the knee. It can be easily understood that such an extensive and violent rotation is hardly possible. So any injury to the posterior crucial ligament is very rare.

5. *Fractures of the spine of the tibia.* The subject of fractures of the spine of the tibia and rupture of the crucial ligaments of the knee has been reviewed and made the subject of a masterly paper, such as we should expect, by Robert Jones of Liverpool and Alwynne Smith of Winnipeg, in the first number of the *British Journal of Surgery*, July, 1913. In it they record seventeen cases which they have seen in the last three years—a truly large number, which tells that we humbler mortals fail to recognize the true nature of the cases we see. They urge that these cases should be treated conservatively. Perhaps this is the mature wisdom of more years than those of which I can boast; but I never like to leave blood in a joint, and a loop of catgut to form a rectangular intra-osseous suture in the tibia to anchor the detached spine would seem to me to be more in keeping with the surgical practice of to-day than the removal of the detached bone: the convalescence would be shorter, and the functional results should be better.

Some authors speak of detachment of the ligamentum mucosum from the femur as an item in the internal derangement of the knee. I have had no clinical experience of it except as an incident in much more serious injuries. I would regard its presence as an indication that the joint had been severely injured and that other injuries were to be looked for, if not actually present.

ABSTRACT OF DISCUSSION

Dr. John B. Murphy, Chicago: Mr. Corner's paper is certainly a distinct, positive statement of the line of procedure that should soon become a habit. We have been too fearful of opening joints. We have been too willing to accept the external physical evidence and later the Roentgen ray evidence as to the lesions in the joint. If I were to give a percentage I would say that between 40 and 50 per cent. of the later cases of knee-joint lesions which incapacitate the patients have no Roentgen ray or other signs sufficiently positive to justify a procedure from that evidence alone. That is why the line laid down by Mr. Corner is one that is going to be followed. The lateral is not nearly so good as the median incision. It took us a quarter of a century to learn the technic of conservative exploration of the peritoneum, not to touch the surfaces except when there is an absolute necessity for it. One should not keep sponging and rubbing and handling the synovial membrane of a joint more than one would a peritoneal surface under the same circumstances. If it is done as much as with the peritoneal surface great effusion will follow the operation. Do all of the work with instruments without sponging, handling or manipulating the synovial membrane. That is the key to the work. The median division of the patella and its ligaments above and below is no more serious than the division of the bone in any other position after one learns. I was particularly interested in the fractures of the spine of the tibia. Visitors to my clinic will recall that I had two patients of this type in which I had exostosis after the fracture so that it incapacitated the patient and had to be removed by the chisel through the joint. We are only beginning to appreciate the significance of recurring traumas in joints, as pinching of the capsule, fracture of the semilunar cartilages, intra-articular villous formations, etc. Recurrent mild internal traumas in joints are extremely injurious to the synovial membrane and induce hypertrophy, fibrosis, synovitis, etc.

Dr. Henry O. Marcy, Boston: Mr. Lister taught me when I was his first American pupil that it was not so serious a thing to open the knee-joint as had been earlier supposed. To open the knee-joint in the early days of surgery was considered entirely beyond the realm of correct operation. When in 1880 I reported 150 operations on the knee-joint I hesitated to read the paper. I expected only criticism and no approval. Dr. Rowe said "To-day we have learned a new chapter in operations on the knee-joint." Dr. Sayre said to me "You have made a devil of a row in my line of surgery to-day," and that was an expression of the possibilities of opening the knee-joint at that time. The operations on the crucial ligament are something quite new to me.

Dr. Frederick J. Fassett, Seattle, Wash.: In opening a knee-joint through sagittal section I have been impressed with the close attachment of the crucial ligament to the cartilages. Would the crucial ligament play a part in the loosening of the semilunar cartilage? Given a diagnosis of a loose semilunar cartilage, would this be the incision of choice?

Mr. E. M. Corner, London, England: Do the crucial ligaments play a part in the loosening of the internal semilunar cartilage? The answer is yes, they do play a very great part. If the crucial ligaments in bearing the strain give way, no further injury is likely to occur. If the crucial ligaments stand firm then the semilunar cartilages, particularly the internal, will probably yield. You will meet in practice a mean between these extremes; partially lacerated, stretched or torn crucial ligaments and in direct degree with their slackness will the injury to the internal semilunar cartilage vary. The greater the slackness the less the likelihood of injury to the cartilages. The second question, concerning the median incision as the operation of choice for removal of the semilunar cartilage—if the clinician is absolutely certain in his own mind of the diagnosis of a dislocated semilunar cartilage, then he will do better to operate through the small local incision. The patient will get better sooner. If, on the other hand, the surgeon is not so certain or the knee-joint is not well after he has removed the internal semilunar cartilage, it is wise for him to decide on exploration of the knee-joint through the larger median incision. With regard to satisfaction after operation for semilunar cartilage, I would like to add a word of warning, namely, operation on the knee-joint gives a certain amount of postoperative stiffness and limitation of movement which may take weeks or months to pass off. This postoperative stiffness gives to the patient an impression of strength in the joint. Shortly after operation patients will tell you that they have a stronger knee. If you see these people, say a year and a half after operation, some of them will tell you quite a different tale. So that in deciding whether a case is satisfactory or unsatisfactory it is well to wait at least a year before making that decision.

The Individual Responsible.—That which is a common concern to all is very generally neglected. The energies of man are stimulated by that which depends on himself alone, and of which he only is to reap the whole profit or glory. In concerns common to him with others he employs with reluctance as much attention and activity as his own interest requires. He neglects that of which he thinks other men will take care, and as other men prove equally negligent, the common interest is universally abandoned.—Aristotle.

THE PHARMACOLOGY OF SODIUM TARTRATE *

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WASHINGTON, D. C.

Although the salts of tartaric acid are widely used in medicine and form an important constituent of some foods which may enter in our daily diet, only few attempts have been made until recently to learn its behavior in the body. Its general toxicity received only casual attention, while its action on various organs was confined to a few experimental tests on the circulation and some studies on peristalsis. Within the last two years, however, the attention of a number of workers, all in this country, was directed to a study of the action of the tartrates.

In 1912 Underhill[1] reported a series of very interesting experiments with sodium tartrate on rabbits and dogs. He found that about 1.0 to 1.2 gm. per kilo given by subcutaneous injection to animals with phloridzin diabetes or to fasting non-phloridzinized animals caused a very marked tubular nephritis, but no changes were observed in the glomeruli except an occasional small hemorrhage.

In the course of investigations on the toxicity of some of the heavy metals which Dr. Smith[2] and I have carried out about the same time, the need of using the tartrates of these metals presented itself to us. In order to determine their proper action it was found necessary, however, by way of preliminary studies, to acquire more information concerning the action of the anion. In experiments on rabbits I noticed that sodium tartrate produced marked urinary changes, indicating renal disturbance which may be modified by diet. We also pointed out that the resistance of cats was much greater than that of rabbits.

Later Underhill, Wells and Goldschmidt[3] reported experiments with tartrates in which the effect of dosage, starvation, phloridzin and alkali on the production of nephritis by tartrates was studied. They also made observations on the influence of mode of administration. The changes they noticed were confined mainly to the epithelium of the convoluted tubules and to a less extent to the tubules of the loops of Henle, but no other lesions were observed, thus fully corroborating their previous findings. That phloridzin had no influence on the production of tartrate nephritis was shown by the subcutaneous injection into fasting rabbits of approximately the same amounts of tartrate as injected into phloridzinized rabbits. It may be remarked that the tartrate was injected the day after food was withdrawn and the animals were killed one to three days later. Experiments on well-fed rabbits consisted in the subcutaneous injection of from 0.5 to 1.0 gm. of Rochelle salt per kilo. The animals were killed three days later. These investigators claim that fasting rabbits are more susceptible to the action of tartrate. Examination of their reports of the histologic findings failed, however, to show any difference between fasting and well-fed animals. When given by mouth approximately 3 or 5 gm. per kilo of Rochelle salt, administered to rabbits which fasted three days, caused diarrhea and coma in twenty-four hours, death in thirty-six hours. In general, the character of the change produced was the same as by subcutaneous injection of an effective dose. The authors maintained that starvation also decreases the resistance of the animals to tartrates when given by mouth. The protocol, however, hardly justifies such a conclusion. The differences observed are not marked and they may be due to individual variation. The experiments on the influence of alkali treatment were made with doses of 0.5 and 1.0 gm. per kilo of tartaric acid, neutralized with sodium carbonate. Only one experiment and one control were reported with 1.0 per kilo, which is obviously not enough for drawing any conclusion, while the smaller dose is not controlled at all. In all the

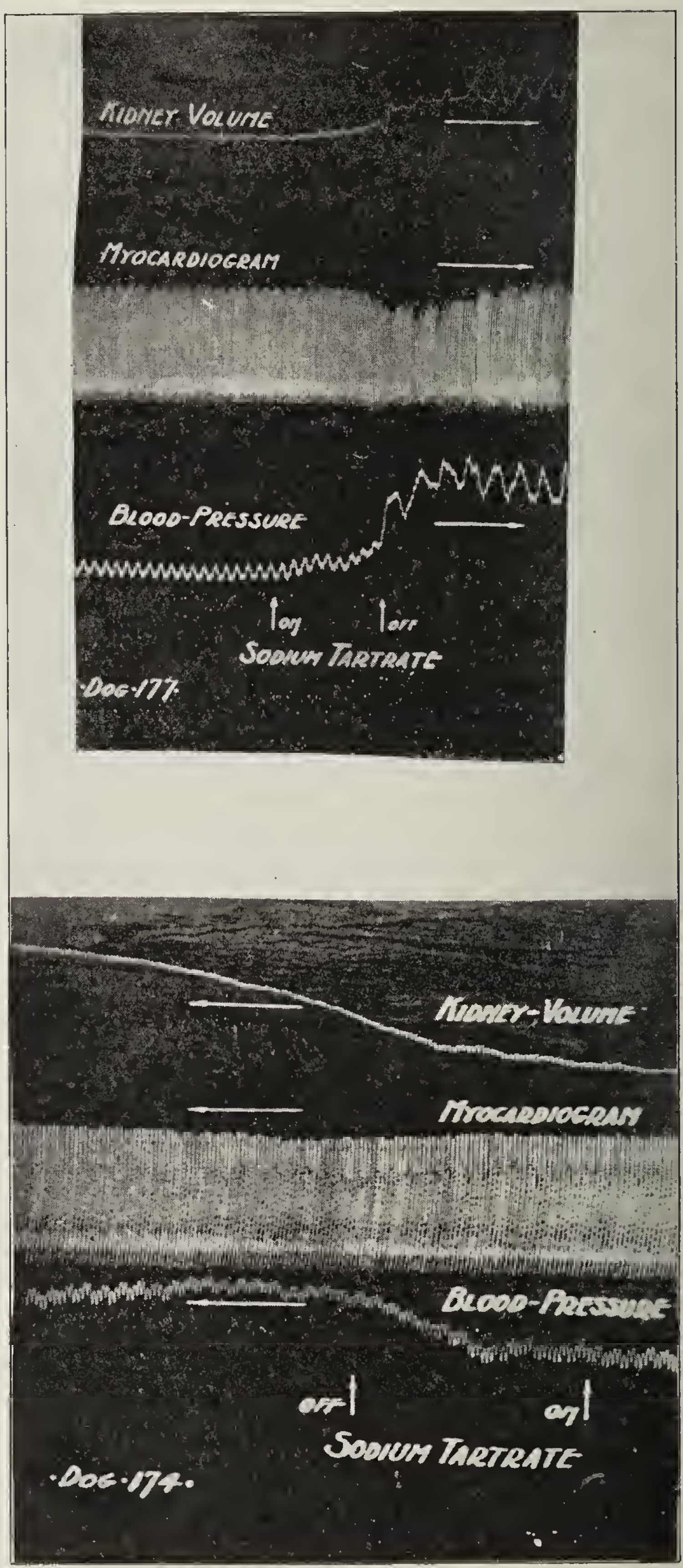

Fig. 1.—Tracing showing the rise of blood-pressure, increase of kidney volume, and slight cardiac depression produced by sodium tartrate when injected intravenously (femoral vein). Both dogs were curarized and under morphin-ether anesthesia. Upper tracing shows effect of 2 c.c. per kilo, and lower tracing 1 c.c. per kilo of a 10 per cent. solution.

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* From the Pharmacological Laboratory of the Bureau of Chemistry.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Underhill: Jour. Biol. Chem., 1912, xii, 115.

[2] Salant and Smith: Proc. Soc. Exper. Biol. and Med., 1913, x, 70.

[3] Underhill, Wells and Goldschmidt: Jour. Exper. Med., 1913, xviii, 322.

other experiments by subcutaneous injection they gave larger doses as was stated above. It is possible, therefore, that the milder effects when tartrate and alkali were given were due to the size of the dose.

Pearce and Ringer[4] produced nephritis in dogs by means of sodium tartrate which was given subcutaneously, intraperitoneally and by mouth. Complete suppression of urine, or diminished urinary secretion with albumin and casts were observed. The histologic changes in the kidney consisted of necrosis of the convoluted tubules, fatty changes in the loop of Henle and in the collecting tubules. According to their observations the glomeruli were also involved. This change, however, was not present in all their animals. The capsule of Bowman was greatly distended and the tufts were compressed, but no structural alterations were noticed. After a dose of 7 gm. Rochelle salt was given by mouth, marked nephritis and death in less than twenty-four hours resulted. On the other hand, after 15 gm. tartaric acid as the sodium salt, diarrhea was the only effect noticed. The amounts injected by other paths varied between 10 and 15 gm. of Rochelle salt. The duration of life was seventy-eight hours in one dog and twenty-five minutes in another. Three of them lived eighteen, nine, thirty-six hours.

More recently Post[5] carried out a series of tests with tartrates on the human subject. He failed to notice any deleterious effect even in nephritis with doses of from 8 to 24 gm. of Rochelle salt.

My own observations with sodium tartrate have shown that doses of 0.4 to 0.8 gm. per kilo of the neutral salt may produce renal disturbance and even death in rabbits which have been receiving a diet of oats for several days before and during the experiment. Albuminuria was present in some animals and death resulted in one series of experiments in 70 per cent. of the animals receiving a dose of 0.4 gm. per kilo. The kidneys of such animals were much enlarged. The weight of several of them was increased from 50 to 100 per cent. They were soft and whitish in appearance. The glomeruli were compressed, some of them occupying only one-fourth the capsule of Bowman. Congestion, varying in degree, was almost the rule. It was observed when small, as well as when larger doses were given. The convoluted tubules were involved, but degenerative changes which were observed with small doses, 0.6 to 0.8 gm. per kilo, were moderate in extent. The injection of 1.0 to 1.2 gm. of sodium tartrate per kilo was invariably followed by symptoms pointing to severe affection of the kidney. Diminished secretion of urine or anuria which appeared within twenty-four hours was the rule in animals which received such doses. Albuminuria, varying in degree, usually developed in such cases and persisted until the death of the animal, which took place in six to ten days. Such amounts produced very marked degeneration of the epithelium of the convoluted tubules. The straight tubules were also affected but the damage inflicted was usually a great deal less than in the convoluted tubules. In some instances, especially chronic cases, proliferation of connective tissue cells was also noticed. In experiments with such doses, 1 to 1.2 gm. per kilo, by subcutaneous injection, muscle and nervous symptoms were also observed. Forced movements, ataxia, paralysis and convulsions developed in these animals several days after receiving tartrates. The effect of diet received some attention in our studies with tartrate. It was observed that cabbage-fed animals were slightly more resistant than those which were fed oats. But the difference in toxicity was very striking when sodium tartrate was administered to animals which were given for several days previously an abundant diet of carrots. In carrot-fed animals which received 2.5 gm. per kilo of tartrate, symptoms were absent. Their appetite continued good, and except for an occasional trace of albumin no abnormality was observed. A number of explanations suggest themselves. The large amount of water ingested with carrots may be thought of as the cause, but this is not likely since the toxic effect was noticed in animals which drank considerable amounts of water, as much as 186 c.c. of water in one day, and yet 1 gm. of sodium tartrate per kilo proved to be fatal when the animals were previously fed oats.

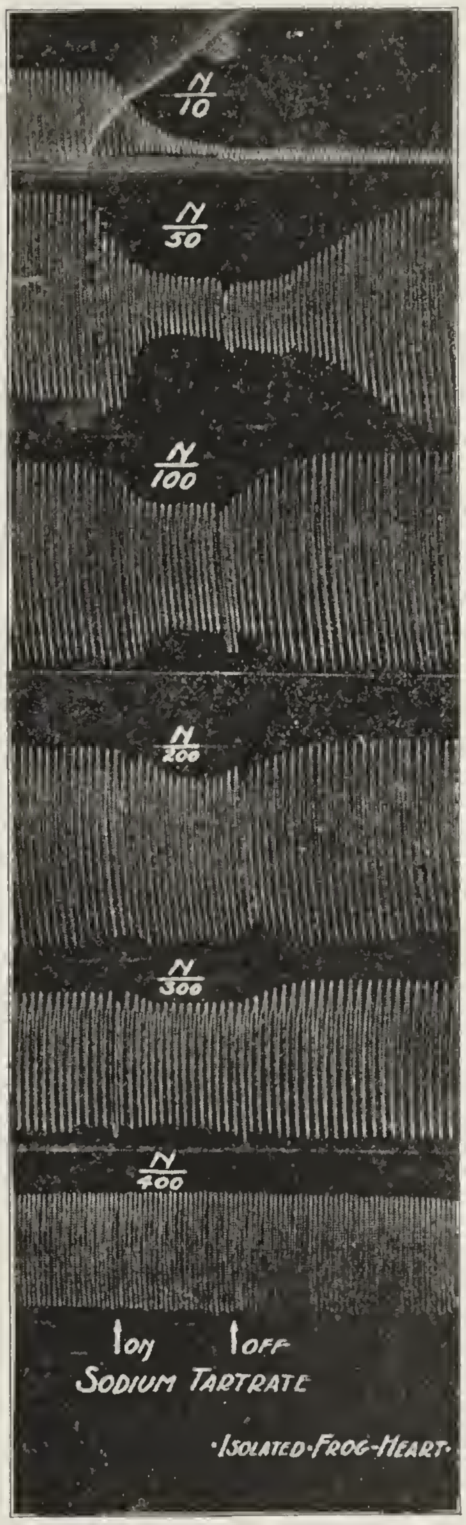

Fig. 2.—Tracing showing the depressing effects of perfusing the isolated frog heart for 30 seconds with sodium tartrate solutions of concentrations varying between approximately 1 per cent. (N/10) and 0.025 per cent. (N/400).

The alkalinity of the diet is another possibility, but the simultaneous administration of sodium carbonate did not yield very positive results. The large amount of sugar in the carrots and consequent accumulation of glycogen in all probability plays an important part in decreasing the toxicity of this substance. This is, however, a tentative hypothesis only. Experiments on the toxicity of sodium tartrate when administered by various methods indicate that the effect when given by mouth is considerably less than when injected subcutaneously; from 3.5 to 4 gm. per kilo failed to produce any effect. A dose of 5 gm. per kilo, however, was fatal to some rabbits. The toxicity when given by vein varied with the rate of injection. Acute symptoms, such as muscular twitching, dyspnea and convulsions, appeared after 1.5 to 2.2 gm. per kilo of an isotonic solution was introduced. Diarrhea never occurred after intravenous injection. Experiments show that its effect on the circulation and the isolated heart is that of a cardiac depressant.

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[4] Pearce and Ringer: Jour. Med. Research, 1913, xxix, 57.

[5] Post, Wilber E.: The Effect of Tartrates on the Human Kidney, The Journal A. M. A., Feb. 21, 1914, p. 592.

In experiments on the intact animal under ether or chloretone anesthesia I found that the injection of sodium tartrate in various concentrations, from 2.5 to 10 per cent. and 20 per cent., the force of the heart was considerably decreased. The frequency was slightly diminished or remained unchanged. One c.c. per kilo of a 10 per cent. solution caused a marked decrease of amplitude. But in some experiments smaller doses produced the same effect. In one dog weighing 9 kilos, the intravenous injection of 15 c.c. of a 2.5 per cent. solution of sodium tartrate under chloretone anesthesia produced a decrease of 25 per cent. in the amplitude of the heart as measured by a Cushny myocardiograph. Recovery was the rule in our experiments. The rate of injection had an appreciable effect. The more rapidly the solution was introduced the more marked was the depression. Blood-pressure was moderately increased in most instances when ether anesthesia with morphin or curare was employed. No effect with tartrate on blood-pressure was observed when chloretone was employed as an anesthetic. Oncometric measurements of the kidney have invariably shown considerable increase in volume. Attention may also be called in this connection to some observations with calcium chlorid. The antagonistic action of calcium and the oxalate has been shown by a number of investigators. Some workers explained the action of the citrates and tartrates by the chemical property of these substances to form calcium compounds that are insoluble or are not dissociated. Experiments with a calcium chlorid solution have shown that it is antagonistic to sodium tartrate, as it counteracts the effect on the heart as well as on blood-pressure.

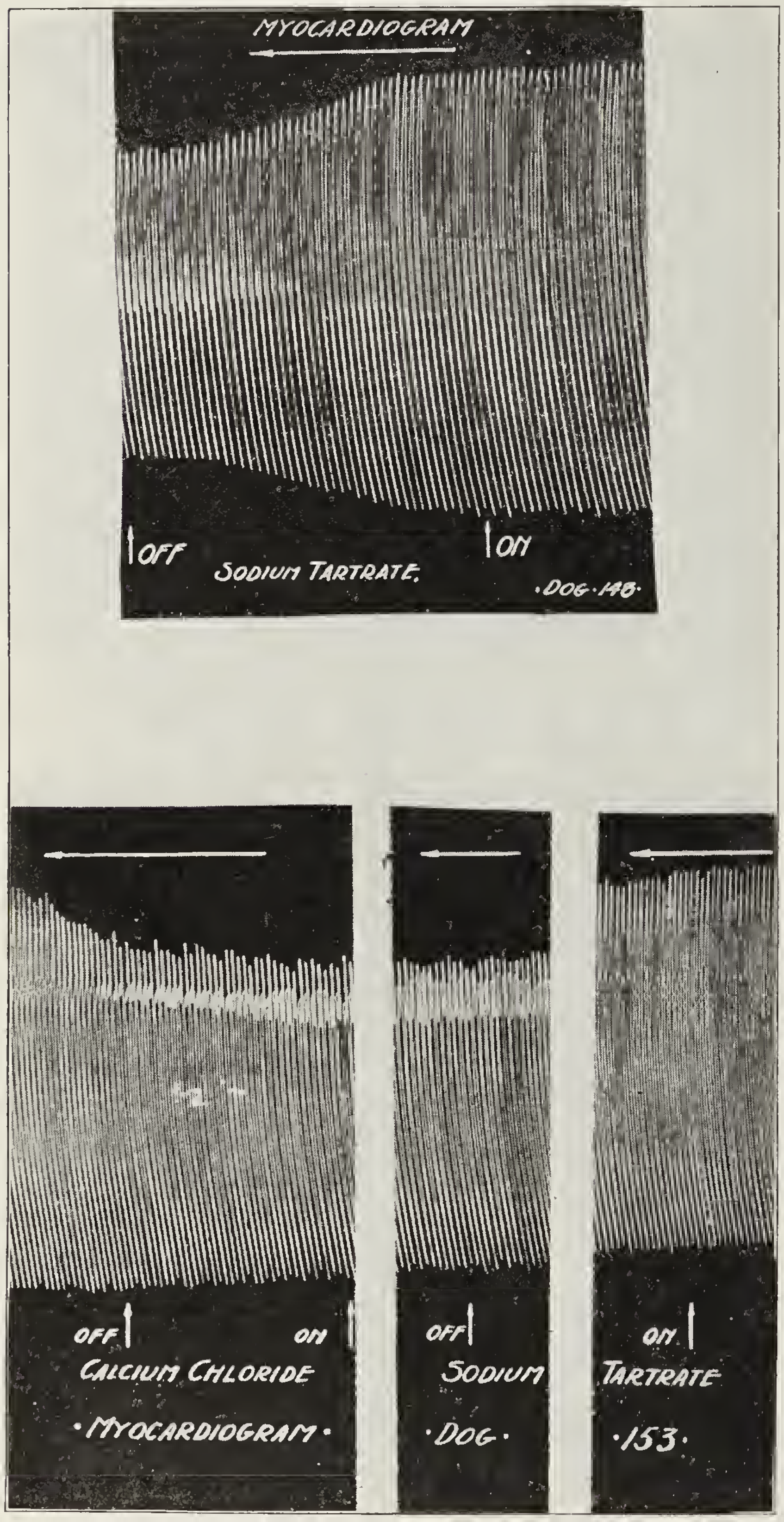

Fig. 3.—Upper tracing shows the depressing effect of sodium tartrate on the heart, the record being taken by means of a Cushny myocardiograph, with the heart *in situ*. Lower tracing shows the antagonistic action of calcium chlorid and sodium tartrate when injected intravenously. Dog under chloretone anesthesia.

The effect of sodium tartrate on the isolated heart has been studied by Karczag,[6] who made experiments on the heart of the turtle. He reported that hundredth-normal tartaric acid in Ringer solution produced heart-block and decreased cardiac action. Gros[7] recently reported experiments showing that tartrates also produce depression of the frog heart. I have carried out a systematic study on the isolated heart of the dog, cat and frog. Sodium tartrate, even in very dilute concentration, was found to be a cardiac depressant. A solution of three-hundredth-normal perfused through the frog's heart for from thirty to sixty seconds produced a distinct though not a very pronounced diminution in amplitude. With the increase of the concentration there was greater decrease in the action of the heart which was not, however, proportional. A solution of hundredth-normal decreased the amplitude 40 per cent. After perfusion for the same length of time with a tenth-normal solution the effect was a little more than twice as great. The action varied also with the length of time perfused, cardiac depression being more marked when larger intervals were employed. No adequate explanation of the action of sodium tartrate can be offered at present. Although our experiments show very decidedly the antagonistic effect of calcium under certain conditions, it utterly fails to account in some cases for the action of sodium tartrate.

I am very much indebted to Mr. Selig Hecht, Graduate Scholar, Harvard University, for valuable assistance in some of the experiments of this investigation.

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[6] Karczag: Ztschr. f. Biol., 1909, liii, 218.
[7] Gros: Arch. f. exper. Path. u. Pharmakol., 1913, lxxi, 397.

The Limitations of Statistics.—A series of hundreds of operations, tabulated and arranged and nicely rounded off in terms of percentages, always seems to me to possess but very limited value, so limited, indeed, that it is strictly confined to one person—the surgeon who performed the operations; and even he can learn nothing from the contemplation of his tables when he has compiled them. The rich experience he will have gained cannot even be expressed in that way; much less can it be imparted to others, for it will consist actually in the sum of a multitude of observations of individual cases, all of them slightly varying one from another, but all of them obeying pathological laws which are fixed, and which never vary. After all, it is not the fact of performing a large number of operations that in itself constitutes real experience, unless in addition the surgeon who performs them possesses the qualities that are essential for a good clinical observer.—R. Hamilton Russell, *British Medical Journal.*

STUDIES IN INTESTINAL OBSTRUCTION

WITH A REPORT OF FEEDING HETEROLOGOUS JEJUNAL AND ILEAC CELLS TO A HUMAN BEING *

JOHN WILLIAM DRAPER, M.D.
NEW YORK

To Roger we are indebted for the present conception of the cause of death in intestinal obstruction. He was undoubtedly the first to conceive of it as a true auto-intoxication.

In a paper read before the Johns Hopkins Medical Society seven years ago and based on a study of the effects of 400 duodenal obstructions produced in animals at the Surgical Research Laboratory at Columbia, I reported corroborative evidence, from a surgical aspect, of Roger's view. William Welch on opening the discussion of my paper said that, if corroborated, the facts presented would show that the duodenum had a function hitherto unknown and one evidently of the utmost importance in medicine. It is gratifying that this corroboration has just recently come from Dr. Welch's own laboratory at the hands of Whipple and his associates. By a series of skilfully devised experiments, these investigators have succeeded in casting much more light on this interesting problem than either Roger or I had been able to do, and the sum of our investigations taken in the aggregate seems now to offer incontrovertible proof that the cause of death is not bacterial in origin, but truly autotoxic from the cells of the epithelium of the intestine itself.

Perhaps no branch of medical research better illustrates than this one the advantages derived from having men with one object in view working at different centers of education toward the solution of a common problem. The different points of view ultimately arrange themselves on convergent lines so that when the answer is finally won it is evidently not the product of one man's aims or ambitions, but a homogeneous unit, resulting from the constructive work of several minds. For no single individual can expect to do much more with a modern problem than to advance it a single step. This problem also serves to demonstrate the rapid breaking down of the traditional barriers between medicine and surgery, forecasting the ultimate fusion of these old and arbitrary subdivisions into a new unit, the members of which will have a working knowledge of physiologic chemistry and its allied sciences in addition to requisite technical skill. Furthermore, it demonstrates that modern surgery, like physiology, does not consist in the manufacture and use of instruments of mechanical precision but in philosophical interpretation of natural phenomena.

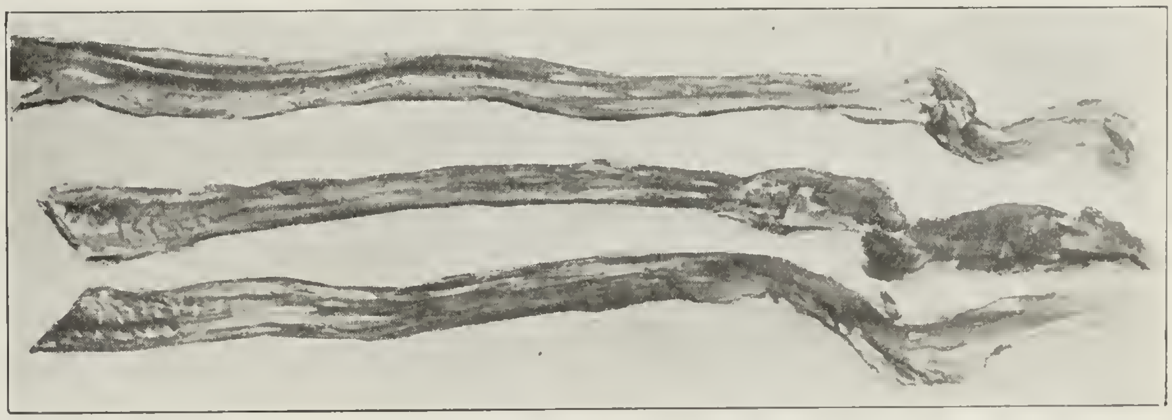

Fig. 1 --Above, the split colon of a normal dog; in the middle, the split colon of a dog salivated foı four days by pilocarpin, and below the split colon of a dog dying from acute duodenal obstruction.

The various old and groundless theories as to the cause of death in intestinal obstruction have one by one been disposed of, with the possible exception of the exact origin of the toxemia. Is it bacterial, or purely autotoxic from the cells of the intestinal epithelium itself? Were it not for the views of Fred Murphy, which result from his studies at the Washington University and which bear evidence favorable to the bacterial theory, one would be ready to accept the result of the painstaking and thorough researches at the Cornell laboratories of Hartwell and Hoguet who seem definitely to have excluded the anaerobes, and of Whipple and his associates at the Hopkins laboratories, who are disposed to rule out all bacteria as causative agents in the development of the toxemia. From the prosaic and common sense point of view of applied surgery, it is hard to understand why obstruction in the duodenal region should be many times as dangerous as obstruction in the colon. It has long been known that duodenal contents may be allowed to escape into the peritoneal cavity without danger, but that peritonitis is to be expected if any colonic contents escape.

No careful observer could watch the death of a series of duodenally obstructed dogs without noticing the close similarity between the ante-mortem symptoms of this condition and those seen after parathyroidectomy or long remain in doubt that the function of the liver was greatly impaired in each.

The accompanying tables are based on the study of the urine of duodenally obstructed dogs, both before and after a large dose of camphor had been given hypodermatically. The recovery of the paired glycuronic camphor has been made by the method devised by Tollens. I am indebted to Frederick W. Schlutz of the University of Minnesota for the privilege of presenting these results, which are a chronicle of his chemical studies made on dogs obstructed by me. In a previous communication we have jointly presented two similar studies, both of which appear to show more conclusively than the present ones that liver function was impaired. Negative findings, reported of carefully wrought work, are, however, just as valuable as positive findings, particularly in the case of a method which is as yet open to some question as to accuracy, and which is certainly open to criticism as regards the time taken in working it out. Dr. Schlutz is carrying on further studies of the accuracy of Tollens' method. As indicated in Table 1, the discrepancy between this report and our previous findings, in which the liver function, as indicated in terms of camphor-glycuronic was considerably lowered, may be due either to inaccuracies in the method itself or our application of it, or to the fact that we were unfortunate in having one of our dogs live but a very short time while the other one lived an unusually long time. Dr. Schlutz will make a

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* From the Laboratory of Experimental Surgery, New York University.

* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

further report which will clarify this interesting question.

When Hartwell and Hoguet advanced their hypothesis that water privation was the chief lethal factor after intestinal obstruction, at the suggestion and with the help of George Wallace we conducted some experiments to determine the exact water percentages in the tissue of dogs under various conditions. It was thought that salivation by pilocarpin, fasting, and duodenal obstruction might cause approximately the same water-loss to the tissues. Table 3 shows the results from six tissues, namely, liver, lung, heart, kidney, spleen and muscle. It is seen that within a few tenths of 1 per cent. the water-loss after pilocarpin, after fasting, and after death from duodenal obstruction was the same, namely, 10 per cent. In the case of the salivated dogs and the fasting dogs, euthanasia was practiced on the fourth and seventh day, respectively, long before there were any signs of disability. On the other hand, the duodenally obstructed dogs were allowed to die of their autotoxemia, so Table 3 gives the maximum water-loss for obstruction but not for salivation or for fasting.

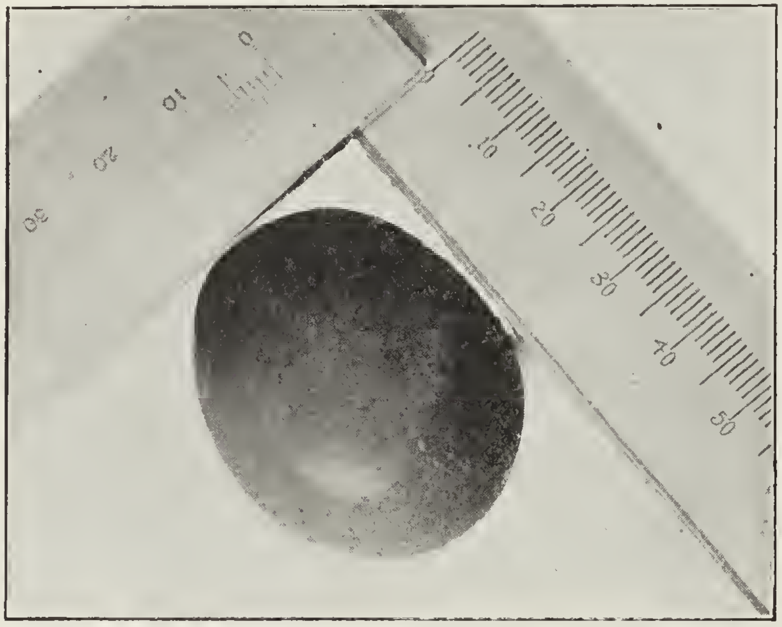

Fig. 2.—Acute jejunal obstruction in dog. Stone swallowed six months before operation, causing chronic stomach symptoms, but no obstruction until it slipped into the bowel. Note partial digestion of soft area by gastric juice. Recovery followed removal of pebble and feeding of dog with jejunal and ileac epithelium.

These studies appear to offer additional proof that in intestinal-obstruction toxemia, as in other toxemias, whether bacterial or truly autotoxic in origin, the solvent power of water on the toxins and its help in eliminating them from the body serve in many cases to prolong life, and, under certain conditions, to save it. Indeed, Wallace has shown that an animal may be given double the lethal dose of diphtheria toxin and yet live, if treated by abundant hypodermoclysis. But while valuable from a therapeutic point of view they cast no light whatever on the origin or the nature of the toxins. Furthermore, it has been the clinical experience of all surgeons that even an abundance of water will not serve to save the life of a human being in whom there had existed for any length of time complete duodenal obstruction.

We have again subjected to careful microscopic study the liver, heart and kidneys of a large number of obstructed animals and find that except for capillary dilatation they appear normal. In this connection as well as in the conduction of the feeding experiments, I acknowledge the efficient help of Dr. Eisberg. These microscopic findings are simply corroborative of previous reports made by myself and others. The beginning and end of the alimentary canal, however, on its epithelial surface, shows this capillary dilatation so markedly as to attract the eye on gross examination. I have shown a colored photograph of a stomach removed from a duodenally obstructed dog at the Mayo Clinic. I have shown and called attention to this before, without knowing its importance or significance; and because of its bearing on certain data which I shall present later, I am glad to say that the observation is corroborated by Whipple. In our necropsy experience the small intestine has shown little if any, gross change, but the colon is almost invariably affected and in a very characteristic manner. I understand from Wallace that the same condition obtained after a lethal dose of diphtheria toxin had been given.

TABLE 1.—INTESTINAL OBSTRUCTION, DOG 201: LIVER FUNCTION IN TERMS OF GLYCURONIC CAMPHOR (TOLLENS), SCHLUTZ-DRAPER SERIES

Date of Experiment	Length of Period, Hrs.	Vol. of Urine, c.c.	Normal Amt. of Glycuronic Acid	Amt. actually Passed as Combined Camphor Glyc. Acid	Increase Over Normal in Glycur.	Remarks
1-27-28	24	130	0.1794	......	......	2 gm. of camphor.
1-28-29	24	122	0.1092	......	......	A Theoret. total of 452 gm. Comb. camph. glyc. acid. 37.02 per cent. combined before, 5.64 per cent. obstruction.
	Camphor 2 gm. hypod. 3 p. m. ½ 9-1912					
1-29-30	24	147	0.1470	0.4428	0.2958	1 c.c. of normal undiluted urine=0.0010 gm. glyc. acid.
1-30-31	24	215	0.2150	1.4094	1.1944	1 c.c. of normal diluted urine = 0.00028 gm. glyc. acid.
1-30-11-1	25	227	0.2270	0.4104	0.1834	
	Intestinal obstruction, 3 p. m. 7-1912; 24 hrs. later 2 gm. camphor hypodermically.					
11-1-2	34	900	0.9200	1.1772	0.2572	

Discrepancy with results previously reported may be due to short postoperative life or to inaccuracy of Tollens' method.

Thus it appears increasingly probable that the toxins of intestinal obstruction are eliminated both from the stomach and from the colon. When we recall the method of elimination by the stomach of morphin, its reabsorption by that organ and the value of frequent stomach-washings in the treatment of morphin poisoning, the post-mortem picture of intestinal obstruction is not so surprising, and the value of lavage and epithelial cell feeding in complete and incomplete obstruction as well as in acute dilatation of the stomach is more easily understood. It strongly suggests that most cases of postoperative dilatation are due to an adynamic duodenum, just as hydronephrotic dilatation of the kidney is often caused by physiologic ureteric obstruction. An organ dilates first at the point of obstruction to its outlet, be the obstruction mechanical or physiologic.

The capillary evidence of stomach elimination affords a working hypothesis on which we may explain the interesting results of feeding to duodenally obstructed animals the epithelial cells from the ileum and jejunum of other animals. Table 4 shows the result, as regards the length of life, to be quite definite, the fed dogs living nearly twice as long as the controls. This series agrees with a similar series reported by me from the Mayo Clinic. It is not to be forgotten that scrapings from the frog's duodenum will stimulate pancreatic secretion in the higher vertebrates. Intercellular reactions must be among the most ancient and most fixed of our functions, and the feeding of intestinal cells may prolong life by reestablishing certain vital intercellular reactions which the obstruction had interrupted. Although knowing empirically that if jejunal and ileac epithelium were placed in the stomach of a duodenally obstructed dog, that dog would outlive one either not fed on cells at all or fed on cells of organs other than the small intestine. I could not previously understand this but it now seems probable that since the toxins are undoubtedly thrown out into the stomach they are directly rendered harmless by the heterologous cells from the small bowel derived from a healthy animal and are thus prevented from reentering the body. This explains the immediate benefits derived in the treatment of acute dilatation of the stomach and since this condition is undoubtedly due to physiologic duodenal obstruction, it seems probable that the feedings of these epithelial cells may prove to be just as useful in the treatment of dilatation as in the postoperative treatment of obstruction.

TABLE 2.—INTESTINAL OBSTRUCTION, DOG 202: LIVER FUNCTION IN TERMS OF GLYCURONIC CAMPHOR (TOLLENS), SCHLUTZ-DRAPER SERIES

Date of Experiment	Length of Period, Hrs.	Vol. of Urine, c.c.	Normal Amt. of Glycuronic Acid	Amt. actually Passed as Combined Camphor Glyc. Acid	Increase Over Normal in Glycur.	Remarks
1-27-28	24	116	0.1458	......	......	1.7 gm. camphor = a theoret. total of 3.842 gm.=comb. camph. and glyc. acid. 0.2 gm. camphor = 452 gm. comb. camphor and glyc. acid.
1-28-29	24	150	0.1548	......	......	
	1.7 gm. camphor in oil subcut.					
1-29-30	24	83	0.0913	1.2294	1.1381	Before obstruc. 44.56 per cent. of camphor comb. with glyc. acid.
1-30-31	24	100	0.1100	0.3582	0.2482	After obstruc. 47.64 per cent. were comb., but practically all in the first 24 hrs. after that markedly dim. function.
1-31-2-1	24	130	0.1430	0.2880	0.1450	1 c.c. of normal undiluted urine = 0.0011 gm. glyc. acid.
	Intestinal obstruction 4:30 p. m. 2/1/12					
2-1-2	24	55	0.0615	0.2424	0.1809	
	Camphor 2 gm. subcut. 2/2/12, 2 p. m.					
2-2-3	24	366	0.4026	2.3100	1 9074	
2-3-4	24	109	0.1199	0.2310	0.1111	
2-4-5	24	246	0.2706	0.2906	0.0200	
2-5-6	24	134	0.1474	0.2208	0.0724	
2-6-7	24	85	0.0935	0.1140	0.0205	
2-7-8	24	60	0.0660	0.0888	0.0228	

Postoperative life unusually long may indicate high liver resistance or inaccuracy in Tollens' method.

The study of Table 4, constructed from the last series, shows that it differs from the former series in that the pulse-rate of the different groups has been unaltered. A reasonable explanation of this is that the pulse was taken in the recent series at the femoral, whereas in the series reported from Rochester it was in each case taken at the apex. The femoral count is certain to be much lower when the heart is running high because many of the beats are not transmitted to the finger. While this series for the foregoing reason shows little change in the pulse-rate, it does show a much greater increase in the length of life, and this certainly is the best index of the effect of any treatment.

A glance at Table 4 shows that of the dogs fed with epithelium only two died before the hundredth hour, whereas of the controls only three lived beyond the hundredth hour. It is interesting to note that one of these lived 239 hours, showing that occasionally one finds an animal naturally resistant to duodenal obstruction. In the average this is balanced in the fed series by one which lived 284 hours, so that the general average remains unchanged and it is quite safe to say that the increase of life, which in this series is nearly doubled, is due entirely to the detoxicating effect of the epithelium.

In order to show that fed jejunal and ileac epithelium exercise some special detoxicating power not yet understood but definitely recognizable, we fed a control series of dogs on the emulsified cells of liver, spleen, pancreas and muscle-tissue. These animals lived a few hours longer than the not-fed controls, but it is evident that these cells had either no detoxicating action, or a very feeble one, compared with the intestinal epithelium. If we prove to have at hand

TABLE 3.—WATER PERCENTAGES OF SALIVATED AND DUODENALLY OBSTRUCTED DOGS ACCORDING TO TISSUE; SALIVATED SERIES, EUTHANASIA FOURTH DAY; FASTING, EUTHANASIA SEVENTH DAY; OBSTRUCTION SERIES, AUTOTOXIC DEATH ON FOURTH DAY (AVERAGE)

Tissue	Normal					Salivated (Pilocarpin)			Fasting 7 Days	Duodenally Obstructed					
	Dog	211	193	236	Aver.	205		Aver.	204	207	206				Aver.
Liver..	73.6	72.0	70.0	79.2	73.7	74.8	60.0	67.4	62.6	59.0	60.6	69.0	68.0	71.0	65.5
Lung..	....	80.4	68.2	84.3	77.6	71.2	79	75.1	76.8	72.8	66.8	....	....	....	69.8
Heart..	77.0	77.0	84.0	75.0	78.2	73.0	63.0	68.0	74.8	74.4	62.0	55.0	75.0	77.0	68.7
Kidney.	....	78.7	80.0	74.5	77.4	75.2	....	75.2	70.9	67.2	59.3	....	74	78	69.6
Spleen.	....	76.3	77.5	74.1	75.9	....	51.0	51.0	....	64.5	....	....	74.0	79.0	72.5
Muscle.	75.0	74.0	75.1	72.7	74.2	44.2	74.0	59.1	45.6	42.8	40.0	65.0	69.2	....	54.2
Average	....	....	....	....	76.1	....	....	66.0	66.1	....	....	....	....	....	66.7

Salivation, fasting and duodenal obstruction each cause 10 per cent. water loss, showing this factor to be negligible in death by obstruction.

some less cumbersome method than Tollens' for determining liver function, it would be interesting to use it as an index of the effect of feeding small intestine epithelium.

I have utilized jejunal and ileac epithelium clinically in two instances. First in a valuable female dog which had been imported from England about six months before, and had had "chronic stomach trouble" ever since her arrival. She, however, whelped a large litter of pups about six weeks before I saw her, without difficulty. She was a large poodle, weighing about 40 pounds. She had had complete intestinal obstruction for five days and she presented all the clinical symptoms which I have described, notable tachycardia, extreme nervousness, and great weakness in the hind extremities. On opening her, with the consent and on the advice of Dr. Blair, I removed from the oral portion of the small intestine and at a point not exactly determined, the pebble which is shown in the illustration. Her condition was very grave, the pulse running from 180 up and showing great irregularity at the apex. She was immediately put on small intestine epithelium derived from two dogs of a different breed. No one is justified in drawing any deductions from one case, but from a long experience with the symptoms of duodenally obstructed dogs, I should not under ordinary conditions have expected her to recover. The symptoms, however, gradually subsided and she lived.

TABLE 4.—FEEDING HOMOLOGOUS CELLS TO DUODENALLY OBSTRUCTED DOGS

Fed Jejunal and Ileac Epithelium			Fed Emulsified Liver, Spleen, Kidney, Pancreas and Muscle Tissue			Not Fed (Controls)		
Dog No.	Hours Lived After Obst.	Average Pulse	Dog No.	Hours Lived After Obst.	Average Pulse	Dog No.	Hours Lived After Obst.	Average Pulse
200	197	157	49	72	156	185	83	149
202	114	147	53	115	140	186	239	109
204	171	161	56	75	149	188	66	133
33	166	200	57	71	179	189	50	167
34	94	136	58	147	155	191	126	174
38	284	182	63	74	171	192	53	134
48	72	144	64	52	163	193	108	170
44	191	140	65	47	140	196	68	154
45	101	150	62	144	181	197	72	141
46	258	143	59	247	140	198	20	172
	1648 164.8*	1560 156†		1044 104.4‡	1574 157.4¶		885 88.5§	1563 156.3‖

* Average hours of life when fed epithelium.
† Average pulse when fed intestinal epithelium.
‡ Average hours of life when fed emulsion of organs.
¶ Average pulse when fed emulsion of organs.
§ Average hours of life of control.
‖ Average pulse of control (at femoral).

The second instance in which I have used the epithelium therapeutically was in the case of a man referred to me by my colleague Jerome Lynch. The patient had had definite symptoms of obstruction for ten days, and when the abdomen was opened, an annular cancer was found which closed the terminal ileum. Not knowing whether heterologous epithelium would have any detoxicating effect, but remembering that the duodenal epithelium of frogs is capable of stimulating pancreatic secretion in the higher vertebrates, and realizing that this patient was in a desperate condition, Dr. Lynch and I decided to feed him the emulsion from a dog. Hourly doses were given until the entire epithelium from the two animals had been taken. The patient objected much more to some magnesia which we ordered, than to the dose of epithelium, which he described as "not half bad." The pulse improved and the patient lived. These cases prove nothing; they simply show that heterologous cells may be given without discomfort or harm.

Different operative procedures were used in each. In the first, the continuity of the bowel was reestablished and most of the pent-up products of obstruction were allowed to flow to the aboral portion of the intestine. In the second, owing to the patient's condition, it was found necessary to do an ileostomy, and all the obstruction products were drained to the surface. As I have already stated, it is by no means proved that because such products are toxic to other individuals, they are necessarily toxic to their host.

CONCLUSIONS

The power of the liver to pair camphor and glycuronic acid is probably seriously impaired after duodenal obstruction. This can be studied by the method of Tollens, which, however, is cumbersome and may be faulty. Such decreased power of camphor-pairing is presumably an evidence of impaired liver function. This, however, is not reflected in the histologic appearance, either grossly or microscopically.

The decrease in the water-content of the tissues in duodenal obstruction is about the same as obtains after salivation by pilocarpin for four days or after fasting for seven. As this decrease produced no visible change in either case before euthanasia, it is reasonable to believe that it produces none in intestinal obstruction. The loss is 10 per cent.

The toxemia in duodenal obstruction undoubtedly arises from an interference with cellular reactions of the intestinal epithelium. The toxins undoubtedly are at least in part eliminated from the stomach and colon. If small-intestine epithelial cells of healthy animals are placed in the stomach of duodenally obstructed animals, such animals have lived nearly twice as long as not-fed control animals. This evidence is strongly opposed to the bacterial theory of origin of the toxins.

In addition to the placing of jejunal and ileac epithelium in the stomach of postoperative obstruction cases, an emulsion of them should also probably be used in colonic irrigations for the same indication and purpose.

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ABSTRACT OF DISCUSSION

Dr. Joseph Colt Bloodgood, Baltimore: Dr. Draper's paper seven years ago made me think clinically about the duodenum in relation to some things we had observed in intestinal obstruction. In the beginning of surgery, we were dominated by anatomy, and then followed pathology. At present surgery does not look for much help to anatomy, except in certain regions, or even to pathology. We have about reached the limit of the microscope, but we do look for help to experimental physiology in the solving of problems which will be met on the operating-table. Perhaps, later, we will look to experimental chemistry. Surgeons, as soon as they conquered technic in surgery of the stomach, found that their patients did not die of peritonitis. As soon as they used anesthesia, the majority of their patients didn't die of shock and later of anemia, but up to the present there is one complication which has always bothered. If they do a posterior gastro-enterostomy a number of their patients vomit the contents of the duodenum, because of some fault in the technic. Now its contents are washed out with the stomach-tube. These patients in the beginning died because we didn't know how to use the stomach-tube. There was no place for the duodenal contents to flow. They couldn't pass up into the stomach and couldn't come through the anastomosis because it was kinked, and these patients died within from three to five days. When I heard Dr. Draper's paper I couldn't understand some of the mortality after operations of that kind, either of my own or others. Patients going well on the operating-table, apparently absolutely comfortable for twenty-four or thirty-six hours, suddenly going to pieces, with no pumping, no distension or rapid pulsing that show in intestinal obstruction. That is a definite case of death from acute dilatation of the duodenum as a definite postoperative complication. If there is a patent pylorus we can relieve that with a stomach-pump when the pylorus is closed by section. Some surgeons are now advocating that posterior gastro-enterostomy is without an element of danger, and will not be followed by complications in two or three days. The operation has led to chronic dilatation of the duodenum, a terminal condition which is responsible for the ill-health of a group of patients. In the last three years I have recognized and operated on six. In the previous three years I didn't recognize three. The previous three died. The subsequent six have recovered, and the cause of the dilatation I have found has been a congenital defect in the mesentery to the ileum from the appendix and the giant cecum descending into the pelvis, and on account of the short mesentery of the ileum lying directly on the base of the mesentery section, which kinks the small intestine as it passes through to a junction with the duodenum, which produces a chronic dilatation with its symptoms. These patients have been relieved by removing the colon and taking away that heavy part and exposing the transverse colon so that it will do its work and be allowed to expand. This is a demonstration of what experimental physiology can do for practical surgery.

ROVSING'S OPERATION FOR CONGENITAL CYSTIC KIDNEY*

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My first acquaintance with congenital cystic kidney was gained in the dissecting-room of the Boston City Hospital, where I saw several necropsies on patients of middle and adult life who had come into the hospital in convulsions and died of uremia. In some of them, the enlargement of the kidneys had been noticed before death; in others, not, but at the necropsy the kidneys were found very much enlarged and studded with numerous cysts ranging in size from a pea to an orange. These cysts were yellow, green, red and brown, and the effect was very beautiful, making a pathologic specimen truly remarkable and imposing in appearance. These necropsy cases were bilateral, one kidney being considerably more enlarged than the other.

Cases in which gradual enlargement of a polycystic character takes place in middle life, and in which the patients present themselves to the surgeon on account of dragging pain and the presence of a tumor in the loin, or possibly on account of the mobility of the enlarged kidney, may suggest malignant disease of the kidney or hydronephrosis; and it is frequently only when they are cut down on that their true nature is revealed and the importance of a knowledge of their nature and treatment becomes evident. Such kidneys have not infrequently been removed, with the result that the patients have died of uremia, and the necropsy has revealed the presence of cystic disease of the other kidney, usually less advanced, so that a tumor was not felt before operation. A knowledge of the fact that this disease is usually bilateral might have saved the patient's life and the surgeon's discomfiture.

Congenital cystic kidney is a disease which frequently runs its course without a diagnosis being made during life, death occurring from uremia or cerebral hemorrhage due to kidney insufficiency. The real cause of the insufficiency is first discovered at the necropsy, when the enlarged cystic kidneys, not felt during life, are found by the pathologist. In fact, the course of the disease may be so latent that a patient in whom pathologic changes have not been suspected may be stricken with uremia or cerebral hemorrhage.

The term "congenital cystic kidney" does not include hydronephrosis, which is a dilatation primarily of the pelvis and sinus of the kidney from retention due to obstruction in the pelvis itself or the ureter, and does not concern the urinary tubules at all. It does not include cystic dilatation of the tubules due to contraction of the interstitial tissue, which sometimes accompanies a chronic interstitial nephritis. Here the kidney cortex becomes studded with little cysts, seldom larger than a pea, and not, as in the true congenital cystic kidney, greatly enlarged and varying in size. The cysts in interstitial nephritis play only a subordinate rôle and are secondary to scar contraction. Neither does the subject under discussion include the single or occasionally multiple cortical cysts which sometimes result from the absorption of embolic infarcts. In the true cystic kidney the organ may be enormously enlarged; for example, the cases in which they present an obstacle to parturition or in adults occupy half or two-thirds of the abdominal cavity. The whole organ, both cortex and medulla, is studded with cysts of various sizes, from that of a pin-head to that of a mandarin orange. The surface is knobby with cysts of different size and color. The walls of the cysts are thin and vascular, and the larger ones show folds on their inner surface, which are the remains of the walls of the smaller cysts which have coalesced to form them. The fluid consists of urine, since in it are found urinary constituents, such as uric acid and hippuric acid, calcic oxalate, cystin, leucin, and tyrosin; but in the larger cysts, this fluid is considerably diluted (probably by serum which has transuded through the walls), is albuminous, and contains blood, pigment, fat and cholesterin, in varying quantities, so that the color of the cysts may be red, brown or yellow, and the fluid in them more or less cloudy. Between the cysts are often found more or less extensive areas of normal renal parenchyma; other cysts are separated merely by fibrous tissue. In some cases with large amounts of parenchyma, we cannot distinguish between cortex and medulla.

The efferent passages which protrude into the calices or pelvis frequently show no changes, but in some specimens are shrunken and narrowed, and may be almost obliterated. Thin-walled cysts may sometimes be seen projecting into the pelvis, just as they do on the outer surface of the kidney. Microscopically, each cyst is lined with a single layer of flat epithelial cells, which in the smaller cysts correspond closely to a tunica propria. In the larger cysts this is not found, either because they have no proper wall, or because the cysts appear as dilatations in the interstitial tissue. The partitions between the cysts are so thin as to make it probable that the larger cysts have been formed by the coalescence of smaller ones. In some of the smaller cysts, glomeruli have been found attached to the walls, and flattened, but still permeable to injected fluid. It is thus evident that all portions of the tubular tract, from the glomeruli to the terminations in the papillae, are subject to cystic dilatation. The suggestion of certain investigators that these dilatations may arise by cystic degeneration of the interstitial tissue is not supported by recorded observations. That certain of the cysts show no epithelial lining is due to the fact that the epithelium is desquamated and disappears. In the smaller or younger cysts the epithelium is always found.

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* Read before the Section on Surgery, General and Abdominal, at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Cystic kidneys in adults and in the new-born are usually bilateral. If, as is rarely the case, the disease is unilateral, the other kidney is hypertrophied. The degeneration of the kidney may have an unfavorable influence on the development of the fetus, so that birth is premature. The child may die within a few moments of birth from respiratory failure, because of the interference with the movements of the diaphragm consequent on the tumor, or may live a few days, only to succumb to the same cause. Death may result early in these cases from renal insufficiency, the amount of normal functionating renal tissue between the cysts being insufficient for excretory purposes. On the other hand, the amount of normal renal tissue may be sufficient to prolong life for indefinite periods, perhaps decades, before renal insufficiency results in death. The most favorable conditions will naturally be presented by unilateral cases with compensatory hypertrophy of the opposite kidney, which unfortunately are rare.

In considering the etiology of this disease, we enter a field which has been fruitful of much discussion. The theory of Neuwerck, Hufschmidt and von Kahlden, that these tumors are cyst-adenomas, is negatived, it seems to me, by the fact that the cysts may often be demonstrated to be dilatations of the renal tubules, and contain urine, often diluted with serum, it is true, but showing distinct urinary constituents. The epithelial proliferations and connective-tissue growths, which Brigidi and Severi had relied on as evidence of tumor-growth or adenoma, have been shown by von Mutach to be tissues characteristic of embryonic kidneys. The presence of these proliferations, etc., therefore, is an argument in favor of the developmental rather than the neoplastic origin of the tumors. In order to explain these cases we have to assume, with Orth and others, the existence of some obstruction to the escape of urine from the dilated and cystic canals. The oldest theory, that of Virchow, that the urinary concretions, "uric acid infarcts," so common in the new-born, have plugged the canals, is untenable, since these are rare during intra-uterine life, and after birth so common that cystic kidneys, if due to them, ought to be much more frequent than they are. There seems to be no doubt, as Virchow himself acknowledged later, that we must assume an organic obstruction and actual obliteration of the tubules. Orth agrees with Virchow's later view, that the condition results from a fetal inflammation involving the papillae without resulting in obliteration. He says that the papillary atresia cannot be attributed to a congenital narrowing, because certain embryologic investigations have shown that the tubules are developed from the wolffian ducts and do not develop separately from them and afterward unite with them. The fact that we find cysts in all parts of the kidney, including the papillae, does not, however, make it necessary to assume that the obstruction must be located in the papillae. The cysts of the upper tubules might extend into the papillary tract and displace the straight tubules and project into the pelvis.

In favor of the theory that the condition is a developmental malformation is the fact that other congenital malformations frequently coexist. The presence of congenital cystic liver in association with cystic kidney, which occurs in 19 per cent. of the cases (Moscowitz), is also significant of the embryonal origin of the condition. The cysts of the liver are ascribed by Moscowitz as due to the obstruction of afferent intra-acinar bile-ducts, and are evidence also of congenital origin. Other anomalies which have been found associated with cystic kidney are hypospadias, atresia, and absence of ureter, vagina, bladder, etc.; also hare-lip, spina bifida, or absence of extremities. There is now pretty general agreement among investigators that the condition is due to defect in development, which is explained somewhat as follows: The tubular structure of the kidney, including the glomeruli, the convoluted tubules, the loops of Henle and the straight tubules, to a considerable extent, originate by a development of tubules in the mesoderm of the embryo. The ureter, kidney, pelvis and an uncertain amount of the straight tubules in the pyramids develop from a tubular process which originates from the wolffian duct. The straight tubules grow out and meet the primitive vesicle, which becomes the glomerulus; and then later from this glomerulus the convoluted tubules and Henle's loops are developed (Brödel). In case this tubule growing from the wolffian duct fails to connect with the primitive glomerular vesicle, an obstruction occurs, resulting in cystic dilatation of the entire tubular system above the straight tubules. The extent of the process will depend on the relative number of tubules that fail to meet. If a large proportion fail to connect, then the cystic formation will be rapid and complete, and, no kidney tissue being left to eliminate urine, the patient will die. If, on the other hand, there be left comparatively large areas of healthy kidney tissue, enough for the elimination of uric acid, the patient may live for years and die from other causes. The presence of the increasing cystic tissue may finally so squeeze the intervening healthy tissue as to cause insufficiency, and the patient dies from this. This theory seems adequate to explain the facts as observed, and to be in every way more probable than that fetal nephritis involves the papillae. This view has lately been adopted by Berner.[1]

Bunting, in a careful microscopic study of specimens from two cases, found that in these cases the urinary path could be opened from the glomeruli through to the pelvis of the kidney, and, therefore, added no evidence in support of the obstruction theory or a failure of two sets of tubules to join with each other. He believes that the primary cause of the trouble is the epithelial hyperplasia, which, so to speak, forces out the walls of the tubules. This theory does not satisfactorily explain, however, why we get cystic forms instead of epithelial growths, and needs further confirmation. Whatever theory of cystic kidney be adopted, we cannot help concluding that it is a developmental condition, a malformation rather than a new growth. A fact that speaks strongly for the malformation origin is its occasional occurrence in several generations of the same family, showing a tendency to inheritance.

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[1] Berner, O.: Zur Zystennierenfrage, Virchows Arch. f. path. Anat., 1913, ccxv, 265.

Cystic kidney has oftenest been observed in the middle decades of life, but cases have been reported in the first and second decades as well. In the adult, the pathology corresponds in every way with that of the new-born except that the individual cysts are larger, as are also the entire kidneys. It becomes evident, therefore, that if our explanation is correct, we must assume that in case of cystic kidney in the adult, the condition has existed since birth but has not until later years given rise to symptoms that attract attention.

If our views of the etiology and pathology of the disease as given above are correct, they will furnish us an adequate explanation of the somewhat remarkable symptomatology and course of the disease. The most thorough and careful description of the course and symptoms which I have found is that of Milward of Birmingham, who divides the clinical history of the disease into three stages:

1. The stage of progressive enlargement of one or both kidneys without subjective symptoms. The renal enlargement is discovered, if at all, by accident. This stage may last from a few months to several years.
2. The stage of subjective symptoms and objective signs. This stage lasts from a few months to six or eight years, or even longer. The signs and symptoms are dependent on the size and weight of the tumors.
3. The stage of decreasing elimination of urine. In this stage appear the symptoms of uremia or cerebral complications. It lasts two or three weeks or a few months.

Males and females are affected in about equal numbers. The disease usually terminates fatally in the fourth, fifth, or sixth decade. Renal enlargement is rarely discovered before adolescence, and when the disease develops in infancy, the child hardly ever lives till the tenth year, so that the disease has been rarely reported between the tenth and thirtieth years.

The symptoms noted during the second stage are a dull, aching pain in the region of the kidneys, during both night and day, but usually worse in the daytime, especially if the kidney is movable. A large part of the pain, especially in the later stages, seems to be due to mobility of the kidney. There is tenderness on palpation or pressure, and occasionally the pain may be paroxysmal and very severe, with resulting prostration. Since many of the kidneys removed at operation or examined post mortem present cysts filled with blood under high pressure, it is reasonable to suppose that some of the pain may be due to hemorrhage into the cysts. Occasionally, suppuration has taken place in one or more of the cysts and has required operation. Flatulence, headache, dyspepsia, vomiting, anorexia and constipation are frequently concomitant symptoms. It is an important and somewhat interesting fact that the examination of the urine often throws very little light on the diagnosis, a circumstance which contributes greatly to the difficulty of the latter.

During the second stage and until the deformation is far advanced, the kidneys are capable of continuing their functions almost perfectly. The specific gravity is usually low, below 1.010, and the amount passed is usually slightly increased, but may be diminished. There is usually only a slight trace of albumin, and often albumin is entirely absent. In the second stage, it is never present in large quantities except when there is a great deal of blood. Casts are practically always present; leukocytes are common and often occur in large numbers. Pus may be present in acid urine. Blood is usually present in traces, and when there is hemorrhage into the cysts, may be poured out in such large quantities as to constitute attacks of hematuria. Bleeding may occur every few months, or once a year, or may never be sufficient to tinge the urine. Some blood, however, is always present, and this is significant (Milward).

The elimination of urea may amount to from 250 to 350 grains until late in the second stage; and it is not unusual when death occurs suddenly (as it often does in the third stage) for the physician to find to his surprise the cystic kidneys.

The symptoms of the third stage are those of uremia or some allied complication, such as cerebral hemorrhage, due to arteriosclerosis, and consist of headache, dyspnea, drowsiness, convulsions, paralysis and coma.

In the majority of cases the symptoms last from a few months to five or six years. Twenty-two and nineteen years, respectively, was the duration of symptoms in the longest cases noted. Ritchie, reporting on eighty-eight cases, found that in seventy-five, the average age at death was 45.3.

Of seventy-eight cases in which the symptoms were analyzed, thirty had renal symptoms apart from albuminuria, twenty having pains in the loins and abdomen. Sixteen had hematuria at some time. Seven had no kidney trouble, and no evidence of illness, but cystic kidneys were found post mortem. Eleven suffered, or had suffered, from edema; in ten the absence of edema was stated. In thirty-three the urine contained albumin, in nineteen a trace, and in eleven a considerable quantity. Vomiting or intestinal symptoms, constipation or diarrhea, was present in nineteen cases. Twenty showed anemia, cachexia or loss of flesh. Thirteen had dyspnea or some pulmonary affection. In twenty-one, tumor was discovered during life in one or both flanks.

A brief review of the literature shows us that those patients who have come under the surgeon's care presented themselves during the second stage for pain in the side, due either to the weight or to the mobility of the tumor. The surgeon finding the tumor operated, and, if it was large and malignant-looking, not infrequently removed it. The patient lived or died according to the presence or absence in the other kidney of sufficient healthy tissue to attend to the elimination of urea.

Several years ago, in cutting down in a case[2] of movable kidney, I found that I had a case of congenital cystic kidney to treat. I made an incision on the other kidney, and found that also was cystic, so, instead of removing the kidney in this case, I punctured the larger cyst, and sutured the kidney in place, with considerable relief of the symptoms, so that the patient (who was a nurse) was able to go back to work and lived in comparative comfort for many years.

My next experience (Case 4, reported below) was being called to see a woman who was subject to congenital cystic kidney, who had recently had a baby, and following that, had had infection of one of her kidneys. This had been incised, and from the wound pus was discharging, and she had had a picket-fence temperature for something like six weeks. I cut down on the kidney, and found a congenital cystic kidney, with many of the cysts infected. Inasmuch as she was rapidly running down from suppuration and there was no way of draining all the separate cysts, I removed the kidney, hoping that the other kidney was not too much involved in the disease. She recovered from the operation and got well. When she became pregnant again, symptoms of swelling of the extremities, dizziness, headache, etc., appeared, and she had to have miscarriage induced twice. Then I removed the tubes, and she has been well and happy since—about five years. The other kidney—the right one—can be felt to be considerably enlarged and cystic at the present time, but it is not increasing much in size.

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[2] Lund, F. B.: Congenital Cystic Kidney, The Journal A. M. A., Aug. 18, 1906, p. 479.

These experiences led me to make a study of congenital cystic kidney, the results of which were published in a paper read before the American Medical Association at its Boston meeting in 1906, from which I have freely quoted.

It is evident from the foregoing discussion that the disease is fatal from compression of the kidney-tissue between the cysts; and that while it may be practically impossible to cure the disease, it might be arrested at any given point if the growth and multiplication of the cysts could be stopped so that the kidney-tissue could be no further compressed between them. This Curtis and Kammerer have attempted to do, and I myself have done it rather inefficiently without knowing of their work, as in the case I referred to at the beginning of this paper. Last year, however, I had the pleasure of a visit from Professor Rovsing, who told me of his results in the treatment of this disease by puncture of the cysts; and under his direction, I was fortunate enough to be able to perform an operation on the right kidney of a patient then in the ward. I have since had the opportunity of the same patient, and on one kidney in each of two other patients, and I am so pleased with the results that I am glad of the opportunity of reporting them.

Rovsing's operation consists in exposing the kidney through the ordinary oblique incision in the loin, and puncturing the cysts on its surface as far as they can be reached by retracting the wound; and it will be found when you try it, that a very large area of the anterior and posterior surface and posterior border of the kidney can be reached. As the cysts are punctured and the contents flow out, the kidney is much diminished in size, and may be so reduced that one pole and then the other may be delivered from the wound. Then, with the kidney held in the left hand, the larger cysts and bunches of cysts may be felt and the hollow needle run into them. Care should be taken to avoid the areas of normal kidney-tissue wherever they can be seen and felt. There will be very little bleeding unless these areas of tissue are punctured. A kidney which is six, or eight, or even ten times the normal size may by this means be reduced until it is of a very decent size, say perhaps twice the size of a normal kidney. Then the kidney can be replaced in the abdomen, and the wound closed without drainage. It seems like a formidable procedure, but it is not so; and the surprising thing about it is, that the kidney not only is of smaller size when it is replaced in the abdomen, but that after a temporary increase in size, it remains small and no longer troubles the patient by its weight and dragging sensations.

Rovsing[3] has reported three cases in which this operation was performed. In his first case, reduction in the size of the kidney was permanent, and the albuminuria which was noted before the operation disappeared. The patient lived in comfort for some time, and then died of uremia following fever. In Rovsing's second case, the pain and dragging from an enormous kidney was relieved by this operation, and the patient was well for two and one-half years after the operation. The albuminuria diminished, the urinary excretion tripled, and the urea excretion doubled.

In Rovsing's third case, an enormous kidney was reduced in size, the twenty-four-hour quantity of urine increased, the excretion of urea increased, the patient's appetite improved, and the patient's color became healthy. Rovsing says:

> It is to be noted that in these cases, the pain disappeared and renal fuction was reestablished to a striking degree. . . . There is but one explanation for this unmistakable improvement in the activity of the kidneys. Normal renal tissue is present among the cysts. The pressure of the latter when full and tense inhibits renal function, which is resumed when the mechanical effects of pressure are removed. The improvement of the patient is also thus accounted for. It is not claimed that the disease is cured by the operation, or that its ultimate fatal issue is more than just postponed. The disappearance of the pain, however, the prolonged and striking restoration of renal activity, the simplicity of procedure and the absence of shock after the operation should constitute a sufficient incentive to attempt this treatment as herein outlined in every case of this type.

My own cases go far to bear out the statements of Rovsing in regard to his operation. I will give them as follows:

Case 1.—M. M., negress, aged 37, married, who had had eight children and five miscarriages, was admitted to the Boston City Hospital in June, 1910. In May, 1912, lumps were found on both sides, which were diagnosed by her physician as kidney tumor. Appetite was good; bowels constipated; no urinary symptoms. The patient had noticed the lumps for three years. She appeared to be well developed and nourished. Heart, lungs and extremities were negative. There was marked enlargement of both kidneys. Function of left kidney was not good, and operation was advised to relieve pressure.

Cystoscopic examination (Dr. Binney) revealed bladder normal and ureters normal; catheterized for 15 cm.

Functional test: Phenolsulphonephthalein: Color appeared from right ureter at end of 25 minutes; from left, ?

Right, first hour, 0; second hour..... 5 per cent.
Left, first hour, 0; second hour..... 0 per cent.
Bladder urine ....18 per cent.
—
Total ....23 per cent.

No function of left kidney; very low normal function in right.

June 24, 1912, I made a left lumbar incision. Kidney was exposed and found enlarged to the size of a baby's head, and to consist of cysts. No kidney tissue was found. The cysts were punctured, with discharge of straw-colored fluid until the kidney was small enough to deliver through incision. I continued to puncture the cysts, both deep and superficial, until the kidney was reduced to twice normal size. It was then replaced, and the abdomen sewed up tight. The patient made a good recovery, but tests made about two weeks after the operation showed no apparent change in the kidney function since the operation. The patient was discharged, July 11, after being told to come back in September for an operation on the other kidney.

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[3] Rovsing, Thorkild: The Treatment of Multilocular Kidney Cystoma (Congenital Cystic Kidney) by Means of Multiple Punctures, Am. Jour. Urol., 1912, viii, 120.

The urine examination, July 10, follows:

Pale; cloudy; specific gravity, 1.004; acid; slight trace of albumin; no sugar; much pus; few epithelial cells.

The patient returned to the hospital, April 16, 1913. She stated that after leaving the hospital, last July, she felt weak. Complained of pain "across the small of the back" when bending over or when fatigued. Has slept well; good appetite; no nocturia; no trouble in passing water; has cramp-like pains in left side of neck, left arm, left shoulder, and in left leg; menses regular; no leukorrhea; constipated. During the previous month, the patient had felt considerably weaker, and complained of headache and languor.

On physical examination, the patient presented in right upper quadrant an irregular mass extending to middle line and to level of umbilicus, and above to costal border. The mass could easily be seen with patient at ease, moving with respiration. On palpation with one hand on abdomen over mass and other hand in flank, the mass could be moved about freely, with no apparent pain.

April 17, I made a loin incision. The kidney was found much too big to be delivered through the wound. No good kidney-tissue could be seen; nothing but honeycomb cysts of all sizes could be seen or felt in the kidney. I punctured the cysts with a trocar, and much clear and cloudy fluid (not urine) was withdrawn. After a considerable number of cysts had been punctured and contents evacuated, the kidney was delivered and puncturing of the cysts continued. After reducing the kidney greatly in size, I put it back in position, and closed the wound. Eight days after the operation, the patient was comfortable and passing considerable urine. The mass could be felt, but it was considerably smaller than at entrance, and the patient was discharged May 1.

I saw this patient in the autumn of 1913. She was in good condition, and both kidneys could be felt, but they were not nearly so large as before operation.

Case 2.—F. S., a woman, aged 35, married, two children, had had a hard time with the first child, and was miserable for five or six years; suffered from anemia; had pain in right side; seemed as if stomach was floating.

Examination showed a very large mass in the right loin extending down on to the brim of the pelvis. The left kidney could also be felt. The mass in the right loin felt as if cystic. Probable diagnosis was made of congenital cystic kidney, and Dr. Loder examined the urine from both kidneys and reported as follows:

Bladder Urine: Very pale. Specific gravity, 1.005. No albumin. No sugar. Neutral. Urea, 0.2 per cent.

Right Urine: Specific gravity, 1.005. Trace of albumin. Urea, 0.2 per cent. Sediment: Blood and epithelium from catheterization. No pus. No casts or renal cells.

Left Urine: Specific gravity, 1.005. Trace of albumin. Urea, 0.3 per cent. Sediment: Blood and epithelium from catherization. No pus. No casts or renal cells.

Functional Test:

Right: Time, 9 minutes. 84 c.c...22 per cent.
Left: Time 11 minutes. 65 c.c...22 per cent.
Leakage about catheters......... 8 per cent.

Total ....52 per cent. (1 hour)

Cystoscopy: Trigon shows numerous small, slightly congested areas, slightly elevated. Right ureteral orifice, negative. Left orifice is encroached on on one lip by one of the above-mentioned minute elevations; otherwise normal in size and motion. Catheters passed without difficulty to kidney.

Conclusion: No infection or tumor of kidney. No impairment of function of left kidney.

At the Deaconess Hospital, Aug. 29, 1912, she was placed in a left lateral position for operation on the right kidney. Then the tumor could not be pressed up into position of the kidney, and some doubt was felt as to the diagnosis. An abdominal incision was therefore made at the outer border of the right rectus for exploratory purposes. The left kidney was found to contain numerous large cysts, and the right kidney numerous cysts of various sizes, and a very large cyst at its lower pole. The patient was replaced in the lateral position, and an incision made from the tip of the twelfth rib down and forward to the spine of the ilium. The kidney was dissected out and drawn out of the loin. A very large cyst, which must have contained 4 ounces at the lower pole, was opened and cut away. The other cysts all through the kidney were punctured with a trocar and opened with a knife. There was a good deal of healthy kidney tissue between the cysts. The kidney was reduced to about one-third of its former size, and was sutured to the spinal muscles. In puncturing the cysts, the pelvis of the kidney was opened with a knife, and this opening was closed by suture. A cigaret drain was passed into the loin and the wound sutured to it.

The patient had a high temperature for four or five days, and on September 5 I found pus in the lower angle of the wound. I opened it up, and found a cavity containing about 2 ounces opposite the lower pole of the kidney.

After operation, there was a large increase in the amount of urine passed. The patient made a good recovery, and during the winter and spring of 1912-1913 she gained in flesh, color, and general appearance. Oct. 15, 1912, Dr. Loder made a phenolsulphonephthalein test, as follows:

Right: Time, 9 minutes. 35 c.c.....24% Urea, 0.4%
Left: Time, 9 minutes. 40 c.c.......22% Urea, 0.3%
Leakage 10%

Total 56%

This test as compared with that before the operation shows a doubling of the amount of urea in the excretion of the right kidney.

I saw this patient in June, 1914—that is, nearly two years after the operation—and she is in excellent health. She has good color, and looks much better than when she was operated on. The right kidney (the one operated on) could just barely be felt. The left kidney could also be felt and is a little enlarged.

The urine examination, June 15, 1914, was:

Slightly cloudy; acid. Specific gravity, 1.010. No sugar. Slightest possible trace of albumin. Sediment: Few small round renal cells. No pus, blood or casts.

Case 3.—C. S., woman, aged 41. One child, instrumental delivery twenty years ago. For about a year, had been growing thin and weak; complexion had become sallow; and she had suffered considerable abdominal pain, especially in the flanks. She had consulted her physician, Dr. C. H. Miller, merely for debility. He had discovered tumors in both flanks, and sent her to me.

On examination, I found her thin and pale. There was very marked enlargement of both kidneys, especially of the left.

Urinary examination by Dr. I. J. Walker, was as follows: Specimen from bladder: Cloudy. Specific gravity, 1.014. Acid reaction. No sugar. No bile. Slight trace of albumin. Sediment: Some blood; some small and large renal cells; a few bladder-cells; a few leukocytes; no casts.

Cystoscopic examination was as follows: Bladder walls normal in appearance. Right and left ureteral orifices normal in appearance. Ureters catheterized and specimen obtained from each kidney. Flow from right kidney about five times greater in amount than that from left kidney.

Specimens showed the following:

Right: Pale. Slight trace of albumin. Sediment: Many small round renal cells, and a few large round renal cells. Rare normal blood corpuscle. Few hyaline casts in about twenty fields.

Left: Much normal blood. Many small round renal cells, and a few large round renal cells. A few leukocytes. One hyaline cast found.

Functional test: Color appeared from right kidney in twelve minutes; from left, in seventeen minutes. Urine collected in one hour showed: right kidney, 20 per cent.; left kidney, 2 per cent.

Rovsing's operation was done at the Boothby Hospital, March 29, 1913: Oblique left lumbar incision. Enormous polycystic kidney found. A very thorough puncture of the kidney was done with a moderate-sized aspirating needle, running it thoroughly all through the kidney wherever a cyst could be found. The cysts on the surface appeared to extend out into the surrounding connective tissue. By puncturing the cysts, marked diminution in the size of the kidney was made, and it was finally drawn outside the abdomen. When I finished, the kidney was about twice normal size, and about one-fourth the size it was when we started to operate. In puncturing the cyst in the upper pole, a moderate amount of blood was obtained. Having punctured all the cysts we conveniently could, the kidney was replaced and sutured with chromic catgut sutures. A cigaret drain was placed in the lower angle of the wound. The patient bore the operation well.

Before the operation, the patient was passing from 30 to 45 ounces of urine; the following is the report of the urine examination made two days after the operation: Cloudy. Acid reaction. Specific gravity, 1.008. No sugar. No bile. Slight trace of albumin. Sediment: Some normal blood (about 60 corpuscles to a field), a few small round renal cells; occasional large round renal cells; a few bladder cells; rare ureteral cells; much amorphous urates.

The amount of the urine increased; the kidney increased somewhat in size and afterward diminished, and has since remained so it can hardly be felt to have increased in size. The patient has made a considerable gain in flesh, strength, and general appearance. No urethral catheterization has been done since the operation.

I saw this patient in June, 1914, a year and three months after the operation. The left kidney (the one operated on) could just barely be felt. The right is certainly as large as the left was before operation. Her face has filled out, and she feels much better. She is going to come in the autumn to have the other kidney operated on.

Examination of the urine, June 15, 1914: Slightly cloudy. Acid. Specific gravity, 1.006. No sugar. Slight trace of albumin. Sediment: Many bladder-cells. Considerable number of leukocytes. Few small round renal cells. No blood or casts.

Case 4.—C. J., a young married woman, seen in consultation with Dr. Bateman at the Somerville Hospital, in 1907. Her father had died at the age of 50 with cystic kidneys. She had been trained as a nurse, and had recently married. Four months before, she had had a baby, which was born in normal fashion. After the baby's birth, the patient had had a high temperature and complained of pain in the right side. Three weeks before, a surgeon had been sent for, who found a tumor in the region of the left kidney, made an incision, and found several cysts, some of which contained pus. After the operation, the patient had a temperature from 100 to 103, and suffered pain, although she passed a fairly normal amount of urine.

I found a discharging sinus in the left side, and a large tender kidney on that side. The right kidney was also palpably enlarged. June 29, through the sinus, I found a large kidney studded with cysts of various sizes and colors, some of them containing pus. It had been recognized that suppuration from that kidney was the cause of her symptoms, and that it was therefore necessary to remove the kidney. This was done, the pedicle being sewed with catgut. Considerable pus escaped from several cysts. Her pulse was about 140 during operation. July 2, she was reported in good condition.

I saw the patient again, two years after the operation just reported. In the meantime, she had had to have two abortions done by Dr. Bateman, as she had become pregnant and the condition of her kidneys would not allow her to go through pregnancy. She had recently become nervous and suffered a good deal of pain in the left side of the pelvis. Examination showed the uterus movable. The left ovary could be felt to be prolapsed, and this was thought to cause her pain. Median laparotomy was done. The prolapsed left ovary and tube were removed, and the right tube was removed, the right ovary being left behind. This was done to prevent future pregnancy. The right kidney could be felt very much enlarged and cystic. The patient made a good recovery.

As a result of my experience in these four cases, although it is not a large one, I am inclined to think that Rovsing's suggestion of a thorough, systematic puncturing of all the cysts until the kidney is brought down to near normal size is a distinct advantage to our therapeusis in these cases; and I am inclined to feel that I shall perform it in all cases in which the kidney secretion is not too greatly crippled so that any operation might bring on uremia. I believe that in the present state of our knowledge, it is wise, in case both kidneys are involved, to operate on only one kidney at a time. Even if we cannot absolutely cure our patients and make them as good as if they had never been subject to the disease, if we can relieve them of pain and dragging, as I think it has been demonstrated that we can, improve their health, weight, appearance and color, and practically arrest the disease, it seems to me that we can accomplish a good deal. And we must give to Rovsing the credit for having improved and systematized the method of puncture of the cysts—which had been tried in a half-hearted way by others, including myself—until it has a really distinct therapeutic value.[4]

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ABSTRACT OF DISCUSSION

Dr. D. N. Eisendrath, Chicago: Dr. Lund's paper is an example of what modern pathology has taught us. Formerly we thought that a congenital cystic kidney was only of interest to the pathologist, but now that we have come to see it under various clinical forms, it becomes of great interest to the surgeon. These cases, formerly regarded as absolutely hopeless, are now amenable to such an operation as Rovsing's for at least temporary relief and the prolongation of the patient's life for a number of years. I differ with Lund only with regard to the priority of this operation. Dr. Witherspoon of Butte, Mont., at our meeting at St. Louis first presented this operation in this country. I think Dr. Witherspoon deserves equal credit with Rovsing for this, having worked independently of him. The clinical picture is one every general practitioner as well as the surgeon should know. Many cases show first of all marked symptoms of uremia. In a case of uremia think of the possibility of a congenital cystic kidney as a basis and examine the abdomen. In a comparatively early period you will find a kidney which you can recognize as of the congenital cystic variety; the kidney is lower and easily palpated for that reason. It has a lobulated, soft surface. I made the diagnosis in one case three years ago, first in one kidney and then watched the development of the condition in the opposite kidney. The same condition confronted us in that as in one of Dr. Lund's cases, namely, pregnancy. It was necessary to interrupt pregnancy on account of the threatened uremia which would have undoubtedly ensued. The second clinical symptom of this kidney condition is hematuria; a fair proportion of cases of severe bleeding from the kidneys is probably due to such a condition. In every case, congenital cystic kidney appears as a tumor. A large, soft, lobulated tumor of the kidney accompanied with hematuria should be considered among other causes, as due to this condition. It has been supposed to be useless to operate in these cases because they are bilateral, but as Dr. Lund has pointed out, the benefit from such operations is so great that we ought not to abandon them. At a recent meeting of the American Urological Association Dr. Barnett of Fort Wayne reported one case of his own and quoted, among others, four cases of Dr. Ochsner, in which they removed such a kidney, thinking that the condition was unilateral. This condition is always bilateral and if one kidney is ahead of the other in the development of the condition the other will surely catch up with it, and it is perfectly useless to take out one kidney. The condition is due to lack of union of the proximal and distal portions of the urinary tract.

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[4] In addition to the references already given, the following will be found of interest:

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Rosenow, Georg: Polyzystisches Nierenrudiment bei Fehlen des Ureters und Vas deferens, appendikulärer Schwellkörper des Penis und zahlreiche andere Missbildungen bei einem 8 monatlichen Fötus. Zugleich ein Beitrag zur Entwicklungsgeschichte der menschlichen Niere, Virchows Arch. f. path. Anat., 1911, ccv, 318.
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Dr. A. L. Chute, Boston: In such experience as I have had the condition has invariably been bilateral. In Walker's new book on this subject he gives some figures concerning the relative frequency of unilateral and bilateral polycystic kidneys. He says that in only one case in thirty is the disease confined to one side. This too small a proportion to allow one to consider nephrectomy in these cases. The last case that I saw illustrates the other point—that of the infection of these kidneys. This patient, a woman of 47, had a history of some renal trouble six years before. This was supposed to be Bright's disease and she improved considerably under treatment. The latter part of last December she had an attack of pain, first in the right side, then in the left. She had a moderately elevated temperature with these attacks. I easily could feel a mass in her left side. I thought this was due to hematogenous infection and that it would quiet down without any interference. The temperature kept up and I operated on this kidney and found two pockets of pus which I thought were abscesses in the cortex, and which I opened. After the operation, the temperature kept up and the patient became apparently uremic and died four days later. Necropsy showed that there were several other infected cysts in the kidney I had operated on, and that the other kidney was also polycystic and contained likewise a number of suppurating cysts. The question has been raised as to the advisability of removing these kidneys when they have become infected.

Dr. Arthur Dean Bevan, Chicago: I have had six or eight of these cases under observation. The first point I make is that this condition is not always bilateral, or if it is the condition varies so on the two sides that nephrectomy is not entirely eliminated from consideration. I think it is, in the majority of cases, but I have had two cases in which we made a nephrectomy for polycystic kidney with practically permanent results. The first case was one in which, a number of years ago, a patient came to me complaining of severe hemorrhage from the kidney. The hemorrhage was extreme. The man was very anemic. It was before the days of the phenolsulphonephthalein test and at the time we were using cryoscopy. The cryoscopic examination of the blood, not of the urine, showed a fairly normal condition and with that as a guide I did not hesitate to remove an enormous polycystic kidney on the right side from which the blood came. The man made an uneventful recovery and years later I saw him and he was perfectly well. Another case some time later, in a woman, was much the same condition, with recovery, so that, although in the great majority of these cases the condition is bilateral, there is a certain number in which it is unilateral, and a nephrectomy is not entirely excluded. In a number of cases in which I have found extensive polycystic conditions in both kidneys at the time of the exploratory operation, I have been surprised to find, when a purely exploratory operation has been made, that the patients have recovered and have lived for years. The condition slowly progresses and the finding of this polycystic degeneration does not mean anything like an immediate menace to the patient's life. I believe that the work done by Rovsing and Dr. Lund shows a definite and distinct advance. I have not employed this operative procedure, but in the next case of polycystic degeneration of the kidney with which I have to deal I shall certainly employ the Rovsing-Lund procedure. I believe it is perfectly rational and a common-sense proposition and that it does hold out definite benefit to the patient.

Dr. Albert J. Ochsner, Chicago: I wish to bring out two practical points. In this class of cases the patient's condition will be enormously improved by a proper diet. A patient who was a perfectly useless suffering invalid has been able to teach school the entire year with perfect comfort by simply confining herself to the food that one would provide for any patient who has not enough active kidney tissue to do the physiologic work; namely, milk, buttermilk, cooked vegetables, fruits and fruit juices. In the place of meat these patients should eat from two to six eggs each day. By adhering to this diet one will be amazed at the improvement in the condition. Three twenty-minute roentgenizations will produce sterility. Why should the tubes and ovaries be removed in a case in which sterility can be obtained in this safe and simple manner? I have a patient at present under this treatment. This, of course, applies to every female in whom, to prevent uremia, sterility must be secured. In order to make absolutely sure I gave this patient six exposures directly over the ovaries on successive days and feel perfectly certain that pregnancy cannot occur.

Dr. F. W. McRae, Atlanta, Ga.: I operated in one case of congenital kidney which was certainly unilateral. I came on the kidney accidentally in doing an operation for acute appendicitis on a patient in September, a year ago. The patient was brought in in a rather extreme condition and in making a transverse incision in removing the appendix I found a large cystic tumor. I was not familiar with Dr. Rovsing's work, though I knew of Dr. Lund's. I felt it was safer to make another incision and drain the kidney. The exploration enabled me to examine the opposite kidney and it seemed perfectly normal. The drainage lasted over three months and during that time I had one of our best genito-urinary men make cystoscopic examinations and try to find communication between the kidney and bladder above and below. There seemed to be no connection. In January I removed the kidney. The boy was 14 years old and since that time has increased in weight from about 70 to 110 pounds and is in perfect health. The cyst after draining became infected with a pyocyaneus infection, and the boy's condition became bad, so that it was absolutely necessary to remove the kidney, which the father hesitated to have done. This case proved beyond question that some of these patients may be operated on and permanently cured.

Dr. F. B. Lund, Boston: I would not deny the existence of unilateral congenital kidney cyst, but in all necropsies that I have seen they have been bilateral. So large a proportion are bilateral that we should not think of nephrectomy without inspection to ascertain whether the other kidney is normal. Nephrectomy should be done unless there is sufficient kidney function in the diseased kidney to make it worth saving, in which case Rovsing's operation could be done on the diseased kidney, even if the other kidney is healthy. With regard to the use of Roentgen rays for producing sterility, I did not take out the ovaries to produce it; I tied off the tubes and removed one of the ovaries because it was somewhat cystic.

The Source of Dogmatism.—Gross ignorance produces a dogmatic spirit. He who knows nothing thinks that he can teach others what he has himself just been learning.—La Bruyère.

FURTHER STUDIES OF THE THOMPSON-McFADDEN PELLAGRA COMMISSION

A SUMMARY OF THE SECOND PROGRESS REPORT *

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The First Progress Report of the Thompson-McFadden Pellagra Commission was published in successive numbers of the *American Journal of the Medical Sciences* from April to September in 1913, and a summary of this material appeared in The Journal of the American Medical Association, Jan. 3, 1914. The chief conclusions from the first year's work were stated as follows:

1. The supposition that the ingestion of good or spoiled maize is the essential cause of pellagra is not supported by our study.
2. Pellagra is in all probability a specific infectious disease communicable from person to person by means at present unknown.
3. We have discovered no evidence incriminating flies of the genus *Simulium* in the causation of pellagra, except their universal distribution throughout the area studied. If it is distributed by a blood-sucking insect, *Stomoxys calcitrans* would appear to be the most probable carrier.
4. We are inclined to regard intimate association in the household and the contamination of food with the excretions of pellagrins as possible modes of distribution of the disease.
5. No specific cause of pellagra has been recognized.

It was decided that our efforts during the second year should be devoted especially to a continuation of the field study of pellagra to see whether a further and more intensive investigation of the occurrence and distribution of the disease would yield further evidence confirming our ideas of its infectious nature and additional data indicating the particular manner of its transmission from person to person. The field work of the first year had laid a good foundation for further and more detailed observations in the same territory during the second year. At the same time, however, the attempts to transmit pellagra to animals, the studies of the blood and of the intestinal micro-organisms, and the observations on treatment of pellagra were continued. The detailed accounts of certain portions of this work are to appear in early numbers of the *Archives of Internal Medicine,* and some phases of the work are illustrated in an exhibit displayed at the present session of the American Medical Association.

At the end of 1912 we were able to present records of 282 cases of pellagra in Spartanburg County. In 1913 this number was increased to 847 cases which had occurred in the county and concerning which we have recorded more or less detailed information.

The geographical distribution of pellagra in Spartanburg County has continued to be very uneven, the large active foci of the disease being in and near the large centers of population and especially in the industrial communities surrounding the cotton mills. The agricultural population seemed to be, on the whole, much less affected by the disease. In 780 of these cases we know the race of the patient and the place in which he lived at the time the disease was recognized; 680 of them were white and 100 negroes, a morbidity rate of 119 per ten thousand among the whites and 38 per ten thousand in the negroes. This ratio of 3:1 is not considered to be necessarily indicative of a relative racial resistance to pellagra in negroes, but rather as the end-result of the influence of several factors. In Spartanburg County about one-fourth of the entire population resides in cotton-mill villages, and it is in these communities, made up almost entirely of white persons, that pellagra is most prevalent. The congestion of population in these communities in conjunction with the poor hygienic conditions under which the people live, as compared with the relative isolation of the bulk of the colored population on farms, appears to us to be an important factor governing racial distribution in Spartanburg County.

The age and sex was ascertained for 740 of the pellagrins, 528 being females and 212 males. The distribution according to sex and age at time of record showed much the same features as were noted in 1912. There was no case under the age of one year and only one, a negro baby, in the second year.[1] In the third year there were 12 cases and between the ages of 2 and 10 years no less than 94 cases, nearly equally divided between boys and girls. Among females, those between 12 and 17 years of age were relatively least frequently affected by pellagra, the age period under 2 years being excepted. In females beyond the age of 17 the pellagra morbidity rose abruptly so that the number of recorded cases in the age period from 20 to 44 equals about 2.5 per cent. of the women now present in the county in that age period, a ratio much higher than was observed in any other group of the population. Women beyond 44 years of age were somewhat less frequently affected by pellagra. In males the number of cases was large from the third to the eighth year, then somewhat less until the lowest morbidity was reached at puberty and maintained from the fourteenth to the twenty-first year, after which there was a gradual increase to old age, the rate after 50 being approximately equal to the rate for females of the same age.

The remarkable features of the data seem to be the almost complete absence of pellagra under the age of 2, its very slight prevalence for the five years following puberty in both sexes, and its slight prevalence in adult males under 50 years of age; further its enormous prevalence in adult females, somewhat less marked prevalence in children of both sexes from 2 to 10 years of age and the almost equally marked prevalence in old age in both sexes. These features of the age and sex distribution we believe to be due in part to differences in individual resistance to pellagra and in part to differences in exposure to the disease, especially by association with other pellagrins.

The data in regard to occupation are available for 726 pellagrins, of whom 413 lived in cotton-mill villages and 313 lived elsewhere. Of those not living in cotton-mill villages (313), more than half, actually 171, were women engaged in housework exclusively; there were 25 children without occupation; 37 farmers; and the remaining 60 pellagrins represented 19 different occupations, among them 5 merchants, 3 machinists, 1 college student, 1 butcher, 1 postmaster, 1 railroad fireman and 1 printer. Of the 413 pellagrins in mill villages, 133 were women engaged exclusively in housework; 96 were children without occupation; and 110 were women working part or all of the time in the cotton mills. The 71 adult males were practically all mill hands. The remarkable feature of the occupational study seems to be the lack of definite connection between occupation and pellagra. Although the disease was most prevalent in the families of cotton-mill workers, more than half of the cases in these industrial communities were in women and children who never worked in the mills. The suggestion that housework as an occupation favors the development of pellagra is weakened to some extent by the fact that women mill workers were slightly more subject to the disease than the housekeepers in the same mill villages, when due regard is given to the total number of individuals thus engaged. Nevertheless it does seem to us that the high pellagra morbidity in women, children and in old persons of both sexes points to the home as the place where the disease originates in most instances.

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* From the New York Post-Graduate Medical School and Hospital.

* Read before the joint meeting of the Section on Preventive Medicine and the Section on Pharmacology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

[1] We have seen a few definite cases of pellagra in very young children outside of Spartanburg County, one patient from Laurens, S. C., 1½ years old, and one at Clinton, S. C., 13 months of age. We have records of the cases of several other patients less than 2 years old which have been reported to us by reliable observers.

The question of the frequency of association between individuals developing pellagra for the first time and persons previously suffering from the disease was suggested by the work of 1912. During 1913 the very complete data secured concerning the population of six mill villages have made possible a study of this question. In this population of 5,514 persons there were 115 cases of pellagra incident in 1912 and 1913. In only 19 of these 115 cases did we fail to find antecedent pellagrins living in the same house or next door, and in 7 of these 19 instances the incident cases had antecedent pellagrin relatives with whom there was evident association. The very definite evidence of close association with a preexisting case in more than 80 per cent. of all new cases in these six villages is the most striking feature of this study of association, and it strongly suggests that association is a factor in the spread of pellagra of much greater importance than has previously been thought to be the case. The essential elements in this association have not been fully examined into as yet. Considerable attention is being devoted to ectoparasites, such as lice and bedbugs, as well as to contact and food contamination as possible factors.

An important feature of the work in 1913 has been the house-to-house study of all the population of the mill-working class in six representative mill villages in Spartanburg County, during which the vital statistics of each person and the food habits of each family were recorded. The data recorded in this way cover a population of more than 5,000 people and have made possible approximately accurate statistical studies of the correlation between the occurrence of pellagra and various *other* ascertained factors. Thus it was found that of the 3,135 persons eating corn meal daily, 98, or 3.1 per cent., were pellagrins, while of the 681 using this food rarely or never, 41, or 6 per cent., were pellagrins. We have analyzed these data in regard to the use of shipped corn meal, local corn meal, any corn meal, fresh meat, canned (tinned) foods, eggs and milk, without discovering any indication that the more frequent use of any one of these foods is associated with an increase in pellagra which would suggest a causal relationship. Those who used meat daily and those who used milk rarely or never did seem to be somewhat more subject to the disease, but the correlation was far from complete. In fact, we found many cases of pellagra among people abstaining from fresh meat altogether, and several cases in persons taking sweet milk or buttermilk regularly once or even twice a day. Our attempt to discover in this way the essential pellagra-producing food or the essential pellagra-preventing food has not been crowned with success and the evidence suggests, to us at any rate, that neither of them exists in the dietary of the population which we have studied.

In this same population our recorded data have enabled us to ascertain whether or not there was any distinct tendency for new cases of pellagra to develop in close proximity to preexisting cases. For the purposes of this study the population of these villages was divided into three zones. The first zone included all persons living in the same house with a preexisting case of pellagra; the second zone all persons living next door to a preexisting case; and the third zone all persons in the same village living at a greater distance than next door from a preexisting case. The result of this study indicated that of the 819 persons in the first zone, that is, living in the same house with a preexisting case of pellagra, 54, or 6.59 per cent., acquired pellagra during the two years 1912 and 1913; in the second zone 1.72 per cent. acquired the disease and in the third zone only 0.52 per cent.

The correlation shown in this study between the incidence of new cases of pellagra and the proximity of domicile to preexisting cases was more striking than we had been led to expect by the results of our first year's work, and it appears to emphasize the significance of very close relationship between the primary and secondary case, such as is provided by actual residence in the same household or in adjacent houses. From the viewpoint of the possibility of transmission of pellagra by blood-sucking insects, one result of this observation has been to direct attention to those insects most intimately domiciled with man, such as the louse, flea and bedbug, rather than to winged blood-sucking insects with a considerable range of flight.

We are confident that such a remarkable indication of the importance of proximity could not have been disclosed except by the intensive study of the disease in the same locality over a long period of time. Certainly the work of our first year did not reveal it. It seems to us that the conclusion is now clearly warranted that in these mill villages pellagra is in some way transmitted to non-pellagrous persons from a preexisting case and that one of the important factors in this transmission is residence in the immediate neighborhood of a pellagrin.

Another feature of our field work in 1913 has been the survey of communities offering marked contrasts in certain particulars. All the mill villages of Spartanburg County were found to be endemic centers of pellagra. All these villages have been using unscreened surface or pail privies for the disposal of human excrement. A careful survey of two other mill villages, one in Oconee County and the other in Chester County, S. C., failed to disclose any cases of pellagra which had certainly originated in these villages, although cases which had originated elsewhere were present. In these villages every house was provided with a water-carriage flush closet connected with a sewer and this seemed to us to be their most important distinguishing characteristic. In the city of Spartanburg, S. C., the active foci of the disease were confined to those sections of the city in which unscreened surface or pail privies were in use. Of the 241 cases in the city of Spartanburg itself, for which data on disposal of sewage were available, it was found that 230 were using unscreened surface or pail privies. In only eleven instances, or 5 per cent. of the total, was a water-carriage system of disposal employed, and several of these cases arose in sections of the city where unscreened surface privies were in use by their neighbors, some of whom were pellagrins. In several other cities we have learned by more superficial surveys that pellagra is far more prevalent in the unsewered sections than elsewhere. In certain hospitals for the insane we have ascertained that pellagra is usually most prevalent and persistent in the wards housing untidy patients.

All these observations have compelled us to regard inefficient methods for disposal of human excrement as an important epidemiologic feature of those communities in which pellagra is endemic and have led us to recommend the installation of water-carriage systems of sewage disposal as a prophylactic measure against this disease.

Our extension studies beyond Spartanburg County have also included a very complete survey of one village, the peculiar topography of which was of great interest. One portion of this village was near a large pond and nearly every family in this section had suffered from tertian or estivo-autumnal malaria. Another portion of the village was on a swiftly running stream, while the remainder was located on a rather steep hillside. Our survey showed that malaria occurred almost exclusively near the pond, but that dysentery, typhoid fever and pellagra had been endemic in all three sections of the village without evident regard to topography.

These studies were also extended to a large island off the coast of South Carolina, the distinguishing characteristic of which was the absence of streams in which *Simulium* could breed. Pellagra was found to be endemic on this island. In May, 1913, one member of the commission and Mr. A. H. Jennings of the U. S. Bureau of Entomology investigated the epidemiology of pellagra in Texas. Our investigations were undertaken in the so-called Panhandle in the northwestern part of Texas where the rainfall is very slight and where running streams are remarkably scarce. In this region we found cases of pellagra originating. *Simulium* was unknown in this section and the nearest possible breeding places for insects of this genus were from 60 to 125 miles away. It was quite impossible that *Simulium* could have been concerned in the etiology of these cases. These and other observations to be published at a later date have further confirmed us in the conclusion based on our investigations of the prevalence, distribution and habits of *Simulium* in Spartanburg County, namely, that in the territory studied, flies of the genus *Simulium* did not fulfill the necessary conditions to serve as an efficient transmitter of pellagra.

The laboratory studies during 1913 included the inoculation of numerous monkeys, *Macacus rhesus*, with filtered and unfiltered suspensions of material from pellagrins, including saliva, duodenal fluid, feces, tissues from the pharynx, stomach, intestines, brain, spinal cord, blood and lymph from the cutaneous lesions. In addition, monkeys were repeatedly subjected by Mr. A. H. Jennings and Mr. W. V. King to the bites of stable-flies (*Stomoxys calcitrans*) which had been allowed to bite pellagrins, these biting experiments being continued as long as the flies could be kept alive. A considerable proportion of these monkeys died with symptoms of dysentery late in the season and in each case a careful necropsy, including histologic study of the various organs, has been made by Dr. Paul A. Schule. This work has failed to disclose any conclusive evidence that pellagra had been produced in these animals.

The bacteriologic work was directed particularly to the discovery of specific serologic or other allergic reactions on the part of pellagrins toward the various bacterial strains isolated from the intestine. Approximately one thousand bacterial strains have been isolated and studied in this way, but the results of this work have still been inconclusive.

The studies of the cytology of the blood by Dr. O. S. Hillman and Dr. Schule have not disclosed any constant abnormality. A lymphocytosis was observed in approximately 75 per cent. of the cases examined by them.

Heredity as a factor in pellagra has been studied by Dr. C. B. Davenport and Dr. Elizabeth Muncey in collaboration with us. The study of family histories gave some indication of inherited susceptibility to pellagra, but no evidence of inheritance of the disease. Furthermore the apparent transmission of the disease from a woman to her daughter-in-law seemed to be about as common as to her own daughter, provided living conditions and associations were similar, so that even inherited susceptibility cannot be considered as established. This work is being continued this year.

Concerning treatment and prognosis we hope to make a more complete statement at a later time. The fourteen pellagra patients transported to New York by us in 1912 all returned home free from active manifestations of the disease. Two of them died during the following winter of other ailments and eight others have shown recurrent manifestations of the disease, three of them in a severe form. Three cases remained free from recurrence in 1913 and one has not been traced. We are inclined to regard the results of hygienic and dietetic treatment in adults as very comparable to those in tuberculosis, that is to say, the immediate results are often good and the disease appears to be arrested, but on return to former environment and living conditions, recurrence and further progress of the disease is to be expected in the majority of the cases. In children, on the other hand, permanent recovery at home without special treatment is the rule.

SUMMARY

1. The large active foci of pellagra in Spartanburg County were found in and near the large centers of population, and particularly in the cotton-mill villages.
2. Children under the age of 2, adolescents for about five years following puberty and adult males in the active period of life were least frequently affected by pellagra. On the other hand, women from 20 to 44 years of age, old persons of both sexes and children from 2 to 10 years of age were most frequently affected.

3. No definite connection between occupation and the occurrence of pellagra has been found, although the high pellagra morbidity in the women and children points to the home as the place in which the disease is usually contracted.

4. In the group of incident cases most thoroughly studied, evidence of close association with a preexisting case was disclosed in more than 80 per cent.

5. A house-to-house canvass of the homes of over 5,000 people living in six endemic foci of pellagra failed to disclose any definite relation of the disease to any element of the dietary.

6. In these six villages new cases of pellagra originated almost exclusively in a house in which a preexisting pellagrin was living, or next door to such a house, suggesting that the disease has spread from old cases as centers.

7. So far as we have observed, pellagra has spread most rapidly in districts where insanitary methods of sewage disposal have been in use.

8. Additional evidence has been obtained to support the conclusion that flies of the genus *Simulium* have nothing to do with pellagra.

9. Animal inoculations and the experimental study of intestinal bacteria have not yielded conclusive results.

10. The studies of the blood have shown a lymphocytosis in most cases, but have not disclosed any constant abnormality characteristic of pellagra.

11. There is no evidence of inheritance of pellagra.

12. The immediate results of hygienic and dietetic treatment in adults have been good, but after returning to former conditions of environment, most of the cases have recurred. In children, prognosis is very much more favorable.

ATTEMPTS TO TRANSMIT PELLAGRA TO MONKEYS

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Attempts to test the infectivity of pellagra by inoculation in the monkey were made by Anderson and Goldberger[1] in the summer of 1910. Their results were negative. Lavinder[2] repeated and extended these experiments with similar negative results. Singer, MacNeal and Rooks[3] likewise failed to infect rhesus monkeys. A year ago Harris[4] reported the production of pellagra in the rhesus monkey by the inoculation of a Berkefeld filtrate derived from human lesions. This report made it seem desirable to attack the problem anew and as exhaustively as possible.

Work was accordingly started in August, 1913, at the laboratory of the United States Public Health Service, Savannah, Ga., and is still in progress at that place.

At the present time we desire simply to make a brief progress report of this work, reserving full details for the report on the completed work.

INOCULATION OF PELLAGROUS TISSUES

1. *The brain, spinal cord and their membranes* were removed at six necropsies, ground in a meat grinder, mixed with an equal volume of normal saline solution and allowed to extract in the ice-box for periods varying between one hour and eighteen hours. The suspension was then allowed to drip through six thicknesses of gauze without pressure. The gauze filtrate was either injected into animals without further treatment or injected after filtration through a Berkefeld filter. The gauze filtrate was injected intracerebrally, intravenously and subcutaneously into each of two rhesus monkeys; intravenously into 2; intraspinally into 12; intraspinally and intraperitoneally into 4; intracerebrally and intramuscularly into 2; intracerebrally and intraperitoneally into 2. The Berkefeld filtrate was injected intraspinally into 4.

2. *The buccal thoracic and abdominal contents, except intestines,* including tongue, salivary glands, tonsils, esophagus, lungs, heart, diaphragm, stomach, liver, spleen, kidneys, omentum and mesentery were removed at one necropsy and all ground in a meat grinder, a portion of which was treated with saline solution and allowed to stand in the ice-box four hours, after which it was squeezed through gauze. A portion of the gauze filtrate was injected intravenously and subcutaneously into each of seven rhesus monkeys. Another portion of the gauze filtrate, after being passed through a Berkefeld filter, was injected intravenously into three.

3. *The intestines and fecal contents* were removed at seven necropsies, ground in a meat grinder, a portion of which was extracted with saline solution and squeezed through gauze. A portion of the gauze filtrate was injected intravenously into 7 rhesus monkeys and 1 Java monkey. Another portion, after being passed through a Berkefeld filter, was injected intracerebrally, intravenously and subcutaneously into 1 baboon; intravenously and subcutaneously into each of 10 rhesus monkeys.

4. *Skin* from five necropsies was ground in a meat grinder, treated with saline solution, squeezed through gauze and a portion of the gauze filtrate injected intracerebrally, intravenously and subcutaneously into 1 rhesus monkey; intravenously and subcutaneously into 1 rhesus monkey; intracerebrally and intravenously into 1 Java monkey; intravenously into 3 rhesus monkeys; intravenously and subcutaneously into each of 3 rhesus monkeys. A Berkefeld filtrate was injected intracerebrally, intravenously and subcutaneously into each of 2 rhesus monkeys.

INOCULATION OF PELLAGROUS FLUIDS AND EXCRETA

1. *Blood* was drawn from seven pellagrins, and after being either defibrinated or citrated was injected intravenously and intraperitoneally into each of four rhesus monkeys; intravenously into one and intraperitoneally into one.

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* Read before the joint meeting of the Section on Preventive Medicine and the Section on Pharmacology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

[1] Anderson and Goldberger: An Attempt to Infect the Rhesus Monkey with Blood and Spinal Fluid from Pellagrins, Pub. Health Rep., June 30, 1911, p. 1003.

[2] Lavinder: A Note on the Inoculation of the Rhesus Monkey with Blood, Spinal Fluid and Nervous Tissue, etc., Pub. Health Rep., June 30, 1911, p. 1005.

[3] Singer, MacNeal and Rooks: Attempts at the Experimental Transmission of Pellagra, Report of the Pellagra Commission of the State of Illinois, 1911.

[4] Harris: The Experimental Production of Pellagra in the Monkey, etc., The Journal A. M. A., June 21, 1913, p. 1948.

2. *Pericardial* fluid collected at one necropsy was injected without filtration, intravenously into two rhesus monkeys and after Berkefeld filtration was injected intraspinally into each of two.

3. *Urine* from four pellagrins, each of which showed a marked indican reaction, was injected intravenously after Berkefeld filtration into five rhesus monkeys, each receiving between 90 and 155 c.c.

4. *Feces* from one pellagrin after Berkefeld filtration was injected intravenously (15 c.c.) into one baboon.

5. *Cerebrospinal fluid* collected at three necropsies was injected, without filtration, intracerebrally and intravenously into 1 rhesus monkey and intraspinally into 5. Cerebrospinal fluid collected at 2 necropsies was, after Berkefeld filtration, injected intraspinally into each of 10 rhesus monkeys. Cerebrospinal fluid collected during life from 19 pellagrins and not filtered was injected intraspinally into 19 rhesus monkeys.

FEEDING OF PELLAGROUS MATERIAL AND SPOILED CORN MEAL

1. *Sputum* from ten pellagrins collected fresh each day was fed by stomach-tube to five rhesus monkeys, each receiving 100 c.c. daily and receiving a total of 3,640 c.c., 1,658 c.c., 2,140 c.c., 1,635 c.c. and 915 c.c., respectively.

2. *Feces* collected fresh each day from two pellagrins with diarrhea was mixed with spoiled corn meal and fed by tube into the empty stomachs of eight rhesus monkeys, each animal receiving 100 c.c. daily, 20 gm. of which was meal. The average amount fed to each animal was 1,270 c.c.

3. *The thoracic and abdominal organs and contents* complete from five necropsies were ground in a meat chopper and fed by stomach-tube to sixteen rhesus monkeys and three baboons.

4. *Brain, cord and membranes, buccal thoracic and abdominal organs and contents complete* from one necropsy were ground in a meat chopper and to the mixture was added spoiled corn meal. The entire mass was fed by tube into the stomachs of eighteen rhesus monkeys and one baboon.

ANIMALS USED

The animals experimented on embraced seventy-seven rhesus monkeys, two Java monkeys and three female baboons.

With few exceptions each animal was inoculated by more than one route, with two or more kinds of material, from more than one case and on more than one occasion.

In all, 103 experiments have been made, in which material collected from pellagrins during life or at necropsy was introduced into the stomachs of animals; fifty-two experiments were made in which pellagrous fluids were injected and ninety-six in which extracts, suspensions or emulsions of pellagrous tissue were injected.

The animals have been exposed daily to the direct rays of the sun by being kept in cages in a glass-covered house.

RESULTS

Eight of our animals died after a longer or shorter time following inoculation. In four instances death was plainly due to some cause other than pellagra; in the other four the cause of death was undetermined. With one exception, the surviving monkeys have so far shown no indications suggesting pellagra.

The exception referred to is as follows:

M. rhesus 98 was injected intraspinally with 6 c.c. of spinal fluid, April 14, 1914, and again inoculated May 2 intraspinally with 4 c.c. of spinal fluid drawn from another pellagrin. The first change in this monkey was noted May 4, 1914, at which time the right forearm appeared slightly swollen and looked as if some of the hair was falling out. The following day the left forearm showed a similar condition. Later both forearms became entirely denuded of hair, the skin became roughened and scaly with large cracks in which appeared a slight serous exudate. Over both wrists the superficial skin seemed to be denuded and the condition gave the appearance of superficial ulceration. On the posterior surface of each hand a similar condition was noticed; the knuckles of the fingers were swollen and reddish and presented cracks and broken skin. May 9 the skin was dry and more scaly. The bowel movements were occasionally loose. Later thick crusts on the skin came away, leaving a pale and slightly scaly surface. The monkey is now again in his usual condition.

The interpretation of these manifestations is not clear. They may, on the one hand, be regarded as non-pellagrous and purely accidental, or, on the other, as indicating pellagra. The former possibility cannot be ruled out. With respect to the latter it is evident that the symptoms may have been brought about by either a living organism or by some unorganized element having a toxic quality. As a definite interpretation is not permissible, no inference as to the communicability of the disease can be made.

THE TREATMENT OF PELLAGRA *

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When I attempt to present to you our present knowledge of the treatment of pellagra, it is that I want to speak of this phase of the problem from the point of view of the pharmacologist and biochemist. Pharmacology, together with pathology, is the foundation of all rational treatment of disease by means of drugs. Biochemistry, on the other hand, is the fundamental science which gives us the basis for a clear understanding of the processes involved in nutrition and metabolism. As the preceding speakers have sufficiently emphasized the fact that the cause of pellagra has been attributed by many authors for nearly a century to the use of a particular kind of food, the discussion of the treatment of the disease from this point of view does not seem uninteresting, and it may possibly contribute to elucidate the still obscure etiology.

All physicians who have had much experience in the treatment of pellagrins agree on one point, namely, that in the milder cases the symptoms will almost always disappear in a relatively short time if the patients are kept in a hospital at rest on a liberal mixed diet, with plenty of fresh meat. The difficulty in carrying out this sort of treatment is that many pellagrins are mentally defective and refuse to comply with the orders of the physician unless forced to understand that this is the only way for an improvement in their condition. The attending physician must, therefore, use all available psychotherapeutic methods in order to succeed with the dietary treatment. I cannot enter here into a discussion of the adjustments of the diet in cases associated with vomiting, constipation or diarrhea, which require special dietary measures. It may be said, however, that a mild diarrhea should not be treated with a reduction in the quantity of the diet, as it has been found through metabolic studies that the assimilation of the food is unimpaired in this condition. Constipation is favorably influenced by an increase in the fats of the diet, such as olive oil, butter, cod-liver oil, etc., or by the continued administration of small doses of castor oil. It is interesting to note that patients whose symptoms have disappeared on such treatment will again develop symptoms after having been exposed for several months at their home to the same conditions which prevailed before the onset of the first attack. On the other hand, there are cases on record in which, after dismissal from the hospital, the patients remained well for years. Advanced cases of pellagra, and especially the so-called typhoid pellagra, are often unimproved by any available treatment and end fatally in a shorter or longer period of time.

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* Read before the joint meeting of the Section on Preventive Medicine and the Section on Pharmacology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, June, 1914.

Let us now turn for a moment to the efficacy of drugs in the treatment of this disease. Lombroso and his school advocated the administration of arsenic in the form of Fowler's solution to pellagrins. Lombroso even went so far as to call arsenic the specific for the disease. His extremely optimistic attitude toward this remedy is not shared by many of his compatriots. In this country arsenic also has its adherents. With the introduction of the cacodylates and salvarsan into therapy, it can be easily understood how these arsenicals were also given a trial in pellagra. Some American authors claim to have had good results from such treatment, while others do not believe in the efficacy of the drug. It cannot be denied that arsenic in any form may be beneficial in many cases of pellagra associated with a loss of body weight and malnutrition, when it seems necessary to make use of this metabolic tonic. Sodium chlorid internally was also advocated by Lombroso, especially for the treatment of pellagra in children. Very little can be said, however, in its favor or in behalf of the dozens of other drugs suggested at different times for the treatment of this disease.

In closing this chapter I should like to call your attention to the fraudulent advertising of proprietary pellagra medicines throughout the Southern states. The manufacturers of these preparations usually claim in a sensational manner that these preparations will positively cure pellagra. Some of these mixtures were analyzed[1] at the Hygienic Laboratory and were found to contain such substances as charcoal, iron salts, small quantities of quinin, etc. It is evident that no cure would be affected by such preparations. "These preparations have usually sold at prices that would be exorbitant for remedies of value in the treatment of the disease. When one considers that most pellagra patients are found among people of small means the advantage taken of the sick and unfortunate by the manufacturers of these nostrums appears in its true light."

Another phase of the treatment concerns the well-known relation between pellagrous erythema and exposure to sunlight. This fact should be a caution to the patient to keep out of bright sunlight as much as possible. Hydrotherapy may be a useful addition to the treatment. Transfer of the patient to a cooler climate seems to be followed by an improvement in the symptoms, provided that the dietary and general hygienic measures are observed. Attention should be called to the fact that pellagra has developed in persons in the northern climates such as Canada, England and our New England States.

Summing up the previous statements it may be said that, owing to the lack of knowledge regarding the etiology of the disease, the treatment is restricted to symptomatic and empirical procedures in which diet and rest figure most prominently.

In conclusion, I should like to offer a few suggestions in regard to the possible explanation of the beneficial effect of a liberal diet on the course of the disease. From a survey of the clinical and pathologic aspects of pellagra, I have arrived at the conclusion that we are dealing with a chronic intoxication. While the agents at work in this intoxication are as yet unknown, I am inclined to believe that toxic substances exist in certain vegetable foods, not necessarily spoiled, which, if consumed by man over a long period of time, may produce an injurious effect on certain organs of the body. This hypothesis does not rule out the possibility that a dietary deficiency, in the sense to be discussed later, may play a rôle in the production and treatment of pellagra. Extensive feeding experiments which I have carried on during the last year with animals, such as mice, rats and a few monkeys, on an exclusive vegetable diet, have shown that these lower animals develop certain gastro-intestinal symptoms, and sometimes die if put on an exclusive diet of corn, carrots, sweet potatoes, oats, etc. Symptoms arise, often within three or four days, which point to the presence of an intoxication in these animals. Death resulted in some cases in a remarkably short time (three to four days). At necropsy constant lesions were found, such as hyperemia and hemorrhage in the gastro-intestinal canal. Sometimes the kidneys, lungs and other organs show a congestion and slightly hemorrhagic condition. Preliminary experiments showed that extracts of these vegetable products, if fed or injected into animals, produced the same symptoms.

In an investigation by Dr. Myers and myself[2] for the purpose of ascertaining the nature of the toxic substances involved in this intoxication, the fact was revealed that relatively large amounts of soluble aluminum compounds were present in these vegetable products. It is very difficult to decide at present whether these aluminum salts have any injurious effect on man in the quantities taken up with the food. Toxic effects from the administration of aluminum salts to animals have been observed, and even a few cases of aluminum poisoning in man have been found in the literature. In view of the fact that the animals which were fed on an exclusive diet of corn or certain other vegetables always showed on necropsy gastro-intestinal lesions, it would seem that this diet, to say the least, produced a disturbance in the function of these organs.

It is not always permissible to apply directly the results obtained through animal experimentation to clinical conditions, but these experiments seem to furnish at least the basis for an understanding of the effect of a change in diet on the course of pellagra. By substituting for part of the vegetable food, animal foodstuffs, such as meat, eggs, etc., the absolute amount of vegetable products consumed will be reduced considerably. Hence we probably also reduce the possibility of an injurious action of the vegetable food on the body, particularly the irritant action on the gastro-intestinal canal. Meat is known to be easily digested by pellagrins, leaving practically no unassimilated residue in the intestine. Meat, furthermore, satisfies the appetite in much smaller quantities than does the voluminous vegetable diet with its relatively large amount of undigested cellulose.

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[1] Public Health Reports, 1914.

[2] Public Health Reports, 1914.

Besides the differences in digestibility and food value in the old sense, we have also to consider the specific effect of each constituent of the diet apart from the question of calories, protein, carbohydrates and fats. In the past all of our attention concerning the nutrition of man was devoted mainly to a study of the heat value of food and the proportion of protein, carbohydrate and fat to each other in a given diet. It is only in the last few years that we have realized that there may occur very important differences in the composition of the individual proteins. The work of Fischer, Abderhalden, Mendel and Osborne has shown the great variation in the composition of protein in regard to its content of the various amino-acids. Feeding experiments with the isolated proteins brought to light the fact that, although all proteins are absorbed and assimilated to about the same degree, yet certain proteins lack or are deficient in certain amino-acids essential for growth and maintenance. Most of the proteins derived from animal sources, with the exception of gelatin, seem to be more suitable for human nutrition, as they contain all the necessary components in the right proportion. Some of the vegetable proteins, on the other hand, seem to be deficient in this respect. It can hardly be denied that the majority of the persons who contract pellagra have lived for years on a mainly vegetable diet. In this way a deficiency in nutrition may take place, but it will require considerable further research to establish the fact that food composed of certain vegetable products is insufficient for the demands of the body.

Quite recently another field in nutrition was opened up through the discovery of the presence of small quantities of new substances occurring in foods which seem to be essential for the maintenance of health. These substances are termed vitamins by Funk. They occur in animal as well as vegetable food in varying amounts. Certain foodstuffs, as polished rice, are extremely poor in vitamins; others, as meats, are relatively rich in these substances. The hypothesis has been advanced by Funk that pellagra is a disease due to the lack of some vitamin in food, analogous to the production of beriberi through the more or less exclusive consumption of polished rice. So far no experimental or clinical proofs have been advanced to support this hypothesis.

Summing up these remarks, we see that our modern conceptions of nutrition and metabolism throw some light on the beneficial effect of a liberal mixed diet on the course of pellagra. In conclusion, I should like to say just a few words in regard to the question as to how these same conceptions may help to explain the etiology. It is probably more than a mere coincidence that the population of that part of the world in which pellagra is endemic lives on a mainly vegetable diet. Economic conditions seem to influence in a general way the diet of people. A vegetable diet is as a rule less expensive, and persons in poor circumstances limit the consumption of the costly meats and other animal food to a minimum. In this connection I should like to call your attention to the fact that pellagra appeared in France soon after the reign of the first Napoleon, a period which was followed by extreme poverty in the country. France recovered from this economic depression in the latter part of the nineteenth century. With this change in economic conditions, partly brought about through the introduction of the more profitable wine industry, pellagra decreased to such an extent that the disease is now very rare in that country. It is impossible to say at present that the food as such is the only factor in the production of pellagra, but even some of the adherents of the infectious theory do not deny that the one-sided diet may be one of the contributing factors in the production of this disease.

The recent advances in the field of nutrition suggest new avenues of approach to the solution of this difficult problem. One will have to consider very seriously:

1. A deficiency or absence of certain vitamins in the diet.
2. The toxic effect of some substances, as aluminum, which occur in certain vegetable food.[3]
3. A deficiency of the diet in certain amino-acids.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SILER, GARRISON AND MACNEAL; DRS. LAVINDER, FRANCIS, GRIMM AND LORENZ, AND DR. VOEGTLIN

Dr. Marcus Haase, Memphis, Tenn.: Some three or four years ago the State Board of Health of Tennessee declared pellagra a transmissible disease, required the physician to report it and the case to be isolated. It can be easily seen how utterly impracticable it would be to carry out any such order, as the cases would have to be under constant official surveillance. The staff of the city hospital in Memphis fought that for about a year and succeeded in having the restriction removed so far as the city of Memphis was concerned. We then began taking in pellagrins constantly; and, with very few exceptions, in the past three years there has not been a month that there has not been one or more pellagrins in the city hospital. During that time, in which we have cared for some 150 or more cases, no case of pellagra has occurred in any inmate of the hospital, or among those constantly employed there, in number over 70. No case has occurred among the patients in the hospital that we could trace to any former case of pellagra. The disease is increasing in our district at an alarming rate. While the death-rate of pellagrins has decreased, the morbidity rate has decidedly increased in the past three years.

Dr. R. Q. Lillard, Nashville, Tenn.: As executive officer of the State Board of Health of Tennessee, I want to correct Dr. Haase on one proposition. The question of the quarantine of pellagrins was brought to the attention of the present State Board of Health, a resolution requiring the quarantining of the disease having been passed by the former board. I immediately asked the state bacteriologist if he was ready to classify it as a communicable or contagious disease. He said he was not; and the board of health immediately revoked their resolution.

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[3] The possible relation between aluminum and pellagra was also discussed in a recent monograph by Alessandrini and Scala (Contributo nuovo alla etiologia e pathogenesi della Pellagra, Roma, 1914), which the author received at the time of proof-reading. These investigators claim that colloidal silica contained in drinking water is one of the most important etiologic factors, in as much as they succeeded in producing lesions resembling pellagra in animals fed on water containing colloidal silica. Colloidal aluminum hydroxid or a mixture of colloidal silica and alumina produced the same results. In view of the fact, first discovered by us, that aluminum occurs in certain vegetable food in relatively large amounts, the work of the Italian authors furnishes additional evidence that aluminum occupies a prominent position in the etiology of pellagra.

Dr. W. C. Brownson, Asheville, N. C.: I am fairly familiar with the work of the Thompson-McFadden Pellagra Commission. I know something of how thorough the work has been. While the etiology is still in doubt, it is probable that the disease has some gastro-intestinal cause, and that it may occur from faulty disposition of sewage would seem exceedingly probable. I had no idea that experiments on such an extensive scale had recently been made with monkeys, and after such exhaustive experiments, the fact that most of the monkeys are still living and well, and show no positive signs of the disease would seem to eliminate almost entirely the question of the communicability of the disease from one person to another. It is evident enough that there is no specific for the treatment of pellagra, and the probability is that no medicine does much good. I have had no reason to modify my opinion, expressed long ago, that pellagra should be treated much as we treat tuberculosis, by rest, an abundant nourishing diet, and change of climate when possible. Sodium cacodylate is the most popular medicine at present. Salvarsan has been recommended as a specific, but to me, there is no evidence that it has done good. Sodium cacodylate may do good at times. Two years ago I used it in a number of cases. Most of them seemed to do well. Last year not a single patient with whom I used it seemed to derive any benefit whatever.

Dr. W. T. Shell, Corsicana, Texas: I concur with Dr. Siler that pellagra is a gastro-intestinal trouble. I have used the arsenic preparations, sodium cacodylate and salvarsan in quite a number of cases, but find that better results may be obtained from the gastro-intestinal treatment.

Dr. John L. Jelks, Memphis, Tenn.: As the original exponent of the intestinal-infection theory as to the etiology of pellagra, I wish to relate a few things I have observed. Some years ago, I referred to the ameba, which I believed then to be the cause, and in the first part of April, 1910, I presented a pellagrin before the Tennessee State Medical Association, who was suffering from chronic amebiasis. I now have a case, apparently of pellagra, presenting pellagrous skin lesions on elbows and legs. This patient I know has had amebiasis twelve years. I saw him, and made the diagnosis twelve years ago. This man is being nursed by a woman who was brought to me from Mississippi, and was treated by me for pellagra. I performed an appendicocecostomy on her, which enabled me to treat the condition rationally, as I view it. That woman is well. She is a little nervous yet, but any one would pronounce her entirely well. The man she is nursing, as in the case of pellagra, exhibits a profound toxemia, and is quite tender along the cervical region. Pellagra represents the results of a profound toxic effect on the blood and nervous system, and the ameba, I believe, is often the cause. I have observed a great increase in the bacillary contents of the intestine, and in one case, reported in my chapter on Dysentery in Hirchman's book, I observed in the *Ameba histolytica,* blunt non-motile bacilli, which were somewhat larger at one end. This was in a case of amebic dysentery of long standing, and a well-defined case of pellagra. The first case reported by me, as stated, was April 12, 1910. A year earlier, however, I reported cases of the skin manifestations of amebiasis. A negress, the body-servant of the nurse referred to, has pellagra. The nurse did not contract the disease direct from the servant, but it is probable that both contracted the disease from polluted water or infected vegetables. In our part of the country, the vegetable gardens are being infected, and infected vegetables are going to prove a greater menace to the health of our people than we realize at present. I cannot ascribe an etiologic significance either to corn or to the *Simulium reptans.* I am rather inclined to the bacillary toxic origin, though the ameba may be the host. Salvarsan never cured a patient. The results obtained by its use were from the salt solution, which washed the toxic blood and diluted the toxins. The same results would have been obtained from salt solutions. The treatment must be begun in the early stages, before irreparable damage has been done to the central nervous system, for, thereafter, there is no cure.

Dr. Robert Wilson, Jr., Charleston, S. C.: In Charleston we gave up, some time ago, the theory advanced by Dr. Sambon that the possible carrier is a *Simulium,* for while cases of pellagra are fairly numerous the simulium is not found. Several pellagrins have come under my observation who were born in Charleston, and have never been out of the city. On Johns Island, a sea island near the city, which, if I am not mistaken, is the one alluded to by Dr. Siler, pellagra has existed for a number of years. This island is one of the low sandy islands of the coastal region, and there are no running streams on it, and no *Simulidae.* It is my impression, although I am not able to give statistics off hand, that with us pellagra is much more common in the negro than it seems to be in the upper part of the state where the Thompson-McFadden Commission have been working. I was much interested in hearing Dr. Siler's conclusion with regard to the possible influence of soil pollution on the prevalence of pellagra. In Charleston it is only recently that we have introduced a water-carriage system of sewage disposal, old-fashioned surface privies having been in use for a great many years, with consequent soil pollution. This may possibly explain the relatively large amount of pellagra which occurs in Charleston. It will be exceedingly interesting to note if the introduction of the new sewage disposal system and the destruction of the surface privies will be followed by a diminution in the prevalence of pellagra.

Dr. Ward J. MacNeal, New York: In 1910 the Illinois Pellagra Commission undertook to transmit pellagra to monkeys, using *Macacus rhesus.* Something over 100 monkeys were used. Many of the animals were injected with blood; some with cerebrospinal fluid; others with tissues taken at necropsy. Some rather curious and interesting skin lesions developed in a few of these animals, but nothing which we could recognize as typical of pellagra. Many of the monkeys lived two years after inoculation. The Thompson-McFadden Pellagra Commission has now used about 125 monkeys in the work which was reported here. Some of these animals have lived considerably more than two years after being inoculated and, so far, we have been unable to see in any of them, anything which we could regard as a reliable sign of pellagra. The skin lesions which most closely resembled those seen in human pellagra occurred in one of the animals that we saved as a control. It seems to me very important that a considerable number of animals should be kept as controls in all such experiments. It is exceedingly difficult to make a diagnosis of pellagra in a monkey satisfactory to everybody. I would like to ask Dr. Francis about the time interval between inoculation and the appearance of the lesions. It seems rather important also to know how long after the material was collected it was introduced into the monkeys. This is particularly important in the one instance in which the suggestive skin lesions were obtained. The details with regard to that one animal would be of interest. Something may be said concerning the prognosis in pellagra. One might get the idea from Dr. Voegtlin's paper that typhoid pellagra is invariably fatal. One case of this type occurred in the Illinois State Hospital at Kankakee. The patient was in a typhoid state for a period of three or four days, yet she recovered from the attack and has remained free from recurrence for four years. In another patient, observed in 1912, occurred one of the severest attacks of pellagra that I ever saw. The patient was in a typhoid state for a week, yet she recovered from that attack and has since had no recurrence. There is some indication, therefore, that these severe attacks of pellagra are not necessarily fatal. Accurate prognosis is exceedingly difficult in any of these cases. Dr. Voegtlin stated that pellagra could not be found except in people who had lived for many years on a vegetable diet. I don't know on what observations that statement has been based; but it seems to me there is good indication that pellagra can be recognized in some persons, particularly in children 2 or 3 years old, who have not lived very long on a vegetable diet; who have, in fact, lived on a diet consisting largely of milk. It seems to me that that statement ought not to pass unchallenged.

Dr. Claude Smith, Atlanta, Ga.: If this case had been referred to Dr. Siler, what would the commission's reply have been, and in the light of their present knowledge, what would they advise with regard to the handling of pellagra cases? In addition to the question which Dr. MacNeal has asked as to the time of inoculation, will Dr. Francis state the type of inoculations made on this monkey, and the length of time which had elapsed when the lesions appeared?

Dr. J. F. Siler, New York: Dr. Smith has asked a difficult question; one which it is not possible to answer definitely. It is our opinion that pellagra is an infectious disease. Our epidemiologic and laboratory studies have not, so far, given us any definite clue as to the probable nature of the hypothetic virus. We advise in these cases improvements in sanitary conditions. The things which we consider most important are personal cleanliness, thorough screening of dwelling-houses and improvements in methods of disposal of excreta. We stress the importance of having fly-proof privies and screened dwellings, not only as a possible protection against pellagra but also as preventive measures for such common diseases as typhoid, dysentery, hookworm, summer diarrheas, malaria, etc. Dr. Haase spoke of the fact that pellagra never spreads in hospitals. This is interesting and difficult to explain. I studied pellagra at the Peoria State Hospital when the disease existed there in epidemic form. There were about 175 cases or 8 per cent. of the inmates. None of the nurses or doctors contracted the disease. This institution had, during the same period of time, about 75 inmates showing active symptoms of tuberculosis and also an epidemic of amebic dysentery. None of the nurses or doctors, so far as I could learn, showed any evidence of having contracted tuberculosis from these patients, nor did any of them have dysentery. It will, I think, be admitted that the character and degree of association between nurse and pellagra patients in hospitals and the environmental conditions surrounding this association, are quite different from those existing in the homes of the element of the population in which pellagra is found most frequently. As a matter of fact, I know that a number of physicians in the Southern States have had pellagra and I have had reports of pellagra in five nurses. These are merely unconfirmed reports, however, which we hope to investigate fully. In our investigations in the South, the entomologists from the Bureau of Entomology who are collaborating with us have found the bedbugs are practically universal in the element of the population most frequently affected by pellagra. This applies particularly to mill communities where pellagra is most prevalent. One striking feature of the epidemiology of pellagra is that males between 20 and 45 years of age seldom contract it. In this age period there are about nine females to every male pellagrin. It cannot be said that adult males are relatively immune to the bites of bedbugs.

Dr. John Ritter, Chicago: Is it considered a fact that the bedbug is a carrier of pellagra infection?

Dr. Edward Francis, Washington, D. C.: Dr. MacNeal has asked for some specific data with regard to Rhesus 98, the monkey which showed the skin eruption. This monkey was injected intraspinally with 6 c.c. of spinal fluid, April 14, 1914, and was again inoculated May 2, intraspinally, with 4 c.c. of spinal fluid drawn from another patient. Both pellagrins were insane.

Dr. Carl Voegtlin, Washington, D. C.: The Thompson-McFadden Pellagra Commission asserts that pellagra is an infectious disease. The proofs advanced so far are only indirect and, therefore, not conclusive. The methods used by the Commission for the study of the relation of food to pellagra are defective inasmuch as they do not take into full consideration the quantity and quality of each food in the diet. It is a great mistake to make such superficial dietary studies, which often lead to false conclusions, a fact well illustrated in the history of the etiology of beriberi. Not every person who consumes polished rice contracts beriberi, because the production of this disease depends on the quantity of polished rice consumed as well as the quantity and quality of the other foods contained in a particular diet. It would be absolutely wrong to say that, because many people eat polished rice daily together with other food without getting beriberi, rice did not have anything to do with beriberi. This fact was well brought out in the feeding experiments in the Japanese navy. As soon as part of the polished rice was replaced by certain other food, beriberi began to disappear. Yet the Japanese sailors still had rice in their daily ration. The dietary studies carried out by the experiment stations of the Department of Agriculture in various sections of the Southern States are of much value, as they determine the amount of each food consumed by the various families. These studies plainly show that the vegetable foods preponderate greatly over the animal food in the diet commonly used in the South. Sometimes the diet consists entirely, as you may know, of corn and fat pork.

I admit that the question of the appearance of pellagra in young children in its relation to food is a difficult problem to solve. I think, however, that there exists a possibility of explaining it on the assumption that toxic substances are consumed by the mother which are excreted with the milk and cause an intoxication of the infant. Another possibility is the absence of certain substances—vitamins—in the milk. It is well known that nursing mothers who have beriberi will often give the disease to their infants. As soon as the infants receive normal milk the symptoms will disappear. There exists, therefore, an intimate relation between the composition of the milk of the mother and the health of the infant. If the infant is fed on cow's milk we may deal with a similar proposition. Cows eat exclusively vegetable food, and it is quite possible that certain toxic substances consumed will go over into the milk. We found, for instance, that cow's milk contains considerable quantities of aluminum. Of course I admit that this is all indirect evidence and does not prove definitely that pellagra is a disease due to a dietary deficiency or to the presence of toxic substances in the diet. On the other hand, I can say that just as much weight of argument is on the side of the nutrition theory as on the side of the infection theory.

IMMUNITY IN TUBERCULOSIS

FURTHER EXPERIMENTS *

GERALD B. WEBB, M.D.
AND
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COLORADO SPRINGS, COLO.

In 1911, experiments were reported[1] on twelve monkeys. The subsequent history of those not killed at that time follows:

Monkey 1.—Control. Jan. 19, 1912. The monkey had not become spontaneously infected since its purchase, June 8, 1910.

Oct. 14, 1912: Intradermal tuberculin test 0.1 mg. O. T. Result negative.

Dec. 1, 1912: Animal has refused to eat for three days. Found dead. Necropsy, no trace of tuberculosis anywhere.

Monkey 2.—Received 25 virulent human tubercle bacilli by subcutaneous injection. June 9, 1910, thirty-five bacilli of this culture had infected a guinea-pig (Barber culture). June 7, 1911, killed. No evidence of tubercle anywhere. Lymph-nodes from various parts ground up and injected into guinea-pig without producing infection.

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* This work was assisted by a grant from the Committee on Scientific Research of the American Medical Association.

* Read before the Section on Pathology and Physiology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Webb, G. B., and Williams, W. W.: Immunity in Tuberculosis, The Journal A. M. A., Oct. 28, 1911, p. 1431.

Monkey 3.—Received 100 virulent human tubercle bacilli by subcutaneous injection, of same culture, June 8, 1910.

Sept. 6, 1911: Conditions resembling elephantiasis had developed. Animal killed. Lower half of vulva, buttocks, tail, legs, showed dense infiltration of skin about ½ inch in thickness. The swollen parts were soft but firm. Edematous, not reddened. All organs normal. No signs of tuberculosis anywhere. Pieces of swollen area, lymph-nodes from various parts ground up and injected into guinea-pig without infection resulting.

Monkey 4.—Received 200 human tubercle bacilli of same culture by subcutaneous injection, June 8, 1910.

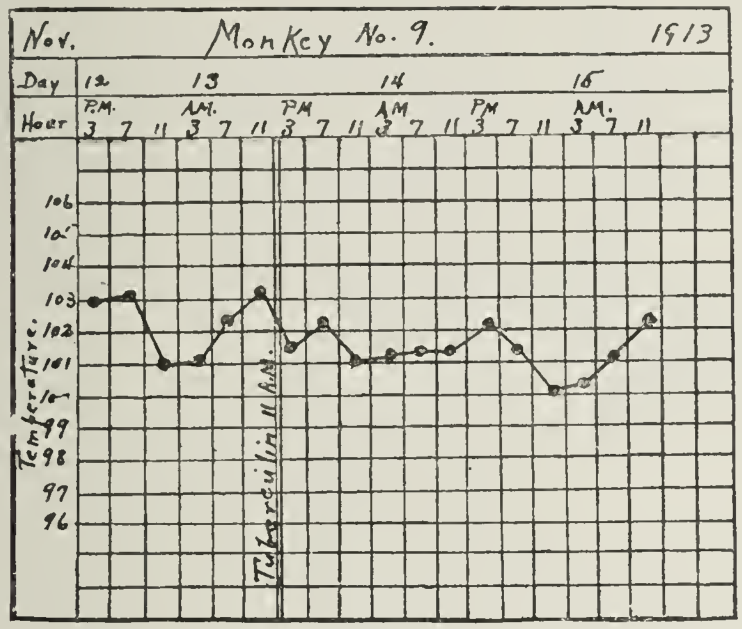

Chart 1.—Temperature chart of Monkey 9.

Dec. 27, 1911: Killed. No evidence anywhere of tuberculosis.

Monkey 5.—Received in increasing doses, beginning with 1 bacillus, 3, 5 bacilli, etc., a total of 8,369 virulent human tubercle bacilli from June 8, 1910, to Feb. 3, 1911.

Dec. 21, 1911: Killed. No evidence anywhere of tuberculosis.

Monkey 6.—Received similar inoculations to Monkey 5.

June 24, 1912: Second intradermal tuberculin test with 3.8 mg. O. T. Result negative.

Oct. 8, 1913: Third intradermal tuberculin test with 1 mg. O. T. Result negative.

Oct. 12, 1913: Found dead in cage. Necropsy. Scattered tubercles in left lung. Lower lobes of right lung solidified; caseous areas and adherent to chest wall. Spleen badly infected. Bronchial glands contain pus. Original culture recovered from this monkey.

Monkey 7.—Received in increasing doses beginning with 1 bacillus, 5, 10, etc., a total of 417,961 virulent human tubercle bacilli from June 8, 1910, to Feb. 3, 1911.

Dec. 7, 1912: Has refused to eat for a few days. Found dead. Necropsy: No trace of tuberculosis in any organ.

Comment.—Monkeys 1 and 7 were kept in the same cage. The culture given them for a test of immunity had originally infected a guinea-pig with only 125 bacilli. It was now found that 100,000 failed to infect a guinea-pig. It was later discovered that their keeper had given them oats a few days before their mysterious deaths.

Monkey 8.—Inoculations given in increasing dose as in Monkey 7. Total bacilli received, 417,961. Necropsy June 8, 1911: No tuberculosis.

Monkey 9.—Received inoculations of virulent human tubercle bacilli beginning with 5 bacilli, 10, 15, etc., from June 8, 1910, to Feb. 3, 1911. Total, 15,720.

June 24, 1912: Intradermal tuberculin test, 3.8 mg. O. T. negative.

May 29, 1912: Weight, 4,703 gm.

Oct. 14, 1912: Weight, 5,754 gm.

Nov. 12, 1913: Subcutaneous test. See Chart 1.

June 15, 1914: Apparently perfectly well. Killed. Necropsy; No tuberculosis.

Monkey 10.—Received inoculations of virulent human tubercle bacilli (Barber culture), beginning with 5 bacilli, 15, 30, etc., from June 8, 1910, to Feb. 3, 1911. Total, 37,805.

June 24, 1912: Intradermal tuberculin test, 3.8 mg. O. T. negative.

Jan. 3, 1913: Through the courtesy of Dr. Penrose, this monkey and also Monkey 12 were accepted by the Philadelphia Zoological Society. Both were retested with tuberculin before admission and found to be negative.

June 16, 1914: Dr. Herbert Fox reports: Both monkeys negative to tuberculin on admission. Not since tested. Both monkeys have failed a little in weight in last few months and Monkey 10 has slight cough. These monkeys have been possibly more exposed to the public than the others in the gardens. They have now been removed to outdoor cages.

Monkey 11.—Control, killed. No tuberculosis.

Monkey 12.—Received 50 virulent human tubercle bacilli at one dose, June 8, 1910.

May 22, 1911: Subcutaneous O. T. test negative.

May 21, 1912: Gave birth to dead baby.

June 24, 1912: Intradermal tuberculin test, 3.8 mg. O. T., negative.

Jan. 3, 1913: Forwarded to Philadelphia Zoological Gardens.

June 16, 1914: Report by Dr. Herbert Fox above: This animal we regarded as a control possibly to Monkey 10. Fifty virulent bacilli had not infected.

Twelve new monkeys (*Macacus rhesus*) were received June 17, 1912.

June 18, 1912: Conjunctival tests with 2 per cent. O. T. in right eye of each. All negative.

June 18, 1912: Simultaneously a von Pirquet test with pure O. T. was made in the neighborhood of the left nipple. All negative.

June 18, 1912: Differential blood-counts were made and the opportunity was taken to investigate any possible increase in their lymphocytes due to the altitude. Chart 2 depicts the results.

Oct. 14, 1912: Monkeys 13 and 14 tested with O. T., 0.1 mg., intradermally. Monkey 14 reacted markedly with 150 per cent. increase. Chart 3 illustrates the change in the differential blood-picture in this monkey.

Monkey 13.—Having been in cage with Monkey 14, was not used for experiment. After two months exposure was killed.

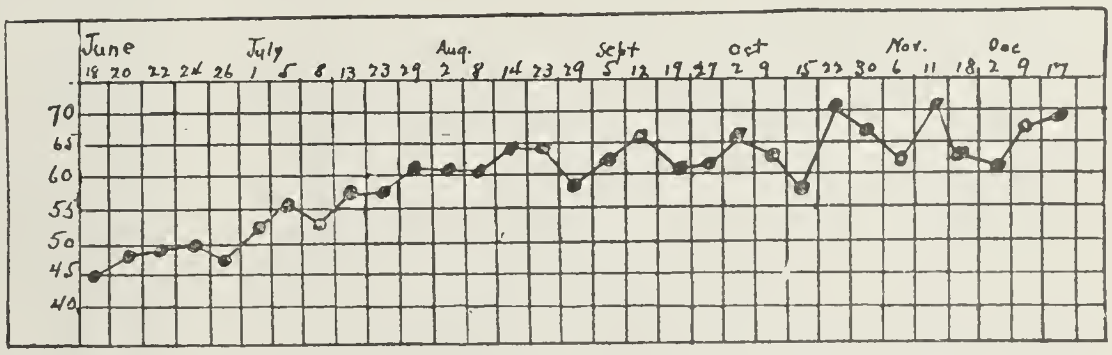

Chart 2.—Average mononuclear percentage of twelve monkeys.

Nov. 12, 1913: Subcutaneous tuberculin test appears negative (Chart 4).

Jan. 12, 1914: Lymphocytes had dropped from 63 to 14 per cent. Blood-platelets 596,000. White corpuscles 24,000.

Jan. 16, 1914: Evidently ill. Killed. No microscopic evidence of tuberculosis could be found except extensive adhesions about right lung. Entire base tightly bound down. Both adrenals very soft, mushy and necrotic. Smears showed no tubercle bacilli.

Monkey 14.—Oct. 14, 1912: Reacted to intradermal test as stated above.

Jan. 29, 1913: Killed. Peritoneum covered with tubercles. Spleen large and filled with caseous masses. Extensive lesions in liver. Scattered tubercles in lungs. This monkey was evidently infected on arrival or shortly after. The positive intradermal reaction was the first we had experienced in any monkey and the decisiveness convinced us that those reported in our former papers were probably not positive.

Through the courtesy of Dr. Lawrason Brown of Saranac, a culture (Brown C_4) was received from which Dr. Brown had been able to infect a guinea-pig with 20 bacilli. We wished to ascertain how many bacilli of this culture would, inoculated subcutaneously, infect a monkey.

Preliminary experiments were made on guinea-pigs with results mentioned below.

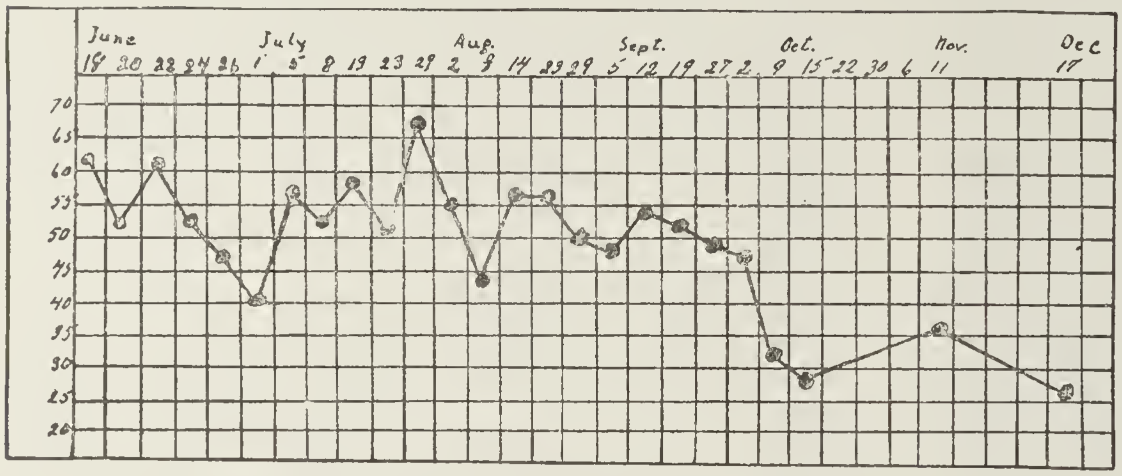

Chart 3.—Percentage of mononuclears, Monkey 14.

Guinea-Pig 2.—Twenty-five bacilli inoculated into right nipple area.

Guinea-Pig 3.—Nov. 11. 1912: Several thousand bacilli inoculated into right nipple area.

Guinea-Pig 4.—Twenty-five bacilli inoculated into right nipple area.

Guinea-Pig 5.—Fifty bacilli inoculated into right nipple area.

Guinea-Pig 6.—Fifty bacilli inoculated into right nipple area.

Guinea-Pig 7.—One hundred bacilli inoculated into right nipple area.

Guinea-Pig 8.—Ten bacilli inoculated into right nipple area.

All pigs became definitely infected and tuberculosis was confirmed by necropsies.

This culture, from which only *ten* bacilli could cause infection, was evidently more virulent than any we had before employed.

Inoculations were made into guinea-pigs in increasing doses as the records indicate (Tables 1 and 2), but each pig finally developed tuberculosis.

TABLE 1.—INOCULATIONS INTO GUINEA-PIG 6

Date	Tubercle Bacilli	Date	Tubercle Bacilli
1/ 9/13	2	2/ 3/13	14
1/13/13	4	2/ 6/13	16
1/16/13	6	2/10/13	20
1/20/13	8	2/13/13	25
1/23/13	9	2/17/13	30
1/27/13	10	2/20/13	35
1/30/13	12	2/24/13	40

Feb. 27, 1913: Pig has local lump at inner side of left nipple.

TABLE 2.—INOCULATIONS INTO GUINEA-PIGS 30, 31 AND 32

Date	Tubercle Bacilli	Date	Tubercle Bacilli
5/19/13	R 2	6/23/13	L 12
5/26/13	R 4	6/30/13	L 14
6/ 2/13	L 6	7/ 7/13	R 16
6/ 9/13	L 8	7/10/13	R 20
6/16/13	L 10	7/21/13	R 20

Injections were made into right and left nipple areas according to designation R or L.

July 21, 1913: Probable infection of groin glands on left side.

Sept. 3, 1913: Definite infection of groin glands on left side.

Monkey 15.—Jan. 20, 1913: Three hundred bacilli, Culture Brown C_4, inoculated just below left nipple.

March 4, 1913: Large local lesion at site of inoculation. Enlarged gland in left axilla. Intradermal tuberculin test + + (positive).

March 6, 1913: Killed. Local lesion and infected axillary gland. Otherwise no evidence of tuberculosis.

Monkey 16.—July 1, 1912: Broken leg, discarded. Necropsy negative.

Monkey 17.—Oct. 31, 1912: Prolapsed bowel, discarded. Necropsy: lobar pneumonia.

Monkey 18.—Jan. 20, 1913: Four hundred bacilli, Culture Brown C_4, inoculated just below left nipple.

March 4, 1913: Large local lesion. Enlarged hard gland in left axilla. Intradermal tuberculin test + + (positive).

March 24, 1913: Sent to Dr. John F. Anderson, Public Health Service, Washington, D. C. This monkey was ideally infected for an attempt at cure by the Friedmann remedy, but died after a few months.

Monkey 19.—March 31, 1913: Sixty bacilli, Culture Brown C_4, injected near right nipple.

June 26, 1913: No local lesion or enlarged glands.

Nov. 12, 1913: Subcutaneous tuberculin test (Chart 5) negative.

June 3, 1914: Killed. Necropsy completely negative.

Monkey 20.—March 31, 1913: Twenty-five bacilli, Culture Brown C_4, inoculated near right nipple.

May 7, 1913: No local lesion.

May 29, 1913: No local lesion or glands enlarged.

Nov. 13, 1913: Tuberculin reaction (subcutaneous test). Notice (see Chart 6) interference with night drop. Probably positive.

Dec. 10, 1913: Found dead. Necropsy negative except for a pus-sack in lesser peritoneal cavity. No tubercle bacilli could be found on staining this pus. No enlarged bronchial glands.

Monkey 21.—Nov. 12, 1913: Subcutaneous tuberculin test (Chart 7) negative.

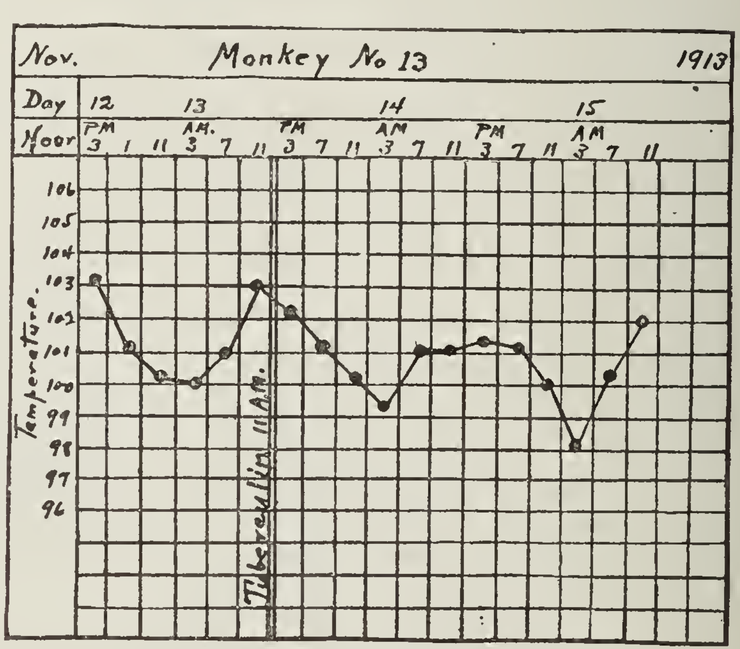

Chart 4.—Temperature chart of Monkey 13.

Jan. 8, 1914: A burn made above left ankle which produced a linear scar.

Feb. 26, 1914: Three hundred bacilli (Culture Brown C_4) injected into scar. The site of inoculation bled and the blood was reinjected into two other places in scar.

Monkey 23.—Nov. 12, 1913: Subcutaneous tuberculin test (Chart 9) negative.

Feb. 26, 1914: Three hundred bacilli (Culture Brown C_4) injected into left leg.

Blood Examinations:

Monkey 21.—Feb. 27, 1914: Platelets 408,000. Whites 12,600. Lymphocytes 64.5 per cent.

Monkey 23.—Feb. 27, 1914: Platelets 400,000. Whites 11,000. Lymphocytes 54.5 per cent.

Monkey 21.—March 10, 1914: Platelets 532,000. Whites 16,600. Lymphocytes 64.5 per cent.

Monkey 23.—March 10, 1914: Platelets 416,000. Whites 17,060. Lymphocytes 57 per cent.

Monkey 21.—March 12, 1914: Platelets 516,000.

Monkey 23.—March 12, 1914: Platelets 384,000.

Monkey 21.—March 25, 1914: Platelets 542,000. Lymphocytes 72 per cent.

Monkey 23.—March 23, 1914: Platelets 504,000. Lymphocytes 60 per cent.

Monkey 23.—April 1, 1914: Has a local lump. No enlarged glands.

April 2, 1914: This lump removed under ether.

April 3, 1914: Good healing. No glands in either monkey.

Monkey 21.—Platelets 596,000.

Monkey 23.—Platelets 440,000.

April 28, 1914: Both monkeys killed. Necropsy:

Monkey 21.—Several tuberculous nodules in liver, also liver abscess. Tuberculous glands in peritoneum. The scar had become ulcerated and had bled easily. No inguinal glands were infected.

Monkey 23.—Necropsy completely negative.

Monkey 22.—March 31, 1913: Ten bacilli (Culture Brown C_4) injected just below right nipple.

May 7, 1913: No local lesion.

July 29, 1913: No local lesion or enlarged gland.

Nov. 12, 1913: Subcutaneous tuberculin test (Chart 8) negative.

Aug. 3, 1914: Killed. Necropsy negative.

Monkey 24.—March 31, 1913: One hundred bacilli (Culture Brown C_4) injected near right nipple.

May 28, 1913: Local lesion, hard lump. Enlarged gland in right axilla.

May 29, 1913: Under ether local lesion and enlarged gland and axillary gland completely removed.

June 26, 1913: Complete healing, no evidence of enlarged glands or return of lesion.

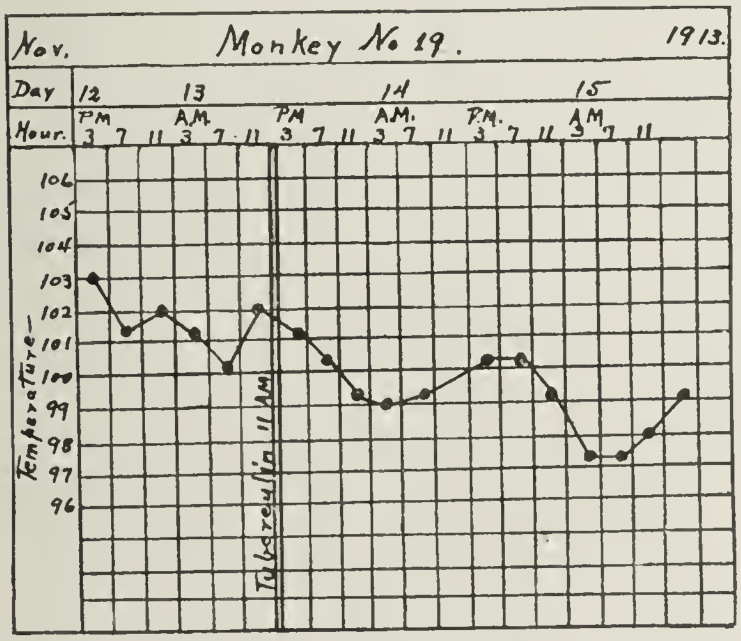

Chart 5.—Temperature chart of Monkey 19.

Sept. 10, 1913: Killed. Portions of left eye and left side of neck swollen. Extensive tuberculosis of lungs, spleen and bronchial glands. Glands over sternum and in neck all purulent. Few tubercles in liver. No local glands in right axilla.

Guinea-Pig 55.—Dec. 29, 1913: Given 200 bacilli (Lil culture) at nipple area.

Jan. 18, 1914: Local lesion and enlarged inguinal gland.

Jan. 20, 1914: Nipple, local lesion and inguinal glands removed and entire groin cleaned out down to muscles under ether.

March 5, 1914: Groin entirely healed.

April 11, 1914: Killed. Extensive tuberculosis of liver, spleen and lungs.

The following attempt to treat tuberculous guinea-pigs with inoculations of living tubercle bacilli is of interest:

Dec. 19, 1912: Guinea-Pigs 13, 15, 16 and 17, weighing about 500 gm., were each given 25 bacilli of Culture Brown C_4 in right nipple area.

Jan. 13, 1913: Each pig has slightly enlarged and hard right inguinal gland. Pigs 16 and 17 were used as controls. Pigs 13 and 15 were given inoculations of live tubercle bacilli from the same culture as that producing the infection. These inoculations were given in the left nipple area, the numbers given being slowly increased from 1 to 60 during a period of twelve weeks.[2]

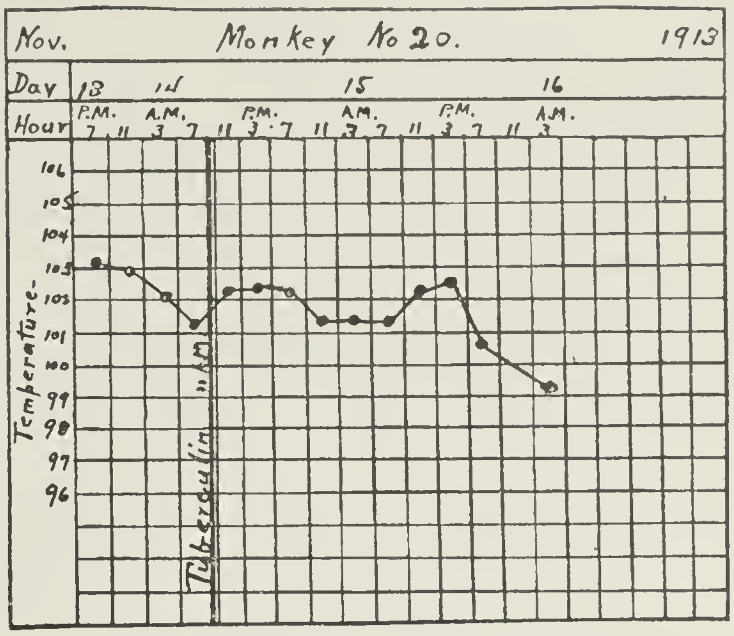

Chart 6.—Temperature chart of Monkey 20.

Table 3 gives the numbers given and the dates.

TABLE 3.—INOCULATIONS INTO GUINEA-PIGS 15 AND 13

	Tubercle Bacilli			Tubercle Bacilli	
Date	Guinea-Pig 15	Guinea-Pig 13	Date	Guinea-Pig 15	Guinea-Pig 13
1/ 9/13	2	..	2/10/13	20	14
1/13/13	4	1	2/13/13	25	16
1/16/13	6	3	2/17/13	30	20
1/20/13	8	5	2/20/13	35	25
1/23/13	9	6	2/24/13	40	30
1/27/13	10	7	3/ 3/13	45	35
1/30/13	12	8	3/10/13	50	40
2/ 3/13	14	10	3/27/13	50	40
2/ 6/13	16	12	4/ 3/13	60	50

April 21, 1913: Guinea-Pig 13 had discharging sinus in right nipple area. Killed. Large inguinal glands on right side. Large local lesion. Few tubercles in spleen. Otherwise negative.

May 8, 1913: Guinea-Pigs 15 and 16 were killed. Each had dry ulcer and large local lesion. Right inguinal glands were of equal size. Guinea-pig 16 showed no other tuberculous lesions. Guinea-Pig 15 had a few tubercles in spleen and very minute enlarged bronchial glands.

Nov. 22, 1913: Guinea-Pig 17 killed. Local lesion and right inguinal glands same as others. No other tuberculous lesions. This experiment certainly failed to show any favorable action due to the treatment given. Two pigs in the same series, Guinea-Pigs 14 and 18, treated with tuberculin showed much more extensive and widespread tuberculosis.

It has probably been taken for granted that virulent cultures are all of equal potency. By means of the Barber technic of isolating definite small numbers it may be shown that this is not the case.

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[2] These experiments also prove that a tuberculous guinea-pig is immune to subsequent small lethal doses inoculated subcutaneously. "Römer, and following him Tomarkin, were able to show a sustained resistance of moderately tuberculous guinea-pigs toward a fresh cutaneous inoculation. A similar immunity toward a subcutaneous dose, so far as I know, has not yet been demonstrated."—Smith, Theobald: An Attempt to Interpret Present-Day Uses of Vaccines, The Journal A. M. A., May 24, 1913, p. 1591.

Table 4 gives a list of certain cultures and the smallest number so far found capable of producing progressive and fatal tuberculosis in adult guinea-pigs.

TABLE 4.—POTENCY OF FATAL CULTURES

Cultures	Minimum Lethal Number
1. B	120 bacilli
2. Barber	35 bacilli
3. Brown C_4	10 bacilli
4. Lil	35 bacilli
5. Bd	10 bacilli
6. Ht	50 bacilli
7. Rgls	10 bacilli

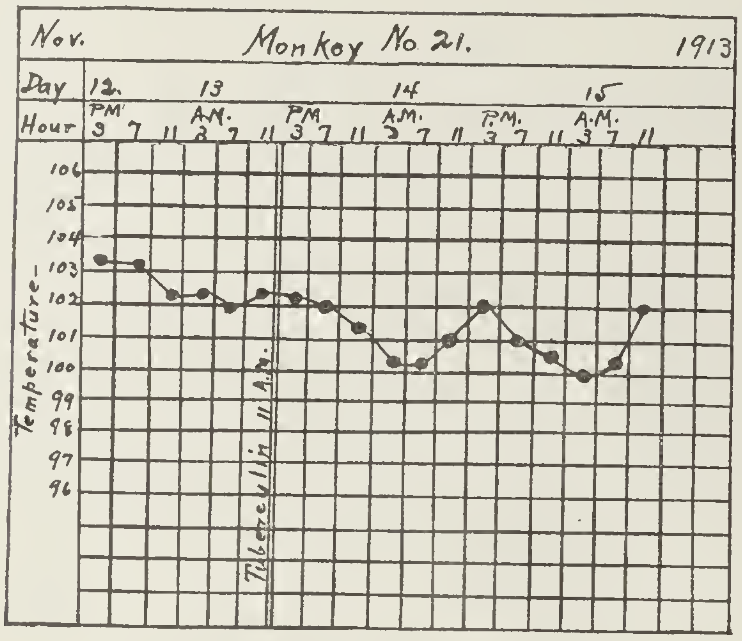

Chart 7.—Temperature chart of Monkey 21.

Culture 1 has already been described.[3] Three years later this culture from which 120 bacilli had infected a pig, had so decreased in virulence that 100,000 failed repeatedly to infect a guinea-pig.

Culture 2 has also been described.[4]

Culture 3 was isolated in Saranac Lake from the sputum of an advanced consumptive.

Cultures 4, 5, 6 and 7 were grown from the sputum of advanced active cases of pulmonary tuberculosis by means of the antiformin method grown on Dorset's egg-medium and tested within a few months after first obtained.

The following experiment was undertaken to compare the infection produced by the same dosage in two very young guinea-pigs, A and B, a pregnant female pig, C, a nursing female pig, D, and a normal male pig, E, weighing, respectively, 163, 128, 709, 591, and 573 gm.:

Jan. 13, 1914: Each pig received 60 bacilli, Culture "Lil."

March 29, 1914: A died of extensive tuberculosis.

April 12, 1914: B died of extensive tuberculosis. C, D and E in good health.

June 8, 1914: C, D and E killed. Necropsies showed: C, very extensive tuberculosis; D, no evidence of tuberculosis; E, moderate amount of tuberculosis.

It is of course possible that D failed to receive the bacilli at the time of inoculation. The disease made more rapid progress in the pregnant female than in the normal male and was of a galloping type in the tiny pigs.

Very young guinea-pigs would seem to be much more susceptible to infection by a definite number of bacilli than the older pigs used.

The following experiments on calves are of interest as they indicate the small number of virulent bovine bacilli which may cause infection, and also that a calf can apparently overcome a mild infection.

Table 5 shows the approximate number of virulent bovine bacilli given to the different calves on the various dates.

TABLE 5.—INOCULATIONS INTO CALVES

Calf No.	Age, Weeks	9/20/11	10/4/11	11/15/11	12/1/11	12/11/11	1/20/12	2/13/12
1.	3	50	...	...	5,000	100,000	1,000,000	50 million
2.	13	50	250	500	5,000	....	500,000	5 million
3.	3	50	250	500	5,000	100,000	1,000,000	50 million
4.	2	..	...	...	500	100,000	1,000,000	50 million
5.	3	..	...	...	500	5,000	500,000	5 million
6.	1	..	...	...	500	5,000	500,000	5 million
7.	3	..	...	...	.....	....	....	1,000
8.	3	..	...	...	.....	....	....	1,000

March 13, 1912: The intradermal test of Romer was applied to calves 1-6; 50 mg. O. T. was used for each calf. Calves 1, 2, 4, 5 and 6 were positive.

March 21, 1912: The same test was repeated, and all calves, including Calves 7 and 8, were positive.

April 10, 1912: Given subcutaneous tuberculin test and all temperatures taken for thirty-six hours. Calves 1, 7 and 8 were considered suspicious.

April 12, 1912: Calves 5 and 6 killed. Necropsy: One left internal iliac gland in each contained hard calcified healed tubercles. All other glands normal. Otherwise negative.

Oct. 1, 1912: Subcutaneous tuberculin test repeated. Calf 1, typical reaction. Calf 3, not typical reaction but is sick clinically.

Oct. 8, 1912: Calves 1 and 3 killed. Necropsy: Calf 1, fat and in fine condition. No tuberculosis found anywhere. Calf 3, thin and small. One large gland filled with pus on outer side of each thigh at site of inoculations. Pus contained tubercle bacilli. Other glands and rest of body entirely negative.

June 15, 1914: Calves 2, 4, 7 and 8 have been since tested, once with the subcutaneous, and three times with the intradermal method, during the last two years and all tests have been negative.

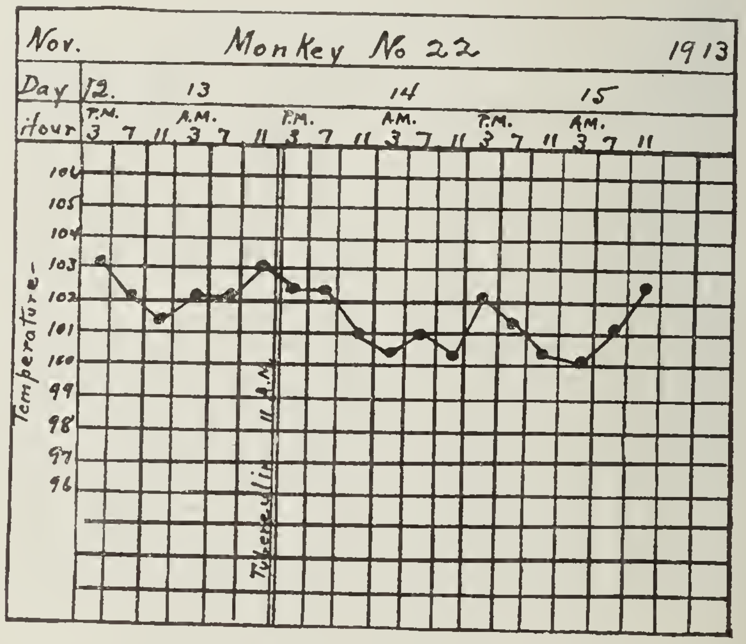

Chart 8.—Temperature chart of Monkey 22.

Inasmuch as 1,000 bacilli of this culture were able to produce infection in calves 3 weeks old, the amounts given were entirely too large and the increase in dosage far too rapid. Only one calf, Calf 3, had clinical tuberculosis, calcified tubercles were found in two, and still another gave no microscopic evidences of tuberculosis.

The fact that calves 7 and 8 apparently overcame completely the mild infection produced is of interest.

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[3] Webb and Williams: Immunity Production by Inoculation of Increasing Numbers of Bacteria Beginning with One Living Organism, Tr. Sixth International Congress on Tuberculosis, 1908.

[4] Webb, G. B., and Williams, W. W.: Immunity in Tuberculosis: Its Production in Monkeys and Children, The Journal A. M. A., Oct. 28, 1911, p. 1431.

The Barber technic has been of great service in studying the effect of subcutaneous inoculation of minute doses of tubercle bacilli. In the infection of human beings by Nature it has been thought that the bacilli can pass through mucous membranes without the production of a local lesion. In the usual laboratory studies a local lesion following subcutaneous inoculation has been regarded as a sine qua non, and an infection of neighboring glands has been predicated.

In a series of guinea-pigs inoculated with minute (from 10 to 60 tubercle bacilli) infective doses subcutaneously, we have frequently observed the absence of a local lesion, but practically never have failed to find the local glands infected as the following specify:

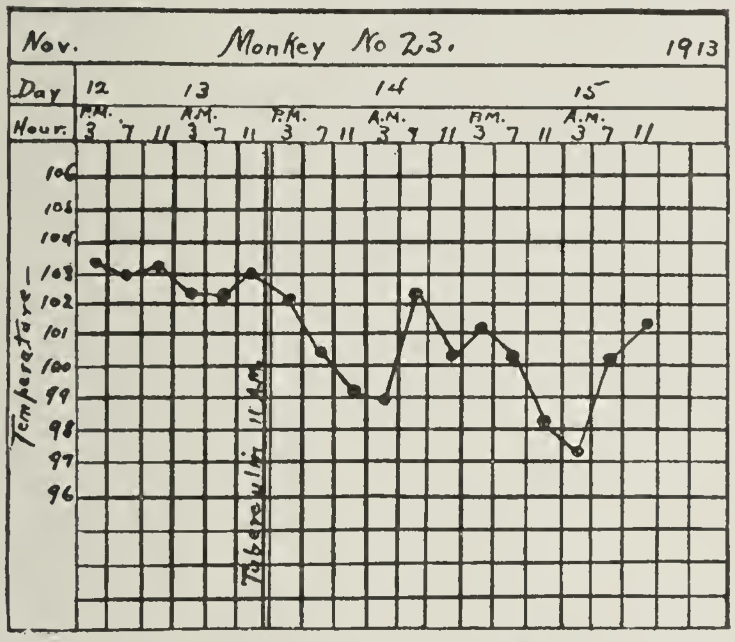

Chart 9.—Temperature chart of Monkey 23.

1. Glands infected but no local lesion, fifty-five guinea-pigs.
2. Glands infected and local lesions, twenty-five guinea-pigs.
3. No glands infected or local lesion, but splenic infection, two guinea-pigs. (These, however, had platelets added to the bacilli.)
4. Failed to become infected, five guinea-pigs.

Our experience with both the intradermal and subcutaneous tuberculin diagnostic tests in monkeys has been rather uncertain and decidedly unsatisfactory. Monkey 6 gave repeated negative results to varying amounts of O. T. given intradermally, and then died with extensive, scattered tuberculosis.

Monkeys 8, 10 and 11 gave positive reactions to 20 mg. O. T. given intradermally, but complete necropsies failed to show any tuberculosis. No rise of temperature after the subcutaneous inoculation of tuberculin has been observed. Interference with the normal night drop has occurred rather frequently, as in Monkeys 9 and 12 when the necropsies were completely negative and in Monkey 20, when a small amount of tuberculosis was found at necropsy. Certainly repeated tests would seem necessary to decide whether or not a monkey had been infected.

In our report[4] on immunity in tuberculosis in 1911, mention was made of two children inoculated with Culture B.

The children to-day (June 11, 1914), are negative to the von Pirquet reaction, using 100 per cent. O. T. Five other children were later reported on, but Culture B, which was employed, was found to have become avirulent, 200,000 bacili of this culture failing to infect guinea-pigs.

One of these children (L), however, was so badly exposed, living in a three-room house with an inebriate consumptive in the last stages, that an effort was made to immunize if possible with a more virulent culture. At that time the graded inoculation of this culture (Brown C_4) had not infected a guinea-pig. The child was inoculated beginning Jan. 20, 1913, at seven-day intervals with 2, 3, 5, 7, 10 and 12 bacilli, respectively. Immediately previous to the inoculations a von Pirquet test was doubtful or negative.

March 1, 1913: A slight nodule observed on right forearm at site of a former inoculation. This nodule was at first mistaken for a staphylococcus infection.

March 10, 1913: Foregoing nodule larger. A second smaller nodule 2 inches distant, and a very minute nodule on left forearm.

March 11, 1913: These three nodules removed under chloroform anesthesia. The section of larger nodule showed numerous bacilli.

March 18, 1913: A gland noticed in right axilla enlarged. Removed.

June 14, 1914: Temperature taken through four months remained constantly normal. Child in perfect health. No evidence of glandular enlargement anywhere. Platelets, 396,000. Lymphocytes, 50 per cent. Von Pirquet tuberculin test positive.

BLOOD-PLATELETS AND TUBERCULOSIS

It has for a long time been observed that blood-platelets are increased in tuberculous infection. Osler, however, has written a scathing rebuke to the tyro who every little while claims to recognize tuberculous infection by increase of these blood elements. It seemed wise to try and investigate why Nature increases these so-called third corpuscles, knowing how rarely if ever she operates without a purpose. We have published elsewhere[5] the following results of our observations.

1. Blood-platelets are increased in the tuberculosis of man and guinea-pigs.
2. Blood-platelets added to a small infective dose of virulent tubercle bacilli appear to modify the infection when injected into guinea-pigs.

In addition we have observed that blood-platelets are increased 12 per cent. in the blood of man and guinea-pigs at an altitude of 6,000 feet. They are also increased by hyperemia of the marrow of long bones and in poisoning by carbon monoxid.

The increase of blood-platelets in the infected Monkey 21 occurred two weeks after the inoculation of virulent tubercle bacilli, and was maintained. The number in the control animal, Monkey 23, remained consistently normal, and post-mortem examinations gave evidence that the findings had been correct.

CONCLUSIONS

1. Guinea-pigs can probably not be immunized with virulent human tubercle bacilli of cultures from which ten bacilli can cause infection.
2. The minimum lethal dose of different virulent cultures would appear to vary in number.
3. The minimum lethal dose for a *Macacus rhesus* is possibly a little larger than that for a guinea-pig.
4. It is necessary to be guided by the virulence of human tubercle bacilli as tested in the guinea-pig before the application to children.
5. After four years two children each inoculated up to five times the lethal dose for a guinea-pig are still negative to the von Pirquet reaction.

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[5] Webb, Gilbert and Havens: Colorado Med., January, 1914; Trans. Tenth Annual Meeting Nat. Assn. for Study and Prevention of Tuberculosis.

6. In monkeys the decrease of lymphocytes as indicated in differential blood-counts would appear to be more reliable in indicating tubercle infection than the tuberculin tests.
7. Less than ten virulent human tubercle bacilli can infect a child.

ABSTRACT OF DISCUSSION

Dr. William Ophüls, San Francisco: What were the anatomic findings in the monkeys that were so infected? Using these very small doses of tubercle bacilli for the infection, one approximates, I presume, the natural infection more closely.

Dr. G. B. Webb, Colorado Springs, Colo.: No observations were made on the tuberculous monkeys except as stated in my paper. We usually killed the monkeys immediately infection was recognized, as indicated either by a local lesion or glandular swelling.

LYMPHOCYTOSIS AS A SIGN OF CONSTITUTIONAL DERANGEMENT IN CHRONIC DISEASES OF THE DIGESTIVE TRACT*

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Of an extensive literature devoted to the rôle which constitutional factors play in the development of disease, only a small part deals with the digestive tract. In the discussion of gastro-intestinal diseases the local anatomic aspect dominates the conception of the morbid state. This conception is principally based on the demonstration of anatomic lesions at abdominal operations, which undoubtedly in many instances cleared up the true nature of a formerly obscure process. This applies, however, in particular to acute diseases; we cannot say as unreservedly that the demonstration of anatomic lesions has satisfactorily cleared up the pathogenesis of chronic diseases of the alimentary tract. In most of these chronic diseases anatomic lesions usually are the end-results of a pathologic process, but they do not necessarily indicate its working. For the understanding of its development, pathologic physiology promises better information than anatomic facts. It becomes more and more clear that disturbances of function are the causative factors of pathologic conditions in the alimentary tract: the irritative and the depressive disorders of motility and of secretion, spasm and atony, and increased and diminished secretion of the various digestive glands. When I discussed this topic last year,[1] I pointed out the necessity for studying the conditions which provoke the disorders of function. In this paper I intend to show that a general constitutional derangement very often forms the basis for the development of functional disturbances.

It has been demonstrated that the vagus and the splanchnic influence the activity of the digestive organs, although we know comparatively little of the way in which the functioning of these opposing nervous apparatus is physiologically regulated. On the other hand, we have learned to recognize pathologic states or irritation of both nervous systems, the "vagotonia" and "sympathicotonia" of Eppinger and Hess.[2] Since these authors first differentiated the two conditions, other investigators have pointed out[3] that often there are in a given case as many vagotonic as sympathicotonic symptoms, so that the sharp lines between the two states as originally drawn by Eppinger and Hess should be modified. Aside from this the inauguration of visceral neurology marks a decided progress. The knowledge of chronic vagus irritation has thrown considerable light on the pathogenesis of gastric ulcer, and one may expect that further investigation of the vegetative nervous system will clear up many unexplained points in the diseases of the digestive tract.

For the present discussion I wish to call attention to the fact that patients with vagotonic or sympathicotonic symptoms at the same time very often present signs of disordered internal secretions. The relation between disturbances of the ductless glands and those of the vegetative nervous system has not been safely established. Two years ago Dr. Cannon[4] pointed out the possibility that the glands of internal secretion play a rôle in causing disturbances in the nervous system of the alimentary canal. Dr. Cannon's work deals especially with the effect of excessive secretion of the adrenals, which affects the alimentary canal precisely as splanchnic impulses affect it, by producing a total abolition of tone and a consequent inhibition of all activity.

There is much in the clinical picture of patients with chronic gastro-intestinal diseases which strongly suggests that the influence of disordered internal secretions, in particular of the thyroid gland, is frequently the primary factor which causes the derangement of the visceral nerves. Knowing the importance placed on lymphocytosis in disordered thyroid, I have tried to find out whether blood examinations would offer a firmer basis for such a conception. I have examined 140 patients who presented the different types of chronic functional and organic gastro-intestinal diseases, from plain constipation to gastric ulcer, combined with more or less numerous signs of vagus—or sympathetic irritation. I have purposely abstained from any attempt at classification. The point which I want to emphasize is the remarkable frequency of lymphocytosis which I have encountered in this series of cases.

In my classification of lymphocytosis I considered:

1. As normal a total of 10,000 white cells or less with a differential lymphocyte count up to 35 per cent.
2. As relative lymphocytosis a total white-cell count below 10,000 with a differential lymphocyte count above 35 per cent.
3. As absolute lymphocytosis a total white-cell count above 10,000 with a differential lymphocyte count above 35 per cent.

In the differential classification of lymphocytosis mononuclears and all transitional forms were excluded, while the small and the large lymphocytes counted together were given as lymphocyte percentage.

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* President's address, read at the Seventeenth Annual Meeting of the American Gastro-Enterological Association at Atlantic City, N. J., June 22, 1914.

[1] Kaufmann, Jacob: The Part Played by Functional Disorders in the Pathology of the Stomach, The Journal A. M. A., July 26, 1913, p. 251.

[2] Eppinger and Hess: Die Vagotonie, Von Noorden's Samml. klin. Abhandl., 9 and 10.

[3] For fuller information regarding these questions see: Hemmeter: New York Med. Jour., 1914, p. 101. Wolfsohn, J. M.: The Normal and Pathologic Physiology of the Visceral Nervous System, The Journal A. M. A., May 16, 1914, p. 1535.

[4] Cannon: President's Address. Tr. Am. Gastro-Enterol. Assn., 1912, p. 10.

Of the 140 cases examined, 43 showed a normal lymphocyte count; 7 were on the border line; 16 showed absolute lymphocytosis, and 74 showed relative lymphocytosis. Of the latter 11 showed leukopenia, that is, a total white-cell count below 6,000, downward to 3,200.

Of the total number of 90 cases of lymphocytosis (16 absolute and 74 relative):

From 35 to 40 per cent. of lymphocytes were shown by 27.
From 41 to 45 per cent. of lymphocytes were shown by 18.
From 46 to 50 per cent. of lymphocytes were shown by 20.
From 51 to 55 per cent. of lymphocytes were shown by 20.
From 56 to 62 per cent. of lymphocytes were shown by 5.

The ninety cases of lymphocytosis represent 60 per cent. of all cases examined. Since a number of these patients reported only for mild temporary disorders and were examined as a routine, the 60 per cent of cases showing relative or absolute lymphocytosis must be considered very high.

The question is, What does lymphocytosis indicate? The examination of my patients soon made me realize that lymphocytosis is by no means as reliable a sign of exophthalmic goiter as it was formerly considered. Only a few of my patients presented symptoms which could be interpreted as caused by hyperthyroidism. I then found from the literature that during the last few years a different meaning had been given to lymphocytosis. Kocher's clinic, as Pettavel's[5] recent publication shows, still adheres to the original conception of lymphocytosis as a direct result of hyperthyroidism. This view, however, has been challenged by a number of writers. Borchardt,[6] Falta,[7] and Maranon[8] were among the first to point out that lymphocytosis is observed not only in hyperthyroidism but also in hypothyroidism, and, further, in disturbances of the other ductless glands such as the hypophysis, the adrenals, etc. These authors assert that the ductless-gland disorder is the primary disturbance, which in turn produces status lymphaticus, and they consider the lymphocytosis as a manifestation of status lymphaticus.

The linking of lymphocytosis and status lymphaticus has complicated matters so far as one forgets that we are dealing here with two distinctly different problems; first, with the relation of lymphocytosis and ductless-gland disorders, and second, with that of lymphocytosis and status lymphaticus. The definition of status lymphaticus is anything but clear. In literature we often find the diagnosis status lymphaticus merely based on the findings of blood-lymphocytosis, without any reference to the fact that these cases presented the hypertrophy of the lymphatic tissues or any of the other anatomic features, which Paltauf, and after him Kolisko, Bartel and Neusser have given as the main criterion of status lymphaticus.[9] A good deal of confusion might be avoided if we followed Bartel,[10] who proposed to confine the term "status lymphaticus" to the group of cases which are anatomically well defined by hypertrophy of the lymphatic tissues, and differentiated this group from what he calls status hypoplasticus, which in a less restricted and broader conception denotes a general constitutional inferiority with more or less marked hypoplasia in various organs and with lymphatic systems which, although not hypertrophic, nevertheless show abnormalities. If we accept this differentiation it must be stated that according to Siess and Stoerck,[11] no lymphocytosis is found in true status lymphaticus, so that there is no justification for regarding lymphocytosis as an indication of status lymphaticus, as is done by most writers at present. If the findings of Siess and Stoerck are corroborated it must be declared an error to diagnose status lymphaticus merely because lymphocytosis is present. On the other hand, lymphocytosis is very frequently found in cases which answer Bartel's description of status hypoplasticus or whatever one may call this condition of general constitutional inferiority. Kahler[12] pointed out that lymphocytosis may be considered in a more general way as a manifestation of that constitutional derangement which in literature is differently described as lymphatism, lymphatic constitution, status hypoplasticus, general congenital asthenia, morbus asthenicus, infantilism, etc. This constitutional derangement is met very frequently. It may give rise to disturbances in various systems, a fact which accounts for the demonstration of lymphocytosis in so many different conditions. To quote only a few of a great number of publications: Von Hösslin[13] and Sauer[14] report the frequency of this blood-picture in all functional disorders of the nervous system which such patients are particularly prone to develop. Gudzent[15] found lymphocytosis in chronic arthritis, so frequently associated with status hypoplasticus; Mohr[16] in constitutional obesity, and Decastello[17] in tuberculosis. The correlation of lymphocytosis and status asthenicus as developmental anomalies and predisposing factors for tuberculosis have often been discussed, lately by Bartel and Kraus.[18]

In the majority of my cases with lymphocytosis I noted a more or less pronounced tendency to asthenia or other manifestations of status hypoplasticus.

If it is permitted to conclude from all these findings that lymphocytosis may be taken as an indication of status hypoplasticus, the figures in my series certainly show that this constitutional derangement frequently forms a basis for the development of diseases in the digestive tract.

I have to come back once more to the question, What relation exists between lymphocytosis and disordered internal secretions? I quoted above the opinion of Kocher and others, who consider the blood-picture as secondary to the ductless-gland disorder. So far there is little proof for this contention and much may be said against it. In the first place it is difficult to understand how, as Borchardt and Falta assert, the same blood-picture should be produced by entirely different ductless-gland disorders—by decreased as well as increased thyroid secretion. I further call attention to Kocher's own reports which show that lymphocytosis remained unchanged in certain cases of exophthalmic goiter after the overactivity of the gland was successfully checked by operative treatment. This suggests that lymphocytosis is an indication of some factor other than hyperthyroidism.

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[5] Pettavel: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1914, xxv, 748.

[6] Borchardt, L.: Deutsch. Arch. f. klin. Med., 1912, cvi, 182.

[7] Falta, W.: Deutsch. Arch. f. klin. Med., 1912, cvii, 103.

[8] Maranon, G.: Boletin de la Sociedad Española de biologia, 1911, v, 75, ref. Centralbl. d. exper. Med., 1912, ii, 158.

[9] A very clear description of the physical characteristics of status lymphaticus is given by Haven Emerson in the Archives of Internal Medicine, January, 1914, p. 169.

[10] Bartel: Status thymico-lymphaticus und Status hypoplasticus, Leipsic and Vienna, Franz. Deuticke, 1912.

[11] Siess and Stoerck: Wien. med. Wchnschr., 1913, No. 8.

[12] Kahler, H.: Ztschr. f. angew. Anat. u. Konstitutionslehre, 1913, l, 139.

[13] Von Hösslin: München. med. Wchnschr., 1913, Nos. 21 and 22.

[14] Sauer, Hans: Deutsch. Ztschr. fr. Nervenh., 1913, xlix, 447.

[15] Gudzent: Deutsch. med. Wchnschr., 1913, p. 887.

[16] Mohr: Verhandl. Cong. f. inn. Med., 1914.

[17] Decastello: Wien. med. Wchnschr., 1914, p. 669.

[18] Kraus, F.: Deutsch. med. Wchnschr., 1913, p. 194.

In his monograph on status lymphaticus, Neusser[19] suggests the possibility that the lymphatic tissues produce a secretion which acts as the antagonist of epinephrin, and that abnormal lymphatic tissues may cause a disturbance of this secretion, which in turn upsets the activity of the other ductless glands. More light will have to be thrown on this problem before we can speak of a causal relation. Until then it seems safer merely to record that lymphocytosis and ductless-gland disorders are frequently associated, or, to express it differently, that persons with status hypoplasticus are inclined to disorders of internal secretions. It seems that they are particularly predisposed to thyroid insufficiency, possibly on account of fatigue when more demands are made on them than their constitutional derangement permits them to bear.

In my series of cases, symptoms of thyroid insufficiency were decidedly predominant. I wish to mention here that in 1907 Dr. Sawyer[20] discussed the frequent relation of digestive disorders and thyroid disturbances and reported diagnostic blood-pictures. Dr. Sawyer designated his cases as incomplete forms of exophthalmic goiter. Most of my own cases presented symptoms which, according to the teaching of Hertoghe, Levi and Rothschild, Saenger and others, are the result of the thyroid insufficiency, so that instead of *formes frustes* of Graves, one should speak of *formes frustes* of myxedema, or as others have called it, of chronic benign hypothyroidism. The correct interpretation of the thyroid disorder is important for purposes of treatment. It is true that we should not differentiate too sharply, since it is known that overactivity as well as insufficiency of the thyroid may at different times occur in the same patient; and then, too, it is becoming more and more evident that thyroid disorders are rarely observed alone, but that as a rule they are combined with other ductless-gland disorders; yet there can be no doubt that in most cases one type of disorder is distinctly preponderant.

Of the signs attributed to hypothyroidism observed in my patients the most frequent symptoms pointing to retarded metabolism were: congestion of the liver associated with bilious attacks, headaches and migraine; tendency to fatigue, lack of ambition, mental depression, low blood-pressure, impaired circulation and cold extremities. In most of these cases a small thyroid gland was found which permitted palpation of the tracheal rings down to the sternum. Of the symptoms referable to the alimentary canal, I mention atony of the stomach and intestines with constipation and congestion of the mucous membranes causing a tendency to chronic inflammatory processes; when associated with symptoms of vagotonia, irritative disorders of the stomach, hyperacidity and hypersecretion, spastic conditions in various parts of the digestive tract from the esophagus down to the anus with all its sequelae, gastric ulcer, spastic constipation, mucous colitis, adhesions following inflammatory processes in the various organs and their mechanical results.

I wish to state that I observed some cases with symptoms of hypothyroidism in the digestive tract as well as in other organs which showed no lymphocytosis, although their number was small as compared with the number which presented lymphocytoses.

In a number of cases presenting symptoms of hypothyroidism I had excellent results from the administration of thyroid. This was particularly instructive in cases of children suffering from malnutrition who were subject to gastric atony, constipation, congestion of the liver, headaches, etc., and who were freed of these disorders by thyroid medication. I observed cases of gastric hyperchlorhydria which had stubbornly resisted all other methods of treatment, and which then were relieved by taking thyroid. The same beneficial effect of thyroid therapy was experienced in other gastro-intestinal disorders when they were associated with chronic benign hypothyroidism.

I shall not discuss any further ductless-gland disorders and thyroid therapy, and I shall be very careful not to generalize. The report of successful thyroid treatment in my cases was merely meant to show that there are possibilties of causative treatment once we recognize the constitutional derangement and the disorders which it leads to. But valuable as such more specific forms of treatment are, there is a more important lesson to be learned from the present discussion; and this is, that the constitutional factor which I so often found at the bottom of chronic gastro-intestinal disorders should be given full consideration in the general management of such patients.

The periodicity which characterizes most chronic digestive disorders indicates that general conditions, such as constitutional derangements, are the decisive factors in the development of the disorder and not the anatomic lesions which are end-results. This is particularly evident in gastric-ulcer cases; and whether when treating them we shall succeed in avoiding recurrences will not depend so much on the employment of any special form of ulcer treatment, and in operative cases not on improved technic or new methods of operation, but it will depend to a much greater extent on our ability to regulate the patient's mode of living and on the patient's ability to observe general hygienic and dietetic principles and rules, which consider not only his local disorder, but in the broadest possible way his constitutional make-up, his mental state, his work, his habits, etc.

We are fully familiar with such conceptions for other diseases. It is generally understood that epilepsy develops on the basis of a constitutional disposition, and that this disposition must constantly be the object of treatment no matter whether the individual attacks are provoked by constipation, by the irritation of scar tissue, or from any other cause. There is no difference of opinion regarding the necessity of persistent hygienic and dietetic treatment in tuberculosis, if we want to succeed in fighting the ravages of the tubercle bacilli; and this is precisely the same situation which confronts us in many chronic gastro-intestinal disorders. We must emancipate ourselves from the narrow view which considers only the local disorder, be it ever so pronounced, and take into account the fact that a constitutional derangement is often the basis for the development of most of these local disorders, and that this constitutional derangement necessitates as persistent general treatment as it does in epilepsy, tuberculosis and other diseases. I hope that I have made this clear.

52 East Fifty-Eighth Street.

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[19] Neusser: Zur Diagnose des Status Thymico-Lymphaticus, Vienna and Leipsic, W. Braumüller, 1911.

[20] Sawyer: New York Med. Jour., July 15, 1907.

THE SPECIFIC ACTION OF SALICYLATES IN ACUTE ARTICULAR RHEUMATISM*

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Maclagan in 1874 was apparently the first physician to ascribe to salicylates a specific action in the treatment of acute articular rheumatism, although in the discussion following his report an English army surgeon in South Africa related that a decoction of willow bark was a favorite remedy among the Hottentots in the treatment of painful joints. His use of the remedy was purely empirical. He believed, on account of the profuse perspiration, that rheumatism was closely related to malaria; that in certain regions where malaria is prevalent the cinchona grows and that, therefore, in local surroundings especially favorable for the development of rheumatism, search should be made for a specific. As dampness predisposes to rheumatism, the search was begun among those plants growing in low grounds; early he examined the willow, and from this obtained the salicin, which he hailed as a specific.

The following year (1875) Buss and Riess,[1] and also Stricker[2] apparently independently of Maclagan recommended, on account of its antiseptic power, salicylic acid. Senator in 1876, also independently of Maclagan, recommended salicin, as, according to Ranke, Lehman and others, it was converted into salicylic acid in the stomach. The introduction of salicylic acid at this particular time can be accounted for by the introduction in 1874 of Kolbe's process of manufacturing it. Although salicylic acid was first made by Pagenstecher in 1835, it was not until Kolbe's discovery that it could be produced at a moderate cost.

The use of the salicyl preparation in rheumatism became quite general in both England and Germany during the late seventies, and especially in the English medical journals of that date an interesting discussion was carried on as to whether or not this group of drugs really possessed great therapeutic value in arthritis. On either side of the question could be found some of the best medical men of the day. It is largely from the literature of this period that we can obtain abundant statistical data.

Regarding the supposed method of action, this was considered purely bactericidal, the first preparation used in Germany being salicylic acid, which, as is well known, is a very powerful germicide. It is a general cellular poison, toxic to the cells of the body, and, as far as we know, has no selective action for bacteria. It was overlooked at this time that the salicylic acid on leaving the stomach is converted into a salicylate and appears in the circulation and comes in contact with the tissues in this form. If, therefore, its action is bactericidal, it must be reconverted in the tissues into salicylic acid. Salicylic acid is rapidly and completely eliminated through the kidney chiefly in combination with glycocoll, as salicyluric acid; a very small amount may be excreted as salicylic acid. Inasmuch as drugs may have a selective action for certain tissues, it is possible that this selective action may be manifested by the inflamed joints, and if so there may be conditions present making possible the conversion of the salicylates into the salicylic acid. Fillipi and Nesti have shown that in man two hours after the administration of acetylsalicylic acid a test for salicylate could be obtained from the synovial fluid. Bondi and Jacoby[3] gave rabbits 0.57 gm. of salicylic acid and later determined its presence in the various fluids and tissues of the body. They found much larger amounts in the muscles and joints than in other tissues, and at times it could be demonstrated in the cartilage and synovial membrane and not in other tissues. They did not show, however, in what combination the salicylic acid existed. This is after all the most important point, as the salicylates do not have any germicidal action.

As all the tissues of the body have an alkaline or neutral reaction, the sodium salicylate cannot be converted into salicylic acid in the tissues unless, as Binz[4] has suggested, in the presence of increased carbon dioxid tension. Both Binz and Ewald[5] were able to show that the carbonic acid tension is from 5 to 7 per cent. higher in inflamed tissues than it is in the blood, even in extreme cyanosis, and that the blood in extreme cyanosis is capable of freeing the salicylic acid from its salt. Binz also demonstrated that an alkaline fluid containing sodium salicylate, if impregnated with carbonic acid to the degree found in inflamed tissues, would permit of the breaking up of sodium salicylate, and the setting free of salicylic acid. Although this has not been shown to actually occur in the joints in arthritis, on theoretical grounds it is at least possible.

Previous to the introduction of salicylic acid, acute arthritis was treated by the use of alkalies, heat, counter irritation and venesection. Under these methods, the results of treatment were generally conceded as better than with the expectant method. With the introduction of salicylic acid, there was abundant opportunity for comparative observation of the value of this new therapeutic agent. These observations consisted of statistical collections and personal impressions. It is of interest to note that even at this time the best men in the profession did not consider the drug as a specific in the sense we use this term with quinin or mercury, but rather debated whether this new treatment was superior to the old. On account of the variable duration of the disease, the sudden improvements and relapses, it is extremely difficult to draw accurate conclusions, except by carefully compiled statistics extending over a considerable period of time. Southey[6] most appropriately stated in 1879 at the time when the discussion of the value of salicylates was at its height that "there are few diseases, perhaps, which present more dangerous pitfalls to the unwary and clinically ill informed in therapeutics than rheumatism." Before the use of salicylates, Southey, Gull and Sutton, and others had divided acute articular rheumatism into two groups: one in which the disease ran a short course, the symptoms all subsiding about the eighth or ninth day; a second, relapsing type when about the eighth or ninth day a mitral murmur appeared, and in these cases the apparent recovery was followed by a relapse which might continue for several weeks. These observations are of interest as suggesting the possible importance of endocardial involvement accounting for the relapses and protracted duration.

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

[1] Riess, L.: Nachtrag zur innerlichen Anwendung der Salicylsäure, insbesondere bei den acuten Gelenkrheumatism, Berl. klin. Wchnschr., 1876, xiii, 86.

[2] Stricker: Ueber die Resultate der Behandlung der Polyarthritis rheumatica mit Salicylsäure, Berl. klin. Wchnschr., 1876, xiii, 1.

[3] Bondi, S. and Jacoby, M.: Ueber die Verteilung der Salicylsäure bei normalen und infizierten Tieren, Beitr. z. chem. Physiol. u. Path., 1906, vii, 514.

[4] Binz, C.: Die Einwirkung der Kohlensäure und Salicylsäure Natrium, Arch. f. exper. Path. u. Pharmakol., 1879, x, 147.

[5] Ewald, C.: Arch. f. Anat. u. Physiol., 1876, p. 446.

[6] Southey, R.: Treatment of Acute Rheumatism by Salicylate of Soda, St. Bartholomews Hosp. Rep., 1879, vi, 7.

In considering statistics two points have been observed: the time of disappearance of pain after entering the hospital, and the average period that patients, with and without salicylates, remained in the hospital. These two points were selected, first, because the pain, while purely subjective, yet is so constant that its subsidence may be considered as a fair index of the disappearance of the acute symptoms. On the other hand, relapses are so frequent and moderate tenderness so often persists long after disappearance of the acute pain that the patient's statement must often be considered relative; for this reason the period of time spent in the hospital may be taken as the time required for an actual cure plus the necessary period of convalescence. On account of the antipyretic action of the salicylates, the duration of the febrile period is of little value. In going over the literature all extensive series of cases in which these two points were recorded have been taken; unfortunately from the standpoint of accuracy, the number of observers is small. While both sets of figures are based on the duration of the disease from entrance to the hospital, rather than from the time of actual onset, for comparative purposes this does not impair the result.

Considering the first point—the time at which pain disappeared after entering the hospital—Reihler[7] reports 638 cases with salicylate, average duration of pain being 5.1 days; 425 cases without salicylates, average duration of pain 9.8 days. Pribram[8] reports 541 cases with salicylates, with average duration of pain 6.5 days; 354 without salicylates, average duration of pain 10.4 days. Reisz treated 79 cases with salicylates, the average duration of pain being 5 days, and 124 without salicylates, with average duration of pain 21 days. In all 1,258 patients were treated with salicylates with average duration of pain 5.3 days, 974 without salicylates, average duration 13.4 days. In addition, Hood[9] reports 350 cases, in 80 per cent. of which under salicylate the pain disappeared within 9 days and 311 without salicylates, with disappearance of pain in only 40 per cent. of cases within 9 days.

These statistics show that the duration of pain in the joints is much lessened by the use of salicylates. Still, 30.3 per cent. of those receiving salicylates, but only 6 per cent. of the untreated, have one or more relapses, and this was not considered in the statistics, as the time reported is that of the first disappearance of pain. For this and other reasons, especially the absence of the personal equation, the average period of time the patients remained in the hospital is probably more accurate and of more value.

Fortunately, extensive statistics on the time that patients remained in the hospital previous to and since the introduction of salicylates are available.

Perhaps one of the most striking features of these statistics is the uniformity of the period spent in the hospital. These figures include all the available extensive series except 417 cases given the alkaline treatment by Fuller and reported in 1863, in which the average period in the hospital was 20.1 days. As these figures are so at variance with those reported by others using the same treatment, they have been purposely omitted from the table. At this early period of salicyl therapy the dosage was large; 15 to 20 grains every two to three hours was considered a moderate dose and many gave 300 grains a day. For this reason the criticism cannot be urged of insufficient dosage.

The information to be drawn from these statistics is that the pain and evidence of active inflammation in the joint is controlled at least temporarily by salicylates. On account of relapses and slight joint involvement, the actual complete recovery of the patient has not been materially modified by the use of salicylates. It would appear that the drug shortened the period of local inflammation in the joint, and apparently prevented new joint infection. The generalized infection, however, ran its usual course. This may be due to the bactericidal action of the salicylic acid which is set free owing to the increased carbonic acid tension in the inflamed joint. None of our present theories, however, provide for the presence of free salicylic acid in uninflamed joints, which would be necessary in order to account for failure of new joints to become involved after the use of salicylates. Frequently, however, in spite of the use of salicylates the joint infection continued to recur, either not being affected by the salicylates, or, after being held temporarily in abeyance, again becoming active. Relapses may occur even while the patient is receiving large doses of salicylates; in one report a relapse occurred while the patient was taking daily doses of 13 gm. Miller[10] in a recent review of this subject states that of seventeen relapses, eleven occurred while the patient was still taking salicylates. Five of these were taking daily not to exceed 50 grains, four not to exceed 100 grains; one taking 150 to 200 grains; one taking 200 to 250 grains. These patients were all children and while the ages of these particular patients are not given, judging from references elsewhere in the article, they were probably under 10 years. The temporary improvement with later relapses lead to the view that salicylates were responsible for these. It is probable, however, that in the untreated cases the course of the disease was unmodified, while in those receiving the salicylates temporary lulls occurred in the local manifestation.

PERIOD PATIENT REMAINED IN HOSPITAL WITH AND WITHOUT SALICYLATES

Observer	No. Cases	With, Days	No. Cases	Without, Days
Warner	342	34.9	387	36.2
Pribram	429	29	...	....
Reisz	79	35.8	134	39.2
Badt	158	36	156	34.5
Putnam	455	32.9	353	32.8
Thompson	...	....	147	31.3
Chamberlain	...	....	57	34.7
Dickinson	...	....	131	33.13
Sibert	...	....	57	34.7
Southey	51	32.5	...	....
H. Hall	38	34	16	33
Coupland	84	36	...	....
Finley and Lukas	60	29.7	98	29.4
Owen	156	23	29	26
Russell	55	38	35	39
Total	1,907	....	1,600	....
Average	...	33.28	...	33.6

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[7] Reihler, M.: Statistische Erhebungen über die Resultate der Behandlung der Polyarthritis rheumatica mit Natron Salicylicum, München. med. Wchnschr., 1886, xxxiii, 368.

[8] Pribram, A.: Der acute Gelenkrheumatismus, Vienna, 1899.

[9] Hood, D.: Statistics in Connection with the Treatment of Acute Rheumatism by Salicylates, Lancet, London, 1881, ii, 1119.

[10] Miller, R.: The "Specific" Use of Salicylates in Acute Rheumatism: A Consideration of Practical Objections, Quart. Jour. Med., July, 1913, p. 519.

It would appear that salicylates are not the only therapeutic measures which affect favorably the acute symptom of rheumatism. High degrees of heat may act in much the same manner, causing the acute pain to disappear, only to return again after the treatment has been discontinued. So accustomed are we to use salicylates freely in all patients with acute arthritis that we are not in a position to judge of its value compared with other forms of treatment. During the past winter, for a period of two months, all acute arthritis patients on my service at Cook County Hospital received sweats and alkalies, but no salicylates; the temporary results were most gratifying. Tenderness and stiffness almost invariably disappeared within a week and the patient reported he was well. Within a week of the time the treatment was discontinued, however, 30 per cent. of these cases relapsed. The results, however, were very interesting, as shown that other agencies than salicylates have a decided favorable action on the acute symptom of acute articular rheumatism.

From the information at hand it would not appear justifiable to refer to the salicylates as a specific in acute articular rheumatism but rather as a drug which modifies the course of the disease, without actually shortening the period of infection.

All authorities agree that salicylates have not lessened the frequency of cardiac complication. Taking Pribram's statistics collected from various sources, 28.8 per cent. of cases receiving salicylates and 23.4 per cent. without salicylates developed cardiac complication.

Regarding the dangers of salicylates, these are confined chiefly to the effect on the kidney. It is very doubtful whether the condition ascribed by Lees to acid intoxication was really due to the drug, but rather to the intoxication from the disease. We have evidence from several sources that salicylates irritate the kidney and may excite a mild nephritis: Klieneberger and Oxenius,[11] Luthje, Frey and Glaesgen.[12] The disturbance, however, is temporary and soon subsides even though the salicylates be continued. According to Frey, the kidney irritation can be largely avoided by the use of alkalies. Gastric disturbances are common but not of a serious character, as they promptly subside when the drug is discontinued. Large doses at times may produce symptoms of collapse with slowing of the pulse and respiration. Seiler reports the death of a 7-year-old child after 5 gm. of sodium salicylate; Hogg, a death after two doses of 2 gm. each; Gubler, one after 10 gm.; Goodhart, one after doses totaling 3.6 gm. Quincke reports a death, in which the predominant symptom was dyspnea, after a three days' daily dose of 12 gm.

Since it has been possible to obtain cultures of a streptococcus from the joints of men with acute articular rheumatism, it might be thought possible to determine the effect of salicylates by a bacteriologic study of the joint contents. This is apparently impossible on account of the very transient presence of the germ in the affected joint. Rosenow has found that the micro-organism can be obtained only when cultures are made within a few hours after the appearance of the joint involvement. There remains the field of animal experiments, as joint involvement analogous to the acute articular rheumatism of man can be produced in rabbits by intravenous injection of the streptococcus obtained from the joints of man. Rabbits might be infected and one group then given salicylates and the remainder used as controls. Cultures could be made from the joints at frequent intervals to determine whether the micro-organisms are less abundant or disappear more rapidly in the treated animal. Here again the inconstancy of positive cultures and the difficulty of obtaining sufficient fluid from the joint to make a culture render this method unsatisfactory. Furthermore, frequent puncture of the joint is liable to lead to secondary pus infection. Another method of procedure is to place the animal under salicylates before the inoculation and determine whether this has any effect on the rabbit's susceptibility to joint involvement. If the salicylates act through their germicidal properties, it should be manifested in an experiment of this character.

Young rabbits were selected, as they are much more susceptible to joint infection. The salicylate in 5-grain daily doses was given subcutaneously. This dosage is not excessive, being equivalent to about 250 grains in man. It is true that this was given in a single dose, but none of the rabbits showed any immediate ill effects. Two series of six rabbits each have up to the present time been submitted to this test by Dr. D. J. Davis. In one series a streptococcus was obtained from the tonsils of a patient with acute arthritis; a second series was inoculated with a culture obtained by Dr. Rosenow directly from the joint of a patient with acute arthritis. In each series three rabbits received the salicylate for several days preceding and for a week or more following the inoculation. The other three rabbits did not receive salicylates. The six rabbits received simultaneously an intravenous injection of streptococci. The animals were then examined daily, the number and extent of joint involvement noted, and after the lapse of a week the animals were killed; the involved joints opened and examined. The two series of six rabbits each submitted to this test did not show that the salicylates had any effect either in preventing joint involvement, or modifying the intensity of the same. At a later date when this work is completed it will be published in detail.

SUMMARY

As salicylic acid after absorption circulates and appears in the tissues as a salicylate, it cannot act as a germicide unless the increased carbonic acid tension in the joint, the result of inflammation, reconverts it into salicylic acid. Statistics show that patients receiving salicylate are free from pain much earlier than those not treated. As the treated patients much more frequently relapse than the untreated, however, the total duration of pain in the treated and untreated patients may not be materially different. The period of stay in the hospital of patients receiving salicylate and of those receiving other forms of treatment is the same. Cardiac complications are not less frequent since the use of salicylates. In rabbits the prophylactic use of salicylate is of no value in preventing arthritis after intravenous injections of hemolytic streptococci.

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[11] Klieneberger and Oxenius: Ueber Urine und Urinsedimente bei normalen Personen, bei rheumatischer Erkrankungen und nach der Einwirkung von Salicylpräparaten, Deutsch. Arch. f. klin. Med., 1904, lxxx, 225.

[12] Glaesgen: Ueber Nierenreizung durch Salicylpräparaten und ihre Aufhebung durch Alkalizufuhre, München. med. Wchnschr., 1911, lviii, 1125.

ABSTRACT OF DISCUSSION

Dr. Warren Coleman, New York: My experience with salicylates in acute rheumatic fever is not in accordance with what would appear from Dr. Miller's analysis of cases. Has Dr. Miller considered the size of the doses which were used in certain cases? Some years ago a paper by Lees appeared in the *British Medical Journal.* His treatment of rheumatic fever with the salicylates differed materially from any which I had seen described. He recommended the use of salicylate up to 500 or 600 grains a day. I continued, however, to use 20 grains of a salicylate every two hours and 40 grains of sodium bicarbonate until recently, when the size of the dose has been increased. I have been greatly gratified by the results. Lees believes that the salicylates are just as specific for this disease as salvarsan is for syphilis or quinin for malaria. While I am not prepared fully to endorse this statement, the symptoms of the disease usually disappear in from twenty-four to thirty-six hours after the administration of the large doses. Lees states that the salicylates should always be combined with twice the quantity of sodium bicarbonate as otherwise a condition resembling acidosis may develop. Another point he makes is that the drug should be discontinued on any day that the patient's bowels do not move.

Dr. Lawrence Litchfield, Pittsburgh: Has Dr. Miller collected any observations as to the frequency of endocarditis? Krause believed that cases with full salicylic acid treatment showed a smaller percentage of endocarditis; and also in cases of tonsillitis in which rheumatic complications were feared he believed in giving salicylic acid. I know Krause believed in the specificity of salicylates for rheumatism and gave from 0.5 to 1 gm. every hour, day and night, until the patient improved. There was no mention of sodium bicarbonate or acidosis. His convictions must count for something even in the face of these statistics. The question is not whether the patients get salicylates, it is whether they get saturated with them. Krause used salicylic acid in this way and rarely needed to continue it more than twenty-four or, at most, thirty-six hours. When not well borne he gave diplosal, which I have found very satisfactory.

Dr. Bernard Fantus, Chicago: If I rightly understand the points made by Dr. Miller he did not deny value to salicylates in the treatment of rheumatism. I believe he admitted analgesic value; but the point made is that there was no diminution in the duration of the disease. With both of these propositions I can heartily agree. His statistics show that the salicylates do not seem to have antibacterial action in this disease.

Dr. Joseph L. Miller, Chicago: All these statistics were collected between 1876 and 1884. At that time 200 to 300 grains were given daily, so the objection to small doses does not hold good. The only point about Lees' paper which interests me is that relapses will occur and two-thirds of the relapses occur while the patient is taking the salicylates. Relapses, however, are fewer under larger doses than when smaller doses are given. I judge that the salicylates do modify the course of the disease just the same as sweats and heat modify it. The fact that the symptoms return after the stopping of the salicylates is proof of his fact. The duration, however, I believe is not especially modified.

Influence of Arabian Medicine.—The influence of Arabian medicine on modern medicine can, perhaps, best be judged from the number of words in our modern nomenclature, which, though bearing Latin forms, often with suggestion of Greek origins, still are not derived from the old Latin or Greek authors, but represent Arabic terms translated into Latin during the Renaissance period. Hyrtl, without pretence of quoting them all, gives a list of these which is surprising in its comprehensiveness. For instance the mediastinum, the sutura sagittalis, the scrobiculus cordis, the marsupium cordis, the chambers of the heart, the velum palati, the trochanter, the rima glottidis, the fontanelles, the alae of the nose, all have their present names, not from Latin, but from Arabic terms.—Walsh, *Makers of Medicine.*

ARTIFICIAL PNEUMOTHORAX AND PREGNANCY

CASE REPORT

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The case cited below is an interesting example of what the human organism may accomplish with a little help, and a striking example of the efficacy of induced pneumothorax under some very unfavorable circumstances.

History.—Mrs. F. W., aged 24, born in Illinois, was referred to me Jan. 1, 1914. Grandparents on both sides lived to 90 years of age and over. Mother died of pneumonia. Father died of pulmonary tuberculosis at age of 36. Two brothers and five sisters are living and in good health. One sister died of pulmonary tuberculosis at age of 19. Patient had none of the diseases of childhood, but has always been very frail. She married at 20 and gave birth to healthy baby boy two years later. She nursed baby for one month. About this date slight cough and expectoration appeared, and the patient had daily afternoon fever and began to lose weight rapidly. In February, 1912, she had sweats nightly for about one month. Tubercle bacilli were demonstrated in the sputum at this time. From February to August, 1912, treatment consisting of rest, outdoor living and forced feeding was tried in Illinois without material gain. In August, 1912, a change to Colorado was advised. Patient entered a sanatorium in Colorado Springs and remained there ten months. Fever gradually declined so that by the end of the third week in the sanatorium, temperature was normal and remained so for over ten months. During the first four months patient gained 22 pounds. Patient left sanatorium in June, 1913, 25 pounds heavier, pulse and temperature at a normal level, but still coughing and raising slightly in the morning. On leaving sanatorium she took up housekeeping, doing almost the entire house work. In August, 1913, she became pregnant. In September cough and expectoration increased considerably and afternoon fever of 100 reappeared. During November and December she lost strength and weight very rapidly, and had afternoon fever ranging from 101 and 102.5 at this period.

Examination and Treatment.—Jan. 1, 1914, patient was referred to me for examination and the performance of artificial pneumothorax if advisable. Physical examination showed a poorly developed and emaciated body. The left lung disclosed signs of active trouble from apex to base. Right lung was apparently clear. Temperature was 101, pulse 110. Artificial pneumothorax was advised

January 15, temperature at 11 a. m. was 99.6, pulse 112. At 8 p. m., temperature 101.5, pulse 120. Urinalysis: Specific gravity 1.020; no albumin or sugar; no casts.

January 16, the first injection, 900 c.c. gas, was given at 11 a. m. Temperature at 2 p. m. was 101, at 4 p. m. 101.6, at 8 p. m. 101.8. Pulse from 110 to 120. There was considerable pain and no sleep the first night, with abundant expectoration.

January 17, temperature at 8 a. m. was 98.2, 12 m. 99.2, 4 p. m. 99.6, 8 p. m. 100.2, pulse from 100 to 120. Expectoration was considerably less.

January 18, temperature at 8 a. m. was 98, 12 m. 98.8, 4 p. m. 98.6, 8 p. m. 98.6. Pulse from 100 to 110. There was very little expectoration after morning clearing out. On the morning of the 18th a second injection of 400 c.c. was given. Temperature remained normal from this date until two weeks before labor. Pulse ranged from 80 to 86. During this period patient gained rapidly in strength and 15 pounds in weight; cough and expectoration ceased entirely. The injections of gas were continued at regular intervals during the pregnancy.

Two weeks before labor patient had afternoon fever of from 99 to 100. Urinalysis at this date revealed a specific gravity of 1.032; albumin, trace; no sugar; no casts. Fever continued until two weeks after labor, after which temperature gradually dropped to normal, pulse ranging from 80 to 96, which conditions have existed without variation up to present date. No cough or expectoration. Labor occurred April 29, 1914, was of seven hours' duration and normal in every respect. One hypodermic injection of pituitary extract was administered fifteen minutes before delivery of head.

Recovery was uneventful. Temperature became normal two weeks after confinement, and at the end of the third week patient was able to be wheeled out in chair. Six weeks from date of labor patient was up and out and apparently well in every respect. Gas injections are still being administered at regular intervals.

In my experience with artificial pneumothorax, now numbering over sixty cases, I have had but one case of pregnancy in the series, from which one cannot draw conclusions. I simply wish to add this testimony to other data now in the process of collection, from which some conclusions may be drawn at a later date.

INTESTINAL STASIS

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The term "intestinal stasis" originated with Sir Arbuthnot Lane. The chronic variety of intestinal stasis this eminent surgeon[1] defines as follows:

> Such an abnormal delay in the passage of the intestinal contents through a portion or portions of the gastro-intestinal tract as results in the absorption into the circulation of a greater quantity of toxic or poisonous materials than can be treated effectually by the organs whose function it is to correct them into products as innocuous as possible to the tissues of the body.

The main cause for chronic intestinal stasis Lane attributes to visceroptosis and formation of kinks. Bainbridge,[2] one of Lane's most ardent followers, says:

> The natural outcome of this kinking of any portion of the drainage tube is obstruction of the lumen of the intestine at the point of the kink with "puddling" in the dependent portion, damming back and infection of the contents, and general slowing of the drainage of the canal.

The symptoms are briefly, headaches, nausea with vomiting, anorexia, loss of weight, cold extremities, mental apathy, constipation, bad taste in mouth, abdominal distention, muscular pains.

The diagnosis is based on the discovery of existing visceroptosis or intestinal kinks (which are best demonstrated by Roentgen rays), in conjunction with a delay in the intestinal prochoresis. For the recognition of the latter Patterson uses the charcoal test. He gives two teaspoonfuls of charcoal and gauges the time of its appearance in the stool. If charcoal does not appear within sixty hours, there is intestinal stasis.

The treatment consists, in mild cases, in an appropriate abdominal support and the administration of liquid paraffin, and in severer cases, in ileocolostomy (short circuiting the bowel) or colectomy.

This, in short, is a brief résumé of Sir Arbuthnot Lane's teaching.

This subject is not a mere theoretical one but presents issues of great practical importance, dealing sometimes with situations endangering life.

I feel forced, therefore, to lay my views, which are quite contrary to Sir Arbuthnot Lane, before the profession.

I would like to mention first that visceroptosis giving rise to intestinal angulations (designated as "kinks" by Lane, and the formation of partial stenoses with delayed prochoresis, originated with F. Glénard. Whatever credit be due for this conception, it belongs to Glénard and not to Lane.

The second point, that of intestinal stasis leading to the absorption of poisons within the intestine, or auto-intoxication, is a theory which was advanced long ago, principally by French clinicians, Bouchard, Combe, and others. This theory has been made by Lane and his disciples the foundation for their plan of treatment. The digestive canal is called a "drainage tube" and compared to a sewer system, in which any clogging must cause disaster.

For our own satisfaction let me say that our organism is not so poor an engine as it is depicted by the adherents of the "stasis" theory. If our body is resourceful, as you all well know, in adequately fighting enemies that it has never before encountered—pneumonia, typhoid fever, etc.—how much more must we expect from it in the way of every-day defenses. It is surely well fitted to debar the entrance of harmful digestive products through the intestinal wall, for this is a continuous happening.

Unless there is a real mechanical obstruction or some substantial organic lesion interfering with the intestinal current, a temporary delay or stasis of the contents may not mean much. At times this delayed prochoresis may serve to make absorption more complete, and is encountered in instances of insufficient nutrition.

Now a word with regard to the auto-intoxication theory, as far as it concerns intestinal stasis or habitual constipation (for this is only another name for it). Constipation does not cause auto-intoxication. For, occasionally, a patient may have no bowel movement for several days and present no abnormal symptoms whatever. The symptoms frequently associated with chronic constipation may be ascribed to nervous disturbances, and not to auto-intoxication. Reassurance and nerve sedatives will often do more good than drastic measures.

We now come to the last point, namely, that of treatment. In mild cases Lane, following Glénard, recommends an appropriate abdominal supporting bandage. To this I fully agree. In the severer type Lane recommends operative measures; ileocolostomy or colectomy. With this radical plan of treatment most clinicians and some eminent surgeons do not agree.

If we did not need the colon, which is an organ of considerable length, we would not have it, or it would show decided signs of degeneration; but this is not the case.

Ileocolostomy, or colectomy, is justifiable in cases of cancer or stricture of the bowel, but not in functional disturbances. Albu[3] has shown that while it is possible to exist without a colon, an individual deprived of this organ is subject to great dangers and easily succumbs to intestinal diseases with which an ordinary person can cope without difficulty.

In addition, there are the dangers of the operation, and ultimately the uncertainty of a cure after exclusion or removal of the colon.

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[1] Lane, W. A.: Surg., Gynec. and Obst., November, 1910.

[2] Bainbridge, W. S.: A Contribution to the Study of Chronic Intestinal Stasis, Med. Rec., New York, Sept. 27, 1913.

[3] Albu, A.: Versuche über Ausschaltung des Dünn- und Dickdarms, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, xix, Part 5, p. 852.

Therapeutics

PREVENTION GREATER THAN CURE

LIFE PROBLEMS

The "survival of the fittest" begins with the germ of reproduction, goes through embryonic life, through parturition, through infant life, through childhood, and presumably should be considered as ultimately satisfied at 20 years of age, but it is not perfectly satisfied until another individual emanating from this "fit" individual of 20 years or more has also reached the age of 20. Such, theoretically, may be considered the "survival of the fittest."

It is the object of this series of articles to cause medical men to review the knowledge already acquired of the means and methods of causing more "fit" to be born, and more "fit" to survive and have their health unimpaired by preventable disease.

To show how lavishly nature provides at the start for the survival of the fittest, it should be noted that each human male having normal sexual health and living until the age of 60 is said to produce more than 300 billions of spermatozoa, while the ovaries of the human female are said at puberty to contain about 30,000 eggs. This is not to suggest that the world would be happier with an enormous increase of individuals, but it will be happier, and there will be less poverty, if there are more normal individuals and fewer abnormal ones. The economic value of wars and plagues need not be discussed, but it should be remembered that the strongest men (the most "fit") are the ones who die in battle, and that pestilences destroy the "fit" as well as the "unfit."

The great sterilizer of men and women, especially the latter, is gonorrhea; the great abortionist is syphilis. And again, these diseases are likely to be acquired by the "fit" among our men, and, unfortunately, often innocently acquired by the "fit" among our women. Therefore, war, pestilence, gonorrhea and syphilis entail an inferior progeny, and hence economically and socially are deplorable.

Most infectious diseases leave the individual less "fit," although after surviving an acute onslaught of some one or more of these diseases he may acquire an immunity to the germs and to infections in general, and he may even, as years go on, transmit more or less of such immunity to his offspring. Or, on the other hand, he may transmit a susceptibility to certain germs to his offspring. Most severe attacks, and even mild attacks, of infection leave permanent marks on the individual, even though he survive. Hence the great purposes of medical men, to-day, are: (1) to prevent disease; (2) to produce antivaccines that will protect or cause immunity to a disease without so disturbing the organism as to cause permanent lesions or damage to tissues; (3) if an antivaccine cannot be produced, to discover an antitoxin that will rapidly inhibit the infection when it occurs; (4) to advance physiology and chemistry so that the needs of a defective organ may be supplied by the organic extract or chemical stimulant that it needs; (5) to disseminate the knowledge now acquired as to proper hygiene, proper diet and food values, and the methods of acquiring not only infectious diseases but also chronic organic diseases and thus to stave off preventable diseases and postpone diseases due to age.

THE COLON BACILLUS

We harbor, more or less normally, some germs that may become pathogenic, notably the colon bacillus. The part this germ plays in causing acute inflammation or chronic disintegration of organs is variously stated, but it seems ever ready to attack us when our armies of protection are reduced in number or are otherwise engaged. It has been suggested that this germ or its toxins may be a cause of neurasthenia, arteriosclerosis and chronic nephritis, if not of liver disturbances and cerebral disturbances. It has been shown to cause appendicitis, cholecystitis, and perhaps pyelitis. It is thought by some to be a cause of the ever-frequent duodenal and gastric ulcers. It may play an important part in the pernicious anemias, which are now thought to be generally due to an infection. Not infrequently, in acute disease, complications occur which are attributable to the colon bacillus or its toxins. Often some chronic catarrh has been shown to be complicated, if not caused, by infection with the colon bacillus.

Whether there are other normal bacilli in the human body that under certain conditions may become pathogenic has not been discovered, but certain it is that in the prevention of disease we must take into consideration not only the infective but the putrefactive power of the colon bacillus. The prevention of putrefaction in the intestines will promote the immediate health of the individual and may prevent or postpone future organic disease.

Not to discuss the treatment of localized infection from colon bacilli, it may be stated that the treatment of intestinal putrefaction is, unfortunately, unsatisfactory. The prevention of constipation, withholding meat, including fish and poultry, from the diet, the administration of lactic acid bacilli as such or as soured milk, or the administration of yeast, and the cure of any gastro-intestinal inflammation that may be present by proper dietary, medicinal or surgical treatment, may prove very successful for some years in staying or preventing intestinal putrefaction. Although later to be discussed, it may be here urged that healthy teeth and gums are essential factors in the cure of intestinal fermentation.

SLEEP

This is a necessary and not sufficiently discussed part of our daily life. About one-third of each day of an adult's life should be spent in restful, natural sleep. Some individuals require more than others, but eight hours is the average requirement. Loss of consciousness, not syncope, not coma, not stupefaction by drugs, constitutes normal sleep. People who are not mentally alert, who are heavy and stupid or who are mentally insufficient sleep easily. This is true of cretins, of those of low mentality, of the absolutely illiterate (those who have little to think about), and of the very obese (in these cases drowsiness may be due to the amount of blood needed and circulated in the fat). Individuals who are anemic are likely to be sleepy and require more sleep. Children, young children especially, require much more sleep than adults, as their active brains become more readily fatigued.

The conditions favoring normal sleep are probably (1) fatigue products circulating in the brain or causing vasodilatation of the abdominal and peripheral circulation; (2) anemia of the brain more or less relative to that during consciousness, and (3) diminished cerebral reflex stimulation from external stimuli due to the dulling influence of fatigue products on reflex cerebral or spinal irritability, or it may be that such products circulating in the blood dull the senses and the peripheral sense nerves, or both.

During sleep the pulse is slowed and the brain contains less blood, while the other organs of the body contain more blood. The blood-pressure is lowered. The eliminative glands are more active, notably the sweat glands and the kidneys, but the secreting glands are diminished in activity. During sleep cellular repair takes place, final products of metabolism are formed and excretion is promoted.

Normal sleep cannot be produced by hypnotic drugs, although unconsciousness may be caused and the patient made to sleep. Under the action of hypnotics one or many organs do not functionate and cannot normally act, and the resultant sleep is inferior to natural sleep. Perhaps the most normal hypnotic is that which causes sleep by lowering the blood-pressure and causing anemia of the brain.

High blood-pressure, hysteria, etc., are causes of sleeplessness, and in these and many other conditions sleep must be brought about by physical methods, if possible; or it may be necessary to have recourse to drugs. Absolute insomnia is dangerous and must be stopped, but the continued use of hypnotic drugs invites only disaster, though the temporary use of such drugs may soon promote normal sleep and may actually save life. In fact, not enough thought is given by physicians to the amount of sleep that their patients obtain. Regulation of the sleep should be aimed at by every physician in every case requiring his care.

On the other hand, too much sleep is disastrous; the individual's brain becomes sluggish and incompetent, overpassive congestion of the abdominal organs takes place, sluggish metabolism occurs, constipation, kidney disturbances and a weakened circulation are the results. Patients who complain of being, or whom questioning shows to be, abnormally sleepy are pathologic and need medical advice. Overeating, alcohol, cerebral plethora, obesity, failing circulation and subthyroid secretion may all be causes of sleepiness. The cause being discovered, the treatment is self-evident.

Among the most frequent causes of insomnia are peripheral irritations, mental anxiety and hyperthyroid secretion.

WATER

The amount of water that should be taken is important, and quite generally is neglected by physicians in treating their patients. It is not a physiologic crime or a sign of a beginning pathologic condition to arise once at night to urinate (insurance examination blanks to the contrary notwithstanding), in cases in which the patient drinks a glass or two of water before retiring, which is not an infrequent habit. If the emunctories are to properly work during sleep, water is needed, and it should not be withheld. There is no intention in the above to minimize the importance of the symptom of arising several times at night to urinate as an indication of high blood-pressure and kidney, bladder or nervous irritability.

Water in plenty is an essential part of the diet at all times, and especially should goodly amounts of it be ordered in most conditions that require medical treatment. It is absurd to allow the "water cures" to do all of the ordering of this simple sanitary flushing commodity.

Before all operations, if there is time (that is, if it is not an emergency case), large amounts of water as well as plenty of starchy (carbohydrate) food should be given. After an operation the giving of a colon injection of from one pint to one quart of physiologic saline solution is good practice, and if the patient after operation receives such injection he will have less toxemia, less vomiting, better acting skin and kidneys, less headache and more sleep.

On the other hand, let us decry the thoughtless ordering of large amounts of water, or lithiated or other fool water, for patients who may be gouty and have defective kidneys, but who also have impaired circulation. An albuminuria from heart or kidney defect rarely calls for large amounts of water. Excessive amounts will weaken the circulation and cause congestion of the kidneys and dropsies.

The best time for taking extra water, that is, besides the normal goodly amount with meals, is three hours after eating. A considerable amount of water taken with a meal does not diminish or slow digestion; neither does a large amount of water taken between meals diminish the hydrochloric acid of the stomach. Hence water increases and does not inhibit gastric efficiency, and it promotes intestinal health. In cases of gastroptosis or gastric dilatation, large amounts of water may increase distress by overburdening the stomach, which does not readily empty itself.

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association. Their acceptance has been based largely on evidence supplied by the manufacturer or his agent and in part on investigation made by or under the direction of the Council. Criticisms and corrections are asked for to aid in the revision of the matter before publication in the book "New and Nonofficial Remedies."

The Council desires physicians to understand that the acceptance of an article does not necessarily mean a recommendation, but that, so far as known, it complies with the rules adopted by the Council.

W. A. Puckner, Secretary.

HEPCO FLOUR.—Hepco flour is a flour prepared from the Soya bean and has approximately the following composition: protein 42.9; carbohydrate 22.4, of which less than one-half readily yields sugar; fat 20.8; ash 5.1; fiber 4.2; water 4.6.

Actions and Uses.—It is claimed that clinical trials have shown that the carbohydrates in hepco flour are, in the main, not sugar producing and that therefore hepco flour is a suitable food material in cases in which carbohydrates are contra-indicated, as diabetes, amylaceous dyspepsia, etc. It has also been suggested for use in the diet in obesity. The nutritive value of 500 gm. of this flour corresponds to approximately 820 calories due to protein and 900 calories due to fat.

Manufactured by the Waukesha Health Products Company, Waukesha, Wis. No U. S. patent. U. S. trademark applied for.

Hepco Dodgers.—Hepco dodgers is a biscuit prepared from and having approximately the same composition as hepco flour.

Hepco Grits.—Hepco grits is a granulated "breakfast food" made from and having approximately the same composition as hepco flour.

To prepare hepco flour, Soya beans are cleaned and cooked with a little salt, then dried and ground. The flour is sifted and reground.

Hepco dodgers are made according to the following recipe: 1¼ pounds hepco flour; ½ teaspoonful of salt; mix well and add ¾ cupful of milk and 1 cupful of cold water; 2 eggs which have been thoroughly beaten; beat the whole mixture together into a cooky batter, roll out to ¼ inch thickness, cut with a cooky cutter and bake on well-buttered tins in hot oven. This recipe will make about three dozen dodgers. The dodgers are made up for shipping purposes by having a pure gelatine mixed in with the flour and then rolled out.

Hepco grits are made according to the recipe for hepco dodgers. The material is thoroughly dried out and put through a bread crumber.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, SEPTEMBER 26, 1914

THE ETIOLOGY OF PELLAGRA

Recently[1] we discussed the theory put forward by Alessandrini and Scala that drinking-water, because of the presence of silica in colloidal solution, was of consequence in the causation of pellagra. This theory is a novel one in that the relation of silica to the disease had not previously been advanced.

Although pellagra has been known and studied for nearly two centuries, not only is its essential cause unknown, but the broad question whether it is to be classed as a dietary or a communicable (contagious or infectious) disease has never been definitely determined. The spoiled-maize theory has for many years been the favored theory abroad, but its correctness has, for various reasons, been questioned by many. In this country there has arisen, both in the lay and in the medical mind, the opinion that pellagra is to be classed among the infectious diseases. This view has received important support, first, from the Illinois Pellagra Commission[2] and, more recently, from the Thompson-McFadden Commission[3] (Siler, Garrison, and MacNeal).

In a recent issue of the United States *Public Health Reports,* Goldberger[4] gives a summary of certain work now being done by the United States Public Health Service on the study of pellagra, and advances some most suggestive facts which do not in any way support the infection theory, but strongly point to the belief that pellagra is a disease essentially of dietary origin; that it is brought about in some such way as, for example, by the absence from the diet of essential "vitamins," or possibly, as is suggested by the work of Myers and Voegtlin,[5] on the presence in vegetable foods of excessive amounts of a substance such as soluble aluminum salts. Goldberger states that a large series of monkey inoculations were begun a year ago by Lavinder, Francis and Lorenz at the Marine Hospital in Savannah and that, although over one hundred animals were inoculated in every conceivable way and with practically every tissue, secretion and excretion from patients in a number of grave and fatal cases, the results up to the present have been negative.

A study by Willets of the records of the Georgia State Sanitarium showed that of 996 patients admitted during 1910, excluding those who died, were discharged during their first year, or had pellagra on admission or within a year of admission, there remained at the institution after one year, 418. Of this number, 32 or 7.65 per cent. have developed pellagra since that time. Of the present employees at the asylum, 293 have been in more or less intimate association with pellagrins and have lived in substantially the same or in identical environment for at least one year. Had pellagra developed among these employees at the same rate as it did among the inmates, 22 of them should have developed the disease. As a matter of fact, not one has done so.

The studies at the orphanage at Jackson by Waring show that on July 1, 1914, of 211 inmates, 68 or 32 per cent. had pellagra. A study of the distribution of these cases with respect to age brought out the remarkable fact that practically all the cases were in children between the ages of 6 and 12 years, of whom over 52 per cent. were affected. In the group of 25 children under 6 years of age there were 2 cases and in the group of 66 children over 12 years old there was but one case. The author states that inasmuch as all the children live under identical conditions as to environment, the remarkable exemption of the group of children under 6 and over 12 years of age is no more understandable on the basis of an infection than is the absolute immunity of the employees at the Georgia State Sanitarium.

A searching inquiry was made at both institutions covering all conceivable factors that might possibly explain the striking exemption of the groups referred to and the only constant difference discovered related exclusively to diet. It was found that at both institutions those of the exempt groups were found to subsist on a better diet than those of the affected groups. In the diet of those developing pellagra there was noted a disproportionately small amount of meat or other animal protein food; and the vegetable component, in which corn and syrup were prominent and the legumes relatively inconspicuous elements, formed a disproportionately large part of the ration. Other than this gross defect, no fault in the diet was appreciable and the author believes that the evidence clearly points to it as the cause of the pellagra at the two institutions.

In this connection it is of interest to note that the Illinois Pellagra Commission[2] in their report state that the total population of the Peoria State Hospital dur-

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1. Pellagra and Potable Waters, editorial, The Journal A. M. A., Sept. 5, 1914, p. 868.
2. Pellagra in Illinois, Condensed Report of the Illinois Pellagra Commission, Arch. Int. Med., August, 1912, p. 123, and September, 1912, p. 219.
3. Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: Pellagra. A Summary of the First Progress Report of the Thompson-McFadden Pellagra Commission, The Journal A. M. A., Jan. 3, 1914, p. 8.
4. Goldberger: United States Pub. Health Rep., Sept. 12, 1914.
5. Myers, C. N., and Voegtlin, Carl: Soluble Aluminum Compounds. Their Occurrence in Certain Vegetable Products, Pub. Health Rep., June 19, 1914, p. 1625.

ing the epidemic of 1909 was about 2,100 and of these there were at least 8.4 per cent. with pellagra. Yet during that period none of the employees suffered from the disease, in spite of the fact that they were exposed fully as much to the bites of insects and drew their food and water-supplies from exactly the same sources as the patients. "This freedom from pellagra on the part of the physicians, nurses, attendants and other employees has been absolute in all of the institutions." That Commission found that most of the patients with pellagra belonged to the chronic insane composed of "the defectives, senile dements, epileptics and the terminal stages of dementia praecox."

Goldberger believes that the deteriorated mental condition, causing apathy and indifference, results in an eccentricity in the diet and that this, in conjunction with a diet admittedly low in animal protein components, explains the excessive prevalence of the disease at the Peoria institution, a hospital almost all of whose inmates in 1909 were of the hopeless, incurable class drawn from the other Illinois institutions.

THE DISTRIBUTION OF UREA IN THE BODY

It requires no argument to establish the importance which urea has in the chemistry of the living body. Any substance which is formed in the organism to the extent of 30 gm. or more a day, and which is ordinarily excreted with extreme promptness, deserves consideration as a product which needs to be handled appropriately by the normally functioning individual and as a possible factor of danger in disease. Despite the abundance of information regarding the occurrence of urea and its antecedents in the body, it is surprising that so little quantitative information has been available with respect to its distribution in the blood and tissues. The explanation for the paucity of data of this sort is doubtless to be found in the lack of easily applied methods of analytic study applicable to this nitrogenous excretory product. The introduction of the urease method[1] of measuring the content of urea has furnished a peculiarly suitable procedure for ascertaining something further about the distribution of urea under various conditions of health and disease. By the use of this method in the laboratories of the Johns Hopkins Medical School Drs. Marshall and Davis[2] have secured valuable statistics in this field.

Hitherto there has been a widespread belief that the genesis of urea is restricted to special organs, among which the liver has been assumed to exercise a dominant rôle. That other parts of the body are not without significance in urea formation could no longer be denied when it was found that this substance continued to be excreted in not inconsiderable quantities after more or less complete exclusion of the liver in experimental animals. In such cases the muscles have been assumed to play a dominating part. The newest investigations, on the other hand, have proved more conclusively than ever that urea occurs in all of the organs and tissues of the body. More significant than this wide-spread distribution, however, is the fact that it occurs throughout the body in approximately uniform concentration. This is true both in normal conditions and in cases in which, owing to such interference with excretion, an abnormally large amount of urea is present. An exception to the rule is found in the case of fat. This fact, however, is not surprising in view of the well-known slight solubility of urea in fats and the added fact that only relatively small amounts of water are present in adipose tissue. The somewhat higher content of urea found in the kidneys and other parts of the urinary tract is readily understood as the result of the unavoidable contamination of these organs with urine.

The approximately uniform distribution of urea throughout the body is also found when the urea content has been increased either by injections of urea or by interference with excretion by the kidneys, or by both means. The body cells appear to be able to take up surprisingly large quantities of the substance. The diffusion of urea to all parts of the body is accomplished very quickly. For example, no matter how soon blood is withdrawn after the end of an injection of urea a large part of this nitrogenous material has already gone out of the circulation. In view of this fact it is not difficult to understand why the concentration in the blood is never essentially higher or lower than that in the tissues themselves. Furthermore, urea is eliminated with extreme rapidity by the kidneys. The rate of excretion in normal animals is directly proportional to the concentration of urea in the blood. It may be retarded, however, after a certain amount of dehydration has occurred, that is, when elimination cannot be accomplished owing to lack of water for the kidneys to secrete. If water is then given, urea is again thrown out at an increased rate. There are doubtless few, if any, substances with which the body cells come in contact that permeate all kinds of cells so readily and that are eliminated so easily as is urea. As Marshall and Davis have pointed out, it is clearly the most desirable form into which nitrogen could be put for elimination from the body.

When the excretion of urea is prevented, either experimentally or by disease in the case of nephritics, the entire amount formed is stored in the body with the exception of small amounts secreted in the bile, sweat, etc. Here, again, its distribution is very general and uniform. No evidence whatever has been obtained of the possible transformation of urea into other substances in the body. This fact, taken in connection with the ease with which urea is distributed, excreted, or stored up as the case may be, is not without significance in relation to the symptoms observed in uremia. The chemical and physiologic properties of urea are such that it ought to be a non-toxic substance and the newer experiments show it to be non-toxic in any moderate or fairly large amounts. Only when introduced in enormous doses so that it approaches a concentration of 1 per cent. of the tissues in general does it produce a fatal effect. For this reason the Baltimore investigators conclude that it is improbable that urea is the only toxic agent in uremia, as has been supposed by some writers, although it may take some share in producing the symptoms of this condition.

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[1] Marshall, Jr., E. K.: A Rapid Clinical Method for the Estimation of Urea in Urine, Jour. Biol. Chem., 1913, xiv, 283; A New Method for the Determination of Urea in Blood, ibid., xv, 487.

[2] Marshall, Jr., E. K., and Davis, D. M.: Urea: Its Distribution in and Elimination from the Body, Jour. Biol. Chem., 1914, xviii, 53.

The foregoing observations illustrate how greatly our knowledge of the chemistry of the organism is advanced when quantitative methods can be brought to bear on its problems. For additional illustrations one need only refer to the great advances which have been made in recent months in following the distribution of other so-called catabolites, such as creatin, creatinin, uric acid, and the amino-acids, in the blood and tissues. Indeed, blood and tissue analyses have emerged into new prominence in the laboratory. It is surprising to realize that until this period, the extent to which urea may be stored in the tissues has never been accurately determined. The newer researches have served to clear up many earlier conflicting and unsatisfactory data. They have demonstrated that retention of urea is a regular occurrence in certain cases of severe nephritis, and that the amount of urea in the blood does not account for the amount theoretically present in the organism. Finally, they have furnished evidence of an increase in the urea content of tissues in cases in which the blood urea is abnormally high. Contributions of this sort are certain to help clear up the pathology of conditions like uremia before long.

EARLY HUMAN REMAINS IN AMERICA

The determination of the age of the earliest human remains found on the American continent is of great interest. Until a few years ago North America was supposed to offer the most valuable evidence in this regard, though the Bureau of American Ethnology declared in 1907 that "no specimen had come to light in the northern continent which from the standpoint of physical anthropology represented other than relatively modern man." At that time some "apparently epoch-making discoveries" were reported from the Lagoa Santa Caves of Brazil, together with numerous finds of bones and cultural objects in Argentina. As a result the attention of the world was attracted to these places and there was a renewal of the story of Atlantis, the origin and descent of the human race being traced from very primitive anthropoid forms of South America. More recently interest has reverted to North America from the discovery of human remains in an asphalt deposit at Rancho La Brea in Southern California. A preliminary report on these was read before the Museum of History, Science and Art of Los Angeles, June 11, 1914, by John C. Merriam.[1]

The Bureau of American Ethnology was so much interested in the South American finds that two experts were sent to conduct an impartial investigation into the scientific significance of the discovered objects. Dr. Ales Hrdlicka went as the anthropologist and Mr. Bailey Willis of the United States Geological Survey as geologist. The material brought home from the various beds by the Hrdlicka-Willis expedition was submitted to the paleontologist of the United States Geological Survey and to the Geophysical Laboratory of the Carnegie Institution of Washington for an exhaustive investigation of their physical character and conditions of origin. Almost needless to say, the scientific criteria determined on were thorough and such as were calculated to the best possible degree to secure reliable results.

The conclusion was, "It seems quite evident that the human remains from the Lagoa Santa Caves cannot be accepted without further and more conclusive proofs as belonging to a race which lived contemporaneously with the extinct species of animals found in the same caves; and there is no reliable foundation for the remainder of the data relating to the specimens on which geologic antiquity can be based."

A similar unfavorable conclusion was reached regarding the antiquity of the skull taken from the harbor of Buenos Ayres. On this was based the theory of *Diprothomo platensis,* so called from the River Platte, in which the skull was found. The specimen had been taken from the oozy bed of the river when the workmen were excavating a rudder pit for the dry dock at Buenos Ayres. In geologic age, according to Professor Ameghino who wrote about it, it was a remnant from the Lower Pliocene and had originally belonged to a second or premediate precursor of man as part of his brainpan. He asserted that as to conformation it was older and less developed than the famous Neanderthal skull. Careful examination, however, showed that the facial angle is practically the same as in the average Indian. Dr. Hrdlicka says, "The Buenos Ayres skull fragment fails utterly to reveal any evidence which would justify its classification as a representative of a species of ancient primates, premediate forerunners of the human being, the *Diprothomo.* Every feature shows it to be a portion of the skull of man himself; it bears no evidence even of having belonged to an early or physically primitive man, but to a well-developed and physically modern-like individual."

Mr. Bailey Willis, the geologist of the North American expedition, after a careful investigation of the circumstances of the find and an examination of the character of the river bank, finds that he can give no weight to the theory that "the unknown workman who found the skull and gave it to the foreman really dug it out of undisturbed ancient pampean." The question of provenience is the crux of the whole matter of determining the age. It is this question also that has arisen with regard to the Rancho La Brea discoveries, that is, whether the materials existed originally in the associations in which they were subsequently found. In asphalt chimneys or tar pits such as are now being excavated at Rancho La Brea, materials may and indeed almost necessarily do move in the course of time, and their present associations do not necessarily determine their age. Objects of very different ages may have drifted together by gravity in the viscous material in which they lie buried.

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[1] Merriam, John C.: Science, Aug. 7, 1914.

The conclusion of the preliminary report, then, is that, while it is not possible to give a definite estimate of the age of the skeleton found, it belongs to a distinctly modern stage of evolution. It does not necessarily belong to the present historical period, but cannot be considered as having antedated it by many thousands of years. Merriam considers it well worth exhaustive scientific investigation, and the last word on the subject cannot be written until a great deal more study has been given the objects found. The associations are with specimens distinctly later in age than the typical Rancho La Brea fauna, which come from a very old geologic period. According to Dr. A. L. Kroeger, the racial characteristics do not differ decidedly from those of persons whose remains have been excavated in mounds on Santa Rosa Island off the coast of Southern California. While the question of antiquity is undecided, every evidence which we have would seem to point in North as well as South America to the comparatively recent origin or occurrence, geologically speaking, of man on our continent.

RESUSCITATION FROM MINE GASES

The Report of the Committee on Resuscitation from Mine Gases, appointed by the Council on Health and Public Instruction of the American Medical Association at the request of the Bureau of Mines of the Department of the Interior, has just been published by the Bureau.[1] This commission, which grew out of the work of the Joint Committee on Resuscitation from Electrical Shock, appointed by the Council from the Fellows of the American Medical Association, the National Electric Light Association and the American Institute of Electrical Engineers, consists of Dr. Walter B. Cannon, Chairman, Professor of Physiology, Harvard University; Dr. George W. Crile, Cleveland; Dr. Joseph Erlanger, Professor of Physiology, Washington University, St. Louis; Dr. Yandell Henderson, Professor of Physiology, Yale University, and Dr. S. J. Meltzer of the Rockefeller Institute for Medical Research. This committee was requested by the director of the Bureau of Mines to carry on investigations for the development of an efficient method of resuscitation which may be administered by miners and other persons who have not had medical training, but who frequently have the opportunity to treat fellow workmen overcome by mine gases in places, generally in mines, that a physician or surgeon cannot reach in time to save life.

The committee reports that it has visited mines in the bituminous and anthracite coal regions of Pennsylvania, has met and talked with men of wide practical experience, witnessed demonstrations of artificial respiration by different methods and examined them critically, studied all the available mechanical devices for maintaining breathing and carried on a considerable amount of experimental investigation into the best methods of resuscitation following the inspiration of mine gases.

The report reviews the physiology and pathology of carbon monoxid poisoning, discusses the Sylvester and Schäfer methods of artificial respiration and, following the course laid out in the previous report on resuscitation from electrical shock, strongly recommends the Schäfer method on account of greater simplicity and ease of performance, absence of trouble from the tongue blocking the air passage, lessened danger of injuring the liver or breaking the ribs and larger ventilation of the lungs. The first three of these advantages were apparent. On the fourth point, larger ventilation, the commission instituted a series of experiments both on men and animals which convinced the committee that the prone pressure method of Schäfer is the most effective means of artificial respiration. Regarding the mechanical devices, four machines are now on the market, the Draeger pulmotor, the Dr. Brat apparatus, the lung motor and the Salvator. The pulmotor and the Dr. Brat apparatus were investigated and tested by the committee and were disapproved. It was found that "repeated suction of air from the lungs is not physiologic and if continued, is apt to result in injury to the lungs and inadequate inflation." In connection with the experiments of the commission on mechanical appliances, Dr. Meltzer has devised an apparatus which is easily and quickly applied and which the committee recommends on account of its certain action, the freedom from suction in expiration, and its lightness, cheapness and simplicity. A description of the apparatus and directions for its construction are contained in the pamphlet. This apparatus has already been described by Dr. Meltzer in THE JOURNAL.[2]

Summing up its experience and findings, the committee recommends artificial respiration in all cases of gas poisoning and, as mechanical devices are seldom at hand, manual methods are recommended for first aid. Of these the prone pressure method is recommended unless the patient is suffering from some local wound which makes this impossible, in which case the Sylvester method may be substituted. In all cases of carbon monoxid poisoning, oxygen should be given instead of air. If the victim is still breathing spontaneously, oxygen may be given by fastening to the face a mask provided with outlet valve and an inlet valve, connected with a bag provided with oxygen from a cylinder. The Meltzer apparatus is recommended as the best of the mechanical devices available.

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[1] The report is designated Technical Paper No. 77, and can be obtained by sending 5 cents to the Superintendent of Documents, Government Printing Office, Washington, D. C. It should be obtained by all interested in this subject.

[2] Meltzer, S. J.: Simple Devices for Effective Artificial Respiration in Emergencies, THE JOURNAL A. M. A., May 10, 1913, p. 1407.

This report together with the report on resuscitation from electrical shock are notable and valuable contributions to our practical and scientific knowledge of the causes, conditions and treatment of these industrial accidents. The *Electrical World* at the time the report of the Committee on Resuscitation from Electrical Shock was published, reprinted this report in large quantities and distributed them with the accompanying chart, to electrical plants, powerhouses and stations all over the country. They have been translated into a number of foreign languages and are recognized as standard and authoritative monographs on this subject. The report of the Committee on Resuscitation from Mine Gases is equally valuable and worthy of a similar wide-spread distribution. The work done by the members of these two commissions is a credit to the medical profession and the Association which they represent.

WORK FOR THE SAKE OF HEALTH

Extensive alterations in the social and industrial conditions of large groups of individuals almost always incidentally bring about changes in their hygienic situation. As a general rule, when the changes are in the direction of what we regard as social betterment the conditions of living are improved, sanitation is cultivated in greater measure, and the promotion and preservation of health follows as a natural consequence. A study of such movements reveals the advantages, from the point of view of both public and personal hygiene, that have followed the pure food crusades, the campaign against alcoholism, child-welfare innovations, investigations of institutional management, regulation of industrial conditions in respect to hours of work, factory inspection, etc.

There are, strange as it may seem at first thought, certain modern industrial changes which carry with them detrimental features that are not apparent on the surface. A growing group among whom the amount of muscular work done is small in comparison with the daily activities of their ancestors is coming into existence. We are not referring here to the fact that shorter hours of work have everywhere become the custom—that the blacksmith who formerly toiled twelve hours now completes his working day in eight hours. The changes which we have in mind here are a consequence of altered methods of conducting business with the modern extension of commerce. Machinery has replaced muscle. The development of the industries by machinery has called for a different type of human working-power in which skill rather than strength is required. As a modern writer[1] has expressed it, the bodily qualities of the worker have been forced by the employer more and more into the background of valuation. Industrial factory work requires not so much strong men as persons who can perform with skill the many small tasks which the machines have so far not been able to perform. Hence the tendency to employ children, half-grown persons and women.

More significant than this is the fact that the number of those who do little manual labor has increased greatly. This is an era of office workers, of business and governmental officials whose implements are the desk chair, pen and pencil, rather than the hammer and the hoe. Even in agriculture machinery has eliminated some of the hardest types of manual labor. Muscular exercise, however, is a benefit rather than a detriment to the human economy. It improves the function of the essential organs of the body. Hence there has arisen an unexpected consequence, namely, the habit of trying to avert the possible harmfulness of some of these changed conditions by "balancing the lack of paid muscle work by work for hygienic reasons, by play and sport." The creation of work for the sake of health sounds almost paradoxical.

Current Comment

"LARGE" AND "SMALL" MEDICAL COLLEGES

The application to medical colleges of the terms "large" and "small" should and usually does depend on the size of the classes enrolled. With this understanding it can be stated that there are some small medical colleges which are admirably equipped and which are undoubtedly furnishing their students with an excellent scientific and practical medical training. In proportion to the numbers of students enrolled, some of these small colleges are among the best equipped institutions in the country, and some of them have been rated in Classes A + and A by the Council on Medical Education. No one of these satisfactory small colleges, however, is "notoriously lacking in equipment" as implied in an editorial comment in one of our monthly exchanges. There are, indeed, several small medical colleges which are "notoriously lacking in equipment," but in no instance does such a school furnish a satisfactory training in medicine. At the other extreme, there are some medical colleges which have large enrolments of students, out of all proportion to the limited supply of expert teachers, laboratory equipment and clinical facilities. Because of these deficiencies or because of a too liberal administration of entrance standards, such schools do not and cannot furnish a satisfactory training. Some of these medical schools with large enrolments, for good reasons, are rated in Classes B and C by the Council on Medical Education. A reference to state board statistics, furthermore, shows that the graduates of some of these "large" medical schools do make poor records in the licensing examinations. It should not be said, however, that "as a rule the larger the college the higher is the percentage of its graduates who fail before the state examining boards" as stated in the editorial referred to. No such statement, meanwhile, is made in the State Board Number of The Journal,[1] to which the editorial refers, nor does any statement appear which would give such an impression. In the State Board Number it is stated that "the mere fact that a college has large classes is no indication that it furnishes a better medical training."[2] It is also true that "the larger the college . . . the more serious is inferior teaching."[3] But these statements do not imply, nor should they be interpreted to mean, that in *all* colleges having large classes the teaching is inferior, or that all of them have large percentages of their graduates fail before state licensing boards. On the contrary, there are several colleges having large enrolments which at the same time have excellent supervision and, in proportion to their students, have an ample supply of expert teachers and an abundance of laboratory equipment and clinical facilities. Some of these large colleges, in fact, furnish an excellent medical training and their graduates make excellent records before state licensing boards. We would emphasize that a medical college should not be judged by the number of students enrolled but by the qualifications of its teachers; the possession of suitable and well-equipped laboratories; the abundance of clinical facilities available; the supervision exercised over the work and welfare of its students and—last but not least—the evidences of the skill and training of its graduates.

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[1] Rubner, M.: Address on the Nutrition of the People, delivered before the Fifteenth International Congress on Hygiene and Demography, at Washington, Sept. 24, 1912, and published in the Transactions.

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[1] The Journal A. M. A., May 23, 1914, p. 1639.
[2] Ibid., p. 1660.
[3] Ibid., p. 1655.

THE SIGNIFICANCE OF THE WORD LUTEIN

The word "lutein" has long been applied in physiologic chemistry to designate a group of fat-coloring matters which occur in nature and which have more recently often received the general designation of lipochromes. These yellow pigments are found in the adipose tissue, in the serum of the blood, in serous fluids, in fatty structures of the retina, in the egg-yolk, and in the corpora lutea. The use of the term "lutein" has been restricted as a rule to the yellow coloring-matter which develops in these ovarian structures, although one can find the word applied to derivatives of other physiologic tissues as synonymous with lipochrome.[1] Thus in a recent discussion respecting the appearane of a yellow pigment in cerebrospinal fluid in cases of tumor of the spinal cord the word "lutein" is employed to designate the color.[2] Hitherto the chemistry of this group of compounds has been very indefinite and they have been classified and identified by their solubilities and other physical properties. Now that the subject is receiving more serious study, however, and the precise nature and relationships of the lipochromes or luteins is being cleared up,[3] it may soon be possible to speak accurately of carotin or xanthophyll or some other specific substance instead of applying the more indefinite group expressions referred to above. It therefore seems particularly unfortunate at this time to find the word "lutein" entering anew into the nomenclature of medicine in an entirely different sense. Lately various preparations of desiccated corpora lutea from animals are being sold under the designation of lutein.[4] This new therapeutic product obviously represents something more than merely the yellow pigment of a part of the ovarian structure, for there is no evidence that the lipochrome itself is responsible for any physiologic effects. Evidently the word "lutein" has commended itself, without consideration of the historical import of the word, as a euphonious designation which would at once suggest the natural origin of the product. This is not an isolated instance of confusion of terms. The word "bromalin" has been devised by manufacturers for a synthetic bromin derivative despite the existence of the word "bromelin," the name of the proteolytic enzyme of the pineapple. Other instances might be cited. We trust that a reference to the matter here may help to avert further undesirable unnecessary complication of this sort on the part of those who are devising names for new products.

PUBLIC HEALTH IN INDIANA

Health administration in Indiana has for a long time past been vigorous and energetic, as it is in many of our other states. It has also been unique, peculiarly up-to-date and popular in its methods of attracting attention and affording instruction. The latest activity of the health forces of the state is thoroughly characteristic. Governor Ralston has issued a proclamation designating Friday, Oct. 2, 1914, as Disease Prevention Day. He urges the cities and towns throughout the state to make special arrangements for appropriate exercises, emphasizing the importance of public health, and the joint responsibility of all citizens therefor in order to inspire in them a desire to cooperate in all sane efforts for the prevention of physical diseases. The state board of health has prepared a special bulletin containing a copy of the governor's proclamation and suggestions for the celebration of Disease Prevention Day in the towns of Indiana. Some of these suggestions are terse and apt and deserve to be circulated.

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[1] See, for example, Hammarsten-Mandel: Text-Book of Physiological Chemistry, 1911, p. 260.
[2] Clarke and Lansdown: Brit. Med. Jour., May 9, 1914. Boyd: ibid., May 23, p. 1158.
[3] The Natural Yellow Pigments Occurring in the Body, editorial, The Journal A. M. A., Sept. 12, 1914, p. 948.
[4] See New and Nonofficial Remedies, 1914, p. 183.

> "Get up a public-health procession. In cities the mayor should head the procession; in towns the town board of trustees, the town board of health under the law, should lead. There should be a brass band; drums and trumpets should be used; music is necessary for a procession; school girls dressed in white bearing banners with health mottoes, boys in white or otherwise neatly dressed carrying banners with health mottoes. Where there are high schools, the pupils should try to present some original idea representing the importance of disease prevention."

The advice to business men is equally emphatic.

> "Business men should be represented in the procession. The most important business before the business man to-day is the business of public health. Retail stores should dress their windows in articles that deal in, belong to or hint at cleanliness and health. Hardware stores can show garbage cans, garden hose, fly traps, and rat traps. Dry goods merchants can show a pile of towels and soap arranged around a bath-tub. Grocers can make pure food displays and so can restaurants."

The advice to individual citizens is equally direct, so that no one can feel that he is being omitted or has no part in the celebration.

> "Let every home, each front yard and back yard, the rears of stores and all streets and alleys be made specially clean for Disease Prevention Day. Let each person wear clean clothes on that day, take a bath, put on a clean shirt, clean socks and clean collar and get his shoes shined. Get a hair cut and a shave, wash your hands and face, clean your finger nails and don't spit on the side walks. Let everybody be clean and talk cleanliness and health."

Suggested mottoes for Disease Prevention Day are also contained in the bulletin. Some of these are:

> "The only good fly is the dead fly;"
> "Well-kept alleys pay better dividends than well-kept cemeteries;"
> "Public health is public wealth;"
> "Bat the rat and swat the fly;"
> "Don't take patent medicines;"
> "All the time is clean-up time;"
> "Dust, dirt, dampness, darkness, drink, will always kill."

That the state board of health does not hesitate to follow its own suggestions is shown by the public-health side-show recently given at the Indiana State Fair. A large circus tent was installed on the fair grounds with banners depicting health topics displayed in front after the manner of the time-honored side-show. The secretary of the State Association for the Study and Prevention of Tuberculosis acted as barker for the show and, through a megaphone, announced to the gathered crowds the attractions to be found within the tent. The Indianapolis newsboys' band gave serenades at intervals in front to attract the people. Inside the tent, lectures illustrated with lantern-slides and moving pictures, exhibits, charts and demonstrations on various health topics all served to emphasize the importance and value of health. It is estimated that over twenty thousand people passed through the tent during the State Fair. This sort of a campaign will certainly have a marked result on public sentiment and eventually on permanent health conditions in the state. The people of Indiana are to be congratulated on having a state board of health that is active and progressive and especially on having a broad-minded, intelligent and public-spirited governor who is sufficiently interested in the welfare of his people to place himself at the head of the public-health movement in the state.

GIVING A DOG A BAD NAME

In a recent issue of The Journal attention was called to the enlightened action on the part of an advertising manager for a cement company in demanding that advertisements for his product should not be lined up with advertisements of fraudulent wares. He holds, in common with most up-to-date advertising men, that every dishonest advertisement tends to undermine the confidence of the public and thus hurt every decent advertiser. A good illustration of the principle involved in this action appeared in a recent issue of a Chicago afternoon paper. On one page of this paper there was a fairly large advertisement of Marshall Field & Company. The advertising copy was in good taste; the wording was conservative, and the general effect of the advertisement was convincing. The products advertised were women's garments. On the same page of the paper, and in close proximity to the department store's "copy," was an advertisement of Lydia Pinkham's fraudulent nostrum (alcohol, 18 per cent.) urging women who have "that weak, languid, always tired feeling," to purchase this "great blessing." On the other side of the store's advertisement "Beecham's Pills" blared forth in heavy black-faced type their lying message to the world. Just below was a paragraph entitled "Valuable Discovery in Complexion Beautifier." This was in news style and had nothing to indicate that it was an advertisement. It told women of the alleged virtues for the complexion of "mercolized wax," a particularly vicious caustic poison. It is interesting to speculate on the damage, from an advertiser's point of view, done to the Marshall Field & Company advertisement by lining it up in close proximity to three evident frauds. It is still more interesting to think what would happen if the decent advertisers in the newspaper referred to were to send to their advertising agencies the same message that was sent by the cement company's advertising manager:

> "Will you please say to all newspapers desiring to carry our advertising that we decidedly object to being placed in close company with noisome patent-medicine ads. and other fakes or near-fakes. . . .?"

Interference with Pathologic Phenomena Not Always Justified.—We have in the past too readily taken for granted that every unusual phenomenon observed in a sick person was, in itself, harmful; thus we have interfered with inflammatory processes, with pyrexia, and heightened blood-pressure, without realizing that these were, in a majority of cases, compensatory phenomena, implying active and probably quite efficient self-defense on the part of the organism. "Think for a moment, any of you," says Sir James Goodhart, "your finger is on the pulse of excessive hardness; you want to make it permanently soft. Have you ever accomplished your purpose to your satisfaction? and if you answer 'No,' as I think you must, you may cancel your disappointment by asking yourself another question: 'If I had, where would the patient have been?'"—Arthur J. Brock, *Edinburgh Med. Jour.*

Medical News

DISTRICT OF COLUMBIA

Pellagra and Typhoid.—Five cases of pellagra are reported from private practice. An epidemic of seventy-five cases of typhoid fever exists. No typhoid bacilli have been found in the water-supply.

Personal.—Dr. Benjamin Meade Bolton, Washington, sailed from New York for Cuba, August 29, to conduct a campaign for the Department of Agriculture of Cuba against hog cholera.——Dr. Edward Fraser has succeeded Dr. Clarence H. Gregory as officer in charge of the George Washington University Hospital.

ILLINOIS

Personal.—Dr. Charles E. Parker has succeeded Dr. Jane R. Keefer, resigned, as superintendent of the nurses' department of the Sterling Public Hospital.——Dr. Albert J. Roberts, Ottawa, has been reelected physician of La Salle County.——Dr. and Mrs. Joseph F. Duane, Peoria, have returned from Europe.

Protection against Bubonic Plague.—The secretary of the State Board of Health, Dr. C. St. Clair Drake, is insisting that rat extermination and clean-up campaigns shall continue to be actively carried on at all Illinois ports of entry for passengers and merchandise from New Orleans and other territory and on all boat and rail transportation companies entering Illinois from the South.

Conference of Charities and Corrections.—The nineteenth annual conference of Charities and Corrections will be held October 24 to 27, at La Salle, Peru and Oglesby. At the same time and place, the Illinois Anti-Tuberculosis Association, the State Probation Officers' Association and the State Association of Superintendents of County Homes will hold their annual meetings. Dr. Emil G. Hirsch, Chicago, is president of the conference.

Chicago

Loan on Hospital.—The Catholic bishop of Chicago has obtained a loan of $285,000 for ten years at 5 per cent. interest, secured by a trust deed on the property of St. Mary's Hospital, occupying the block included by Hadden and Oakley avenues and Leavitt and Thomas streets.

Personal.—Dr. William E. Buehler has been elected president of the Public Safety Commission.——Dr. Albert J. Ochsner was the guest of honor at the monthly meeting of physicians held at Maimonides Hospital, September 18. The subject of his address was "New Phases in Hernia."——Dr. and Mrs. Joseph L. Hancock and daughter have returned after an extensive trip through the West, including California.

European Travelers.—Dr. and Mrs. Walter H. Allport and family have sailed for home.——Drs. Sara C. Buckley and Benjamin Barker Beeson have returned from abroad.——Dr. and Mrs. Zenos H. Going are in London.——Dr. and Mrs. Harry B. Bailey report that they are safe in Switzerland.——Dr. Winfield Scott Hall and family are reported to be in Zurich, Switzerland, awaiting transportation to this country.

INDIANA

Epidemic of Infantile Paralysis.—The first stage of an epidemic of infantile paralysis is reported from South Bend. Three deaths are said to have occurred during August.

Disease Prevention Day.—Through the representatives of more than a dozen civic and commercial organizations, Indianapolis has prepared an elaborate program for the observance of Disease Prevention Day which is set for Friday, October 2.

Tuberculosis Sanatorium for Indianapolis.—The first tangible step toward the establishment of a tuberculosis sanatorium for Marion County and Indianapolis, was taken by the Marion County Council, September 9. The council agreed to make a tax levy of 1 cent on $100, the funds thus derived to be placed in the sinking fund for the construction of a hospital for tuberculosis patients. This levy, it is estimated, will amount to about $27,000 a year and the building required will cost about $65,000 and will accommodate 134 patients.

IOWA

Personal.—Dr. Mary K. Heard, Iowa City, has returned from abroad.——Dr. Charles E. Glynn has been elected president, and Dr. Jacob S. Weber, secretary and treasurer of the Davenport Hospital.

Medical Inspection Inaugurated.—The medical inspection of the Council Bluffs city schools began September 14, when the newly appointed nurse, Miss Irene Jones, who is cooperating with Dr. Vernon L. Treynor, medical inspector, started on her rounds of inspection.

Hospital News.—Dr. Gerritt E. Ver Meer, Rock Valley, and Dr. Frank P. Winkler, Sibley, have purchased the Methodist parsonage, and after remodeling it, will open the building as a hospital.——Dr. and Mrs. Waggoner, De Witt, have donated to the Mercy Hospital, Clinton, the furnishings for one room in the hospital.——Physicians at Fort Dodge have established at Fort Dodge clinical and Roentgen-ray laboratories under the care of Dr. F. H. Glenn, formerly of Chicago.

LOUISIANA

Health Train Starts on Tour.—The health train of the State Board of Health left New Orleans, September 13, on a fourteen-day educational tour of the state. In addition to Dr. Oscar Dowling, Shreveport, and the regular force of the train, Drs. Charles C. Bass and A. J. Terhune were members of the party. It is purposed to establish a temporary laboratory at each stopping place where such tests will be made as are desired. A supply of antityphoid serum was also taken on the train. This trip is merely educational and will include lectures illustrated by moving pictures.

Tropical Medicine Faculty Appointment.—Dr. William H. Seemann has been elected dean of the faculty of Tulane University School of Hygiene and Tropical Medicine, and the following appointments to the faculty have been made: Dr. Abraham L. Metz, professor of chemistry; Dr. Andrew G. Friedrichs, professor of oral hygiene; Dr. Isadore Dyer, professor of skin diseases; Dr. Edouard M. Dupaquier, professor of tropical medicine and acute infectious diseases; Dr. Charles C. Bass, professor of experimental medicine and director of the laboratories of clinical medicine, and Dr. Joseph D. Weis, professor of tropical medicine.

MARYLAND

Hospital Offers Bonds.—The new South Baltimore Eye, Ear, Nose and Throat Charity Hospital has begun a campaign to dispose of $50,000 worth of bonds, authorized to make possible the erection and equipment of the new hospital building which is nearly completed.

Twenty-Fifth Anniversary of Johns Hopkins.—The twenty-fifth anniversary of the opening of the Johns Hopkins Hospital, the twenty-first anniversary of the opening of the medical school, the second reunion of the alumni of the medical school and the first general reunion of the alumni of the training school for nurses, will be made the occasion of an elaborate celebration at the hospital, which will open October 5 and continue throughout the week. In connection with the celebration the annual Herter lectures will be given by Dr. Thomas Lewis of University College, London. Scientific demonstrations and lectures and varied social entertainments have been arranged to fill in the entire time.

Baltimore

Colorad Insane Transferred.—All the colored insane at the Cecil County Insane Hospital have been removed to the State Hospital at Crownsville.

Medical Aid at Flag Centennial.—In a report to the managing directors of the Star Spangled Banner Centennial, Dr. George L. Wilkins, chairman of the medical relief committee, stated that 280 cases were treated at the various emergency hospitals established along the routes of the parades. One hundred and twenty-eight physicians and seventy-five nurses gave their services free during the week.

Personal.—Drs. James J. Carroll and Gilbert T. Smith have returned from Europe.——Dr. Hiram Fried has returned from abroad.——Dr. William Osler, former head of the medical department of the Johns Hopkins Hospital and now regius professor of medicine at Oxford, England, has been made an honorary colonel in the British army.——Dr. Benjamin O. McCleary has been appointed health warden for the Twentieth Ward, succeeding Dr. William A. Knell, resigned.

MINNESOTA

Personal.—Dr. and Mrs. O. A. Oredson, Duluth, are in Berlin where Dr. Oredson is caring for the wounded in a military hospital.——Dr. Richard R. Cranmer, Minneapolis, has returned from abroad.

State Society to Meet.—The Minnesota State Medical Association will hold its annual meeting at the St. Paul Hotel, St. Paul, October 1 and 2, under the presidency of Dr. Alfred E. Spaulding, Luverne.

Urges County Health Organization.—Dr. H. W. Hill, executive secretary of the Minnesota Public Health Association, proposes the organization of a health association in each county of the state.——County health organizations have already been formed in Wilmar and Marshall counties.

Advance in Work against Tuberculosis.—The first annual report made by Dr. Robinson Bosworth, executive secretary of the advisory commission of Minnesota State Sanatorium, gives an interesting summary of the progress of the work of establishing county tuberculosis sanatoriums. Nopeming Sanatorium, St. Louis County, 14 miles from Duluth, is under operation with sixty patients; Ottertail County Sanatorium at Battle Lake, with sixty-five patients; Nopeming County Sanatorium has been enlarged by the addition of an infirmary of thirty-five beds, a heating plant and laundry, at an expense of $75,000; Ramsey County Tuberculosis Pavilion is open this month with a capacity of 110 patients; Hennepin County is constructing a seventy-five bed institution at Glen Lake near Hopkins, which will be completed within a year at a cost of about $100,000; Lincoln, Lyon, Pipestone, Murray, Cottonwood, Rock, Nobles and Jackson counties have organized a sanatorium district and are seeking a suitable location for the joint sanatorium on which about $95,000 will be expended; Yellow Medicine, Chippeway and Renville counties have voted to build a joint sanatorium providing a fourth enters the group. Lac Qui Parle is the fourth county of this group; Wabasha County has requested the commission to choose its selected site; Douglas County has made a tax levy to build a sanatorium and is endeavoring to get Grant, Pope and Stevens counties to join with it; the county board of Blue Earth County is leaving the matter of a sanatorium to the wishes of the people at an election; Brown and Nicollet counties are ready to build a sanatorium, and Redwood and Watson counties wish to join this group; Goodhue County has accepted plans for a building to be erected on the Cannon Falls site; Pope and Norman counties have purchased a sanatorium site at Crookston; Clay and Becker counties have selected a location at Lake Park and have appointed an architect; Beltrami, Koochiching and Hubbard counties have voted their tax levies, appointed sanatorium commissions and will build at or near Bemidji; Marshall County, either alone or with Pennington County, will build a sanatorium; Wadena and Todd counties have made the necessary levy and are endeavoring to secure a third county for the group. The expenses of the advisory commission for the year were $9,456.93, leaving a balance in hand of $543.07.

MISSISSIPPI

Pellagra Not Admitted to Vicksburg.—The trustees of the Vicksburg Emergency Hospital have passed a resolution to accept no pellagra cases for treatment on the ground that the hospital has no facilities for the proper treatment of such cases. The railroads have been notified not to bring pellagra patients into Vicksburg, but protest that they have no means of diagnosing the disease.

Malaria in Washington County.—In response to the request made to the surgeon-general of the Public Health Service that antimalarial work be undertaken at Greenville and large plantations nearby, Surgeon Rudolph H. Von Ezdorf, Assistant Surgeon Robert C. Derivaux and Sanitary Engineer J. A. Lee Prince, U. S. P. H. S., have been detailed to make an investigation of the conditions contributing to the spread of malaria in that region.

New Society Organized.—The Homochitto Valley Medical Society was organized in Natchez, September 8. The districts include Adams, Amite, Franklin, Jefferson and Wilkinson counties, and the following officers were elected: president, Dr. Richard D. Sessions, Natchez; county vice-presidents, Adams County, Dr. Joseph D. Shields, Pine Ridge; Amite County, Dr. William R. Brumfield, Gloster; Franklin County, Dr. George T. Warren, Bude; Jefferson County, Dr. Leon R. Harrison, Fayette; and Wilkinson County, Dr. Columbus L. Field, Centerville; secretary-treasurer, Dr. Marcus Beekman, Natchez.

NEW JERSEY

New Officers.—Morris County Medical Society at Morris Planes, September 8: president, Dr. Frederick E. Knowles, Boonton; secretary, Dr. Henry W. Kice, Wharton.

Addition to Insane Hospital.—Plans have been adopted for an addition to the Overbrook Hospital for the Insane, Verona. The new building will have accommodations for 270 patients.

Measures against Anthrax and Glanders.—The State Board of Health, September 8, adopted regulations designed to prevent the importation of anthrax from Delaware, where cattle are said to be infected nearly every year.——The New Jersey State Health Department is securing from the Bureau of Animal Industry at Washington and forwarding to local boards of health throughout the state quantities of mallein to be used for the ophthalmic test on horses.

NEW YORK

Infantile Paralysis.—Cases of infantile paralysis are reported from Syracuse and Binghamton. The State Department of Health is taking every precaution to prevent the spread of the disease.

Personal.—Dr. Alexander Lowenstein has been placed in charge of the work of the Jewish Philatropic Society recently organized at Rochester.——Dr. Harold H. Fox, Springville, has been appointed medical adviser of Cornell University and assumed charge of his new office at Ithaca, September 20.——Dr. Wardner D. Ayer, Rensselaer, has been appointed pathologist to the Crouse-Irving University, Syracuse.——Dr. and Mrs. Francis R. Benham, Syracuse, have returned from abroad.

New York City

Personal.—Dr. and Mrs. John J. Moorhead and Dr. and Mrs. George Draper have returned from Europe.——Dr. Michael J. Thornton, for four years in charge of the psychopathic ward of Bellevue Hospital, has been appointed chief of staff of the psychopathic ward of the Kings County Hospital, Brooklyn, succeeding the late Dr. William B. Moseley.

Typhoid Epidemic in Brooklyn.—Up to September 12 there have been fifty-three cases of typhoid fever reported from the Park Slope section of Brooklyn, but since that time no new cases have been reported. The source of the infection has not been determined, and though many specimens of water have been examined, there is no indication thus far that the trouble lies in the water-supply.

New Requirement for Peddler's License.—The Department of Health and the Department of Licenses have determined to extend the scope of the medical examination now made of applicants for peddler's licenses and to include in each instance a Wassermann test. The physical examinations will be made in the tuberculosis clinics at present. Licenses will be denied to tuberculous persons whose sputum shows the presence of the tubercle bacilli and to those whose blood gives a double plus Wassermann reaction.

NORTH CAROLINA

New Hospital.—The construction work on St. Luke's Hospital, Newbern, being built by Drs. R. Duval Jones and Joseph F. Patterson is progressing rapidly and it is expected that the hospital will be opened before the end of the year.

Trachoma Investigation.—Dr. A. D. Foster of the United States Public Health Service, in his trachoma investigation in this state, has visited seventy-one white and thirteen colored schools, examining over 12,000 pupils and finding about thirty-cases of trachoma. The heaviest infection (eighteen cases) was found among the 207 pupils examined at the Indian school at Cherokee, Swain County; but this was also the only place where measures had been taken to determine the presence of the disease and to control its spread. The heaviest infection among whites was in Caldwell County, lighter infections being found in Cherokee and Mitchell counties. Only one negro was found infected. Dr. Foster believes that foreign immigration has played little or no part in introducing the disease here.

State Board Prizes.—The State Board of Health has offered six prizes of $25 each for the best articles on six health subjects written by citizens of the state. The subjects of the articles are, typhoid fever, malarial fever, diphtheria, scarlet fever, whooping-cough and measles. The prize essays will be published in the *Bulletin of the State Board of Health*. The contest is open to any citizen of North Carolina, who may compete for any or all of the prizes. The articles must be within one thousand to two thousand words, and the last day for filing the manuscripts for the competition will be, for typhoid fever, October 1; malarial fever, November 1; diphtheria, December 1: scarlet fever, Jan. 1, 1915; whooping-cough, February 1, and measles, March 1. The judges of the competition will be the editor of the *Bulletin*, an editor of a city newspaper, a physician and a layman.

OHIO

New Hospital.—Plans have been completed for a new Jewish hospital, Cleveland, and construction is to begin October 15.

Protest Recognized.—The Logan County Medical Society, which protested its transferance by the council of the State Medical Society to the Dayton district, has been retransferred to its old district, known as the northwestern district.

"Baby's Health Is Cleveland's Wealth."—This is the slogan adopted by the child hygienic committee of Cleveland for "Baby Sunday," September 13. Every minister was requested to use the baby campaign as a theme for his sermon on that day. Lectures and exhibitions were given at the City Hall on September 14, and department stores also gave special window demonstrations on that day.

Citizens' Hospital for Barberton.—A very successful campaign to raise money for a hospital has just been terminated in Barberton. The hospital is to have a capacity of fifty beds, and $60,000 was raised. Over five thousand of the citizens own stock in the hospital, and it is to be known as the Citizens' Hospital Company. The hospital is to be self-supporting, and its equipment will be modern in every respect.

Small-Pox.—Small-pox continues to prevail in certain districts. The board of health of Sandusky is making a vigorous effort to rid that city of an outbreak which has lingered for some time. A meeting of all Sandusky physicians was called on September 9, and they were addressed by Dr. Frank G. Boudreau of the State Board of Health on the diagnosis and control of the present mild outbreak of small-pox. Dr. Boudreau afterward examined the Sandusky cases, of which there are three at the present time.

Director of Bureau of Juvenile Research Appointed.—Dr. Thomas H. Haines has been appointed chief psychologist of the new juvenile research bureau under the direction of the Ohio State Board of Administration. The position now occupied by Dr. Haines is an extremely important one, because of the large number of institutions under the care of the Ohio State Board of Administration. The new bureau will probably be located on the Ohio State University campus as a part of the proposed medical group.

Personal.—Dr. Charles H. Clark, superintendent of the Newburg State Hospital, Cleveland, has been appointed superintendent of the Lima State Hospital for the Criminal Insane. The new hospital is practically completed and will pass under the control of the State Board of Administration early in 1915.——Dr. Julius J. Buel, wife and daughter, Cleveland, have returned from abroad.——Dr. and Mrs. John J. R. MacLeod, will sail for home, September 19.——Dr. and Mrs. John Edwin Brown and son, Columbus, have returned from Europe.

District Health Officers for Ohio.—A bill to divide the state into health districts and to provide for whole-time, experienced district health officers, will be introduced at the next session of the general assembly. Each district will comprise one or more counties, and the county commissioners will act as a board of control. Only persons who have the degree of M.D., D.P.H., or some equivalent degree, will be eligible as candidates for the position of district health officers. All candidates will have to pass a civil service examination. The minimum salary is fixed at $2,000. In addition to the duties now performed by health officers and boards of health, the district health officer will be required to provide for medical inspection of schoolchildren, the inspection of workshops, factories and a complete system of milk and dairy inspection. District health officers will have jurisdiction everywhere except in incorporated cities.

OREGON

State Association Meeting.—The annual meeting of the Oregon State Medical Association was held in Portland, September 10 and 11, and the following officers were elected: president, Dr. Alpha E. Rockey, Portland; vice-presidents, Drs. Robert J. Pilkington, Astoria; William H. Dale, Harrisburg, and Robert J. Marsh, Portland; secretary, Dr. Marius B. Marcellus, Portland (reelected); treasurer, Dr. Katherine C. Manion, Portland (reelected); councillors, Drs. Joseph A. Pettit and Calvin S. White, Portland, and Francis G. Swedenburg, Ashland; delegate to the American Medical Association, Dr. Walter T. Williamson, Portland, and alternate, Dr. Kenneth A. J. Mackenzie, Portland.

PENNSYLVANIA

Diphtheria Epidemic.—A rather serious epidemic of diphtheria at Keystone Mines is under investigation by the State Health Department.

Leper in Wilkes-Barre.—The health authorities of Wilkes-Barre have been advised that Joseph Norman of that city, who went to Philadelphia recently, is suffering from tubercular leprosy. The house in which this man lived has been placed under quarantine.

Diarrheal Epidemic in the Coal Regions.—An epidemic of acute diarrhea has been reported from Freeland, Jeddo, Upper Lehigh, Eckley, Drifton and surrounding towns. Dr. Charles J. Hunt of the State Health Department, sent to the Luzerne coal regions to investigate the epidemic, reports September 1 that 1,000 cases have been found. An investigation of the cause is under way.

Philadelphia

Leprous Rats.—Two rats infected with leprosy germs have been discovered by the Department of Health in its campaign to clean the river front. The first rat with traces of leprosy was brought to the receiving station at Race Street pier, three weeks ago. The second, caught September 17, was found in a building near the wharf.

Personal.—Dr. Harry Lowenburg has returned from abroad.——Dr. and Mrs. G. Oram Ring have returned from the Mediterranean.——Dr. Laura Hunt has been appointed Professor of Otology at the Women's Medical College, to fill the position left by the death of Dr. Emma Musson.

New Ward Equipped.—A new ward for men and another for children has been equipped at the College Hospital, according to an announcement made at the opening exercises of the Woman's Medical College. The children's ward has been equipped largely by private donations, through the efforts of Dr. Theodore LeBoutillier and others.

WISCONSIN

Home from Europe.—Drs. Albert A. Maurer, La Crosse, and Frederick A. Kraft, Milwaukee, have returned from abroad.

Bacteriologist Appointed.—Miss Anna Stolzenfeld, as the result of a civil service examination, has been made first assistant bacteriologist in the Municipal Laboratory, Milwaukee.

New Officers.—Second District Medical Association at Lake Geneva, Wis., September 1: president, Dr. Gustave Windesheim, Kenosha; secretary, Dr. Milton V. Dewire, Sharon (reelected).

GENERAL

Life Insurance Directors Meet.—The annual meeting of the Medical Section of the American Life Convention will be held in Dallas, Texas, October 7.

Military Surgeons to Meet.—The twenty-third annual meeting of the Association of Military Surgeons of the United States will be held in Cincinnati, September 29 to October 2, with headquarters at Hotel Gibson.

Railway Surgeons Hold Meeting.—The railway surgeons of the Dakota, and Pierre and Rapid City divisions of the Chicago and Northwestern System met in Huron, S. Dak., September 16, at the call of Dr. John L. Foxton, district surgeon of the Dakota division, to meet the new chief surgeon of the system, Dr. George W. Hopkins, Chicago, and organized an association which will hold meetings once or twice a year.

Electrotherapeutists Meet.—At the twenty-fourth annual meeting of the American Electrotherapeutic Association held in Battle Creek, September 15 to 17, the following officers were elected: president, Dr. John W. Torbett, Marlin, Tex.; vice-presidents, Drs. Abram B. Hirsh, Philadelphia; Curran Pope, Louisville, Ky.; William Martin, Atlantic City, N. J.; Alfred J. Hopkins, Pittsburgh, and John S. Yates, Paterson, N. J.; secretary, Dr. John W. Travell, New York City (reelected), and treasurer, Dr. Emil Heuel, New York City (reelected).

Tuberculosis Conference.—The second Mississippi Valley Conference on Tuberculosis will be held at the Planters Hotel, St. Louis, October 6 to 8, in cooperation with the making of the National Association for the Study and Prevention of Tuberculosis. The purpose of the conference is to bring about a closer relationship between antituberculosis agencies in the Mississippi valley; to provide for the interchange of ideas and experiences, and to strengthen and extend the work of the National Association and to arouse the people to the need for concerted action, both public and private, against the common foe, tuberculosis, and to bring about a closer cooperation between antituberculosis societies and other health agencies.

American Association for Study and Prevention of Infant Mortality to Meet.—The fifth annual meeting of this association will be held in Boston, November 12-14. The program will include sessions arranged by the committees on nursing and social work, pediatrics, vital and social statistics, obstetrics and public school education. Among the subjects to be discussed are included prenatal care, the need for increased and improved maternity hospital service, institutional mortality and continuation schools of home-making. The sessions will meet at the Harvard Medical School and at the Copley Plaza Hotel. Special clinics and an exhibit will be held in connection with the meeting.

Bequests and Donations.—The following bequests and donations have recently been announced:

The Western Reserve University Medical School Cleveland; a bequest of nearly $1,000,000, in memory of Albert Fairchild Holden, by the will of his father, Liberty E. Holden, Cleveland.

Massachusetts General Hospital, Boston, $1,000 by the will of H. R. Dalton.

Vincent Hospital, Boston, $3,000 by the will of J. B. F. Thomas, Boston.

Mt. Sinai Hospital, $2,000, and Hebrew Orphan Asylum, New York City, $1,000, by the will of Arthur Klein.

Brooklyn Bureau of Charities, German, Bushwick and Swedish Hospitals, each bequests varying from $900 to $1,800 by the will of Jacob W. Erregger.

American Theatrical Hospital, Chicago, donation of $5,000 by Jack Wilson to provide and equip an operating amphitheater, to be known as the Ada Lane Wilson Memorial.

Public Health in Porto Rico.—The chief of the public health service in Porto Rico, Dr. W. F. Lippitt, states that the mortality last year for the island was only 18.6 per thousand, a saving of 5,832 lives annually since 1911, when the service was organized. He declares that the change in conditions in regard to public health in such a brief period has never been surpassed and has scarcely been equaled in any country. The prompt way in which bubonic plague was stamped out when it got a foothold in the island in 1912 was the envy of other countries, especially as the effect was realized by the intelligent and energetic cooperation of the people. Dr. Lippitt has also recently sent a circular letter to all the members of the public health service saying that the sanitation service is not only for the purpose of keeping the streets clean, etc., but that it should take up all kinds of work bearing in any way on the public health, and consequently he urges each member to make a special study of some matter affecting the public health in his community, and offers the facilities of the laboratories for research or any other aid that may be required. He leaves each one free to select his own subject. The report when completed will be published in the official bulletin, credited to the author.

Plague in New Orleans.—Since the last report of bubonic plague published in The Journal of September 12, no cases of human plague have been discovered, but twenty-eight cases of rodent plague have been found, Nos. 86 to 114, inclusive, up to September 17. During the fortnight ended September 12, the Department of Outgoing Quarantine has fumigated 141 vessels with sulphur and 28 with carbon monoxid; has burned 25,116 pounds of sulphur; has consumed in carbon monoxid fumigation 32,890 pounds of coke; has inspected 40,017 tons of outgoing freight and 202,986 packages of freight; issued 81 clean and 8 foul bills of health. The Department of Overland Freight Inspection has inspected 6,573 cars; has rat-proofed 3,445 cars and has condemned 20 cars. No rodents were killed in cars during the fortnight. The Department of Field Operations has trapped 15,480 rats; has fumigated 7 premises; disinfected 145 premises; inspected 10,327 premises; has placed 515,715 poisons; has served 4,978 notices; has rat-proofed 560 buildings and has inspected 248 dead. The Department of Laboratory Examinations received 14,017 rodents, of which it has examined 9,996; 25 suspicious rats were found, and in 14 of these the diagnosis of plague was confirmed; 1 suspicious case of human plague was examined. The total number of rodents found up to September 12 was 79,543, of which 68,595 were examined.

CANADA

Health Officers of Nova Scotia.—At the recent meeting of the Medical Officers of Health of Nova Scotia, Dr. William H. Hattie, Dartmouth, provincial officer of health, presided. Among those who delivered addresses were Dr. Peter H. Bryce, Ottawa, and Dr. John W. S. McCullough, Toronto. Annual meetings will be held in the future.

Ontario Medical Association.—The next meeting of the Ontario Medical Association will be held in Peterborough in May, 1915. This meeting will be held in connection with the annual meeting of the Health Officers of Ontario. Dr. Thomas W. H. Young, Peterborough, is chairman of the Committee of Arrangements.

Personal.—Dr. W. E. Deeks has abandoned his trip to England, and is at present examining recruits in Montreal.——Dr. Campbell B. Keenan, Montreal, has accepted the position of regimental surgeon to the Princess Patricia's Light Infantry. Dr. Keenan served through the South African war as surgeon to Strathcona's Horse.——Sir Thomas Roddick has returned to Montreal. At the outbreak of the war he was in Alsace, but reached London after a very trying journey. On his return to Montreal he contracted a cold which developed into pneumonia, from which he is now said to be recovering.——Dr. Robert Rudolf, Toronto, has gone to England, where he has been called to act as medical adviser to one of the base hospitals.——Hon. Dr. Beland, who has been doing good service in a medical capacity for the Belgians, has been appointed by the Dominon government to attach himself to Canada's first contingent.——Dr. George W. Ross, Toronto, has returned from Europe.

WAR NOTES

Madras Gives Hospital.—The government of Madras has offered a fully-equipped hospital ship with a capacity of 300 beds for the use of the Indian expeditionary force.

Red Cross Hospital Opened.—Two Washington physicians, Dr. Franz A. R. Jung and his wife, Dr. Sofie Nordhoff Jung, have established an American Red Cross Hospital in Munich, with a capacity of sixty beds.

Rations of War Prisoners in England.—The British War Office has stated the following as daily rations for war prisoners: bread, 1½ pounds or biscuits, 1 pound; fresh or frozen meat, 8 ounces or preserved meat, half ration; fresh vegetables, 8 ounces; butter or margarine, 1 ounce: condensed milk, one-twentieth of 1 pound tin; tea, one-twelfth ounce, or coffee, 1 ounce; sugar, 2 ounces; salt, one-half ounce.

Canadian Physicians Off for the Front.—It is probable that Lieut.-Col. Adam T. Shillington, Ottawa, will sail with the Canadian detachment, in charge of the Base Hospital, and with him will go Lieut.-Col. Robert L. Gardner and Drs. William P. Dillon, Charles A. Young, Neil McLeod, George Howlett Bell, Charles E. Preston, Theodore A. Lomer and James Seagar, all of Ottawa.——Dr. Edward J. Williams, Sherbrooke, Que., at present in command of the Sixth Cavalry Field Ambulance, has been appointed to duty in a stationary hospital in France.

Dr. Almroth E. Wright Recommends Antityphoid Vaccination.—In a letter to the London *Times*, Dr. Almroth E. Wright adds his influence to the movement for antityphoid vaccination for British troops. He suggests as the author of the method that it be made compulsory. Within the last three weeks he states a total of 180,000 doses of "antisepsis" vaccine have been supplied to the British army and navy and to the French military hospitals. Besides, the Department for Therapeutic Inoculation of St. Mary's Hospital, of which Dr. Wright is the head, has furnished as a contribution for the use of the British army nearly 280,000 doses of antityphoid vaccine.

Medical Congresses Postponed.—The following item is taken from *Deutsche medizinische Wochenschrift,* Aug. 13, 1914: "We have received from Professor Oppenheim the information that the Society of German Neurologists will omit the session of their society for this year. We may assume the same for all the other medical congresses, especially the Science Association (Naturforscherversammlung). Regarding the International Medical Congress which is planned for 1917, it is said that the German Executive Committee has already announced that further preparations for this meeting are discontinued. However, . . . it may be assumed with complete certainty that in 1917 the feeling of mutual embitterment will not yet have disappeared to a sufficient extent to permit a meeting of the representatives of those nations who are now threatening each other with destruction to take place and the usual speeches of greeting on the nation-binding power of science to be made in quiet."

Shortage of Medical Men in England.—*The Medical Press and Circular*, September 9, says that war has already absorbed a large proportion of what may be termed the floating section of the medical profession—that is to say, those of its members who are not engaged in private medical practice or in one of the public services. Many newly qualified men are residents in hospitals, where they gain a valuable insight into professional work. Others of various ages act as assistants or do locum tenens work. Naturally many of this class have joined the army as surgeons on the comparatively liberal terms offered for service during the war—namely, 24 shillings a day, with allowances, and £60 grant at the end of the term of service. In addition not a few practitioners have thrown up their work and gone to the front. A large number of hospital surgeons have followed their example, with the result of a serious dislocation of medical practice throughout the Kingdom. Before the war there was a shortage of medical men, a deficiency that has now been seriously aggravated. Many asylums, poor law infirmaries and voluntary institutions are at their wits' end to find resident medical officers to carry out their routine work.

LONDON LETTER

London, Sept. 9, 1914.

The War

As stated in my last letter, ample preparations have been made for the reception of the wounded in the various civil hospitals throughout the country and also in military hospitals, of which many are being established. At the London Hospital as many as 500 beds—250 for the army and 250 for the navy—have been offered and have been accepted. Three hundred wounded soldiers have arrived. They were taken from the railway station by a large party consisting of resident medical officers who acted as stretcher bearers and carriers. In consequence of the enormous crowds which gathered they were admitted by a back gate. Contrary to the rule of the hospital, they have been allowed to smoke in the wards, a privilege which they greatly appreciate. At Netley there is a great military hospital and military medical school. Here 800 soldiers from the front have been admitted. Some of them are sick, some suffering from sore feet and several hundreds from gunshot wounds. Hardly any of the wounds have been caused by rifle fire; most of them are due to shrapnel bullets. This is contrary to previous experience which is that wounds from rifle bullets are the commonest.

Inquiries of the government into the question of the drug supply have shown that, while in the case of many drugs, the prices of which have risen considerably, such shortage of stocks as exists is due to temporary and easily removable causes, in other cases a considerable period may have to elapse before the small supplies at present available in the country can be replaced. In the case of some drugs, as for example, the bromids, the shortage is due to the fact that the mineral deposits from which they are at present obtained are found chiefly in Germany, while in other cases, such as that of many synthetic remedies, the manufacture is largely carried on in that country. In other cases, again, the existing shortage is due only to the general interruption of sea-borne trade which accompanied the outbreak of war, and will be relieved as shipping communications are restored. The government has appointed a committee consisting of prominent physicians to consider questions arising in connection with the supply of drugs with special reference to the ways in which the medical profession can assist in effecting economies in the use of those drugs of which the supplies are small. A confidential circular has been issued by this committee to all physicians asking them as far as possible to conserve the stock by restricting the use of drugs of which the supplies are very small and not easily renewed. These drugs have been divided into two classes: those of which the stocks are very low and possibly cannot be replenished for a considerable time, and those which, though showing some shortage at present, can soon be replenished from ordinary sources or by opening alternative sources in a short time. The first group includes salicylates, bromids, potassium salts, glycerophosphates, liquid petrolatum, synthetic benzoic acid and its salts. It is suggested that salicylates should be reserved for the treatment of acute rheumatism and that for other diseases (influenza, neuralgia and conditions loosely termed rheumatic) other drugs be used. It is suggested that bromids be used only for epileptics, that sodium bicarbonate be substituted for potash salts, and sodium sulphate and phosphate for potassium tartrate and potassium sulphate; that for mouth washes and antiseptic gargles other substances than potassium chlorate be used; that syrupus ferri phosphatis and syrupus calcii lactophosphatis be substituted for glycerophosphates; that other laxatives be used instead of liquid petrolatum, and that benzoic acid be used only when a satisfactory substitute cannot be obtained. The second class consists of citric acid and tartaric acid, synthetic products (antipyrin, acetanilid, phenacetin, etc.), ergot, formaldehyd and its derivatives, hexamethylenamin and allied compounds and gentian root. It is suggested that instead of prescribing quinin in effervescent mixtures, acids be ordered, thus avoiding the use of citric and tartaric acid. With regard to the synthetics and analgesics it is suggested that their loss would be felt less if they were not used as antipyretics; that ergot be reserved for the treatment of post-partum hemorrhage; that formaldehyd be reserved for cases in which other disinfectants are inapplicable; that boric acid be used as a urinary antiseptic instead of hexamethylenamin and its allies, and that other bitters be used instead of gentian. The question of manufacturing some of the drugs hitherto obtainable solely from Germany is being seriously considered by manufacturers.

The protection of troops in the field against typhoid fever is receiving consideration. Army medical officers in charge of home depots, garrisons and camps are strongly urged to use all their influence in securing as many volunteers as possible for inoculation against typhoid fever. Sir William Osler has written to the *Times* in support of this. He thinks it would be very difficult to prevent outbreaks of dysentery and typhoid fever, of which in the South African War more died than were killed in action. He urges that antityphoid vaccination be made compulsory in the army.

Marriages

Mary Virginia McCune, M.D., Martinsburg, W. Va., to L. Kismet Rossa, M.D., of Melbourne, Australia, at Harper's Ferry, W. Va., September 7.

Frederick B. Clarke, M.D., Milwaukee, Wis., to Miss Agnes Myrle McCormick at Buffalo Ranch near Billings, Mont., August 31.

John Grant Hartwell, M.D., Boston, to Miss Marion R. Gile of Colorado Springs, at her summer home in MacMahan, Me., September 2.

Robert Buchanan Kennedy, M.D., New York City, to Miss Anna May Reimer of Rockland Lake, N. Y., September 5.

Dana Frank Cummings, M.D., Cherryfield, Me., to Mrs. Blanche Cyrene Ross Ray of Rockland, Mass., September 1.

Benjamin Alison Cockrell, M.D., Pineville, Ky., to Miss Harriet Tilghman Marimon of Valparaiso, Ind., September 2.

August Henry Roseburg, M.D., Denison, Ia., to Miss Alexandria Zorin of San Diego, Cal., at Omaha, September 7.

Charles Edward Palmer, M.D., David City, Neb., to Miss Narcissa Houston Light of Cozad, Neb., September 1.

Edward Emmet Powers, M.D., Rome, N. Y., to Miss Mary Catherine Reding of Dunkirk, N. Y., September 9.

Abraham William Nelson, M.D., Cincinnati, to Miss Helen Sebel of Avondale, Cincinnati, September 3.

Joseph S. Dougherty, M.D., Lena, Wis., to Miss Josie O'Calligham of Iron Mountain, Mich., August 25.

William Aloysius Delaney, M.D., to Miss Elizabeth C. McHenry, both of Mitchell, S. Dak., September 3.

Charles Merrill Rose, M.D., Galesburg, Ill., to Miss Marguerite Connery of Chicago, September 21.

John William Boren, M.D., Marinette, Wis., to Miss Esther V. Johnson of Chicago, September 1.

Griffith A. DeMay, M.D., Indianola, Neb., to Miss Elsie Portz of Uniontown, Wash., September 4.

Louis Shalet, M.D., to Miss Elsa Helen Adeleine Müller, both of New York City, September 11.

Wilson George Smillie, M.D., Boston, to Miss Faye Anderson at Denver, Colo., September 2.

Harry W. Rosenthal, M.D., to Miss Ruth A. Masbach, both of Baltimore, September 9.

David Nisan Rappoport, M.D., to Miss Bluma C. Bayuk, both of Philadelphia, August 28.

Charles Edward Vidt, M.D., Buechel, Ky., to Miss Bernice Hughes of Louisville, June 13.

Frank P. Dwyer, M.D., Renovo, Pa., to Miss Mary Howell of Altoona, Pa., July 29.

Deaths

Frederick Edwin Welsh, M.D. Northwestern University Medical School, Chicago, 1903; a Fellow of the American Medical Association; hospital steward of volunteers throughout the Spanish-American War, and a prominent practitioner and druggist of Boone, Iowa; who fell down through an open trap-door in his drugstore, September 3, sustaining a fracture of the base of the skull; died in the Eleanor Moore Hospital, Boone, September 5, from cerebral hemorrhage, aged 39.

Oscar R. Long, M.D. Detroit, Mich., Homeopathic Medical College, 1873; at one time a member of the faculty of the Homeopathic Department of the University of Michigan, Ann Arbor; for twenty-seven years medical superintendent of the Ionia State Hospital for the Criminal and Dangerous Insane, Ionia, Mich.; died at that institution September 9, from heart disease, aged 64.

William A. Curry, M.D. University of Virginia, Charlottesville, 1854; a veteran of the Mexican War; physician to the Missouri State Penitentiary; later for several terms a member of the legislature and state printer; founder of the *Missouri State Times;* died in the apartment of his daughter in Kansas City, Mo., July 28, from senile debility, aged 87.

Charles J. Bacon, M.D. Albany, N. Y., Medical College, 1865; founder and formerly president of the Lee Memorial Hospital, Fulton, N. Y., and consulting physician to the Oswego, N. Y., Hospital; for many years a practitioner of Fulton, but since 1910 a resident of Syracuse, N. Y.; died at his home, September 3, aged 70.

Byron Irvin Benedict, M.D. University of Iowa, Iowa City, 1907; of Chelsea, Iowa; a member of the Iowa State Medical Society; who was struck by a Northwestern train while going over a grade crossing at Chelsea, in his automobile, August 27; died from his injuries in Mercy Hospital, Cedar Rapids, Iowa, August 29, aged 31.

John Hudson Grant, M.D. Georgetown University, Washington, D. C., 1890; a member of the Medical Society of the State of New York; a veteran of the Civil War and formerly assistant state commissioner of agriculture of New York, with headquarters at Buffalo; died at his home in New York City, July 26, aged 70.

Henry E. Crepin, M.D. University of Illinois, Chicago, 1886; a member of the Arizona Medical Association; for two terms head of the health department of San Diego, Cal., and for several terms city health officer of Tucson and health officer of Pima County, Ariz.; died about August 25, at his home in Tucson, aged 52.

Francis M. Tate, M.D. Eclectic Medical College of Cincinnati, 1857; Eclectic Medical Institute, Cincinnati, 1874; a practitioner of Keokuk, Iowa, for more than forty years, and at one time a member of the faculty of Keokuk Medical College; died in Clarinda, Iowa, September 7, from cerebral hemorrhage, aged 84.

Stephen Dandridge Kennedy, M.D. University of Maryland, Ann Arbor, 1855; who entered the United States Navy as assistant surgeon, May 9, 1861; and after attaining the rank of medical inspector was dismissed the service, Nov. 20, 1883; died at his home in Cassilis, near Warrenton, Va., September 3, aged 70.

John Francis Halpin, M.D. University and Bellevue Hospital Medical College, New York City, 1899; a specialist on diseases of the throat and a member of the staff of the Easton District Hospital Dispensary, Brooklyn, N. Y.; died at the home of his sister in Brooklyn, September 4, from pneumonia, aged 37.

Leotos Lentz, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1914; of Wichita, Kan.; an intern in the Woman's Medical College, Philadelphia; died in that institution, June 8, as the result of poison self-administered, it is believed with suicidal intent, while suffering from melancholia, aged 29.

Thomas S. Nagle, M.D. Long Island College Hospital, Brooklyn, N. Y., 1870; a Fellow of the American Medical Association, a practitioner and druggist of Allentown, Pa.; died at his home in that city, about August 30, aged 67.

William Edward Barnard, M.D. Medical College of Alabama, Mobile, 1895; a member of the Medical Association of the State of Alabama; died at his home in Union Grove, Ala., about September 1, aged 33.

Sylvester Straut Bogert, M.D. College of Physicians and Surgeons in the City of New York, 1865; for forty years a practitioner of New York City, and one of the founders of the East Side Dispensary; died at his home in Pearl River, N. Y., July 26, from cerebral hemorrhage, aged 70.

Owen St. Clare O'Brien, M.D. Medical School of Maine, Brunswick, 1866; a surgeon of Volunteers both in the Army and Navy during the Civil War; a member of the medical staff of the Leander M. Haskins Hospital, Rockport, Mass.; died at his home in that city, September 1, aged 81.

Samuel Robinson Fife, M.D. Western Reserve University, Cleveland, 1862; for more than half a century a practitioner of West Elizabeth, Pa.; for one term postmaster; and a school director for more than forty-three years; died at his home in West Elizabeth, September 3, aged 81.

Frederick Bradley Downs, M.D. College of Physicians and Surgeons in the City of New York, 1878; a Fellow of the American Medical Association and formerly president of the Bridgeport, Conn., Medical Society; died at his home in Bridgeport, July 17, from diabetes, aged 58.

John H. Barr, M.D. Medical College of Georgia, Augusta, 1890; of Reed, Okla.; a member of the Oklahoma State Medical Association; who had his leg amputated a few weeks ago as the effect of an accidental gunshot wound; died recently at Portales, N. Mex., aged 54.

William French Phillips, M.D. University of Louisville, Ky., 1890; a Fellow of the American Medical Association; is believed to have committed suicide by hanging himself in the barn of his brother-in-law near his home in Morning Glory, Ky., September 10, aged 58.

Merritt W. Thompson, M.D. Rush Medical College, 1877; a Fellow of the American Medical Association; for many years a practitioner on the northwest side of Chicago; died at the home of his daughter in that city, September 8, from cerebral hemorrhage, aged 60.

Truman G. Wilkinson, M.D. Medico-Chirurgical College of Philadelphia, 1899; a member of the Medical Society of the State of Pennsylvania; formerly of Williamsport, Pa.; was found dead in an office in Reading, Pa., September 3, aged 36.

Louis M. Trulson, M.D. Northwestern University Medical School, Chicago, 1898; surgeon of U. S. Volunteers during the Spanish-American War; a prominent practitioner and mayor of Stoughton, Wis.; died at his home, September 4, aged 41.

Richard Thomas Freeman, M.D. Royal College of Physicians, Edinburgh, Scotland, 1865; for many years a surgeon on Pacific steamships; died on board the Pacific Mail Steamship *Pennsylvania,* July 14, two days out of Panama, aged 69.

John Schwendener, M.D. Northwestern University Medical School, Chicago, 1878; a Fellow of the American Medical Association and a well-known north-side physician of Milwaukee; died at his home in that city, August 31, aged 67.

Wallace J. Babin, M.D. University of the South, Sewanee, Tenn., 1905; a member of the board of aldermen of Kenner, La.; who was attacked and severely wounded by burglars several weeks ago; died August 26, from his injuries.

Cornelius T. Ford, M.D. New Orleans School of Medicine, 1861; of Mullins, S. C.; chaplain and regimental surgeon in the Confederate service throughout the Civil War; died in a hospital in Wilmington, N. C., August 24, aged 80.

Simeon O. Davis, M.D. Marion-Sims College of Medicine, St. Louis, 1895; formerly of Chandler, Okla., but for a few months a resident of Kent, Iowa; died at Unity Hospital, Creston, Iowa, August 30, from nephritis, aged 50.

Daniel F. Bell, M.D. University of Virginia, Charlottesville; University of Maryland, Baltimore, 1867; a Confederate veteran and a resident of Missouri since 1869; died at his home in Marshall, Mo., September 1, aged 74.

Sydney J. Weaver, M.D. Memphis Hospital Medical College, 1904; a member of the Arkansas Medical Society; for several years mayor of Fulton, Ark.; died at his home in that city, August 29, from pellagra, aged 43.

Arthur Burrows Rood, M.D. Syracuse, N. Y., University, 1889; a Fellow of the American Medical Association and an ophthalmologist of Minoa, N. Y.; died at his home in that city, August 27, from septicemia, aged 50.

J. Asbury Day, M.D. University of Louisville, Ky., 1911; of Prospect, Ky.; a Fellow of the American Medical Association; was drowned near Prospect, Ky., about August 28, aged 28.

John Jacob Louis, M.D. University of Michigan, Ann Arbor, 1881; for thirty-two years a practitioner and druggist of Haselton, Youngstown, Ohio; died at his home, September 6, from carcinoma of the liver, aged 66.

Lucinda Hall Corr, M.D. Northwestern University Woman's Medical School, Chicago, 1874; a member of the Illinois State Medical Society; died at her home in Carlinville, Ill., September 3, aged 70.

Margaret H. Van Tine, M.D. Eclectic Medical College in the City of New York, 1878; for forty years a practitioner of Brooklyn, N. Y.; died at the Home for the Aged in that city, September 3, aged 86.

Benjamin Clarence Senton, M.D. Harvard Medical School 1871; at one time captain in the National Guard, State of New York; died at his home in Roxbury, Boston, September 1, from heart disease.

Hezekiah Seymour Houghton, M.D. Bellevue Hospital Medical College, 1886; a Fellow of the American Medical Association; died suddenly at his home in New York City, September 11, aged 52.

Josiah Brodbury McKechnie, M.D. Medical College of Ohio, Cincinnati, 1862; formerly a practitioner of Wilmington, Ohio; died at his home in Kansas City, Mo., about August 25, aged 80.

Americus Langston Montgomery, M.D. Tulane University, New Orleans, 1887; a member of the State Medical Association of Texas; died at his home in Oak Cliff, Tyler, Texas, August 20, aged 54.

Elizabeth Corwin, M.D. New York Medical College and Hospital for Women, New York City, 1886; formerly of Binghamton, N. Y.; died at her home in Battle Creek, Mich., August 18, aged 62.

Matthew Sterling Borden, M.D. Bellevue Hospital College, 1898; of New York City; was instantly killed September 9, at Palmero, N. J., in a collision between his automobile and a freight train.

Luther E. Wysong, M.D. University Medical College, Kansas City, Mo., 1900; died at his home in Kansas City, Mo., September 2, from accidental poisoning by strychnin, aged 41.

Charles J. Holmes, M.D. New York University, New York City, 1868; of Gaylord, Kan.; died at the home of his daughter in Ponca City, Okla., July 10, from gangrene of the leg, aged 71.

David Knight Morton, M.D. Kansas City, Mo., Medical College, 1875; a Confederate veteran; died at his home in Kansas City, August 28, from cerebral hemorrhage, aged 73.

Levi Loar (License practitioner, Iowa, 1886), for forty years a practitioner of Selma, Iowa; a veteran of the Civil War; died in Davis County, Iowa, August 13, aged 79.

Young Jonathan Acton, M.D. University of Dublin, Ireland, 1886; once mayor of Bremerton, Wash.; died at his home in that city, August 30, from heart disease, aged 53.

Charles Franklin Barstow, M.D. Hering Medical College, Chicago, 1898; was found dead in his office in Freeport, Ill., August 30, from cirrhosis of the liver, aged 59.

Joel E. Bobo, M.D. Physio-Medical College of Indiana, Indianapolis, 1891; formerly of Fort Worth, Texas; died in his home in Topeka, Kan., August 27, aged 43.

James M. Arnold, M.D. Tulane University, New Orleans; for more than thirty years a practitioner of Houston, Texas; died at his home in that city, June 11, aged 78.

G. S. Montgomery (License practitioner, Iowa, 1886), formerly of Atlantic, Iowa; died at the home of his son in Red Oak, Iowa, about August 28, aged 74.

John W. Grindle, M.D. Eclectic Medical College in the City of New York, 1882; died at his home in New York City, September 2, from diabetes, aged 60.

George Ethelbert King, M.D. Kentucky School of Medicine, Louisville, 1898; died at his home in Wedonia, Ky., July 20, from tuberculosis, aged 40.

George W. Hudson, M.D. University of Maryland, Baltimore, 1875; died at his home in Camden, Ark., August 21, from pneumonia, aged 70.

Cassius M. Overhulse, M.D. Starling Medical College, Columbus, Ohio, 1892; died at his home in Holgate, Ohio, August 26, aged 56.

Robert J. A. Irwin, M.D. Western Reserve University, Cleveland, Ohio, 1884; of Pittsburgh, Pa.; died at his home September 1.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SANATOGEN

A Scientific Investigation of Its Alleged Action on the Recuperating Powers of the Blood

Sanatogen, the new elixir of life compounded of casein and glycerophosphates, has been noticed in The Journal from time to time. It will be remembered that, while it has been claimed that "Sanatogen contains over 700 per cent. more tissue-building, life-sustaining nourishment than wheat flour," the facts are that one dollar's worth of wheat flour contains as much energy as one hundred and ninety-seven dollars' worth of Sanatogen! To this the manufacturers rejoin, in effect, that the casein and glycerophosphates in Sanatogen, being in chemical combination, possess a mystical and esoteric virtue not measurable in terms of the food-value of the several ingredients. The fact is, of course, that even assuming, for the sake of argument, that the ingredients of Sanatogen are in chemical combination, the compound cannot have any effect on the organism different from that of the uncombined casein and glycerophosphate, for the union must be of the loosest kind and must be broken up an soon as the preparation enters the digestive tract.

Testimonials are published in the Sanatogen "literature" which show results in a variety of conditions: cerebral concussion, alcoholic gastritis, anemia, etc. The patient is given a chance to recover with rest, proper diet—and Sanatogen. And the recovery which ensues is attributed to Sanatogen!

Not all of these testimonials are as naive as that of the Right Reverend the Bishop of Bath and Wells, who contributes the following bit of second-hand testimony:

> "You may like to hear that I am informed by my private secretary that a member of his family has derived *very remarkable benefit* from using Sanatogen."

The following selections perhaps fairly represent the value to science of the clinical evidence offered. Describing a case of vomiting from cerebral concussion:

> "I ordered an ice-bag to the head, a mustard leaf to the epigastrium, absolute recumbency in bed and small feeds of Sanatogen with water. This diet was continued for three days, but the vomiting ceased the second day."

And here a case of "hungry tired nerves":

> "I have just had a recovery in a remarkable case which scores a victory for Sanatogen. The patient, a man 63, had been treated for some years past for heart trouble. When he came to me, however, I diagnosed his trouble as 'hungry tired nerves.' I put him on Sanatogen and eupeptics. In a month he was much improved."

In a serious case of the "American disease":

> "I tried Sanatogen on a woman suffering from extreme neurasthenia and debility. For the past six weeks I have had, and still have, her under rest-cure treatment, during which time I have given her Sanatogen. I have been very much elated with the treatment."

Anemia in a girl of 23 working in a bookbindery:

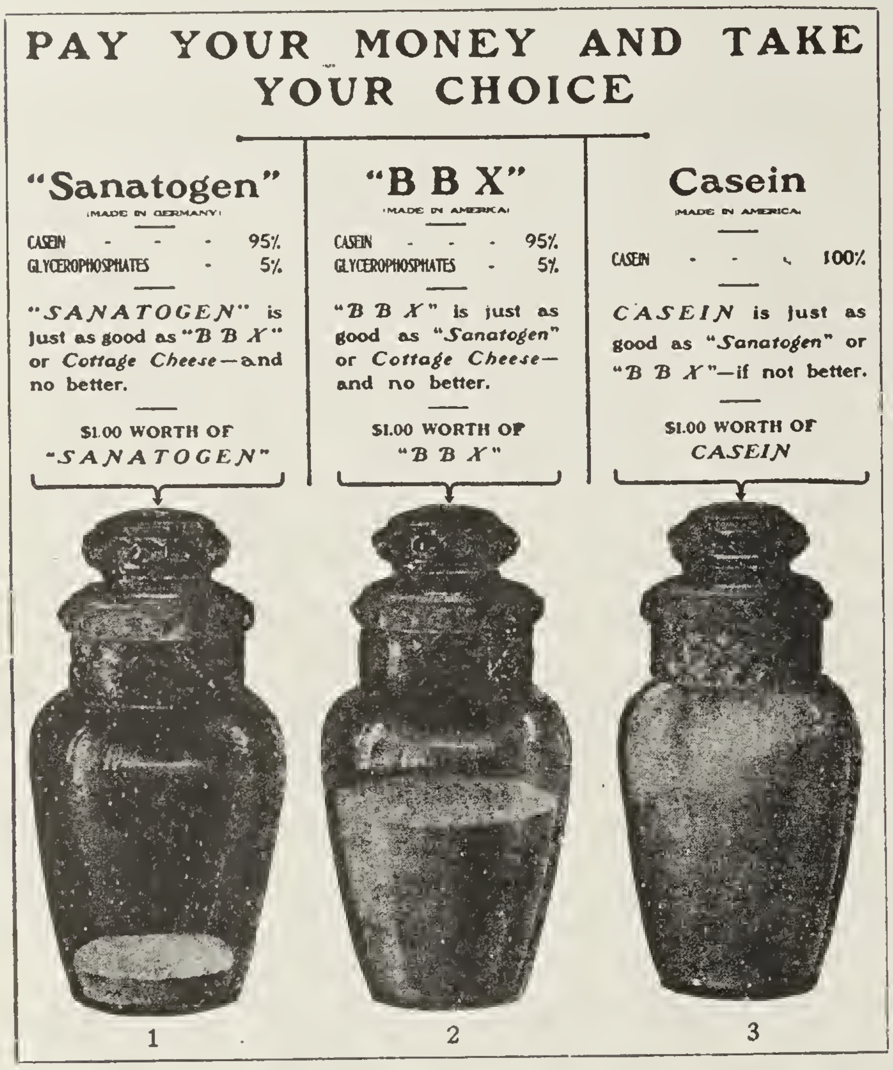
> "I promptly decided to use Sanatogen. In addition, I was able to secure the girl's absence from work so that she had the advantage of outdoor life and sunshine. Improvement was rapid. . . . Both apriori and from results obtained it seems almost justifiable to speak of Sanatogen as a specific in ordinary uncomplicated anemia."

Note that in all these cases two or more remedial factors were introduced, yet any favorable result is promptly ascribed to only one factor, Sanatogen! And the factor of spontaneous improvement irrespective of all remedial measures is also ignored.

A "SCIENTIFIC" TESTIMONIAL

Every physician knows that the kind of evidence just quoted has the same scientific value as that of the average "patent medicine" testimonial—none whatever. The exploiters of Sanatogen put forward some testimony, however, that purports to have a certain authority. This is a statement to the effect that "Sanatogen acts as a strong stimulus as far as the recuperative powers of the blood are concerned."

This claim is based on biologic experiments carried out by two physicians, Drs. G. Mann and J. G. Gage, the record of whose work was published in the *Lancet*, Oct. 19, 1912. The article of Mann and Gage was gone over with some care and the experiments there described did not seem to justify the conclusions reached by the authors. As it had been published in the *Lancet*, a medical journal of standing, whose publishers apparently thought it of sufficient importance to warrant the expense of a colored plate insert, it seemed worth while to have the work of Mann and Gage reviewed and its conclusions checked by parallel experiments. A. J. Carlson, professor of physiology at the University of Chicago, was asked to do this work and kindly undertook it. His report follows:


PAY YOUR MONEY AND TAKE YOUR CHOICE

"Sanatogen"
(MADE IN GERMANY)
CASEIN - - - - 95%
GLYCEROPHOSPHATES - 5%
"*SANATOGEN*" is just as good as "*B B X*" or *Cottage Cheese*—and no better.
$1.00 WORTH OF "*SANATOGEN*"

"B B X"
(MADE IN AMERICA)
CASEIN - - - - 95%
GLYCEROPHOSPHATES - 5%
"*B B X*" is just as good as "*Sanatogen*" or *Cottage Cheese*—and no better.
$1.00 WORTH OF "*B B X*"

Casein
(MADE IN AMERICA)
CASEIN - - - 100%
CASEIN is just as good as "*Sanatogen*" or "*B B X*"—if not better.
$1.00 WORTH OF *CASEIN*

Above is a photographic reproduction of one of the exhibits made at Atlantic City at the last annual meeting of the American Medical Association.

Jar 1 contains 3⅓ ounces of the casein-glycerophosphate combination made abroad and sold under the name "Sanatogen;" it costs One Dollar.

Jar 2 contains 2 pounds 13½ ounces of a casein-glycerophosphate combination made by an American casein company; it costs One Dollar. For the same money, then, one gets nearly 15 times as much of this casein-glycerophosphate combination made in America as when the casein-glycerophosphate combination is sold under the name "Sanatogen" and manufactured abroad.

Jar 3 contains one dollar's worth of pure casein. The casein entirely fills the jar, although the weight of the material is the same as the weight of the casein-glycerophosphate combination in Jar 2. Pure casein is more bulky than the casein-glycerophosphate combination.

Again we would emphasize that the chief objection to Sanatogen is not its high price but the fraudulent claims under which it is sold.

Report of Professor Carlson

I am asked to review the work done by Drs. G. Mann and J. G. Gage, from which they draw the following conclusions:

> "Sanatogen [sodium caseinogenate glycerophosphates] further stimulates blood-cells to undergo nuclear division, which during the early period is mostly amitotic. . . . Therefore, it is evident that Sanatogen acts as a strong stimulus as far as the recuperative powers of the blood are concerned."

Three series of experiments were made and reported by Drs. Mann and Gage, comparing the histology of the blood in starvation and during the height of digestion. The experiments of the first series were made on six students, the starvation period being thirty-six hours, ordinary food being taken after the thirty-six hours' fast, so far as can be gathered from Dr. Mann's report. It was found that during the height of digestion the nuclei of the lymphocytes and leukocytes stain more deeply, and that there is a slight decrease in the cytoplasm and consequent diminution in the size and number of the granules of the neutrophil and the eosinophil cells, in comparison with the blood during fasting.

The experiments of the second series were made on 100 frogs that had starved for months, blood-films being taken at varying periods after feeding 1 gm. Sanatogen. The changes noted in the white blood-cells of the frogs were practically identical with those described in the case of the six students. Increased cell division is stated to occur. The nuclei of the erythrocytes stain more deeply and the cells are increased in size, and exhibit increased cell division twenty-four hours after the feeding.

The third series consisted of one experiment on Dr. Mann himself. He fasted twenty hours and then took 15 gm. of Sanatogen in a cup of water. Practically the only change noted in the blood after the feeding was a deeper staining of the nuclei of the white cells. To quote:

> "The changes in the granules of the polymorphonuclear leukocytes and in the eosinophils were much less marked than in the specimens supplied by the students, and the diminution in the size of the white cells was so insignificant as to be hardly noticeable."

Assuming that the blood-changes reported are correct, is the conclusion warranted that Sanatogen is a powerful recuperative stimulant to the blood?

In the first place, it remains to be proved, for there is as yet positively no evidence that the deeper staining of the nuclei during digestion and absorption of a protein meal represents "recuperative power of the blood" or processes of "feeding" on the part of the white cells. The actual significance of these changes requires further investigation. The increased division of the blood-cells described by Dr. Mann in the frogs was not observed by him in man. This phenomenon in the frogs is, in all probability, associated with the extraordinary length of the starvation period (months) and the well-known seasonal variations in the physiology of this species.

In the second place, waiving for the moment the question of the significance of the blood-changes observed, the evidence, so far as it goes, points to the conclusion that the greater affinity of the nuclei of the white cells for the stain is brought about by the feeding of any protein food. The experiments do not demonstrate any different or more marked effect from Sanatogen than from other protein foods. The test on the six students with ordinary food can be considered as a control on the single Sanatogen test on Dr. Mann himself. The blood-changes in the students were more marked than in Dr. Mann.

Although Mann and Gage say that six frogs were used as controls, they do not say how the controls were treated, or draw any comparisons between the controls and the frogs fed with Sanatogen. So far as the report goes, therefore, the only basis for comparison is afforded by the work of one of Dr. Mann's pupils, H. G. Butterfield. This worker, as quoted by Mann, found that on feeding newts after two weeks' starvation with a worm the size of a wooden match, the nuclei of all tissues (excepting nerve cells) take a much deeper stain than in the control animals. To pronounce Sanatogen, on the basis of the facts reported, a "powerful stimulus" to blood-formation is a piece of special pleading, if not of downright disingenuousness. Considered on its own merits, the work would not have appeared to me worthy of being repeated for the purpose of checking up such obviously unwarranted conclusions. In order to comply with the request made of me, however, I have repeated Dr. Mann's experiments:

EXPERIMENTS BY PROFESSOR CARLSON

I. TESTS ON MAN (A. J. C.)

1. 36 hours' fast followed by a meal of 25 gm. Sanatogen in water.
2. 36 hours' fast followed by a meal of 25 gm. casein in water.
3. 36 hours' fast followed by a meal of 200 c.c. of milk.

II. TESTS ON RATS

1. 4 animals, 72 hours' fast followed by a meal of Sanatogen in water.
2. 2 animals, 72 hours' fast followed by a meal of crackers and milk.

3. 2 animals, 72 hours' fast followed by a meal of casein in water.
4. 2 animals, 72 hours' fast followed by a meal of casein and sodium glycerophosphate in water.

Blood-films were taken at intervals during the fasting period and for twenty-four hours after feeding was resumed. The technic of fixing and staining given by Drs. Mann and Gage was followed in every detail in order to make my results comparable with their findings.

RESULTS

My results may be summarized as follows:

1. The only change in the blood-cells that could be detected with certainty in rats or in man, after feeding with Sanatogen or after feeding with other foods, was a deeper staining of the nuclei of the white cells in the films taken after feeding as compared with the films taken during fasting. This difference is generally distinct and unmistakable, although individual cells can always be found in the fasting and the feeding preparations that show no difference in affinity for the dyes. To this extent my results confirm those of Mann and Gage. I was not able, however, to make out any constant difference in the size of the cells, quantity of cytoplasm, or size and number of cytoplasmic granules similar to those reported by Mann and Gage.

2. There was no difference in the affinity for stains on the part of the white blood-cells in films taken after feeding Sanatogen and those taken after feeding milk, crackers, casein, and casein and sodium glycerophosphate. This is true for the tests both on man and on rats.

3. The above-mentioned difference in the staining of the cell nuclei was somewhat more marked in the tests on rats than in the tests on man, probably owing to the longer starvation period in the case of rats.

It has already been stated that the significance of this increased affinity for dyes in the nuclei of the white blood-cells must be determined by further investigation. It may be related to the change in the titration alkalinity of the blood rather than an evidence of "recuperative power" on the part of the blood, as it is well known that starvation induces acidosis, while during digestion the alkalinity of the blood is distinctly increased. If we assume that increased staining reaction during digestion indicates "increased recuperative power of the blood" it follows that such common and inexpensive foods as milk, crackers and casein are just as "powerful stimuli" to this recuperation as Sanatogen.

The extensive researches of Mendel and Osborne have shown that casein is in a certain sense a perfect food in that it is, in normal animals, capable of promoting growth and maintaining nitrogenous equilibrium, at least for long periods of time. The burden of proof, however, rests with the promoters of Sanatogen to show that the casein in Sanatogen is superior to the natural product of the cow.

Conclusion

From the findings in Professor Carlson's report on this disguised puff of a mendaciously exploited proprietary, about all that remains to be said is that it is humiliating to find such pseudo-science not only built up by members of a profession trained in science, but also given currency and authority by a medical journal of high standing.

The Character of Lister.—In the midst of his great triumph Lister preserved, unstained from the breath of vanity, the noble qualities of character that were his. He was ever gentle, courteous and firm. Trying as are the exactions and responsibilities of an important surgical post, Lister was never known to speak a sharp word to house surgeon, dresser or any one in his service. His scientific spirit and discovery attracted the curiosity of the students and young graduates of Edinburgh; his personal nobility won their hearts. His art of winning their loyalty was by inspiring enthusiasm and giving encouragement. "Often in the middle of a trying operation," wrote one of his pupils, "a gentle smile bestowed on us young students when we were honestly trying to do our best as assistants was most encouraging." Many of his students afterward confessed that their contact with Lister was the best and purest influence of their lives.—G. T. Wrench, *Lord Lister, His Life and Work.*

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

FORMULAE FOR LIQUID SOAP

To the Editor:—I would be pleased to have you criticise the following formula for making liquid soap.

	gm. or c.c.
Sodium hydroxid	80
Potassium hydroxid	80
Cottonseed oil	1,000
Alcohol	500
Water	2,500

Dissolve the hydroxids in 500 c.c. of water. After solution has been effected, add the alcohol, and, finally, the cottonseed oil in several portions, and shake thoroughly until saponified. Finally add water sufficient to make ———.

To the soap liquid thus prepared add:

	gm. or c.c.
Potassium carbonate	30
Terpineol	12
"Evergreen A," sufficient to produce a grass-green color.	

We have been trying to make this soap for use in the operating room, but have never succeeded in making a clear solution with the formula as it stands; there has always been an insoluble residue left. I would be specially pleased to know if the quantity is to be "q. s." 2,500 c.c. or if enough water should be added after the addition of 2,500 c.c. to make complete solution.

A. E. CONTER, M.D., Chattahoochee, Fla.

ANSWER.—The trouble encountered is probably due to the fact that saponification was not complete before the addition of the remaining portion of water. The procedure should be modified to take advantage of the heat generated by the solution of the caustic alkalies in the mixture of water and alcohol, deferring the addition of the final portion of water until after all the oil has been thoroughly saponified. Add the sodium hydroxid and potassium hydroxid to 500 c.c. of water in a suitable container, add one-half the quantity, or 250 c.c., of the alcohol; then add the oil gradually with constant stirring or occasional shaking, and after a uniform emulsion has been formed allow to stand until the mixture is practically transparent, indicating that the oil has been thoroughly saponified; then add the remaining portion of alcohol and 2,500 c.c. of water. This should readily make 5,000 c.c. or more of the liquid soap which, while slightly alkaline, is not objectionably so.

A simpler formula has been suggested by Mr. Thum of the German Hospital of Philadelphia. This formula is somewhat more economical and produces a soap that is less alkaline in reaction. It may be flavored and colored to suit:

	gm. or c.c.
Sodium hydroxid	55
Potassium hydroxid	65
Cottonseed oil	800
Alcohol	500
Water	to make 5,000

Dissolve the hydroxids in 60 c.c. of water, add all of the oil and 100 c.c. of alcohol at once and stir continuously until a permanent emulsion has been formed; allow to stand until saponification is complete and add remainder of alcohol, and water sufficient to make up the volume.

USE OF TALCUM POWDERS

To the Editor:—1. Can you inform us whether talcum powder possesses any therapeutic value in the treatment of skin affections?

2. What is the effect of plain talc on the skin? Why is it good for the skin, if it is good?

3. Exactly what is the effect of boracic acid on the skin?

4. About what proportion of boracic acid to talc should a talcum powder contain to be most beneficial?

5. What is the effect on the skin of any other ingredients contained in talcum powder?

6. Do you know of any investigations made, or have you had any experience, as to the comparative value of different commercial talcum powders, and what did such investigations and experience disclose?

J. WALTER THOMPSON COMPANY, New York.

ANSWER.—1 and 2. The effect of any powder on the skin can only be somewhat protective and dehydrating. On the other hand there is a tendency to the formation of crusts and pastes, due to mixture of the powder with sweat or other secretions.

3. The effect of boracic acid is slightly antiseptic, but there is some doubt as to even this slight value when the chemical is applied in powder form.

4. The salicylated talcum powder of the National Formulary contains 10 per cent. boric acid. The importance of this powder depends rather on the salicylate, however, than on the other ingredients. Various commercial talcum powders contain small quantities of different antiseptic and perfuming agents. For absorbent purposes by far the most effective powder is magnesium carbonate powder.

5. In general it may be stated that talcum powders seem to have but little value from a therapeutic point of view, and their value esthetically must be considered entirely from the point of view of the individual employing them.

REFERENCES TO PSYCHANALYSIS

To the Editor:—Please explain or refer me to an explanation of psychanalysis. J. A. Balsley, M.D., Santa Monica, Cal.

Answer.—The following is a list of references on this subject:

Burrow, T.: The Psychanalyst and the Community, The Journal, June 13, 1914, p. 1876.

Dercum, F. X.: The Evaluation of the Psychogenic Factors in the Etiology of Mental Disease, including a review of Psychanalysis, The Journal, March 7, 1914, p. 751.

Coriat, I. H.: Interpretation of Imaginative Creations by Psychanalysis, The Journal, Feb. 8, 1913, p. 464.

Brill, A. A.: Psychanalysis, Ed. 2, Philadelphia, W. B. Saunders Company, price $3.

Jones, E.: Papers on Psychoanalysis, New York, William Wood & Co., price $4.

Solomon, M.: Psychoanalysis, *New York Med. Jour.*, May 9, 1914.

Jelliffe, S. E.: Technic of Psychoanalysis, *Psychoanalytic Rev.*, Nov. 1, 1913.

Putnam, J. J.: Broader Issues of Psychoanalytic Movement, *Am. Jour. Med. Sc.*, March, 1914.

Janet, P.: Psychoanalysis, *Jour. Abnorm. Psychol.*, April and May, 1914.

Putnam, J. J.: Dream Interpretation and Theory of Psychoanalysis, *Jour. Abnorm. Psychol.*, April and May, 1914.

Engelen, P.: Psycho-Analysis, *Deutsch. med. Wchnschr.*, Oct. 16, 1913.

Oberndorf, C. P.: Scope and Technic of Psycho-Analysis. *Med. Rec.*, New York, Nov. 29, 1913.

Eder, M. D.: Present Position of Psycho-Analysis, *Brit. Med. Jour.*, Nov. 8, 1913.

Tannenbaum, S. A.: Psychoanalysis, *New York Med. Jour.*, Feb. 7, 1914; *Med. Rec.*, New York, Feb. 21, 1914.

Scripture, E. W.: What is Psychanalysis? *Med. Rec.*, New York, April 26, 1913.

Becker, W. F.: Psycho-Analysis, *Wisconsin Med. Jour.*, May, 1913.

Hesnard, A.: Freud's Method of Psychanalysis, *Jour. de méd. de Bordeaux*, May 25, 1913.

Forsyth, D.: Psycho-Analysis, *Brit. Med. Jour.*, July 5, 1913.

Burrow, T.: Psychologic Analysis of So-Called Neurasthenic and Allied States, *Jour. Abnorm. Psychol.*, October, 1913.

MILK OF MAGNESIA—LACTOSE OR GLUCOSE IN URINE

To the Editor:—1. Please give a formula for making milk of magnesia.

2. I have a patient who is six months pregnant; her urine gives a very decided yellow precipitate with Fehling's solution. Is there any way to determine if this is lactose or glucose except with a polariscope? We have no polariscope. B. S. A.

Answer.—Milk of magnesia is a synonym for magma magnesiae, an aqueous suspension of magnesium hydroxid, made by reaction between magnesium sulphate and sodium hydroxid (see National Formulary). Each teaspoonful contains about 3 grains of magnesium hydroxid. It is used as an antacid and mild laxative in adult doses of 8 c.c. (or 2 fluidrams). Unless made with water free from iron and organic matter, the magma is likely to be discolored.

2. If a specimen of urine reacts with Fehling's solution and with Nylander's test, but fails to give a reaction with phenylhydrazin and does not ferment with yeast, the presence of lactose may be inferred. If the urine be boiled with 2 per cent. sulphuric acid and then neutralized, its optical activity will be increased and it will be capable of undergoing fermentation.

DEFINITION OF A CORONER'S CASE

To the Editor:—When is a case a coroner's case in New York State? X. Y. Z., New York.

Answer.—Chapter 410, Section 1773, Laws of 1882, reads as follows: "If a person dies from criminal violence or by a casualty, or suddenly while in apparent health, or when unattended by a physician or in prison, or in any suspicious or unusual manner, the case must be referred to the coroner."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Colorado: Denver, October 6. Sec., Dr. David A. Strickler, Empire Bldg., Denver.

District of Columbia: Washington, October 13-15. Sec., Dr. George C. Ober, 125 B St., S. E., Washington.

Georgia: Atlanta, October 13-15. Sec., Dr. C. T. Nolan, Marietta.

Idaho: Wallace, October 6. Sec., Dr. John F. Schmershall, Jerome.

Illinois: Chicago, October 6-8. Sec., Dr. C. St. Clair Drake, Springfield.

Kansas: Topeka, October 13-15. Sec., Dr. H. A. Dykes, Lebanon.

Louisiana: New Orleans, October 29-31. Sec., Dr. E. L. Leckert, New Orleans.

Michigan: Lansing, October 13-15. Sec., Dr. Beverley D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, October 6-9. Sec., Dr. Thomas McDavitt, Lowry Bldg., St. Paul.

Mississippi: Jackson, October 27-28. Sec., Dr. E. H. Galloway, Jackson.

Missouri: Kansas City, September 28-30. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

Montana: Helena, October 6. Sec., Dr. William C. Riddell, Helena.

New Jersey: Trenton, October 20-21. Sec., Dr. H. G. Norton, Trenton.

New Mexico: Santa Fe, October 12. Sec., Dr. W. E. Kaser, East Las Vegas.

Oklahoma: Muskogee, October 6-8. Sec., Dr. John W. Duke, Guthrie.

Rhode Island: Providence, October 1-2. Sec., Dr. Gardner T. Swarts, State House, Providence.

West Virginia: Clarksburg, October 13. Sec., Dr. S. L. Jepson, 81 Twelfth St., Wheeling.

Wyoming: Kemmerer, September 28-30. Sec., Dr. H. E. McCollum, Laramie.

Pennsylvania June Report

Dr. N. C. Schaffer, secretary of the Bureau of Medical Education and Licensure of Pennsylvania, reports the written examination held at Philadelphia, June 1-2, 1914. The total number of subjects examined in was 5; total number of questions asked 50; percentage required to pass 75. The total number of candidates examined was 78, of whom 65 passed and 13 failed. The following colleges were represented:

College PASSED	Year Grad.	Total No. Examined
University of Southern California	(1912)	1
Georgetown University	(1913)	3
Chicago College of Medicine and Surgery	(1911,1); (1913,1)	2
University of Louisville	(1913)	1
Baltimore Medical College	(1910,1); (1913,1)	2
Johns Hopkins University	(1912)	1
Maryland Medical College	(1912,5); (1913,1)	6
University of Maryland	(1903)	1
New York Homeo. Med. Coll. and Flower Hospital	(1912)	1
Starling-Ohio Medical College	(1913)	1
Hahnemann Med. Coll. and Hosp., Phila.	(1912,1); (1913,7)	8
Jefferson Medical College	(1912,1); (1913,11)	12
Medico-Chir. Coll. of Phila.	(1912,2); (1913,12); (1914,1)	15
Temple University	(1912)	1
University of Pennsylvania	(1912,3); (1913,4)	7
University of Pittsburgh	(1913)	1
University of Toronto	(1911)	1
Kaiser-Wilhelms University, Germany	(1913)	1

College FAILED	Year Grad.	Per Cent.
University of Louisville	(1911) 58.8, 72; (1913)	63.8
Maryland Med. Coll.	(1912) 63.4, 61.8, 62.2; (1913) 64.2,	62.6
Hahnemann Medical Coll. and Hosp., Phila.	(1913)	71
Woman's Medical College of Penna.	(1910)	72
Royal University of Naples, Italy	(1895) 64.4; (1913)	68.8
National University of Athens, Greece	(1910)	69.8

The following questions were asked:

PHYSIOLOGY, PATHOLOGY AND BACTERIOLOGY

1. Describe the lesions in typhoid fever. Outline the laboratory tests for verifying the diagnosis. 2. Describe the lesions, name the causes and outline the laboratory technic for demonstrating the varieties of inflammations of the eyes of the newborn. 3. Give a case of incipient tuberculosis of the lungs. Outline the laboratory tests that would aid in confirming the diagnosis. 4. Give an acute case of peritonitis (a) how are the toxins absorbed? (b) discuss the rationale of the sitting position and enteroclysis in the treatment of the above condition. 5. Given a case of gonorrheal infection, describe the heart lesions that may result. Contrast the disturbed functions of such a heart with the functions of a normal heart. 6. Contrast the blood-picture in leukemia and pernicious anemia with that of normal blood. 7. Describe the lesion in (a) gastric ulcer; (b) carcinoma of the stomach. Differentiate these lesions by laboratory methods. 8. Differentiate, by an examination of the spinal fluid, the various forms of meningitis. 9. Name two pathologic

conditions that usually have icterus as a symptom. What is the significance of icterus, (a) as regards the liver? (b) as regards digestion? 10. Briefly describe the types of gangrene. What is understood by the "line of demarcation?"

DIAGNOSIS, SYMPTOMATOLOGY, TOXICOLOGY AND MEDICAL JURISPRUDENCE

1. Describe the symptoms of the various forms of asthma, and differentiate them from chronic bronchitis. 2. State in detail the symptoms diagnostic of ileus, and name four conditions which may cause it. 3. Describe the symptoms of diphtheria and differentiate it from follicular tonsillitis. 4. State the symptoms of rubella (Roetheln) and differentiate it from measles, scarlet fever and urticaria. 5. Describe the symptoms diagnostic of gonorrheal arthritis, and differentiate it from tubercular joint. 6. State the symptoms of iritis and differentiate it from glaucoma and keratitis. 7. Differentiate aortic regurgitation from mitral regurgitation. 8. Enumerate the symptoms of a poisonous dose of (a) bichlorid of mercury; (b) aconite; (c) arsenic. Give the immediate treatment for each one. 9. On what data would you base a diagnosis of (a) syphilis? (b) tetanus? (c) gonorrhea? Name one laboratory test for each. 10. What precautions, from a medicolegal standpoint, should the physician or surgeon exercise when treating fractures or dislocations?

OBSTETRICS, GYNECOLOGY AND PHYSIOLOGICAL CHEMISTRY

1. Enumerate the causes of backward displacement of the womb, (a) in nulliparas, (b) in multiparas. Discuss the treatment in each case with reasons for the same. (Omit description of operation). 2. Give the methods of making an early diagnosis of cancer of the uterus, (a) cervix, (b) fundus. Outline an appropriate treatment for each. (Omit description of operation.) 5. Outline a satisfactory preparatory treatment for plastic operations on the vagina, giving reasons for each step. 4. Name four abdominal enlargements which may be mistaken for advanced pregnancy (seven months or more) and differentiate each from such possible pregnancy. 5. State the probable causes of vomiting of pregnancy. What methods would you adopt for its relief and state the theory on which you would use the remedies advised. 6. Given a pregnant woman (the first three months), what symptoms would indicate a possible abortion? In case the abortion occurred, how would you treat the case? (Omit description of operation.) 7. Discuss the various toxemias of pregnancy from the viewpoint of premonitory symptoms. Discuss their treatment (a) prophylactic, (b) after having become well established. 8. Give arguments for and against the so-called low protein food standard. 9. Explain the relationship between the pigment of the blood, bile and feces. 10. Explain the processes of physiological chemistry by which indican is ultimately eliminated and where is it ultimately found.

SURGERY AND ANATOMY

1. State the avenues and possible points of metastasis of a malignant growth of the breast. On what symptoms may an early diagnosis of cancer of the breast be based? 2. State (a) what structures may be injured in a subcoracoid luxation of the humerus. (b) How may this condition be recognized? (e) How may it be corrected? 3. Name three usual causes of rectal strictures. Outline (without details) a palliative operation for this condition. 4. Enumerate (without explanations or details) conditions which might exist in a patient tending to complicate and render more dangerous a surgical operation. 5. What conditions would call for catheterization of the male bladder? Describe in detail a proper method. 6. Describe (a) a method of preventing surgical shock; (b) its treatment. 7. In the case of an abdominal operation, give in detail (a) a method of preparing the patient; (b) the surgeon. Give reasons for each step. 8. Outline (a) methods of prevention; (b) the treatment of bed sores. 9. In fractures of the upper third of the femur, what is the usual position of the fragments? What muscular action causes the same? 10. What anatomic structures are involved in flat-foot? What methods of treatment would you adopt for its correction?

PRACTICE AND THERAPEUTICS AND MATERIA MEDICA, HYGIENE AND PREVENTIVE MEDICINE

1. Describe the therapeutic action of suprarenal gland, thyroid gland and pituitary body. 2. Outline the management of a case of syphilis in both the primary and tertiary stages. 3. Name two remedies and the indications for their use in each of the following conditions: 1, impetigo contagiosa; 2, scabies; 3, tapeworm; 4, hemoptysis; 5, croup (nondiphtheritic). 4. Name and describe three methods for the purification of water intended for drinking purposes. 5. On what theories or principles are cold baths and cold sponging resorted to? State the indications calling for such measures. 6. Give in detail the dietetic and hygienic rules and regulations you would prescribe in a case of diabetes mellitus. 7. Outline the management of a case of nocturnal enuresis. 8. Explain the difference between the principles underlying vaccine therapy and serum therapy. State the character of danger in their application to the human body. 9. What errors in diet or hygiene or occupational conditions may cause or aggravate acute eczema? Write a prescription for a suitable application stating the special purposes expected to be accomplished. State one drug to be used internally, with the reasons for its employment. 10. Give the hygienic measures tending to prevent epidemic "colds." Give the management of an acute attack, including three remedies and reasons for their use.

What is Scholarship?—The answer is: The discovering, the organizing and the explaining of new facts. Only the uninformed and unscholarly are in the habit of designating the mere diffusion of knowledge as scholarship.—F. C. Brown, —*Science.*

Book Notices

Radium and Radiotherapy. Radium, Thorium and Other Radio-Active Elements in Medicine and Surgery. By William S. Newcomet, M.D., Professor of Roentgenology, Temple University. Cloth. Price, $2.25 net. Pp. 315, with 72 illustrations. Philadelphia: Lea & Febiger, 1914.

The knowledge of radium introduces the physician to a strange world. When one begins to talk of transformations of one element into another, the chemical ideas in which many physicians now in practice were educated are outraged; and when the exact length of life of elements varying from two minutes to 8,000,000,000 years is calculated, one can only wonder what science will next bring forth. It must be acknowledged that radium is a powerful agent and at the same time a dangerous one, and if the physician is to handle this new power he must have a thorough knowledge of its capabilities and limitations. This means that he must have a new education in a large field of chemistry. Owing to the cost of the material this knowledge can be gained by approved methods of experimental science only to a limited extent. Text-books must be resorted to, and for this purpose the present work is very well adapted. The practical consideration of the therapeutic use of the radio-active elements is conservative, but up to date. The author gives the following estimate of the value of these preparations in internal medicine:

"The exact status of these radio-active elements in internal medicine is by no means a settled question; perhaps the observations in some instances have been greatly exaggerated; yet, at the same time, from an experimental standpoint these elements produce changes which have been noted by most careful observers, who practically agree on the salient points, and from their deductions it is rational to adopt some of the conclusions which have brought about the application of these elements. But as most of the diseases in which they have been employed belong to a class for which certain forms of treatment have been periodically promulgated, to be used for a short time and finally be forgotten, more proof must be given of their efficiency before they can be universally adopted."

This book will be found serviceable to medical men, both to those who are using or who propose to use radium as well as to those who want to familiarize themselves with all knowledge regarding it.

Therapeutics, Dietetics and Hygiene. An Australian Text-Book. By John William Springthorpe, M.A., M.D., M.R.C.P., Senior Physician to the Melbourne Hospital. Two Volumes. Cloth. Price, 25 shillings net per volume. Pp. 1120, with illustrations. Melbourne: James Little, 1914.

Australia is a new continent with new ideals which extend to the domain of medicine and hygiene as well as to politics and sociology. Among the physical ideals is the hope that by the culture of a pure white race a state of physical perfection may be attained which will outstrip anything that the world has yet seen. Dr. Springthorpe has entitled his work an Australian text-book, intimating at least that it expresses something of the high aims of Australian medicine. It is published in two volumes. One characteristic of the author's work is the attempt to correlate the psychic and the physical and to base his science as well as his practical methods on a philosophy which recognizes mind associated with matter, if not supreme over it, in the whole realm of science. Hence he includes mental and moral influences in his study of the causes of disease and in the consideration of the methods of hygiene. Aside from the peculiar point of view given by the fact that this is especially an Australian text-book, attention must be called to the prominence given throughout the book to the public relations of hygiene. The subject of education is discussed from the intellectual and emotional side as well as the physical. The portrayal of child life is not limited to a description of physical degenerations and deformities, but takes in the effect of immoral environment as well. The author indulges in much philosophizing and quotes some interesting passages which appear to have little to do with the immediate subject. On the topic of public hygiene the author gives some valuable observations on the topographic peculiarities of the different parts of Australia, giving its climate conditions with some detail. The subjects of water-supply, sewage, ventilation, housing, clothing and hygienic habits are discussed with special relation to the national needs and peculiarities.

The volume on therapeutics is less local and presents the remedies and principles of treatment which are familiar to other parts of the civilized world. There is a description of Australian mineral springs, watering places and sanatoriums. No note seems to be made of an indigenous vegetable materia medica. Vaccine therapy receives due consideration. In approaching radiotherapy the author again indulges in some speculation and recalls the fact that "to-day science confidently bases the whole of physics and chemistry on an ethereal substratum." Further on he says: "Hence in the most modern refinements of therapeutics we find ourselves in the ethereal stage, and separated by the narrowest of margins, if separated at all, from the immaterial and the psychical. Thus in x-rays, radiotherapy and ionic medication, we are close to the very essence of things, and to the very origin of life itself." The chapter on this subject is, however, not very long, and the powers attributed to radium are very moderate. The volume is concluded by a chapter entitled "Therapeutic Memorabilia" which contains a large number of hints on the treatment of a variety of diseases.

To one who can find in the expressions of therapeutists a finger pointing to future developments of the healing art, these two volumes with their antipodal flavor and their philosophic trend may indicate a new phase of medical teaching. Their scientific value is somewhat diminished by the rhetorical padding, which, although good in itself, is not exactly scientific. They form interesting reading, but it is unfortunate that their typography in many places does no credit to Australian printing. They are illustrated by a number of very good plates.

Theorie und Praxis der Blutentziehung, nach dem gegenwärtigen Stande der Wissenschaft Bearbeitet. Von Prof. Dr. Heinrich Stern, Oberarzt für Innere Medizin am St. Mark's Hospital, New York. Paper. Price, 3.50 marks. Pp. 144, with 15 illustrations. Würzburg: Curt Kabitzsch, 1914.

It is at any rate an interesting if not important indication of the international character of our medical literature that an increasing number of American physicians contribute to German journals and publish more or less extensive works in the German language. The present work by Dr. Stern is an example of this tendency. The subject is as old as medicine, and while the present century presents the lowest ebb of bloodletting in therapeutics, yet enough scientific fact and clinical experience are found to constitute a very good defense of the ancient practice. While it is safe to say that a very large portion of the present generation of physicians have no experience in the use of the lancet, it may very well be that an extension of this method would follow if those who know little or nothing of it would give time to a careful perusal of the evidence in favor of this powerful mode of influencing the blood-pressure and the metabolism. There appears to be a lack of monographs on this subject in English which we may hope to see supplied either by a translation of Stern's work or by the publication of a new one.

Text-Book of Anatomy and Physiology for Training Schools and Other Educational Institutions. By Elizabeth R. Bundy, M.D., Member of the Medical Staff of the Woman's Hospital of Philadelphia. Third Edition. Cloth. Price, $1.75 net. Pp. 408, with 233 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This work ought to be entitled "Applied Anatomy and Physiology," as nearly every chapter ends with a paragraph or two headed "Surgical Notes" or "Clinical Notes," and this of course adds greatly to the value of the book. The illustrations are well selected. There is a table of systemic arteries in the old nomenclature, and tables of the systemic arteries and veins according to the Basle anatomic nomenclature. There is an excellent glossary which, however, does not give the origin of the words.

Medicolegal

Entitled to Recover for Quarantining Infantile Paralysis

(Shidler vs. York County (Neb.), 146 N. W. R. 949)

The Supreme Court of Nebraska holds that a duly licensed physician, acting under the order of the State Board of Health in quarantining and suppressing a highly contagious disease, may recover of the county, where such disease was prevalent, the actual expenses incurred by him and the reasonable value of his services. The court says that in the summer and fall of 1909 there was a large number of cases of what is commonly called "infantile paralysis" in York County. Many of the communities in the stricken territory were thrown into a condition approaching panic, and notably among those communities was the city of York in York County. The then chairman of the county board of health expressed himself as opposed to a quarantine, and failed and refused to call a meeting of the county board of health, or to take any other measures relative to the disease, or to the investigation or control of it, and, on July 20, 1909, the State Board of Health ordered that said disease be quarantined in York County, and by its order instructed the state health inspector to communicate its order to the plaintiff, and to require him to establish and maintain a rigid quarantine of said disease throughout that county. The plaintiff, a duly licensed physician, was at that time a member of the board of health in that county, but he was not the county physician, and was under no contract with, and received no salary from, the county, as a member of its board of health or otherwise. He proceeded to quarantine the disease wherever he could find it in his county, and was occupied with his duties in that behalf from about July 20 to October 1. It appeared that he came into contact personally with about 250 cases of the disease, and devoted his time to those cases to the partial exclusion of his other practice; that, in the performance of those duties, he incurred and paid necessary expenses in the sum of $225; that for his own services in the premises he charged the county supervisors the sum of $267.50. From this latter sum there was deducted four or five items for the quarantine of cases within the proper limits of certain towns and villages. The board of supervisors rejected his claim, but the District Court rendered a judgment in his favor, against the county, for $508.60 and costs taxed at $14.75. That judgment is now affirmed, because, as the Supreme Court views the case, the county was liable to Dr. Shidler for the reasonable value of his services, and the expenses necessarily incurred by him in rendering them.

Physician Not Liable for Hot-Water Bottle Injury in Hospital

(Stewart et al. vs. Manasses (Pa.), 90 Atl. R. 574)

The Supreme Court of Pennsylvania says that this action was against the family physician of a woman, by whose advice she went to a public hospital for a surgical operation. After the operation she was burned by a hot-water bottle that had been left by a hospital nurse in the bed in which she was placed. Recovery of damages was sought on the ground that the injury was caused by the negligence of the defendant, or that of the nurse, for whose action he was answerable. It was alleged that the defendant agreed to perform the operation, and to treat the patient with care and skill while under his charge, and to furnish her the services of a skilful nurse, and that he failed in the performance of his duty in this regard. The evidence showed that the defendant was a member of the associated staff of the hospital and had the privilege of sending patients there for treatment either by himself or by the regular hospital physicians and surgeons; that he agreed for a stipulated sum to perform the operation, but the hospital expenses were to be paid by the patient, to whom he gave a letter of introduction that secured her admission to a private room in the hospital; that she was prepared for the operation by hospital nurses under the direction of the directress of nurses and etherized by a physician employed by the hospital for that purpose; that she was operated on by the chief hospital surgeon assisted by the defendant, and was removed from the operating-room to the recovery room by hospital nurses and the physician who had etherized her; that the defendant followed them into the recovery room and stood near the foot of the bed when she was placed in it; that the duty of preparing the beds in the recovery room and placing the patients therein rested entirely with the directress and the hospital nurses, the surgeons having nothing to do with it, and that this was the general rule in hospitals. Under these circumstances there was no liability on the part of the defendant for the injury caused by the negligence of a hospital nurse, and a non-suit was properly entered.

Medical Witnesses Need Not Be Licensed Physicians in State

(Rugenstein vs. Ottenheimer (Ore.), 140 Pac. R. 747)

The Supreme Court of Oregon holds that the fact that a medical witness called in this personal injury case was not a physician regularly licensed to practice in that state did not militate against his competency as an expert. The only object of license is to prevent an unqualified person from practicing medicine and surgery; but a man may be ever so learned and well qualified to give an opinion, and yet not be engaged in practice. It is the duty and within the province of the court as a preliminary question of fact to determine whether or not the witness is qualified as an expert, to the end that he may give an opinion in evidence, and the appellate courts will not disturb the decision of the trial court, unless there is no evidence to sustain the preliminary decision of that court. The fact that the witness in question had been licensed to practice medicine in California, and had been so engaged since, was competent evidence for the consideration of the court in determining his fitness as an expert witness.

Society Proceedings

COMING MEETINGS

Amer. Academy of Ophthal. and Oto-Laryn., Boston, Oct. 19-21.
American Association of Railway Surgeons, Chicago, Oct. 14-16.
Association of Military Surgeons of the U. S., Cincinnati, Sept. 29-Oct. 2.
Delaware State Medical Society, Wilmington, Oct. 13-14.
Idaho State Medical Association, Boise, Oct. 8-9.
Minnesota State Medical Association, St. Paul, Sept. 30, Oct. 1-2.
Mississippi Valley Med. Assn., Cincinnati, Oct. 27-29.
Nevada State Medical Association, Reno, Oct. 13-15.
New Mexico Medical Society, Albuquerque, Oct. 5-7.
Utah State Medical Association, Salt Lake City, Sept. 29-30.
Vermont State Medical Society, Rutland, Oct. 8-9.
Virginia Medical Society, Washington, D. C., Oct. 27-30.
Wisconsin State Medical Society, Oshkosh, Oct. 7-9.

COLORADO STATE MEDICAL SOCIETY

Forty-Fourth Annual Meeting, held at Boulder, Sept. 9-11, 1914

The President, Dr. O. M. Gilbert, Boulder, in the Chair

Rôle of Chronic Intestinal Indigestion in Children in Production of Epilepsy

Dr. J. W. Amesse, Denver: Intestinal putrefaction, associated with chronic constipation and chronic intestinal indigestion, forms one of the most important etiologic factors in arousing epileptic paroxysms. In general, disorders of digestion have been shown to be more concerned with the nervous instability of children than is commonly supposed. The management of these cases involves the most rigid survey of domestic and personal hygiene. Whether the toxemia is or is not associated with major disturbances of the nervous system, isolation of the child, preferably in a hospital, is most desirable. Where, as will obtain in the great majority of cases, this separation from the home is not feasible, the absolute cooperation of mother and nurse is indispensable. The hygienic management will not only embrace a proper dietary, but full instructions in writing must be furnished regarding hours of sleep, the character and amount of exercise, periods of rest, baths, fresh air and suitable clothing. In my experience these children are usually heavy milk drinkers, the balance of their ration consisting of starch in the form of potato, bread, rice, etc. The distention of the abdomen from the flatulence invariably set up by this diet is apparent on first examination. The most effective method is to change the food from a carbohydrate to protein ration, depending on albumin-milk, fermented milk, or buttermilk for a beverage only.

DISCUSSION

Dr. Herbert B. Whitney, Denver: The healthy stomach has a great deal of reserve power and will digest almost anything. There are cases, however, of disease of the stomach largely inherited, a nervous condition which predisposes to epilepsy. Where there is chronic indigestion at about the age of 6, 8 or 10 years, we have a difficult problem so far as treatment is concerned, and these cases demand a more accurate knowledge of dietetic principles in the treatment of dyspepsia in infancy itself. I am accustomed to put these children on an exclusively milk diet and gradually go on to the so-called antifermentive diet which comprises chiefly meats, eggs, vegetables, spinach, with exclusion of all sugars and starches, and also some forms of toast and bread, with soups, especially bouillon and consomme, etc.

Dr. J. A. Black, Pueblo: I have in mind two children who were nearly of the same age. They were born of parents of the same character and moved in the same class of society. One child was a boy, the other a girl. One child was breast-fed and developed into a beautiful baby. The other child when born was a puny struggling little thing. The mother of the child that was bottle-fed followed instructions. After two or three months the child began to grow rapidly. The child is now 5 years of age and has never had a day's sickness. The other child that was breast-fed was allowed to eat indiscriminately all kinds of candies and cakes and the result was in a few months it developed gastro-intestinal trouble. After a few months or years the child had an attack of rheumatism and at the present time it is bordering on chorea.

Dr. Frank P. Gengenbach, Denver: A girl at the age of puberty had some convulsive attacks. She was very frail, thin, had grown rapidly, was of marked nervous temperament and was a big eater. She would fall over and have a certain amount of twitching, but her face would be pallid rather than congested. She had several of these attacks a few weeks apart. Dr. Pershing decided that the child had beginning epilepsy, and recommended that she be put on bromids. As her blood-pressure was rather low she was given digitalis, and as she was anemic she was given iron, nux vomica, general stomachics, and he suggested a curtailment of the diet, and that the processes of elimination be looked after. As a result of this line of treatment the child did not have another attack for over a year, and then an attack was brought on by overeating. It was the last attack the girl had.

Dr. H. G. Wetherill, Denver: From 1882 to 1884 I was intern in the New Jersey State Asylum in Trenton, and in investigating the peripheral irritations which gave rise to epilepsy I found we had in that institution thirty-three male epileptics of varying ages, many of them boys. I made a careful study of the relationship of the epilepsy in these thirty-three males to phimosis. I found many of them needed circumcision. We started a campaign of this operation for the younger ones particularly, and the effect on the epilepsy for the first few months was marked. There can be no possible question that peripheral irritations, such as accompany phimosis and intestinal troubles from indigestion and improper feeding, have a very definite causative effect in producing these conditions.

Nasal Treatment of Dysmenorrhea

Dr. L. B. Lockard, Denver: It has long been established that a definite physiologic and pathologic relationship exists between the nose and throat and the sexual organs, particularly in the female, but the clinical significance of this relationship has not been grasped by the profession at large.

We have no way of foretelling in an individual case whether it is one of nasal dysmenorrhea or whether the pain is due to pelvic lesions. Complete failures have resulted in cases in which no pelvic disease has been demonstrable, and, on the other hand, some of the most brilliant results have occurred in individuals in whom various uterine and ovarian abnormalities existed. As a general rule it may be said that patients without organic disease of the sexual organs offer the most promising prognosis.

DISCUSSION

Dr. T. E. Carmody, Denver: Many nervous conditions affect the nose as well as the sexual organs. Headaches due to menstrual disorders are frequently relieved by packing the nose with cocain.

Dr. H. A. Smith, Delta: A girl came to me five years ago with obstruction on one side of the nose. I removed a spur of bone about half an inch in diameter from the anterior end of the middle turbinate. Nothing was said about any gynecologic condition. A year later her mother told me that she had not had any pain since her nose was operated on, whereas prior to that time she suffered a good deal of pain. The psychic effect must be left out of that case.

Dr. Robert Levy, Denver: In spite of a great many attempts to prove scientifically that there is a distinct relation between the nose and the genital organs, I think we must in the ultimate analysis conclude that many of these remarkable effects, if not all of them, are psychic.

Typical and Atypical Cases of Addison's Disease

Dr. George H. Cattermole, Boulder: My first case was that of a minister, 29 years old, who came to Colorado on account of pulmonary tuberculosis. He received tuberculin treatment for about six months and was much improved, so that he engaged in outdoor occupations. Finally, in the spring of 1909, he took up the work of a house-painter, which kept him outside and constantly exposed to the sun, so that the first bronzing was thought to be tan. A little later, however, the bronzing became more intense and was noticed over the portions of the body protected by the clothing. This was a typical case of Addison's disease, showing the bronzing, asthenia and digestive symptoms. With the bronzing there was a loss of strength and then failure of appetite and diarrhea. At necropsy the left lung showed a healed cavity at the apex. There was no active trouble apparent in the lungs. The suprarenals showed enlargement and were both calcareous and caseous.

The second case was that of a married woman, 27 years old, who was sent to Boulder in August, 1913, because she was not getting along well at home. She had been coughing for four or five years and had a bad tuberculous family history. Examination of the chest showed only limited involvement in the apices. There was pain in the right lumbar region which had existed for several months. The peculiarity in this case was the slight amount of discoloration in the skin. There was an anemic pallor with an uncertain fawn color, but not a typical bronzing. At her home she had been kept in the sunshine and this could account for some tanning. We could not account for so much prostration, for such feeble circulation, and so much digestive disturbance resulting from the pulmonary trouble. In those cases of tuberculosis in which the prostration is greater than can be accounted for by the trouble in the lung, we should remember the possibility of the chromaffin system being diseased and possibly try the use of the suprarenal gland or its products as a therapeutic test and a remedial agent.

(To be continued)

The Last Word in Diagnosis.—There is no sign or symptom that may not be fallacious. The most experienced judgment is fallible.—Arthur E. Giles, *Clinical Journal.*

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

September, VIII, No. 3, pp. 185-256

1 *Diagnosis and Prognosis of Congenital Heart Disease. C. H. Dunn, Boston.
2 *Experiences with Whey Modified Milk in Infant Feeding. J. S. Leopold, New York.
3 *Relation of Bovine Tuberculosis to Early Tuberculosis in Children. T. C. McCleave, Berkeley, Cal.
4 *Influence of Lactose on Metabolism of Infant. F. B. Talbot and L. W. Hill, Boston.
5 Examination of Chest in Children. R. M. Smith, Boston, and C. D. Sweet, Fresno, Cal.
6 *Absorption of Fat from Intestinal Tract of Actively Tuberculous Child. F. W. Schlutz, Minneapolis.

1. **Congenital Heart Disease.**—The following rules for differential diagnosis are given by Dunn. A case showing cyanosis with enlargement of the cardiac dulness or palpable thrill, or both, is one of pulmonary stenosis. If the baby dies shortly after birth, the most probable lesion is pulmonary stenosis alone. If the baby survives early infancy, or lives on into childhood, the pulmonary stenosis is probably associated with some other lesions. If the murmur is notably transmitted into the vessels of the neck, or if a "humming top" murmur is present, the additional lesion is probably open ductus arteriosus. If the murmur has neither of these characteristics, the complicating lesion is probably defective interventricular septum.

A case showing a murmur and enlargement, without cyanosis, is probably defective interventricular septum. If the murmur is not transmitted into the vessels of the neck, this lesion exists alone. If the murmur is so transmitted, or if the "humming-top" murmur is present, the lesion is probably combined with open ductus arteriosus. A case showing a murmur, without either cyanosis or enlargement, especially if the murmur is markedly transmitted into the vessels of the neck, or if it extends into diastole, is probably one of open ductus arteriosus alone. If the murmur is of the "humming-top" variety, extending throughout the cardiac cycle, the diagnosis of this lesion is almost certain.

The prognosis of the various congenital cardiac lesions and their combinations, Dunn says, does not vary with the character of the lesions except in two forms, namely, pulmonary stenosis alone, and open ductus arteriosus alone. In all the other forms and combinations there is evidence that any patient may survive, and even live to adult life. On the other hand, the evidence shows that development and nutrition suffer to a varying degree, and that the children are in general less resistant, many of them dying young of various additional affections, such as the gastro-intestinal or infectious diseases. The prognosis in babies cyanotic at birth is grave, as many of them have pulmonary stenosis alone, and die within a very short time. In those who survive, the pulmonary stenosis is probably combined with some compensating lesion, and is that of congenital cardiac disease in general. In cases which show the clinical picture of open ductus arteriosus alone, the prognosis is very good. The patients do not usually show any interference with development or nutrition, but develop normally, with eventual disappearance of the signs of cardiac disease.

2. **Whey Modified Milk.**—Of 54 infants who received whey modified milk very good results were obtained in 36 cases, fairly good results in 10 cases and poor results in 8 cases. Two cases in infants over 6 months of age, 2 cases of atrophy, 1 case of exudative diathesis, 1 case of influenza, 1 case of enteritis and 1 case of nervous vomiting did not do well on whey modified milk. Based on the results obtained by Leopold while using Schloss' whey modified milk during a period of two years he offers the following conclusions: Whey modified milk is indicated whenever breast milk is not obtainable. Much better results are obtained with this milk mixture than with any other method of artificial feeding, in institutions at any rate. Whey modified milk is especially

indicated in very young infants, and in infants under 3 months of age.

3. **Bovine Tuberculosis.**—McCleave maintains that it is unquestionably the duty of physicians to instruct their patients and the public that bovine tuberculosis is, without giving it undue weight and always keeping it in proper subordination to the larger problem of infection from human sources, a grave menace to human health, but that it is, by the simple expedient of home pasteurization, a disease most easily prevented in man.

4. **Influence of Lactose on Metabolism of an Infant.**—Talbot and Hill claim that increasing amounts of sugar up to a certain limit increase the retention of nitrogen, and beyond that point may diminish the absorption and possibly the retention of nitrogen. Increasing amounts of sugar do not affect the absorption of fat up to a certain point, beyond which point there may be a diminished absorption of fat. Sugar given beyond certain limits may result in a greatly increased acidity of the stool and diarrhea. The diarrhea is probably a result of the increased peristalsis. Clinical evidence of a carbohydrate fermentation is the scalded, irritated skin of the buttocks and the green, watery acid stools. The retention of ash seems to depend on the amount of sugar in the food. When the amount of sugar is increased beyond a certain point, there may be a negative balance and the ash may be lost from the body. It is impossible to say whether this negative balance is due to the diarrhea, or the increased acidity of the stool, or other factors in which fat plays a part. Clinically, the amount of sugar which an infant can digest and absorb varies with the individual. There is no fixed point in a given individual at which sugar will or will not be digested at a given time. Other factors than the amount of sugar may influence its digestion.

6. **Fat in Tuberculosis.**—The series of cases reported by Schlutz comprises all the common forms of tuberculosis and includes four cases with pulmonary involvement alone, four with pulmonary glandular involvement, three with pronounced glandular involvement only, three cases of bone tuberculosis, in one of which there was also marked glandular involvement and one in which there was pulmonary and suspected peritoneal involvement. The fat absorption is distinctly diminished only in the glandular type of tuberculosis. The stools in three of the cases showed both macroscopic and microscopic evidence of fat, considerably in excess of the normal. The same was shown by the quantitative determinations. In all the other forms of tuberculosis the fat absorption very nearly approached the normal. The one case suspected as peritoneal showed good fat absorption. This study brought out the interesting fact that the fat absorption was if anything improved by the addition of certain amounts of carbohydrate to the diet.

The results of this series of cases seem to show in Schlutz's opinion that fat absorption in most of the common forms of tuberculosis is practically normal and is likely to be diminished only in those cases in which there is extensive glandular and lymphatic involvement. If it were a question of fat absorption only, high fat feeding would not be contra-indicated in most forms of tuberculosis. To what extent serofulous or exudative manifestations, apparently unfavorably influenced by fat-rich food, should influence the diet of the tuberculous child, Schlutz says, is a question which the individual case must determine. The presence of the exudative condition apparently does not influence fat absorption. Experimental and clinical evidence both seem to show that a diet which insures the largest amount of fat deposit in the tissue, with the least retention of water, is the one most beneficial to the tuberculous child.

Boston Medical and Surgical Journal

September 3, CLXXI, No. 10, pp. 365-400

7 Dissociated Personality. E. G. Grey and W. R. Sisson, Boston.
8 Pyogenic Infections of Upper Urinary Tract. A. L. Chute, Boston.
9 Treatment of Movable Kidney with or without Infection, by Posture. H. Cabot and L. T. Brown, Boston.
10 Roentgen Determination of Certain Renal and Ureteric Variations and Disorders. P. Brown, Boston.
11 Early Diagnosis and Treatment of Manic Depression. A. H. Ring, Arlington Heights.
12 Scheme for Promoting Efficiency in State Sanatoria. W. C. Bailey, Boston, and C. C. MacCorison, Reading.

September 10, No. 11, pp. 401-436

13 Syphilis in Massachusetts. A. Post, Boston.
14 Syphilis of Eye in Hereditary Syphilis. G. S. Derby, Boston.
15 Vascular and Cardiac Syphilis. G. G. Sears, Boston.
16 Syphilis of Tonsil. C. M. Smith, Boston.
17 Syphilis of Lung. E. A. Burnham, Boston.
18 Relation of Syphilis to Internal Medicine. D. L. Edsall, Boston.
19 What the City Should Do to Control Syphilis. T. B. Shea, Boston.

Iowa State Medical Society Journal, Washington

August, IV, No. 2, pp. 109-185

20 Conservation of Hearing. T. U. McManus, Waterloo.
21 Intracranial Pathology and Fundus Changes. G. F. Harkness, Davenport.
22 Unfavorable Results Following Gastro-Enterostomy. C. DeJong, Fort Dodge.
23 Specific Treatment for Lupus and Other Parasitic Lesions of Skin. J. W. Kime, Fort Dodge.
24 Treatment of Puerperal Sepsis. H. M. Stowe, Chicago.
25 Practice of Principles of Medical Ethics. J. H. Schrup, Dubuque.
26 Traumatism of Hip in Children and Adolescents. A. Steindler, Des Moines.
27 Are Thorough Examinations Worth While? J. F. Studebaker, Fort Dodge.
23 Study of Parathyroids. C. H. Churchill, Fort Dodge.
29 Infant Feeding. G. A. Biebesheimer, Reinbeck.
30 Indications for Paracentesis of Tympanum. R. E. Robinson, Waverly.

Journal of Cutaneous Diseases, New York

September, XXXII, No. 9, pp. 607-682

31 *Spinal Fluid with Reference to Involvement of Nervous System in Secondary Syphilis. U. J. Wile and J. H. Stokes, Ann Arbor, Mich.
32 *Abderhalden Technic as Applied to Diagnosis of Syphilis. H. R. Varney and P. F. Morse, Detroit.
33 White Spot Disease. G. M. MacKee and F. Wise, New York.

31 and 32. Abstracted in THE JOURNAL, June 13, p. 1920.

Journal of Experimental Medicine, Lancaster, Pa.

September, XX, No. 3, pp. 201-319

34 *Parameningococcus and Its Antiserum. M. Wollstein, New York.
35 *Metabolism of Calcium, Magnesium, Sulphur, Phosphorus and Nitrogen in Acromegaly. O. Bergeim, F. T. Stewart and P. B. Hawk, Philadelphia.
36 *Calcium Metabolism after Thyroparathyroidectomy. O. Bergeim, F. T. Stewart and P. B. Hawk, Philadelphia.
37 *Method for Estimating Bacteria in Circulating Blood in Rabbits. C. G. Bull, New York.
38 *Localization of Virus and Pathogenesis of Epidemic Poliomyelitis. S. Flexner and H. L. Amoss, New York.
39 *Experimental Tuberculosis of Cornea. P. A. Lewis and C. M. Montgomery, Philadelphia.
40 *Excretion of Nitrogen in Fever. N. C. Sharpe and K. M. B. Simon, Toronto, Ont.
41 *Liver Function as Influenced by Ductless Glands. G. H. Whipple and P. W. Christman, Baltimore.

34. **Parameningococcus and Its Antiserum.**—The parameningococci of Dopter, Wollstein states, are culturally indistinguishable from true or normal meningococci, but serologically they exhibit differences as regards agglutination, opsonization and complement deviation. Because of the variations and irregularities of serum reactions existing among otherwise normal strains of meningococci it does not seem either possible or desirable to separate the parameningococci into a strictly definite class. It appears desirable to consider them as constituting a special strain among meningococci, not, however, wholly consistent in itself. The distinctions in serum reactions between normal and parameningococci are supported by the differences in protective effects of the monovalent immune sera on infection in guinea-pigs and monkeys. It is therefore concluded by Wollstein that it is highly desirable to employ strains of parameningococcus in the preparation of the usual polyvalent antimeningococci serum. It remains to be determined whether it is better to employ the parameningococci along with normal meningococci in immunizing horses, or to employ normal and para strains separately in the immunization process and to combine afterward, in certain proportions, the sera from the two kinds of immunized horses.

35. **Metabolism in Acromegaly.**—A distinct retention of calcium, magnesium and phosphorus was noted by the authors

which was not accompanied by corresponding changes in general metabolism as evidenced by a practical balance of nitrogen and sulphur. It is concluded that there is a primary disturbance in the metabolism of the mineral elements mentioned, with the probable formation of new bony tissue. The distribution of elements between urine and feces shows no abnormal variations.

36. **Calcium Metabolism after Thyroparathyroidectomy.**—The metabolism of calcium was studied by the authors in a man after complete removal of the thyroid and parathyroid glands. A slight retention of calcium (0.4578 of a gm. of calcium oxid in the ten-day period) was noted. The urinary calcium excretion was low, averaging 0.0134 of a gm. per day on a daily ingestion averaging 1.6736 gm. of calcium oxid. A slight increase was observed during the period of study in the calcium content of the blood. No symptoms of tetany were noted in the patient, who survived operation thirty-nine days. The low urinary and blood-calcium values are taken to show deficient absorption of calcium, which may bear some relation to the decreased gastric secretion after parathyroidectomy. Attempts are made to explain the non-occurrence of tetany as due to the high calcium intake and to the development of a compensatory mechanism in which the pituitary body may play a part.

37. **Bacteria in Circulating Blood.**—When rabbits are injected intravenously with a quantity of virulent streptococci or pneumococci sufficient to cause death within two to four days the septicemia takes a definite course with slight variations. The bacteria rapidly decrease in number from the time of the injection to from two to four hours, at which time the blood is sterile or contains only a few bacteria. Within five to six hours the bacteria reappear in the blood and steadily increase until the death of the animal. If the bacteria are less virulent, the same quantity of culture causes a chronic type of infection. The same initial decrease in the number of bacteria occurs. The reentrance into the blood is somewhat delayed, the septicemia does not reach the height obtained in the acute cases, and a second fall occurs within the course of a few hours. These rabbits show a low blood-invasion or a sterile blood-culture for several days. During this time they become emaciated to a marked degree. Then the low septicemia rapidly rises or the rabbit with a sterile culture develops a severe septicemia within a few hours and death takes place from a few hours to two days thereafter. In this type of infection local lesions, pericarditis, pleurisy, peritonitis, etc., are usually found. In the infections which run an acute course no gross lesions are found.

If the bacteria are still less virulent they never reenter the blood after the initial disappearance and the rabbits remain in good condition. Variations in the natural resistance of individual animals may be sufficient to cause quite marked irregularities in the course of the infection. Pneumococci can be standardized so as to produce a particular type of infection more easily than streptococci. In general infections such as those produced by streptococci and pneumococci the number of the bacteria present in the circulating blood at a given time supplies accurate and delicate information regarding the severity of the disease.

A large number of bacteria found in the blood and tissues at autopsy do not necessarily prove the existence of a heavy infection before the onset of the death agony, since it is a well-known fact that bacteria multiply with enormous rapidity, once the natural resistance of the animal has been overcome. Again, the individual animals of the same species, age and apparently of identical physical condition react to the aggressive force of the infecting organisms variously. This fact is readily found out by the injection of a series of rabbits with lethal quantities of bacteria per body-weight, and by making tests at various periods before death results, which, in the case of streptococci, ranges from one to six days.

38. **Localization of Virus of Epidemic Poliomyelitis.**—Flexner and Amoss hold that the virus of poliomyelitis is capable of penetrating the retina without producing apparent injury, to reach the central nervous organs. The virus injected into the blood is deposited promptly in the spleen and bone-marrow, but not in the kidneys, spinal cord or brain. Nothwithstanding the affinity which the nervous tissues possess for the virus, it is not removed from the blood by the spinal cord and brain until the chorioid plexus and blood-vessels have suffered injury. The intervertebral ganglia remove the virus from the blood earlier than do the spinal cord and brain.

An aseptic inflammation produced by an intraspinous injection of horse-serum facilitates and insures the passage of the virus to the central nervous organs, and the production of paralysis. The unaided virus, even when present in large amounts, passes inconstantly from the blood to the substance of the spinal cord and brain. When the virus within the blood fails to gain access to the central nervous organs, and to set up paralysis it is destroyed by the body, in course of which destruction it undergoes, as a result of the action of the spleen and, perhaps, other organs, diminution of virulence.

The histologic lesions that follow the intravenous injections of the virus in some, but not in all, cases differ from those which result from intraneural modes of infection. In escaping from the blood into the spinal cord and brain, the virus causes a lymphatic invasion of the chorioid plexus and widespread perivascular infiltration, and from the latter cellular invasions enter the nervous tissues. A similar lymphoid infiltration of the chorioid plexus may arise also from an intracerebral injection of the virus.

The histologic lesions present in the central nervous organs in human cases of poliomyelitis correspond to those that arise from the intraneural method of infection in the monkey. The virus in transit from the blood through the cerebrospinal fluid to the substance of the spinal cord and brain is capable of being neutralized by intraspinous injection of immune serum, whereby the production of paralysis is averted. The experiments described support the view that infection in epidemic poliomyelitis in man is local and neural, and by way of the lymphatics, and not general and by way of the blood. Hence Flexner and Amoss uphold the belief that the infection atrium is the upper respiratory mucous membrane.

39. **Experimental Tuberculosis of Cornea.**—As a result of their studies Lewis and Montgomery believe that tuberculosis is primarily an exudative inflammation and secondarily proliferative in its character. More than that, they are led to the belief that the cellular exudate, protective though it may be in purpose, is defective and is destructive in its actual influence. Even the phagocytic activity of the cells of such an exudate may probably serve to distribute living bacilli and thus spread the disease to fresh areas.

40. **Excretion of Nitrogen in Fever.**—The rise of temperature following typhoid vaccination is accompanied by a marked increase in the output of total nitrogen, creatinin, and especially of uric acid. The reaction to tuberculin is slower, but is also accompanied by an increased output of nitrogenous substances, that is, however, less uniform and generally less pronounced. In a case of malaria studied by the authors there was a tendency for the rise of temperature to be accompanied by an increased output of total nitrogen and less uniformly of creatinin; on two days on which the fever was preceded by rigor the output of uric acid was increased.

41. **Liver Function as Influenced by Ductless Glands.**—Whipple and Christman found that adrenal insufficiency produced by extirpation of three-fourths or more of the gland tissue will be associated with a drop in liver phthalein excretion. With hypertrophy of the adrenal fragment the excretion comes back to normal, but may fall again when more adrenal tissue is removed. Pancreatic insufficiency causes a progressive fall in the phthalein excretion, indicating a grave lowering of the functional capacity of the liver. This fact has a direct bearing on the question of diabetes. Parathyroid insufficiency with tetany causes no decrease in phthalein output, but at times a rise above normal. This comes out best when the phthalein curve is low following pancreas extirpation. Parathyroid tetany may cause hyperactivity on the part of the liver cells. Thyroid insufficiency produces no change

in the uniform curve of phthalein excretion. Hypophysis insufficiency shows an initial fall in the curve, followed by a return to normal and a final drop in the last few days before death.

These experiments supply evidence to the effect that the liver is very much concerned in the derangement that follows the removal of the ductless glands. Hence it seems probable that this disturbance of the liver function may be an important factor in the general symptom-complex of ductless gland insufficiency.

Journal-Lancet, Minneapolis

September 1, XXXIV, No. 17, pp. 451-474

42 Surgical Clinics of Russia, Finland, Sweden, Norway, Denmark and Belgium. (To be Continued.) W. J. Mayo, Rochester.
43 Suggestions on Obstetric Technic. A. M. Brandt, Bismarck, N. D.
44 Chronic Gastric Disturbances: Differential Diagnosis. G. B. Eusterman, Rochester.
45 Trials and Rewards of Physician. H. M. Johnson, Dawson.

Kentucky Medical Journal, Bowling Green

September 1, XII, No. 17, pp. 509-528

46 Diagnosis and Surgical Lesions of Urinary Tract. I. Abell, Louisville.
47 Vaccine Therapy and Widal Reaction in Typhoid. B. W. Wright, Bowling Green.
48 Intestinal Parasites with Reference to Uncinariasis. J. W. Stephenson, Pikeville.
49 Urethritis. L. T. Eckler, Falmouth.
50 Gun-Shot Wound of Abdomen. Report of Case. A. W. Cain, Somerset.

Lancet-Clinic, Cincinnati

August 29, CXII, No. 9, pp. 225-252

51 Symptoms and Physical Signs of Approaching Organic Disease. C. L. Mix, Chicago.
52 Trismus. H. H. Hoppe, Cincinnati.
53 Graduates of Medical Department of University of Pennsylvania who Have Taught or Practiced in Cincinnati. (To be continued.) A. G. Drury, Cincinnati.

Medical Record, New York

August 22, LXXXVI, No. 8, pp. 321-362

54 Low Table Position and Other Aids to Performing Suprapubic Prostatectomy. C. L. Gibson, New York.
55 *Coccygodynia. Treatment by Injections of Alcohol. F. C. Yeomans, New York.
56 Four Cases of What Appeared to be Tuberculous Meningitis with Apparent Permanent Arrestment. C. C. Browning, Los Angeles.
57 Syphilis of the Lungs Simulating Pulmonary Tuberculosis. J. Blinder, New York.
58 Prevention of Schoolroom Disease and Dust. C. W. Crampton, New York.
59 Malarial Fever. L. Sexton, New Orleans.
60 State Prevention and Pulmonary Tuberculosis. T. J. Mays, Philadelphia.
61 Necessity for Parental Cooperation in Examination of Mental Defectives. J. T. Krause, Brooklyn.

September 5, No. 10, pp. 405-446

62 Immediate Results of Salvarsan Treatment of Syphilis, as Judged by Wassermann Reaction, Using Cholesterin Fortified Antigen. E. G. Stillman, New York.
63 Auto-Immunization in Respiratory Infections. C. H. Duncan, New York.
64 Origin of Auscultation and Percussion and the State of Clinical Medicine in Time of Auenbrugger and Laënnec. R. C. Newton, Montclair, N. J.
65 Public Health Education. H. Greeley, Brooklyn.
66 Useful Surgeon. H. W. Wightman, Omaha, Neb.
67 Herpes Zoster and Malaria. W. H. Deaderick, Hot Springs, Ark.
68 Cerebral Syphilis in Secondary Stage. C. B. Craig, New York.
69 Detection of Gelatin in Ice-Cream. D. I. Macht, Baltimore.

September 12, No. 11, pp. 447-488

70 *Physiology of Gastric Motility. W. J. Mallory, Washington, D. C.
71 Present Stage in Treatment of Syphilis. C. M. Williams, New York.
72 Case of Tuberculosis of Sclera of Probable Primary Origin. G. H. Bell, New York.
73 Neglect of Aged. I. L. Nascher, New York.
74 Medical Bugbear: Dispensary Abuse. M. M. Davis, Jr., Boston.
75 Syphilophobia. D. W. Montgomery, San Francisco.

55. **Coccygodynia Treatment by Injections of Alcohol.**—The treatment proposed by Yeomans is an application of the principle of injection of sensory nerves with 70 to 80 per cent. alcohol, thereby causing their degeneration as suggested by Schlösser in 1907. All of Yeomans' seven cases were of the type of neuralgia or neuritis of the coccygeal nerves in which this method is peculiarly applicable, though he thinks it should be tried in all cases of coccygodynia, whatever their nature, as its application is simple and harmless. It may relieve the distressing pain even though it does not affect its cause. The patient, with rectum empty, assumes the left lateral (Sims') position on a firm table, with the thighs well flexed on the abdomen, and the region of the coccyx is painted with tincture of iodin. An all-glass Luer or similar sterile syringe of 2 centimeters capacity is filled with 80 per cent. alcohol and armed with a 2-inch needle of fine gauge. The right index finger is now inserted into the rectum and the point of maximum tenderness is determined by counter pressure with thumb outside. Maintaining the finger in the rectum to guard against its puncture and to act as a guide, the needle is now introduced through the midline directly to the painful spot. When this is reached the patient exclaims from pain that is exquisite but tolerable, and the injection of 10 to 20 minims is made slowly. The needle is withdrawn and its puncture sealed with collodion after neutralizing the iodin on the skin with alcohol. The pain from the injected alcohol lasts a few minutes only and may be followed by a dull ache for a day or two. As a rule, three and at the most five injections should suffice. The interval between the injections should vary from five to ten days—one week on the average—and they are to be made always at the joint which is found most tender at the time of injection.

70. **Physiology of Gastric Motility.**—By means of the local autonomous neuromuscular mechanism, Mallory states, the stomach is capable of performing its motor functions in an essentially normal manner, even when separated from the central and sympathetic nervous systems by section of both vagi and both splanchnic nerves. Normally, however, the gastric motor functions are modified by many extrinsic influences. Motor impulses, and those for increasing tonus and accelerating peristalsis, pass through the vagus nerves. These impulses are increased by mental excitement and impaired by physical exhaustion. Inhibitory influences, those for reducing tonus and retarding peristalsis, pass principally through the splanchnic nerves. These impulses are increased by mental depression and impaired by the internal secretions of the adrenals. The functions of the pyloric sphincter are under the control of conditions in the stomach, and are modified by nervous reflexes from the duodenum and small intestine.

The following agents have a sufficiently definite effect on gastric motility to be of therapeutic value; heat and cold applied to the abdomen externally; massage of the abdomen; atropin, physostigmin, pilocarpin, either by mouth or by hypodermic injection; hypophysis extract and suprarenal extract intravenously. Surgical operations performed on the stomach for the purpose of facilitating the discharge of gastric contents are sometimes only a partial success, or even an entire failure, when planned and executed in conformity with anatomic relations rather than physiologic considerations. The size, shape, position, tonus and capacity of the stomach vary under physiologic conditions. Therefore, in a gastro-intestinal anastomosis, the operation should be so performed and the stoma so situated that the discharge of gastric contents would not be hindered, but facilitated by the physiologic motility of the stomach. Gastric and intestinal peristaltic waves should run in the same direction. The stoma should be situated in the pyloric antrum, in which the expulsion of gastric contents will depend on peristalsis instead of gravity and in which it will be lowest when the stomach is nearly empty.

Modern Hospital, St. Louis

September, III, No. 3, pp. 141-214

76 Meat Hygiene in United States—Its Value and Scope. W. H. Lipman, Chicago.
77 Hospital Organization and Accounting System. H. M. Wechsler, New York.
78 Relation of Work to Social Service. M. I. Husted, Clifton Springs, N. Y.
79 Artificial Illumination in Hospitals. M. J. Sturm, Chicago.
80 Presentation of Theoretical Work to Student Nurses. M. C. Wheeler, Chicago.
81 Items in Hospital Efficiency—Nursing of Patients. J. A. Hornsby, Chicago.

82 Feeding the Hospital—Introduction. L. Graves, Chicago.
83 Evanston General Hospital's Contagious Pavilion. M. J. Sturm, Chicago.
84 Planning for Health—Pressing Problem. F. Brush, New York.

New Orleans Medical and Surgical Journal

September, LXVII, No. 3, pp. 211-310

85 Arkansas Child Welfare Association. W. H. Deaderick, Hot Springs, Ark.
86 Blood-Pressure—Reference to "Energy Index" and "Cardiac Load." G. W. Norris and J. R. Davies, Philadelphia.
87 How To Fit Glasses. T. J. Dimitry, New Orleans.
88 Prophylaxis of Typhoid. G. E. Henson, Jacksonville, Fla.
89 Two Attacks of Herpes Zoster in Same Individual. D. W. Montgomery, San Francisco.
90 Severe Case of Vincent's Angina. E. M. Dupaquier, New Orleans.

New York Medical Journal

September 5, C, No. 10, pp. 449-496

91 *Phenol Instillation in Treatment of Bladder Tuberculosis. E. L. Keyes, Jr., New York.
92 Compulsion Neurosis. Report of Case. A. Stern, New York.
93 *Abdominal Incisions and Intra-Abdominal Pressure. M. J. Horan, New York.
94 Diagnostic Aids in Diseases of Bones and Joints. E. Keller, New York.
95 *New Instrument for Intravenous Injection. J. Frankel, New York.
96 Autolactotherapy. C. H. Duncan, New York.
97 Tonsil from Surgical Point of View. M. Lubman, New York.
98 Congenital Absence of Uterus and Adnexa. B. K. Chowdry, Calcutta, India.
99 Second Infection with Spirocheta Pallida. B. C. Corbus, Chicago.

September 12, No. 11, pp. 497-548

100 Tuberculization and Immunization. (To be Concluded.) M. Fishberg, New York.
101 Paraffin Treatment of Constipation. J. H. Kellogg, Battle Creek, Mich.
102 Newer Teachings Concerning Diseases of Gastro-Intestinal Tract. M. I. Knapp, New York.
103 Indications of Gastric Ulcer and Its Surgical Treatment. C. G. Cumston, Geneva, Switzerland.
104 Appendicostomy in Case of Chronic Ulcerative Coloproctitis. J. F. Saphir, New York.
105 Study of Renal Functional Activity by Means of Phenolsulphonephthalein. J. P. Jones, Philadelphia.
106 Case of Sciatica Entirely Cured in Three Weeks' Treatment. H. Marcus, New York.
107 Systematized Education of Public Health Matters. H. Greeley, New York.
108 Contributions which Women Have Made to Medical Literature. M. M. Loomis, Chicago.

91. **Tuberculosis of Bladder.**—Keyes has modified Rovsing's treatment to the extent of employing phenol in instillation instead of irrigation, and in solutions of a strength varying in accordance with the sensitiveness of the patient. He begins with a solution of one to 200 of water and rapidly increases this to 1 per cent. before the patient complains of an increase in pain. The half dozen patients on whom he has been able to employ this technic have shown no great benefit until the solution reached a strength of from 2 to 5 per cent. In two instances he has even employed a supersaturated solution, drawing into the instillator a few minims of pure phenol, and then a few minims of water, thus making an emulsion, of which one or two minims may be instilled into the posterior urethra. The reaction from such an instillation is likely to be very marked. Its use is justified only where all else fails. It is not necessarily any more efficacious than the solutions.

93. **Abdominal Incisions and Intra-Abdominal Pressure.**—In four cases the esophagus was ligated by Horan through an incision in the neck, after placing a glass tube in the stomach, making the tube as secure and air-tight as possible with a ligature. An incision was made parallel to the umbilicus through the right rectus, and the rectum was ligated. The incision was closed in the ordinary manner, pressure being applied in all four cases to the full amount of the automobile gauge, viz., 120 pounds, and after the amount registered in one case, the pumping was continued until the abdomen looked to be twice the normal size. No hernia protruded in either case.

In two cases in which the incision was made in the right rectus, with the rectum ligated and the incision sutured, another incision was made in the median line from the sternum to the umbilicus, the tube was ligated within the stomach, and the incision was closed. In one case the pressure was 100 pounds and in the other 120 pounds. There was no apparent rupture. There were six cases in which the incisions were made in the median line below the umbilicus, the pressure being introduced through the rectum in three, and through the stomach in the other three.

All cases herniated either through the sutures in the aponeurosis, or by a separation of the muscular fibers with pressure of 15 pounds in one case, 20 pounds in three cases, 40 pounds in one case and 110 in another. There were two cases in which transverse incision was made through the skin above the pubis, and the muscles were separated in the median line. One case with the tube in the esophagus, and the rectum ligated, withstood 120 pounds (male). The other case (female), the esophagus ligated with tube *in situ*, the rectum plugged with cotton, withstood but 40 pounds, a large hernia showing in the picture at 60 pounds.

In two cases in which the incision was made over the right rectus, the aponeurosis being dissected with the finger, the wound closed in the ordinary way; one cadaver withstood 80 pounds, the intestines puncturing at the cecum with about 10 pounds pressure in the other. The pressure was applied through the rectum in both cases, with the esophagus plugged with cotton. One case with an incision 5½ inches long in the outer border of the rectus showed a hernia at the lower border of the incision, with 20 pounds pressure. In this case the ligature was placed at the duodenum, and pressure was applied through the rectum. In three cases with the incision over McBurney's point, with the muscles separated, the wounds closed; one case herniated with tearing of the muscular fibers at 20 pounds. There was no hernia in either of the other two cases. Two cases with the same incision, the muscles also incised, withstood 120 pounds, the pressure being applied through the esophagus. In three cases with the same incision as before, pressure applied through the rectum; one case herniated through the incision with 15 pounds pressure, the other two cases went over 120 pounds without pressure. In three cases of esophageal end of the stomach ligation through an abdominal incision, pressure applied through the rectum, two showed over 120 pounds pressure, and in the other the gut was punctured with about 10 pounds pressure.

In all of these cases the abdomen was left open. In seventeen cases the intestines were taken out of the abdominal cavity; only one of the number could be blown higher than 10 pounds. In all the other sixteen cases the air escaped almost as fast as it could be pumped in. This particular point shows the effect of low abdominal distention in some of the drainage cases.

95. **New Instrument for Intravenous Injections.**—The instrument devised by Frankel consists of: *A.* A perforated needle with a sharp cutting edge and point, about 2 to 3 inches long and about ⅛ of an inch in diameter; the upper edge carries a crown-like arrangement within which fit a screw and cap to tighten the needle to the inner cannula. *B.* A cannula 1 inch longer than the needle, with a dull and rounded lower edge (so as easily to enter the lumen of the vein and be pushed within the vessel at least ½ to 1 inch away from the point of injury, thereby preventing clotting, dislodgements, and spilling of the fluid within the tissues). This cannula fits snugly within the needle so as to be air-tight and still is very easily shifted in and out of the needle. The upper end of the cannula carries a crown like the needle, within which fits the third part. *C.* A perforated piece of metal whose upper part easily fits a piece of ordinary rubber tubing, while the lower end fits the upper part of the cannula. *D.* An ordinary piece of steel with sharp point called a stylet which keeps all parts together, clean and unobstructed, and can be used together with the cannula like a trocar for similar purposes.

Oklahoma State Medical Association Journal, Muskogee

September, VII, No. 4, pp. 109-139

109 Abdominal Injuries. G. A. Wall, Bartlesville.
110 Eternal and All Important Question in Gynecology—Cancer of Uterus. B. Saunders, Fort Worth, Tex.
111 Accessibility of Diseased Area About Neck of Uterus and Upper Vagina in Carcinoma of Cervix. G. H. Noble, Atlanta, Ga.
112 State Health Problems. J. C. Mahr, Oklahoma City.
113 Jackson's Membrane. F. H. Clark, Oklahoma City.

Public Health Journal, Toronto

August, V, No. 8, pp. 515-560

114 Public Abattoirs. J. T. J. Vallance, Lethbridge, Alta.
115 Conditions Affecting Efficiency of Sewage Disposal Works in Canada. R. H. Murray.
116 Economics of Sewage Disposal. R. Potter, Battleford, Sask.
117 Results of Mechanical Gravity Filtration at Saskatoon, Sask. G. B. Clark, Saskatoon.
118 Non-Identity of Modern Leprosy and Biblical Leprosy. H. W. Hill, London, Ont.
119 Legal Aspect of Sanitary Inspectors' Work. T. Watson, Saskatchewan.
120 Engineer and Social Service. S. Parry, Regina, Sask.
121 How May Medical Health Officer Help Social Worker. J. H. T. Falk, Winnipeg.

September, No. 9, pp. 563-608

122 Exceptional Child. W. D. Tait, Montreal, Que.
123 City Waste Disposal by Incineration. F. Cartlidge, Moose Jaw, Sask.
124 All the Typhoid of Community for Five Years from Carrier Through Milk. H. W. Hill, London.

South Carolina Medical Association Journal, Seneca

August, X, No. 8, pp. 605-635

125 Chronic Infections and their Relation to Internal Disorders. J. H. Gibbes, Columbia.
126 Fallacy of Prescribing Alcoholic Beverages as Food or Medicine. R. M. Hammond, Montmorenci.
127 Oral Hygiene. G. A. Milner, Aiken.
128 Plea for Future. J. H. Hunter, Spartanburg.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

August 29, II, No. 2800, pp. 385-420

1 *Common Ailments in Camp: Their Significance and Prevention. C. Webb-Johnson.
2 *Gangrene in War. C. M. Page.
3 Analysis of Results of New Sight Tests of Board of Trade. F. W. Edridge-Green.
4 *Late Infection Following Elliot's Trephining Operation. A. H. Griffith.
5 *Causes of Blindness in Eleven Hundred Children. N. B. Harman.
6 Factor of Heredity in Myopia. J. A. Wilson.
7 Choice of Cataract Operation. E. E. Maddox.
8 English Pellagra in Early Childhood. C. R. Box.
9 Two Unusual Cases of Mastoiditis in Children. W. Wilson.
10 Intraperitoneal Rupture of Bladder. N. Flower.
11 Simple Method for Determining Amount of Glucose in Diabetic Urine and Other Liquids. A. F. Dimmock.

1. **Ailments in Camp: Their Significance and Prevention.**—Webb-Johnson says, it is a well known fact that common ailments in camp are responsible for a great wastage of public money and a loss of training for a large percentage of men; the greatest number of admissions to hospital is among men with less than one year's service, and the lowest is among men with eight years or more experience; also that the rate of admission into hospital is highest among men between 20 and 25 and lowest among men between 40 and 50.

2. **Gangrene in War.**—Page says if the types of gangrene seen under war conditions be classified in accordance with their etiology, they group themselves under the five following headings: 1. Gangrene secondary to the interference with the blood flow through the main vessels of a limb. 2. Traumatic gangrene. 3. Infective gangrene. 4. Gangrene due to vasomotor paralysis. 5. Gangrene secondary to the effect of high explosives. The occurrence of the disease in young men with healthy circulatory systems is the one feature which is common to all these types, and which differentiates them on the average from gangrene as met with in civil practice. This fact considerably affects the line of treatment and the prognosis.

1. Gangrene of the extremities is occasionally seen as a result of direct slow velocity gunshot injury to the main brachial or femoral vessels; it more often occurs when a bone injury is present as well. High velocity rifle bullets may pass through large vessels and at the time produce few symptoms; subsequently an aneurysmal varix will very likely appear. The symptoms of this latter condition may be evident within a week or so of the injury, and if operation is undertaken at this stage, probably involving ligature of the artery above and below the sac, gangrene of the affected limb is likely to occur. 2. Traumatic gangrene is a term theoretically applied only to those cases in which death of a part results from direct injury, but it is evident that infection will be an important factor in the extent and progress of the condition. 3. Acute infection with many organisms may cause some degree of local tissue necrosis. The term "infective gangrene," however, is usually reserved for those cases in which the process is definitely progressive and associated with toxemia. Under such a classification come phagadena and the gangrene due to the bacillus of malignant edema and the *Bacillus aerogenes capsulatus*. 4. The cases of symmetrical gangrene which were seen by Page in large numbers among Turkish troops in the last months of 1912 resulted from a vasomotor disturbance. There were some differences of opinion in regard to the cause responsible for the condition. About half the men affected were suffering from enteritis. All gave a history of being exposed for long periods on wet ground and of having been on insufficient rations. Many had been in wet trenches for twenty-four hours on end; the temperature was usually 5 C. above freezing point. The gangrene was practically always symmetrical and affected the lower extremity in nearly all cases; the fingers were involved occasionally, but, as far as Page saw or could learn, never independently of the feet. The gangrene was usually dry, but in several of the more extensive instances it became moist, and there were several deaths from tetanus in this latter class of cases. When once the men were in the hospital the condition did not tend to advance except in the few instances in which emphysematous infection was superadded. Toxemia was not marked except under the latter circumstances. Page considers the condition to be strictly comparable to that of frostbite. The arterial circulation of the men affected was rendered extremely poor by the condition of starvation and fatigue; under these circumstances a temperature above freezing was able to produce stasis in the peripheral vessels. No doubt in some instances tight boots and puttees assisted, but many of the men affected had been wearing the loose native footwear. 5. Extensive gangrene of the extremities has been stated to occur in men after they have recovered from the effects of violent explosives. V. Berdisavljever, reporting from Servia, says he saw cases of hematuria, hemothorax, and shock as the result of explosions, but he says that in no instance did he see gangrene. Dr. Maclean had under his care in Constantinople a remarkable case of gangrene of all four extremities attributed to this cause. It will be appreciated that in general gangrene is merely an occasional complication of some other surgical condition, and that it only assumes epidemic importance under rare conditions of service.

4. **Infection Following Elliot's Trephining Operation.**—Griffith has trephined 125 times for primary glaucoma, by the method of Elliot, besides in a good many secondary glaucomas and for other diseases. He was well pleased with the results, and regards the operation as much more satisfactory than iridectomy in chronic glaucoma. A patient aged 55, had chronic glaucoma in both eyes. Both eyes were operated on within a short time of each other by upward trephining by Elliot's method, a small iridectomy including the pupillary margin being done, and the conjunctival flap was sutured. The patient was discharged in a month. Both eyes made perfect recovery and kept well for close on two years. He then presented himself with purulent iridocyclitis of the left eye. No light perception. Tension 3, exudation in the pupil, injection of the entire conjunctiva, edema of the lids, discoloration and inflammation of the iris; the pillars of the coloboma were free and well retracted. The eyeball was removed three days later. The eye had been affected four days. The other eye was still quite satisfactory in every way. The naked eye preparation of one-half the globe showed purulent cyclitis, the exudation covering the entire free surface of the ciliary body and posterior surface of the lens.

5. **Causes of Blindness in Children.**—The total number of blind and partially blind children from the blind schools of London brought by Harman into this inquiry is 1,100. The

causes responsible for their state of blindness may be placed in three groups: 1. Injury or destruction of the cornea consequent on surface inflammations. 2. Inflammation within the eyeball or optic nerve. 3. Congenital defects of the eyes. In the first group, injury or destruction of the cornea consequent on surface inflammations, ophthalmia neonatorum is responsible for by far the greater number of cases of blindness, and in particular for the cases of total blindness. The group contains 351 children, and the causes of the blindness are as follows: Ophthalmia neonatorum 266, 24 per cent., purulent conjunctivitis of later years 47, 4.2 per cent., phlyctenular keratitis 38, 3.4 per cent. The percentage for the grand total, 351, is 31.9 per cent.

The diagnosis of those cases marked "ophthalmia neonatorum," so far as the examination of the child at the time of school age is concerned, must rest on the character of the eye damage, the associated symptoms, and the history of the case as obtained from the parents or other responsible party. The cases of purulent conjunctivitis occurring in later months or years of child life were due to a great variety of causes. Eczema and streptococcal infections 4, scarlet fever 5, measles 10, German measles 1, meningitis 1, diphtheria 2, small-pox 4, erysipelas 1, chicken-pox 1, pneumonia 2, gonorrheal (contracted from vaginal discharge or pus from the eye of an affected baby) 2; total 47.

Group 2 contains a great variety of cases—inflammations of the cornea, of the iris, of the choroid and of the optic nerve; but it is sufficient for the purpose of these statistics to place them in two categories, according as the inflammation affected the anterior half of the eye or the posterior half. Those affecting the front half of the eye total 217, or 19.8 per cent.; by far the greater number are due to interstitial keratitis; there are a few only of iritis. Syphilis accounts for 17.8 per cent. Of those inflammations affecting the posterior half of the eye by far the greater number were due to a form of choroiditis known as "disseminated." This cannot be said to be diagnostic of syphilis, for other conditions are capable of causing the same or very similar conditions, but all evidence goes to prove that these cases are overwhelmingly syphilitic in origin. With the choroiditis there is always more or less atrophy of the retina and of the optic nerve, so that vision is gravely reduced. Closely associated with these cases are many cases of total optic atrophy. This group includes 222 cases, or 20.5 per cent. Of these, 126, or 56.7 per cent., were definitely syphilitic.

Group 3 includes 233 cases, or 21.2 per cent.; only 16, or 1.45 per cent., were known to be of syphilitic association. The figures show that there has been a definite diminution of the incidence of cases of blindness caused by ophthalmia neonatorum, and it is reasonable to credit this diminution to the great efforts that have been made to prevent the disease during the past few years. The apparent increase of the incidence of the cases of congenital syphilis is in part due to the diminution of the cases of ophthalmia, and in part to the use of finer methods of diagnosis. It is certain that the number of cases of blindness due to ophthalmia is diminishing both actually and relatively to the causes of blindness.

Journal of Tropical Medicine and Hygiene, London

August 15, XVII, No. 16, pp. 241-256

12 *Nitrogenous Metabolism in Chyluria. W. J. Young.
13 *Entamebiasis. Lim Boon Keng.

12. **Nitrogenous Metabolism in Chyluria.**—Young made a study of the albuminous matter and other nitrogenous constituents of the urine in two cases of chyluria. One case was that of a woman aged 42, otherwise healthy, who for twenty years had noticed that her urine became milky in appearance and clotted into jelly-like masses if left standing. She did not at first notice blood in the urine. Whereas formerly she had had no trouble on account of this, within the last ten years she had experienced dull, aching pains in the small of her back and had observed at times that the urine was stained with blood. On admission to the hospital specimens of blood taken both day and night were examined for filaria larvae, but it was never found to contain any.

The other patient was a miner aged 23. Eight years previous to admission he noted difficulty in passing urine and that it contained small, jelly-like, blood-stained clots, and also that the urine became milky on standing. He had dull, aching pains in his back. Otherwise the patient was quite well. Filaria larvae could not be found in the blood. Both were cases of true chyluria. The urines always contained fat which could be extracted with ether, but the milky appearance could not be entirely removed in this way. By the technic described by Young 1.8 per cent. of fat was found in the urine of Case 1 and 2.6 per cent. in that of Case 2. A quantity of protein was present which showed the properties of the proteins of the lymph. It coagulated when the urines were heated to 70 to 75 C., and contained globulin precipitated by half saturation with ammonium sulphate, and an albumin when the liquid was completely saturated with this salt. In Case 1 a fairly complete analysis of the nitrogenous constituents of the urine was made daily for fourteen days by a technic described in the article.

The patient whose weight, unfortunately, was not taken, was maintained on a diet consisting of lean meat, bread and potatoes, the nitrogen content of which was approximately 15 gm. The quantity of protein nitrogen excreted daily varied from 0.49 to 1.94 gm., the average for the fourteen days being 0.95 gm. per diem, corresponding approximately to 6 gm. protein. The complete results are given in a table, which shows a low grade of nitrogenous metabolism. The non-protein nitrogen representing protein actually utilized in metabolism was very small in quantity, the daily average excretion being 6.39 gm. This represents approximately 40 gm. protein catabolized. Aside from the protein nitrogen the other constituents of the urine showed a normally balanced nitrogenous metabolism.

In Case 2 the patient was kept on two different diets. During the first eight days the diet consisted of lean meat, eggs and bread carefully weighed out and equal in quantity to 15.4 gm. nitrogen per diem, while in the succeeding six days a diet of eggs, milk, bread and butter was employed. The daily quantity of urine varied from 1,120 c.c. to 3,195 c.c. The daily loss of lymph proteins as determined by the albumin in the urine averaged 2.40 gm. nitrogen, equivalent to 15 gm. protein. It varied from 10 gm. to 21.5 gm. The details are given in a table. During the first eight days the protein catabolized daily, as represented by the non-protein nitrogen, averaged 11.89 gm., approximately 74 gm. protein, which is about normal. The patient consumed the whole of the food given and did not find the amount excessive. During the second period, however, when the diet was controlled by the appetite of the patient, the quantity of nitrogen excreted decreased steadily, the non-protein nitrogen falling as low as 6.1 gm. daily, corresponding to only 38 gm. protein catabolized, a figure below normal. It was still decreasing when the experiment ceased.

13. **Entamebiasis.**—The relation of rheumatic pains, erythema and prurigo with dysentery and hepatic abscess, has been noted since the days of Graves and Murchison. Keng's observation is that all rheumatic inflammations and rheumatism as seen in Singapore, are associated with a protozoon organism, found in the intestinal canal in many persons, but mainly in those suffering from rheumatism, bronchitis, asthma, an irregular remittent fever, various inflammations, sciatica, lumbago, urticaria, erythema marginatum, erythema nodosum, prurigo, impetigo herpetiformis, lichen rubra acuminata, and chronic gastrodynia. One patient had painful micturition as if passing gravel, the urine being red and having a brick-dust deposit. In many of these patients, the organism is also found in the sputum, the urine, in the blood and in the skin eruptions.

It is Keng's impression that at least two distinct species (that producing dysentery, liver abscess and their inflammations; and that giving rise to rheumatism and its allies) may be clinically admitted although it is possible that in dysentery we have to deal only with a special phase of the multiplicative stage. This question of the relationship between dysentery and the rheumatic states cannot be settled. It is almost impossible at times to say from microscopic examinations that the ameboid bodies found in endometritis, bronchopneumonia, and skin sinuses are not the *Entameba histolitica.* The different diseases named are often found in persons who have had an attack of dysentery, although the greater number of those rheumatic and gouty patients have never had dysentery.

The association of the parasite in its different stages with different diseases is as follows: I. Fungus-like plasmodium, constipation. (a) Few free amebas in the feces, flatulence, biliousness, hepatic congestion, headache, vertigo, dizziness, pyrosis, nervous symptoms, urticaria. (b) Granular ameba also present in sputum, pharyngeal irritation, colds and bronchitis. (c) Free ameba plentiful in feces, sputum and blood, rheumatism, with arthritis and heart disease, toxemia, typhomalarial type of fever, acute urticaria, prurigo, boils, etc., tonsillitis, sciatica and gravel. II. Multiplicative phase. Large granular ameba undergoing fission, schizogony and budding by means of chromidia shedding, acute dysentery, acute gastritis and colitis, bronchopneumonia, bronchiectasis and phthisis, adenitis metritis and pelvic abscess, peritonitis, nephritis, appendicitis, hepatic abscess, pyemia. III. Encysted stage. Recovery for the time being or improvement in the patient's condition. Relapse occurs when the cysts burst and the parasites resume the active rôle. IV. Parasites in all stages flourish in the blood in extensive areas and affect the kidneys, with cachexia, anasarca, anemia, debility, sweats.

As far as Keng can make out the parasite is a mycetozoon and is a form of chlamydomysca. The fungus stage closely resembles a mycetozoa which he has found in house drains and is almost indistinguishable from a parasite in the intestinal canal of fowls. Provisionally, we may call it *Chlamydosporia toxifera* on account of its toxic effect on man.

Lancet, London

August 29, II, No. 4748, pp. 537-616

14 General Council of Medical Education and Registration of United Kingdom. Powers and Duties of General Medical Council.
15 Medical Examining Bodies and Schools of United Kingdom.

Sei-I-Kwai Medical Journal, Tokyo

August, XXXIII, No. 8, pp. 45-51

16 Some Facts in Acute Appendicitis. Y. Takaki.

Annales de Médecine, Paris

July, II, No. 1, pp. 1-106

17 *Habit of Swallowing Aerated Saliva. (Sialophagie.) G. Hayem.
18 *Reinfection with Tuberculosis. III. (La réinfection cutanée et le phénomène de Koch.) E. Rist and J. Rolland.
19 Hereditary Malformation of Chin and Nose with Exophthalmos and Strabismus. (La dysostose cranio-faciale héréditaire.) C. Chatelin.
20 The Reaction of the Bone Marrow in Tuberculous Anemia. A. Cain.
21 Eosinophilia in the Diatheses and in Conditions Suggesting Anaphylaxis. F. Bezançon and R. Moreau.

17. **Habitual Swallowing of Aerated Saliva.**—Hayem regards this as a form of aerophagia and as by far the most common type. This sialophagia should be suspected, he says, in every case of gastro-intestinal tympany. Auscultation over the stomach will generally reveal the gas entering and leaving the stomach, and sometimes the gas can be heard in the stomach. The sound more frequently heard from it is a borborygmus as the aerated saliva enters the stomach from the esophagus. He regards this sialophagia as a reflex act from some abdominal organ and suggests that it may reveal something wrong in this organ, especially if it happens to be the stomach, before any other signs point to it.

18. **Reinfection with Tuberculosis.**—The extensive experimental work here reported was for the purpose of studying the reaction of the skin of tuberculous guinea-pigs to reinfection with large doses. Special attention was paid to the histologic aspect of the reinoculation lesions and the behavior of the tubercle bacilli in them. When the reinoculated guinea-pig was under the influence of preexisting tuberculosis, the reinfection manifested itself always as an acute hemorrhagic inflammation with necrosis. The lesion appears in twenty-four hours instead of the incubation of from eight to twelve days with a primary inoculation. The lesion also heals completely sooner or later, thus differing from the incurable skin lesion of a primary infection. In the reinoculation lesion the tubercle bacilli all die off in time. These differences from the behavior of a primary skin lesion confirm the assumption of a state of allergy.

Annales de Médecine et Chirurgie Infantiles, Paris

August 1, XVIII, No. 15, pp. 501-536

22 Infants and City Noises. (Les inconvénients du bruit. Comment en préserver nos petits malades?) E. Périer.
23 Roentgenoscopy of the Appendix. J. Roux.

Deutsche Zeitschrift für Chirurgie, Leipsic

July, CXXX, Nos. 3-4, pp. 225-432

24 *Primary Sarcoma of the Pelvis. (Beckenknochensarkome.) M. Schmidseder.
25 Experimental Research on Suppurative Parotitis. F. Rost.
26 Operative Treatment of Dislocation of the Talus. W. Schmitt.
27 Ileus from Gall-Stones. A. Wagner.
28 Abnormal Location of the Appendix. A. Troell.
29 Operative Treatment of Acute Gastric Hemorrhage. G. Alberts.
30 Torsion of Colon, Movable Cecum and Ileus. R. Ingebrigtsen.
31 Retrosternal Dislocation of the Clavicle. Haehner.

24. **Sarcoma of the Pelvis.**—Schmidseder devotes nearly a hundred pages to summaries of 178 cases from the literature of sarcoma in the bones of the pelvis, and adds a detailed account of another case from his own practice. In most of the cases the favorable moment for operative treatment had been allowed to pass.

Medizinische Klinik, Berlin

August 2, X, No. 31, pp. 1299-1344

32 *Surgical Treatment of Cavities in the Lungs. P. Frangenheim.
33 Pathology of Ileus. E. Fritzsche and E. Stierlin.
34 Effectual Action of a Swiss Sulphur Mineral Water in Rebellious Eczema, Acne, and as Adjuvant for Surgical Bone and Joint Disease. (Zur Wirkung der Schwefeltherme von Schinznach.) E. Bircher.
35 *The Seashore and Cardiovascular Disease. (Zur Prognose der Herz- und Gefässkrankheiten.) M. Bockhorn.
36 Acromegaly Plus Splanchnomegaly with Hypophysis Tumor in Male Cadaver of 32. Eltester.
37 Failure of Attempts to Record Pulse in Aorta. H. Bergmann.
38 *Mechanism of Attack of Asthma. (Ist es gerechtfertigt, als Ursache des bronchialasthmatischen Anfalls eine Verengerung der feineren Luftwege, sei es in Form eines Bronchospasmus, sei es in Form von Schleimhautschwellung anzunehmen.) Winter.

32. **Surgical Treatment of Cavity in the Lung.**—Frangenheim regards operative treatment as indispensable for a cavity in the apex if it persists little if any modified after all the other tuberculous processes in the lungs have healed. Baer has reported success from surgical treatment of cavities in both lungs. The chances are better when the sheets of the pleura are adherent, but a cavity in the apex with open pleural cavity does not absolutely contra-indicate intervention. With a very large and thin-walled cavity, there is danger of the wall's suffering from inadequate blood-supply. Roentgenoscopy and the exploring finger warn of this. In treatment of a cavity in the upper lobe, he insists that pneumolysis offers better chances than operations on the chest wall. By "pneumolysis" he means operative mobilization of the upper lobe after the cavity has been emptied by gravity, the patient reclining on his side for an hour. A stretch of a few centimeters is resected from the second or third rib in front and, through a lengthwise incision in the periosteum behind, the finger is worked through between the fascia and the costal pleura and the upper lobe is loosened up all around to correspond to the extent of the cavity. An opiate before the operation prevents reflex phenomena and the whole operation can be done under local anesthesia, dabbing the pleura with the anesthetic solution. He has never had any hemorrhage worth mentioning.

When the part of the lung with the cavity is thus mobilized, the cavity may be obliterated by compression from a paraffin or other filling injected between the pleura and the chest wall. Various drawbacks have been encountered with different fillings; paraffin is so heavy it is liable to slide down below the cavity. It has also been known to work its way outward through the breach in the ribs and entail a suppurating fistula. Friction from the paraffin has also caused gangrene of lung tissue in some instances. Compression of the lung by an inflatable bag introduced into the extrapleural space is liable to lead to infection. Wilms uses fat tissue as the filling, and this seems the best of all for the purpose, provided it is not too rapidly absorbed. Mayer insists that the pneumolysis alone, without any filling, is all that is necessary at first. Later, if the lung shows a tendency to expand and open up the cavity again, nitrogen could be injected to fill the space. Both Wilms and Baer insist that the filling procedure need not be restricted to old, chronic, shriveling cases, but can be applied in a recent process with cavities; there need be no fear that the procedure in itself will aggravate the tuberculosis. The cavity is influenced by the pneumolysis much more than by a thoracoplastic operation, while the heart, the lungs elsewhere and the muscles controlling expectoration are not impaired by it. When the technic for filling the extrapleural space is further perfected, the pneumolysis method will certainly be found extremely valuable for treatment of cavities in the lungs, especially in the upper lobe, while with diffuse pulmonary disease extensive thoracoplastics answers the purpose better.

35. **Prognosis of Cardiovascular Disease.**—Among the points emphasized by Bockhorn is that the heart and the vascular system are one, as is evident from the embryonal development. Thus what acts on the peripheral circulation acts on the heart as well. He refers in particular to the effect of sea bathing and sea air, saying that he knows of far more people living to 90 and over in good health in seashore towns than in the inland, other conditions approximately equal. Neurasthenics should be sent systematically to the seashore for a course of training; if this were done regularly, cardiovascular disease might be warded off in a large proportion of cases. In arteriosclerosis, the process might be arrested and other vascular regions saved from involvement if there were seashore sanatoriums and convalescent homes available. Bockhorn states that tests have shown that the North-Sea bathing represents a course of cold, carbonated, brine baths and such are regarded by many as the most effectual form of balneotherapy in treatment and in prophylaxis of cardiovascular disease.

38. **Mechanism of Asthma.**—Winter ascribes the attack in asthma to some irritation of the vagus; this causes, by reflex action, some disturbance in the blood-vessels in the lungs. The blood-vessels become enlarged and more easily permeable, and this readily explains the symptoms observed.

Münchener medizinische Wochenschrift, Berlin

July 28, LXI, No. 30, pp. 1657-1712

39 Corpus-Luteum Preparation in Treatment of Irregular Menstruation. L. Seitz, H. Wintz and L. Fingerhut. Concluded in No. 31.
40 *The Fat Acids and Coagulation of the Blood. (Chemische Erklärung des Gerinnungsvorganges.) B. Stuber and R. Heim.
41 *Serodiagnosis of Pregnancy. (Weitere Erfahrungen mit der Abderhaldenschen Reaktion allein und im Vergleich mit der Antitrypsin Methode.) R. Freund and C. Brahm. (Zur Substratfrage bei der Anwendung des Abderhaldenschen Dialysierverfahrens.) P. Lindig.
42 *Colorimetric Determination of the Sugar in the Blood. (Ueber kolorimetrische Bestimmungsmethoden; IX.) W. Autenrieth and W. Montigny.
43 *The Tuning Fork-Stethoscope Method. (Zur Stimmgabel-Stethoskop-Methode.) Olpp.
44 *Gunshot Wounds of the Heart. (Zur operativen Behandlung der Herzschüsse.) T. Müller.
45 Restoration of the Ear. (2 Auroplastiken.) E. Eitner.
46 *Infectious Erythema. A. Heisler.
47 *Serodiagnosis and Differentiation of Cancer. M. Weinberg. Commenced in No. 29.
48 The Disadvantages of the Constantly Increasing Cost of Building and Running Public and Private Sanatoriums. (Der Nachteil der dauernd steigenden Anlage- und Betriebskosten von Sanatorien.) C. Schütze.

40. **The Chemistry of the Coagulation of the Blood.**—Stuber and Heim have continued their research on the influence of lipoids on various biologic processes, on phagocytosis and coagulation, and here report that there is a direct connection between the fat-splitting and the coagulation-inducing properties of ferments. Steapsin proved the most active in both lines. Chemically pure stearic acid, and tristearin in a lesser degree, are able to induce coagulation of the blood as promptly as or even more effectually than thrombokinase. In respect to their influence on the coagulation of the blood, the fat acids can be classified in a homologous series, their place in which is determined by the number of carbon atoms in the molecule. The arrest of coagulation by leech extract comes under the workings of this law. The first phase of the coagulation process is thus a lime-fat soap production; the second phase is the lime-fat soap fibrinogen, the lipolytic ferment serving as catalyzer. The latter — blood-lipase — seems to be under the control of certain glands with an internal secretion.

41. **Serodiagnosis of Pregnancy.** — Freund and Brahm report the application of Abderhalden's technic in 114 pregnant women and in 36 controls, men and non-pregnant women. The test gave negative findings in 18.4 per cent. of the pregnant women and a positive reaction was obtained in 53.1 per cent. of the men and the non-pregnant women. Thus the test failed in nearly 27 per cent. of 135 cases. They report further some additional series showing equally disappointing results with various modifications of the technic. They applied the antitrypsin method along with the Abderhalden in 48 pregnant and 16 non-pregnant women, or in men, and incorrect responses were obtained once with the antitrypsin method and seven times with the Abderhalden among the pregnant, and seven times with the former and ten times with the latter among the controls, including some normal or syphilitic men. Neither test proved absolutely reliable, but the antitrypsin test was much more so than the Abderhalden while its technic is simplicity itself in comparison, especially E. Rosenthal's modification of the original Fuld-Gross method. Heimann and Chotzen obtained correct responses with it in all of 66 controls and in 47 of 50 pregnant women, and R. Franz's tests of 223 pregnant women have confirmed the value of the test; a negative reaction may be accepted as positively excluding pregnancy. Franz remarks, however, that as the test is merely a sign of increased metabolism of albumin and is not specific for pregnancy, a positive response must not be regarded as a sign of pregnancy unless it is possible to exclude other conditions accompanied by augmented destruction of albumin, such as cancer, tuberculosis, nephritis, exophthalmic goiter and fever from any cause. . . . Lindig uses desiccated and pulverized placentas for the test, or casein in substance.

42. **Colorimetric Determination of the Sugar in the Blood.**—With the technic described the sugar content in normal adult males ranged from 0.05 to 0.07 per cent. A diabetic with 6.2 per cent. sugar in the urine had 0.2 per cent. sugar in the blood. In four healthy infants the sugar content ranged from 0.029 to 0.036 per cent. In order to obtain comparable findings, Autenrieth and Montigny emphasize the importance of agreeing on a standard test meal and standard interval before applying the test, as food containing much sugar, such as honey, increases materially the percentage of the sugar in the blood.

43. **The Tuning Fork-Stethoscope Method.** — Olpp commends Cantlie's method of using the tuning fork in connection with the stethoscope to determine the outline of the viscera, of tumors, etc. The method can be applied to one's own body. Gynecologists may find that this method will reveal a tumor in the uterus or elsewhere that escapes all other methods of investigation.

44. **Operative Treatment of Stab and Gunshot Wounds of the Heart.**—Müller relates an instance of an apparently insignificant wound of the heart which entailed fatal internal hemorrhage while another, much more serious apparently and sutured at once, terminated in recovery. The bullet was not found in the latter case and still can be seen with the Roentgen rays about two finger-breadths above the diaphragm. The heart was sutured with catgut in this case and the young man has been apparently in perfect health during the months since. In this as in most of the cases on record

the bullet hole through the soft parts suppurated but the inflammation did not extend below. Recovery is known in 53 per cent. of 51 operative cases on record; in the latest 10 cases, 9 of the patients were cured. Müller's other patient was a girl of 10 who fell on a glass roof and cut herself slightly at several points. The quarter-inch cut in the third left interspace was not considered serious at first but an operation two hours later revealed a glass splinter which had cut the left ventricle. The 1-cm. wound was sutured with silk and the heart-beat grew stronger at once but the child had lost so much blood that she was unable to rally and died in two and a half hours after the operation. The sharp splinter of glass had struck the third rib and been deflected into the left ventricle.

46. **Infectious Erythema.**—Heisler reports an epidemic of this affection last spring embracing twenty-five cases. It sometimes came on with a stormy onset, fever and glandular enlargement accompanying the maculapapulous erythema on the cheeks, possibly becoming confluent and giving the face a peculiar bloated appearance. The color of the erythema was a bluish red; in a day or so it extended down on the upper arms and toward the back of the neck and shoulder-blades. The second or third day the buttocks and outside of the thighs developed the erythema likewise, but nowhere was it confluent except on the face. The eruption is briefly transient and sometimes comes and goes and returns, all with equal suddenness. No connection with any other infectious disease was apparent in his experience. The epidemic broke out first in a boys' boarding school in the middle of a term. The incubation period was from five to fourteen days, generally seven, and direct transmission from child to child could be traced in each new case. The swollen region in the face generally showed some desquamation later and there was a tendency to pigmentation in a few cases. The spleen was not enlarged in any instance and the urine was normal except for the presence of indican in a few cases. The fleeting nature of the erythema aided in differentiation but the most characteristic finding was the sudden enlargement of the glands below the ear and toward the occiput. This preceded by a day or so the erythema.

47. **Serodiagnosis of Cancer.**—Weinberg gives the details of 12 cases in which malignant disease seemed certain but the Abderhalden test gave negative findings, and the further course of the cases disproved cancer. In 28 cases of cancer the test was positive in all but 2 and in one of these the cancer had developed so suddenly and actively that possibly there had not been time for the specific ferments to develop. In 15 controls the reaction was constantly negative. Contrary to the experiences related by others, Weinberg found that carcinoma serum digested carcinoma-tissue alone, and sarcoma serum, sarcoma-tissue alone; the special organ involved seemed immaterial. The specific tissue is the main point; spindle-celled sarcoma would not respond to round-celled and vice versa, and the same occurred with cylinder-celled carcinoma, etc. Lack of realization of this peculiar specificity may explain the conflicting experiences published by some workers in this line. In 8 cases the reaction persisted positive after the removal of the cancer and in each instance this was explained by the discovery of metastases.

Wiener klinische Wochenschrift, Vienna

July 30, XXVII, No. 31, pp. 1133-1174

49 *Vaccination Technic for Tuberculin Treatment of Tuberculosis. (Neuere Varfahren der Tuberkulosehandlung und die fur Pathologie und Therapie daraus zu ziehenden Schlüsse.) H. Weichert. Concluded in No. 32.
50 *Technic to Exclude Disturbing Elements in Electrocardiography. (Methode, die physikalischen Einflüsse auf die Form der Elektrokardiogramme auszuschalten.) K. Mayer.
51 *Intramuscular Injections of Blood in Treatment of Leukemia. G. Kiralyfi.
52 Retention Tumor in Parotid Gland. (Speichelganggeschwulst.) V. Lazarevic.
53 Quarantine Regulations in the United States. E. Weiner.

August 13, No. 33, pp. 1207-1226

54 *Neosalvarsanized Serum in Treatment of Syphilis of the Nervous System. Gurari.
55 Isolated Fracture of the Semilunar Bone. (Mondbeinfraktur.) A. Plunger.
56 Durable Collargol Preparations of Spirochetes, etc. (Herstellung der haltbaren Kollargolpräparate von Spirochäten und Hyphomyzeten.) J. Saphier.

49. **Vaccination Treatment of Tuberculosis.**—Weichert explains on the basis of the side-chain theory Ponndorf's success in treating tuberculosis by systematically repeated vaccination—like an intensified Pirquet tuberculin test, repeated about once a month. He assumes that the skin and mucous membrane are the seat of especially vigorous antibody production as they bear throughout life the brunt of bacterial attacks. Other arguments to sustain this assumption are presented, including the success of vaccination against small-pox. The article is continued.

50. **Improved Technic for Electrocardiography.**—With the ordinary technic one never knows from what part of the heart the electric current is proceeding, and hence it is impossible to obtain records under exactly similar conditions for comparison with other cases or even with other records of the same organ. Mayer says that he has overcome this difficulty by taking the record as the patient reclines in a zinc tub filled to a certain mark with water. The volume of the body plus the water is thus always the same, and the area of conduction is so large and so far from the heart that minor differences become equalized.

51. **Injections of Blood in Leukemia.**—Kiralyfi calls attention to the stimulating effect on the bone-marrow of intramuscular injections of defibrinated blood when the patient has been taking benzol or Roentgen treatment to excess; that is, when the benefit apparently being realized from the treatment suddenly gives place to an acute exacerbation, which is a frequent occurrence. In a case reported in detail, a merchant of 59 with myeloid leukemia for about six months improved after six days of benzol treatment, the whites dropping from 31,000 to 13,000, and the benzol was discontinued. The whites continued to drop until they numbered only 2,150 and the reds dropped to 1,000,000 and the patient suffered intense pains in his limbs. A venesection had just been done to relieve a patient with polycythemia, and 10 c.c. of the blood drawn from this patient was injected into the gluteal muscle of the leukemia patient. By the next day the whites had climbed to 7,000 and by the fourth day to 11,900 and the reds numbered 150,000 more, showing that the exhausted bone-marrow had begun to recuperate. The injection was repeated with ordinary blood nine days and again three weeks later, and the improvement continued. The complexion became natural, the swollen glands subsided, and the previously bed-ridden patient was able to be up and about. The reds have kept since at about 2,000,000 and the whites from 9,000 to 10,000.

54. **Treatment of Syphilis of the Nervous System.**—Gurari has been applying Swift and Ellis' technic and later a modification of it and reports considerable improvement in a number of the cases. Ten are described in detail with the findings on repeated lumbar puncture. He makes an intravenous injection of neosalvarsan and an hour later draws the blood, but instead of aspirating it he introduces the needle alone into the vein after a constricting band above has been drawn tight. Then the band is removed and the patient works his fingers, the forearm pendent. Blood then pours out of the needle almost as if it came from an artery; the blood is received in a glass vessel with a broad bottom. It is set aside for twenty-four hours, when the serum is ready for use, clear and without a trace of hemolysis. He has applied this procedure forty-five times, estimating the results by the chemical, histologic and serologic findings in the cerebrospinal fluid as the criteria. In six of the ten cases reported in detail the pleocytosis was materially reduced; in three nearly to normal with one injection, in the others not until the second or third injection. The Nonne reaction subsided also parallel to the pleocytosis. The Lange and Wassermann were the hardest to influence, especially the Lange. It persisted in some cases after five injections, long after the Wassermann had disappeared. The clinical course

showed improvement in the subjective symptoms, the pains and other sensory disturbances, but the symptoms from the far-advanced anatomic changes naturally were not influenced.

Zentralblatt für Chirurgie, Leipsic

August 8, XLI, No. 32, pp. 1313-1352

57 Resection of Cardial Section of Esophagus for Cancer. W. Meyer (N. Y.).
58 Access to Thoracic Esophagus. (Zur Freilegung des Brustabschnittes der Speiseröhre. R. Wilmanns.

August 15, No. 33, pp. 1353-1384, and Supplement, pp. 1-112

59 *Technic for Pyelography. A. V. Lichtenberg.
60 Technic for Correction of Double Harelip. (Doppelseitige Hasenscharte.) H. Hans.
61 Transactions of XLIII Annual Meeting German Surg. Ass'n.

59. **Technic for Pyelography.**—Lichtenberg says that he has applied pyelography about a thousand times and this experience has confirmed the necessity for preliminary thorough purging, also the advantage of using a catheter impregnated with bismuth in certain segments alternating regularly with non-opaque segments. This permits distances to be readily estimated. The larger the supposed dilatation of the kidney pelvis, the longer must be the delay before injecting any fluid. With hydronephrosis, even in its incipient stage, there may be obstruction to the reflux of the fluid injected and a typical attack of colic may ensue. After a few hours or days the fluid injected may be emitted with urine at intervals, this keeping up for eight or ten days. He has observed intervals up to two and a half days. This intermittent stoppage, as shown by pyelography under the Roentgen rays, is an absolutely reliable sign of latent incipient hydronephrosis, according to his experience. The fluid injected is also liable to be retained in cavities and ulcers; he regards this as an advantage rather than otherwise, as the silver salt he injects for the pyelography exerts a direct healing influence. If the mucosa is sound it is smooth and the injected fluid rapidly reaccumulates in the bladder. He warns that pyelography is contra-indicated if there is hemorrhage.

Zentralblatt für Gynäkologie, Leipsic

August 8, XXXVIII, No. 32, pp. 1121-1152

62 Mesothorium in Treatment of Uterine and Vaginal Cancer. B. Schweitzer.
63 Radiotherapy for Chorio-Epithelioma. A. Hörrmann.
64 Danger of Roentgen Rays from Standpoint of Eugenics. (Röntgenstrahlen und Eugenetik.) M. Hirsch.

August 15, No. 33, pp. 1153-1184

65 Means for Control of Sponges at Gynecologic Laparotomies. (Tupferkontrolle.) G. Schubert.
66 Waterproof Permanent Dressing for Umbilicus. (Ein wasserdichter Nabeldauerverband für Neugeborene.) C. Holste.
67 Decidua Responsible for Pregnancy Seroreaction. (Die innere Sekretion der Decidua im Hinblick auf die Arbeit von J. Schottländer: "Zur Theorie der Abderhalden'schen Schwangerschaftsreaktion usw.") A. Gentili.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 4, XXXV, No. 93, pp. 977-984

68 Fracture of Sternum. A. Balduzzi.

August 6, No. 94, pp. 985-992

69 *Fats in the Sputum. (Ricerche microchimiche sulle sostanze grasse dell'espettorato in condizioni normali e nella tubercolosi pulmonare.) N. Barbaro.

69. **Fatty Substances in the Sputum.**—Barbaro found a decided increase above the normal proportion of the fatty substances and lipoids in the sputum with pulmonary tuberculosis. The increase was greater the more advanced the tuberculous process.

Policlinico, Rome

August 2, XXI, No. 31, pp. 1109-1144

70 *Vaccine Therapy of Typhoid. H. V. Pensuti.

70. **Vaccine Therapy of Typhoid.** — Pensuti states that relapses occurred in 25 per cent. of thirty-seven cases of typhoid in which antityphoid vaccine had been applied in treatment. He theorizes to explain this enhanced tendency to relapse, and reports a series of thirty-one new cases in which the vaccine was given by another technic, based on the theory he advances. He injected the usual therapeutic dose and then continued with minute doses, keeping this up even for a few days after the temperature had returned to normal. The injections even of the minute doses were followed each by a brief rise, demonstrating the instability of the defensive forces, but they evidently reenforced them as recovery proceeded smoothly and there were no relapses in the entire series.

Brazil-Medico, Rio de Janeiro

July 15, XXVIII, No. 27, pp. 259-266

71 Operations on the Lacrimal Duct. (Operaçao de Toti e operaçao de West. E. Campos. Commenced in No. 26.

July 22, No. 28, pp. 269-278

72 Colitis Due to Chilomastix Mesnili; Five Cases. A. M. da Cunha and M. Torres.
73 *Isolated Right Ophthalmoplegia of Malarial Origin. (Caso de nevrite do motor-ocular commum e do pathetico de origem palustre.) A. Britto.

August 1, No. 29, pp. 279-286

74 *Atypical Rabies. (Caso atypico de raiva humana.) J. Miciel and U. Paranhos.

August 8, No. 30, pp. 287-296

75 *Case of Gynecomastia. C. Werneck.

73. **Neuritis of Malarial Origin.**—Britto's patient was a young man with paralysis of the nerves innervating the muscles of the right eye. There was a history of mild venereal disease but the blood contained the malaria germ and under quinin the ophthalmoplegia promptly subsided. Without microscopic examination of the blood the true cause of the trouble would scarcely have been suspected.

74. **Atypical Rabies.**—In the case reported a man of 60 developed symptoms which suggested rabies at first but they soon subsided and he seemed calm and cheerful and took baths and his meals normally, and the diagnosis was changed to incipient general paralysis. The fifth day the patient was found depressed and apathetic, with paralysis of the legs, and he died in a few hours. The necropsy findings proved the case to have been true rabies beyond question, but the man had never been bitten by any animal. He had told, however, that a few months before he had hurt his leg slightly and an old dog of his had licked the small sore and the dog had disappeared not long afterward.

75. **Case of Gynecomastia.**—Werneck says that in the case illustrated, the abnormal development of the mammary glands in a mentally backward young man was evidently secondary to atrophy of the testicles and cryptorchidism. The low blood-pressure and readiness to fatigue indicate insufficiency of the adrenals.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 30, LVIII, No. 22, pp. 1845-2044

76 *Arguments Why the Practice of Medicine Should be Restricted to Those Trained in Medical Science. (Artzenmonopolie en Geneesvrijheid.) C. A. Pekelharing, H. Treub and Others.

76. **Arguments for Safeguarding the Practice of Medicine.**—A movement is on foot in the Netherlands the aim of which is to throw down all the barriers that now protect the sick against ignorance and unscrupulous exploitation. The 200 pages of this issue of the *Tijdschrift* are devoted entirely to a survey of the value and necessity of the present safeguards, twenty-six leading physicians considering the subject from different standpoints, the whole forming an able protest against any letting down of the bars. B. J. Polenaar, a lawyer, tells of the numerous and far-reaching changes that would have to be made in the present laws to protect the public health and the sick in case the practice of medicine were to be thrown open to all. J. Slingenberg reviews the legislation in various countries in turn which regulate the practice of medicine; Germany and England, he says, are the only civilized countries which do not require a medical degree, and in Prussia alone the number of the untrained dealing in the healing art has risen from 2,404 in 1898 to 6,137 in 1905. C. A. Pekelharing traces the history of medicine from ancient days to the present, showing how superstition and mysticism have always hampered the progress of medical science and how strict science alone can be the basis for suitable treatment. C. Winkler shows that the

history of medicine seems to be a chain of errors and yet how at every point there is evidence that relative truth has emerged from the errors. Empiricism leads the way and scientific medicine follows. H. Treub, in an extremely interesting analysis of the differences between the charlatan and the trained physician, compares the untrained practitioner of medicine to a blind man stumbling around in a dark room seeking something he does not know what; while the scientific physician is like a normal man in a well lighted room seeking an object with which he is familiar.

The standing of physicians and the practice of medicine in ancient Greece and Rome and in the middle ages are discussed by K. Kuiper, J. W. Beck and M. A. van Andel. The charlatan as portrayed on the stage in the Netherlands and in Dutch literature is described by J. te Winkel while G. van Rijnberk tells of the quack in Dutch art, reproducing several engravings; he discusses further modern "miracle cures," hypnotism and magnetism. P. Muntendam depicts the harm done by books for home doctoring, written in a popular style, of which Germany has so many. He remarks that even those written by physicians have their disadvantages, but it is difficult to overestimate the harm done by the books of a Bilz, a Kuhne or other quacks.

The methods of various quacks and cults are described in a number of articles, H. U. Meyboom writing of Christian Science and the Emmanuel Movement, J. Stärcke of Amsterdam telling of the absurd and dangerous practices of many exponents of the drugless school. Household and folklore remedies are discussed by E. C. van Leersum and P. van der Wielen. Homeopathy and its erroneous conception of the action of drugs are discussed by H. Pinkhof of Amsterdam, and the dangers which would confront the public if the practice of medicine was not safeguarded are described by several writers. The way in which infectious diseases would spread and cancer progress unchecked if the movement for throwing open the practice of medicine to the untrained should succeed, are well shown by H. G. Ringeling and S. Mendes da Costa of Amsterdam. The latter emphasizes this in particular for venereal diseases and J. Rotgans for cancer. The harm that would be done to the public health, to social medicine and to social hygiene by removing restrictions to the practice of medicine is shown well by J. G. Sleeswijk, professor of hygiene at the University of Delft. The waste of money from quack practices is reviewed by E. J. Abrahams, who remarks that it is impossible to estimate the sums squandered for worthless or sometimes dangerous quack remedies, but he knows that quacks pay annually at least 800,000 florins for their advertisements in the papers and periodicals of the Netherlands. W. Nolen of Leyden reviews some of the latest achievements of medicine and comments on some of the disappointments it has encountered in recent years, and suggests new lines for further conquests. H. Schreve, medical director of the Rotterdam public hospital, concludes the series with instances of serious injury from the procedures of the naturopaths.

The issue closes with a book-review department, reviewing a number of new German and Holland works bearing on quackery and its menace to public health. The pamphlets issued by the leaders of a similar agitation in Germany are also analyzed and answered point by point.

Mitteilungen a. d. kais. Universität, Tokyo

April, XI, No. 3, pp. 309-494, German Edition. Last indexed May 30, 1914, p. 1765

77 Localization of Function in the Spinal Cord for Muscles of Hand, Leg and Diaphragm. J. Shimazono.
78 *Pathologic-Histologic Findings in the Nervous System with Beriberi. K. Honda.
79 Subacute Macrolymphocyte Leukemia; Only Transient Improvement Under Roentgen Treatment. S. Okada.
80 Embryologic-Anatomic Study of the Stria Vascularis of the Cochlea. (Stria Vascularis der Gehörschnecke.) T. Wada.
81 Congested Veins in the Back, etc., with Impeded Circulation in Inferior Vena Cava. S. Nukada.

78. **The Changes in the Nervous System with Beriberi.**—Honda gives some colored plates of the pathologic-histologic findings in a number of cases of beriberi emphasizing the characteristic and constant changes as they occur in both the central and the peripheral nervous systems. The pathologic findings are less pronounced in the peripheral nerves with acute than with chronic beriberi, but the extent of the nerves involved as a whole is greater than with the chronic form. He defines the acute form as that in which the nerves of more vital importance, the phrenic and vagus nerves and the nerves of the extremities are affected early and with great intensity. In the chronic cases the less vitally important nerves are affected early and intensely but those of great vital importance escape entirely or nearly entirely. In two infants with beriberi the changes in the nerves corresponded more to those of the acute form in adults although the clinical picture was more like that of the adult chronic type. Honda applies the Bielschowsky technic to specimens embedded in celloidin, and thinks that this modification of the otherwise ideal Bielschowsky technic is a great improvement. The specimen is not loose and can thus be easily handled; different stains can be applied to the same specimen, and mechanical injury in cutting frozen sections is done away with. He discusses the history of work on the nerves in beriberi and reviews the literature, tabulating the details of the histologic findings in his twenty-six cases.

Russky Vrach, St. Petersburg

April 12, XIII, No. 15, pp. 525-560

82 *Indications and Technic for Operative Treatment of Uterine Cancer. N. M. Kakushkin.
83 *Injury of Vagus in Operations on the Neck. T. K. Weber.
84 *Potassium Iodid Test for Differentiation of Cancer and in Treatment. M. P. Mikhailoff.
85 *Bacillus of Fish Poisoning. (Bac. ichthyismi.) S. V. Konstansoff.

April 19, No. 16, pp. 561-596

86 *Total Laryngectomy for Cancer. W. M. Mintz.
87 Gumma in Trachea Revealed by Tracheoscopy; Recovery Under Specific Treatment Plus Stretching the Stenosis. A. M. Nikolsky.
88 Paroxysmal Tachycardia. V. P. Simonovitch. Commenced in No. 15.

April 26, No. 17, pp. 597-632

89 Fat Embolism during Orthopedic Operations. G. I. Turner.
90 *Muscle Sign of Chronic Appendicitis. N. M. Volkovitch.
91 Influence of Bile Salts in Blood on the Vascularization of Organs. E. A. Kartashevsky.
92 Technic for Making Artificial Eyes. R. A. Katz.
93 Technic for Staining Negri Bodies. S. P. Kotzevaloff.

82. **Uterine Cancer.**—This and some other articles in this issue were read at the first general meeting of the All-Russian Association for the Campaign against Cancer. Kakushkin thinks that both the abdominal and the vaginal routes have their indications. The latter is best for incipient cases and when the body of the uterus is involved. The abdominal method should be preferred when there is parametritis with adhesions, and then the transverse incision is desirable. He advises hysterectomy even for benign hyperplasia of the cervix and erosions in prophylaxis of cancer.

83. **Dangers of Injuring the Vagus in Operations on Tumors in the Neck.**—Weber reports five cases to show the serious dangers liable from reflex action when the vagus is injured in operations on the neck, and cites Reich's compilation of forty-four cases with five deaths. For these reasons he urges the importance of blocking the nerve with a 20 per cent. cocain solution, above and below the tumor, to ward off trouble if it should happen to be injured. One of Weber's five patients succumbed half an hour after the operation. The others recovered but one was left with paresis for a time.

84. **Potassium Iodid in Diagnosis and Treatment of Cancer.**—Mikhailoff strongly recommends potassium iodid in internal cancer, preferably in the form of rectal injections (4 gm. potassium iodid; 2 gm. sodium carbonate and 80 or 100 c.c. distilled water). This he supplements with 1 per cent. solution of sodium arsenate (sodium arsenici) hypodermically, which solution must be made with 0.25 per cent. phenol. He found that if the temperature rises one or two hours after the rectal injection of the potassium iodid, then we positively have to do with a malignant growth (carcinoma or sarcoma). If the temperature remains stationary or even declines, then cancer can be excluded and syphilis is probable. He sees in

the action of potassium iodid in this respect an analogy to the action of tuberculin in tuberculosis, and claims that carcinoma can be cured in certain stages of malignant disease with this method of treatment. It reveals the presence of cancer like the positive response to the tuberculin test in tuberculosis, and a systematic course of treatment with it has a curative influence like that of tuberculin.

He states that potassium iodid seems to display a special affinity for cancer cells in the test-tube, and his clinical experience apparently indicates that this is the case also in the human body. For the differential diagnosis, he gives the rectal injection as above described, and repeats it after an hour or hour and a half to a maximum of three injections, but one is generally sufficient. The temperature reaction becomes manifest in one or two hours. He does not give specific instances or figures, but relates that after his course of treatment with potassium iodid supplemented by subcutaneous injection of a 1 per cent. solution of sodium arsenate, some of the patients are still living who had been told years before by leading clinicians that they had internal and hence inaccessible cancer. All his patients thus treated were in this inoperable class, as he always operates for accessible cancer.

85. **Fish Poisoning.**—Konstansoff found the bacillus of fish poisoning in two kinds of fish. Very small doses of pure agar cultures killed white mice in from six to twelve hours. As this bacillus is very similar to the *Bacillus botulinus* of van Ermengem, Konstansoff thinks that it is probably a variety of the latter.

86. **Laryngectomy for Cancer.**—Mintz has removed the entire larynx on account of malignant disease in 29 cases, and tabulates here the details of each. Seven of his patients (24 per cent.) lived for more than a year, and 3 are in good health to date over seven, eight and twelve years since the operation. It is remarkable that the two patients who have survived the longest both required a second operation for recurrence in a gland four and twenty months after the primary laryngectomy. The ultimate outcome in a number of the other cases is not known later than a few months.

90. **Muscle Sign of Chronic Appendicitis.** — Volkovitch found that in chronic appendicitis, or in intervals between acute attacks, the abdomen is relaxed in the right iliac region contrary to what is usually observed in acute appendicitis. In addition the abdominal muscles on the right side seem to shrink and atrophy. The more pronounced this so-called muscle sign, the severer is the appendicular lesion. This sign is absent with inguinal hernia, but Volkovitch is unable so far to tell if it is positive in other lesions of the right abdominal cavity, such as pelvic lesions in females, gall-stones, etc. The relaxed condition of the abdominal muscles in chronic appendicitis may lead to scoliosis on the left side, and he asserts that left-sided scoliosis should raise suspicions of a possible chronic appendicitis.

St. Petersburger medizinische Zeitschrift

July 15, XXXIX, No. 14, pp. 169-184

94 Dangers of Transmission of Disease by Head Louse. (Pediculosis capitis.) A. Spindler.

Hospitalstidende, Copenhagen

July 28, LVII, No. 30, pp. 921-952

95 *Cysts in the Pancreas. J. Ipsen. Commenced in No. 29.
96 *Lye Injury of Esophagus. (Tilfaelde af alvorlig ösophagusætsning.) P. Zachariae.

August 12, No. 32, pp. 985-1016

97 *Rupture of the Mesentery. K. Sand.

August 19, No. 33, pp. 1017-1048

98 Unilateral Multiple Chondromatosis in Girl of 6. (Ollier's vækstforstyrrelse.) A. Bojesen. Concluded in No. 34.
99 Conflicting Tendencies in the Psychiatry of the Day. (Stridende strømninger i tidens sindssygelære.) Dedichen. Commenced in No. 32.

95. **Cysts in the Pancreas.**—In one of Ipsen's six cases a trauma seems to have been responsible for the development of the cysts. The first symptoms of trouble were apparent two days later. When the pancreas is injured in an accident, acute inflammation follows if the trauma was severe and much pancreatic juice was forced out, while there may be merely production of a cyst if the injury was comparatively slight. In another of his cases the cyst was probably secondary to the cancer found with it, the cancer having injured the tissues like a trauma. The four other patients had long had recurring attacks of pain, and gall-stones were found at necropsy in two cases. These were probably the cause of the attacks of pain, and the passage of a stone may finally have stretched the opening leading up into the pancreas with resulting destruction of pancreas tissue and cyst production.

In the other cases the attacks of pain and occasionally transient jaundice retrospectively suggest gall-stones, but no search was made for them at the operation on the pancreas. The pains, however, were always localized on the left side. The smaller the cyst the more difficult the diagnosis. In one case the symptoms seemed to suggest perforation of a gastric ulcer or peritonitis but the signs of pleuritis and transient albuminuria did not agree with this, and Roentgen-ray examination revealed an accumulation of fluid just below the left diaphragm. Treatment can be only surgical, suturing the lips of the cyst to the skin with care not to let the contents of the cyst come in contact with the skin. There is no well-defined lining of the cyst in the class of cases here described, in which digestion of tissue is responsible for the cyst production. Any attempt to cut out the cyst merely leads to more destruction and may entail hemorrhage except when the cyst is found circumscribed and lined with epithelium or is merely a small corrosion cyst in the head of the pancreas.

96. **Corrosion of Esophagus from Lye.**—The child of 2 drank a swallow of lye and the stomach was rinsed out at once. A few days later the lining of the esophagus was thrown up in the form of a nearly perfect tube 14 cm. long. The esophagus was systematically dilated with a catheter passed down into the stomach once a day for about nine months and then at longer intervals, and the child seems to have no further signs of trouble. The catheter was introduced for the first time twelve days after the lye had been swallowed, seven days after the lining of the esophagus had been cast off. The text-books warn not to begin catheterizing until after there is no more blood or pus in the mucus cast up, that is, not for three to six weeks, but Zachariae's success in warding off stenosis in this case suggests that it is better to commence earlier. Rovsing found it impossible in one case to introduce even the finest sound one month after the caustic had been swallowed. It is also a question how long the dilatation must be kept up. Bloch advises it occasionally all through life, to ward off recurrence, and Zachariae has another patient who had return of trouble after 60 although the lye injury occurred during childhood. It is certainly a wise plan, he remarks, to let no month pass without introducing the catheter once, as prevention in these cases is so easy while it is so hard to cure inveterate stenosis.

97. **Rupture of the Mesentery.**—Sand says that there have been only five cases of this during the last ten years at the Copenhagen public hospital; Prutz has recently compiled forty-four cases. The mortality in the operative cases was 38 per cent. while all died in the cases in which no operation was attempted. The exact diagnosis is never possible before the abdomen is opened and then it is always a question whether the bowel should be resected or not. In case of doubt, it is safer to do the resection. He describes in detail a typical serious case successfully treated on these principles.

Norsk Magazin for Lægevidenskaben, Christiania

August, LXXV, No. 8, pp. 873-1000

100 Meningitis Secondary to Ear Disease. (Den otogene meningitis patologi, symptomer og diagnose.) V. Uchermann.
101 Juvenile Criminality and Neglected Childhood. (Er "den unge forbryder" en fortsættelse av "det forsømte barn"?) S. Dahlstrøm.
102 Sea-Weed Products in Balneology. (Den balneologiske anvendelse av norske tangprodukter.) J. R. Natvig.
103 Yellow Skin After Eating Raw Scraped Carrots: Two Cases. (To tilfælder av gullerotfarvning.) E. Møinichen.
104 Cystic Kidney: Two Cases. (To tilfæelder av cyster i nyren.) N. Paus.

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OF THE

American Medical Association

Annual Subscription, $5.00 PUBLISHED WEEKLY Single Copies, 15 Cents

Vol. LXIII, No. 12 535 North Dearborn Street, CHICAGO, ILL. SEPTEMBER 19, 1914

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

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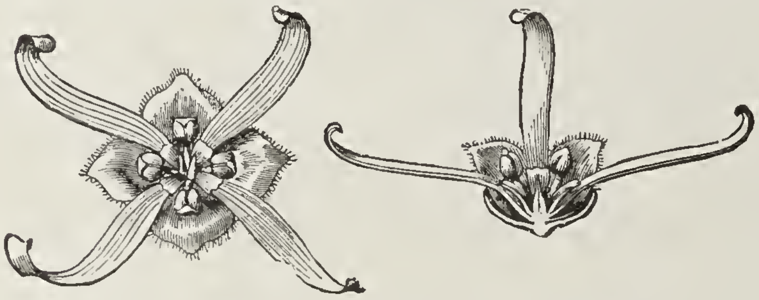

Fig. 2917.—Witchhazel; Flowers. (Baillon.)

The bark is similarly employed, and much of the distillate is said to be prepared from it. It is regarded by many as being superior to the leaves.

Henry H. Rusby.

Hamartoma.—From the true tumors (blastomas) there must be carefully separated the tumor-like malformations or disturbances of development that show no autonomous excess of growth. Such errors of development may be divided into five classes: (1) Defects in tissue-combination (*hamartia*); (2) Separation or misplacement of anlage (*chorista*); (3) Non-use or non-development of anlage that later develop; (4) Abnormal persistence of embryonic tissue and organs; (5) The pathologic filling-up or obliteration of embryonic clefts. The hyperplasia of the tissues resulting from such disturbances of development may give rise to formations that externally resemble neoplasms. These are classed by Albrecht and Borst as *hamartoma* and *choristoma*. Should these growths form the basis for true autonomous neoplastic growth the resulting tumors can be classed as *hamartoblastoma* and *choristoblastoma* respectively. Nearly every variety of neoplasm has corresponding *hamartomas* or *choristomas* from which it must be differentiated, and such a differential diagnosis is sometimes very difficult. The broadest pathological experience is here needed; probably in no other field of practical diagnostic pathology are so many errors of diagnosis made as in the differential diagnosis of the hamartomas and choristomas from the true blastomas. Among the most common *hamartomas* are the so-called fibroma of the medullary pyramids of the kidney, certain fibroadenomas of the breast, neurofibroma, myxoma of nerve-trunks, various forms of heterotopous lipoma, chondroma, and osteoma, the hemangiomatous and lymphangiomatous nævi, elephantiasis, macroglossia, various adenomyomas, cirsoid neuroma, pseudoneuroma, various forms of neuroglioma ganglionare and gliomatoses, papillomas of the skin, intestinal polyps, and various adenomas of liver, kidney, and mamma. Examples of choristoma are misplaced adrenal tissue in testis, ovary, liver, pancreas, or elsewhere, dermoid, epidermoid, entodermal, and mesodermal cysts, various forms of chondroma, osteoma, lipoma, myxoma, and fibroma.

A. S. Warthin.

Hamilton, Frank Hastings.—Born in Wilmington, Vermont, September 10, 1813. He received the degree of M. D. from the University of Pennsylvania in 1835. After practising for a few years in Auburn, N. Y., he removed, in 1844, to Buffalo. In 1847 he was associated with Drs. James P. White and Austin Flint in organizing the Buffalo Medical College. In 1862 he settled in New York City, and for a number of years (up to 1875) he held the Chair of Surgery in the Bellevue Hospital Medical College. His death occurred in that city on August 11, 1886.

Dr. Hamilton made several important contributions to medical literature. Those which deserve special mention are the following: "Fractures and Dislocations"; a "Treatise on Military Surgery"; and a "General Treatise on Surgery."

A. H. B.

Hamularia.—A subgenus of the round-worm genus Filaria. *H. equi* is common in horses and asses; it has been found in human beings several times. See *Nematoda*.

A. S. P.

Hand.—Cresollius calls the hand "the minister of reason and wisdom." As the active servant of the brain, adjusted for the most delicate and varied uses, it has always been held in peculiar honor. The coat-of-arms of the surgeons' guild of the Middle Ages was a hand, with outspread fingers and an eye in their midst, typifying thus the noble art of chirurgie, which name was itself derived from χείρ, the hand, and ἔργον, work. Respect for this important member has even been carried so far that it has been supposed to contain a force within itself capable not only of intelligent action, but of transmission beyond the body. When we regard the high degree of muscular coördination which it possesses we readily see whence originates the first of these popular fancies, for the hand of the skilled musician, artist, or handicraftsman is a very different organ from that of the untrained and inexpert novice. The very word "handy" expresses this idea.

As to the second notion, it appears to be founded upon the extraordinary degree of tactile sensibility which the hand possesses. The laying on of hands has been a favorite method of healing from the very earliest historical period, and is still prevalent, not only where the royal touch is believed to be a sovereign remedy for "king's evil," but also among the so-called healing mediums.

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The use of this strange remedy still survives. The author has recently found several authentic cases of such application. In one it was used for the cure of a white swelling, and in another for a protracted intermittent fever, a female homeopathic physician vouching for its efficacy. She explained this to the writer by stating that the "morbid processes going on in the dead hand attracted the disease and removed it" (!). Sometimes the virtue of the deceased is believed to have a marked influence. This was shown in the case of a well-known Catholic priest who died some years ago in Washington, and in that of a Carmelite nun in Baltimore. Many applications of the dead hand were made in both cases for the cure of the sick and afflicted, showing that the old belief is still active.

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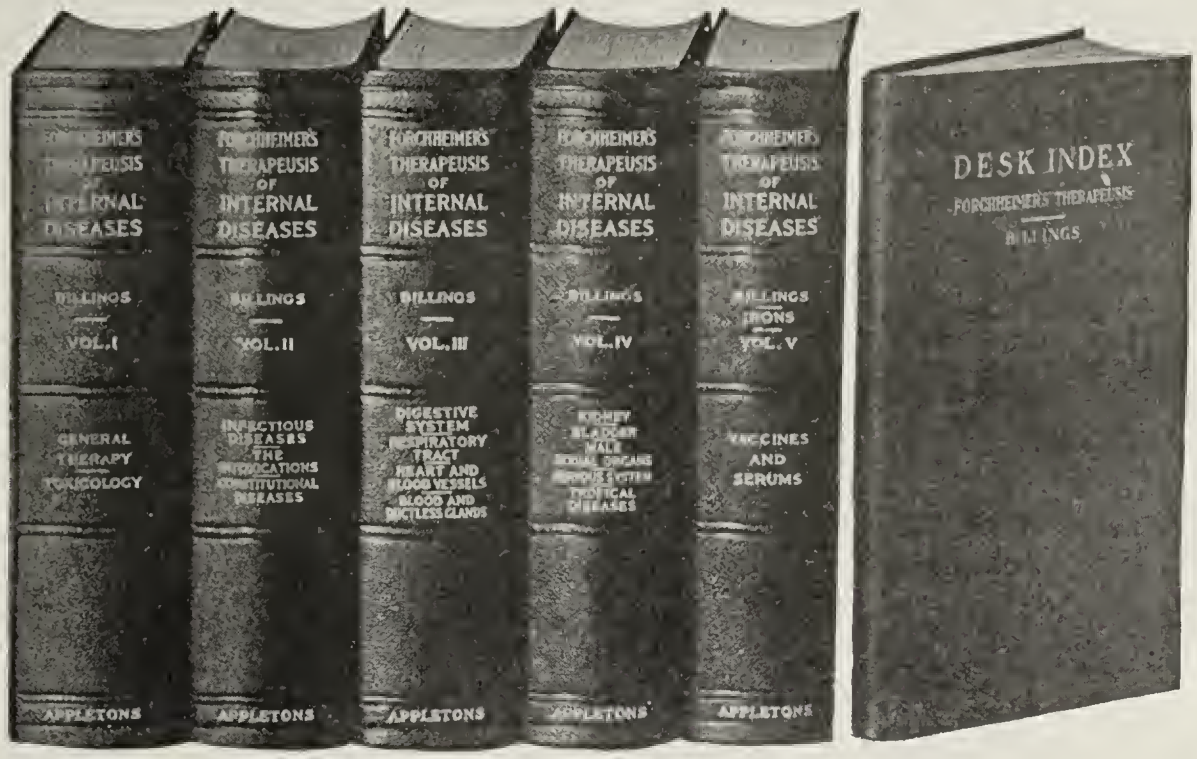
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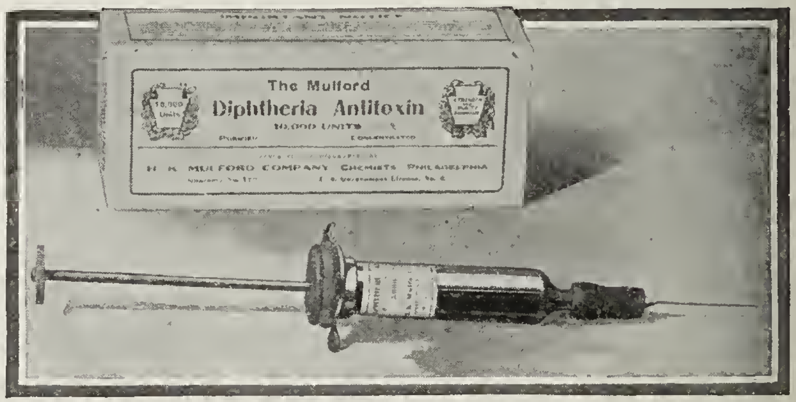

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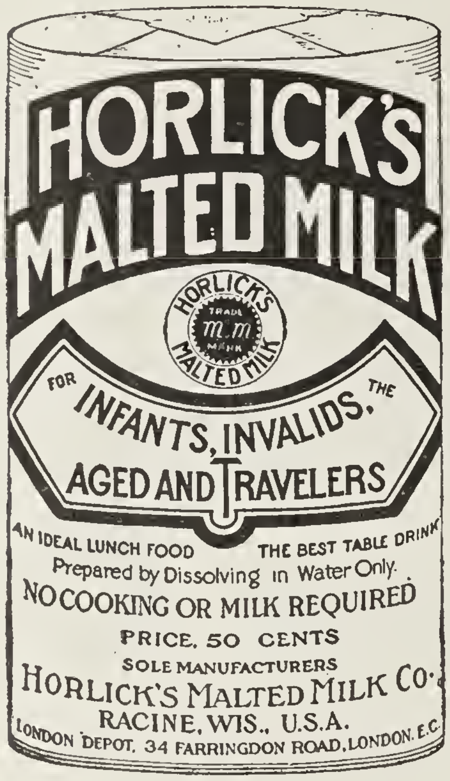
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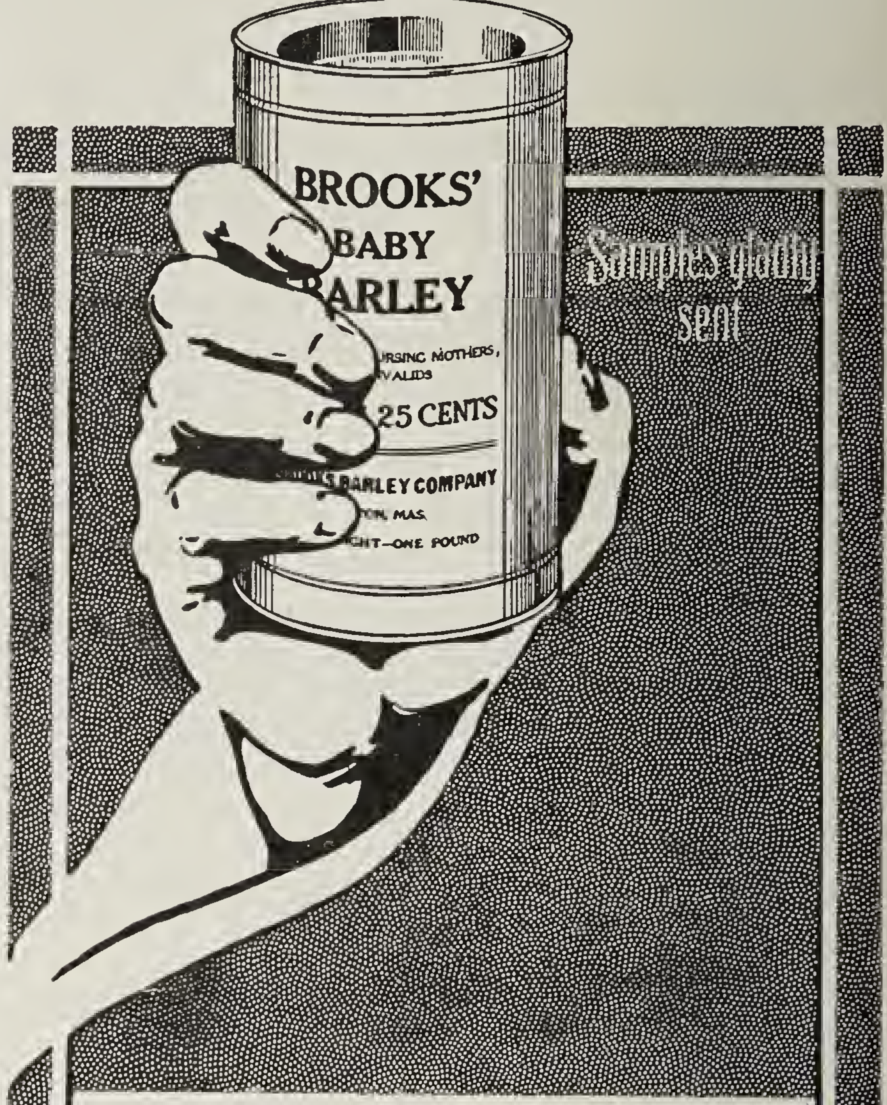

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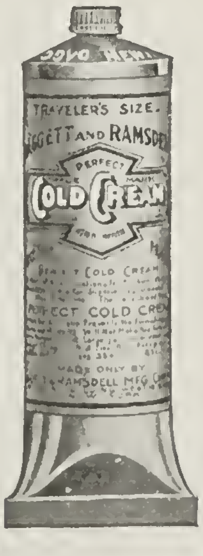

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NEWS: Our readers are requested to send in items of news, also *marked* copies of newspapers containing matters of interest to physicians. We shall be glad to know the name of the sender in every instance.

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This pamphlet of 27 pages, discussing the above-mentioned topics and many others, will be sent on receipt of 10 cents. It contains valuable information in regard to the preparation of articles for publication and the points which make an article acceptable.

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A Price List will be sent on request, describing the various publications of the Asso-

(Continued on page 22)

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APPOINTMENTS

WANTED—A FULL-TIME TEACHER IN histology and embryology; address, stating experience and salary desired. Add. 7046 N, % AMA.

ASSISTANTS WANTED

WANTED—ASSISTANT PHYSICIAN IN insane hospital affording good clinical and laboratory training; salary, $1,200 to $1,500; single woman or man eligible; state age, personal history, education, hospital experience with references. Add. Superintendent, 4401 Market St., Philadelphia, Pa. B

WANTED—YOUNG PHYSICIAN, SINGLE, strictly temperate, with hospital training, graduate A plus school, absolutely dependable in microscopic, cystoscopic and radiographic diagnosis, to take charge laboratory work for firm of physicians in the west, on salary, with privilege of joining firm on percentage basis after first year, if work satisfactory; state age, laboratory experience, school and references. Add. 7014 B, % AMA.

WANTED—PHYSICIAN—A FIRST-CLASS man from No. 1 school, capable of management of tuberculosis hospital; none but experienced, gilt-edge men need reply; salary $1,500 to $1,800 and maintenance; give full particulars of yourself, graduation, experience in the work, age, etc., and add. for particulars and terms of brokerage fee to 6, F. V. Kniest, Medical Broker, Omaha, Neb. B

WANTED—AN EXPERIENCED ASSISTANT physician (single) in a private psychopathic hospital in Wisconsin; salary $1,500 per year and maintenance; give experience and references in first letter. Add. 7049 B, % AMA.

WANTED—ASSISTANT PHYSICIAN FOR hospital and mining practice; single man who is not afraid of work and can deliver the goods; references as to habits, character, etc., required. Apply Box 214, G. D. J., Van Lear, Ky. B

WANTED—ASSISTANT PHYSICIAN IN eastern institution for feeble-minded; single man, recent graduate preferred; salary $800 with maintenance; opportunity to advance after first year; state nationality, age, name of medical school, with year of graduation; send photograph and state experience in first letter. Add. 7009 B, % AMA.

WANTED—CLINICAL PATHOLOGIST TO take charge and conduct personally a laboratory in a city of 100,000 inhabitants; the laboratory and equipment is in fair condition to begin work. Add. 7008 B, % AMA.

WANTED—A 1914 GRADUATE DESIRING a year's practical experience in general office work, x-ray, laboratory and pharmaceutical work; also experience in medical and surgical hospital work as assistant and also experience in all modes of anesthesia; salary, $1,200; is not expected to settle in territory. Add. 6999 B, % AMA.

WANTED — ASSISTANT — CONTRACT practice; lumber camp; 38 miles from railroad; must be competent to do emergency surgery; very little work; salary $80, horse and drugs; altitude 8,000 feet; will sell at reasonable price. R. H. Sanders, M.D., Evanston, Wyo. B

WANTED—LABORATORY MAN TO ACT also as chief medical officer of Lucas County Hospital, Toledo, Ohio; 200 beds including modern tuberculosis pavilions; applicant must be unmarried, thoroughly competent to do ordinary laboratory work, tissue sections, Wassermanns, and bacteriology. Service one year or longer. Salary $1,800, board, room, and laundry. Exceptional opportunity for right man. Give all particulars in first letter. Also, one intern in same hospital. Salary $25 monthly, and keep. Apply Dr. Louis A. Levison, 232 Michigan St., Toledo, O. B

(Continued on page 22)

The doctor and the mother

Doctor—How is the little patient this morning?

Mother—Oh, doctor, he has been so restless! Of course this weather doesn't help, but he is so listless, and has hardly any appetite. It worries me.

Doctor—Naturally. His condition is rachitic, and we must overcome that patiently.

Mother—I've tried almost every kind of a dainty to tempt him, but—

Doctor—We'll both tempt and help him. We'll give him

Welch's

Grape Juice

Mother—I've already tried him with another kind.

Doctor—And he didn't like it? Well, you send for a case of Welch's, and be sure you GET Welch's. I never prescribe any other kind. I know Welch's is pure and unfermented and made from the finest, full-ripe Concords. He needs the fruit acids. Give it to him several times a day in a small, thin glass, and have it very cold.

Mother—And what else, doctor?

Doctor—Oh, you'd better get the four-ounce size of Welch's. The little individual bottle will please him. You'll find him mighty keen for his next drink.

We believe you know Welch's by reputation as well as by quality, doctor. If not, please send us the name and address of your druggist and we will send you a pint bottle through him, with our compliments. Also we shall be glad to send you some special literature that we think will interest you.

The Welch Grape Juice Co., Westfield, N. Y.

A M. A ANNOUNCEMENT

(*Continued from page 20*)

ciation; for example: Guide to Current Medical Literature, American Medical Directory, Handbook of Therapy, Laws Regulating Practice, New and Nonofficial Remedies, Nostrums and Quackery, Pamphlets on Defense of Research, Great American Fraud, Propaganda for Reform in Proprietary Medicines, Pamphlets on Medical Fakes and Fakers.

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Clipppings from Lay Exchanges

HEAVY FLOOD IN HUMANVILLE

J. S., who conducts a restaurant in this city, almost met with death, while at work. While he was waiting on a customer the main artery burst and before a physician could reach the restaurant the floor was covered with blood and S. was weak. This is the second time that he has met with the same trouble.—Sacramento (Cal.) *Bee.*

"The main artery has burst again! Fortunately but one person was injured," says Dr. B. B. Bolton of Edgemont, Cal., who sends the item to us.

—o—

A THOROUGH EXAMINATION

J. H. S., of Alturas was injured in an automobile accident near New Pine Creek last week. He was turning around in an auto and put his foot on the wrong lever which dashed the machine into a barb wire fence. The character of the wound can better be imagined than described, when we are told, that sixteen feet of wire was dragged through the wound leaving blood and pieces of flesh clinging to the wire. *After a careful examination by Dr. G., the patient will recover,* but the injury to the face and neck will leave an ugly scar.—Merrill (Ore.) *Record.*

—o—

AS CLEAR AS MUD

Dr. A. L. M. addressed a meeting of the county medical society at Marengo Friday evening on "Pleomorphic of Diphtheria Vacillus."—Elgin (Ill.) *News.*

—o—

B. L. T. SAYS "AND YET HE DIED"

From a Gasconade county (Mo.) death certificate: "The cause of death was as follows, johndice caused by stone and obstruction of gall duck."

—o—

HOW STRANGE!

Miss B. V. died this morning at the H. Hospital of an ailment which for a time puzzled attending physicians. Three weeks ago Miss V. was taken ill with what was thought to be an ordinary trouble. Upon his arrival home a short time ago Dr. H. attended the patient and *diagnosed her case as general infection of obscure origin.* It is a very rare trouble, according to the physician, and one difficult to cure.—Syracuse (N. Y.) *Journal.*

—o—

WILEY OUTDONE

When an eight-pound boy arrived at his home, yesterday, Dr. F. T. announced that Dr. Wiley would have to give up the blue ribbon he has been claiming in the prize baby contest.

(*Continued on page 24*)

Private Courses, Limited Classes in
Anatomy, Pathology, Treatment and Operative Surgery of the
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FOR PARTICULARS ADDRESS
DR. JULIUS AUERBACH, 120 W. 86th St., NEW YORK CITY

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Pipette method used throughout (not drop method). **Third tube** suggested by Citron. **Large unit** of volume. **High potency amboceptor. Genuine syphilitic liver extract** as antigen. Careful titration of **complement, amboceptor** and **all reagents** before each test. These are some **details of technique** which give **our tests increased delicacy** and **accuracy.** Mailing **cases furnished.**

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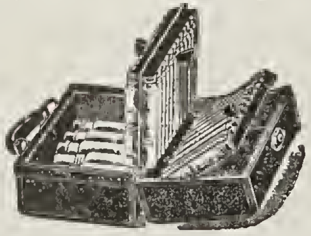

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See page 20 for cost of classified and commercial announcement advertisements.

(*Continued from page 20*)

WANTED—ASSISTANT PHYSICIAN IN tuberculosis sanatorium. Salary $75 per month and maintenance; applicant should be unmarried, healthy and of good habits; should give age, medical school, year of graduation, experience in hospital and private practice and references; send recent photograph. Address Superintendent, State Sanatorium, Cass County, Minn. B

WANTED—YOUNG PHYSICIAN TO TAKE charge of x-ray and electrotherapeutic department of a general practitioner's office; must qualify to practice as regular registered physician and must also be competent in the work specified; state age, salary expected, experience and give reference first letter; also personal description. Add. 6968 B, % AMA.

WANTED — SOUTHWESTERN WISCONSIN; experienced German Protestant physician for assistant with view to partnership; state age, experience and give references first letter. Add. 6990 B, % AMA.

PHYSICIANS WANTED

WANTED — PHYSICIAN TRAINED IN laboratory technic as resident physician in new modern tubercular sanatorium near Chicago; location and environment conceded to be unsurpassed; a loan on good security or an investment of $2,000 desired; opportunity for some outside practice; state age and details. Add. 7038 C, % AMA.

WANTED—PHYSICIAN—FOR MISSOURI town; nothing to buy; sponsorship of druggist; large territory; easy competition due to special circumstances; nothing but an aggressive, competent physician considered; office rent and particulars in regard to same and details on request. Add. 482, F. V. Kniest, Medical Broker, Omaha, Neb. C

WANTED—EYE AND EAR SPECIALIST can learn of good location in the best town of 7,000 in Colorado; nothing to sell; chance to office with established practitioner. Add. 7020 C, % AMA.

WANTED—PHYSICIAN — UNOPPOSED practice in small railroad town in eastern South Dakota; Scandinavian will do best; nothing to buy; move in and begin to make money at once. M. R. Levey, Pharmacist, Brandt, S. Dak. C

NURSES WANTED

WANTED—GRADUATE NURSE BY BUSY surgeon in small hospital located in small western town; $40 per month, with board and room; with reply give age, training, references and photograph of self; must be able to accept at once. Add. 7042, % AMA.

INTERNS WANTED

WANTED — PENNSYLVANIA—AN INtern for hospital; small salary; send references. Add. 7045 D, % AMA.

WANTED — TWO INTERNS AT CHILdren's Free Hospital, Detroit, Mich.; room, board and washing; give age, college, date of graduation and references. Add. Dr. W. G. Huntchinson, Secretary of Staff, 612 Washington Arcade, Detroit, Mich. D

WANTED — INTERN FOR CITY HOSPItal; 125 beds; surgical, medical and obstetrical service; salary, $25 month, board and room furnished; application must be accompanied with unquestionable recommendations. Add. City Hospital, Springfield, Ohio. D

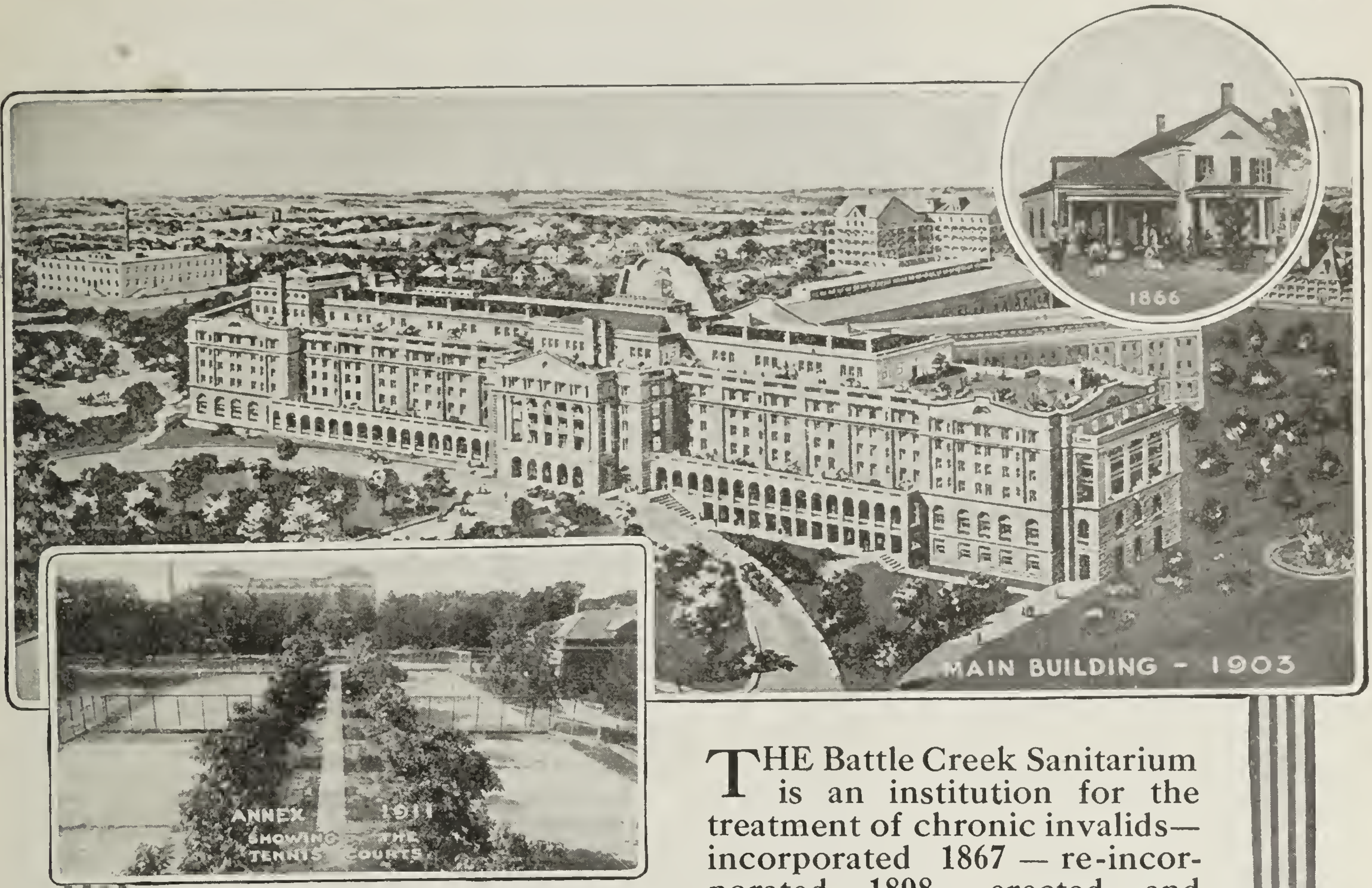
WANTED—AN INTERN—INFORMATION on request. Union Hospital, Fall River, Mass. D

LOCATIONS WANTED

WANTED—LOCATION IN TOWN OF 600 population in northern Illinois, southern Wisconsin or eastern Iowa; must be large territory. Add. 7028 E, % AMA.

WANTED—BY NORWEGIAN PHYSICIAN Contract practice (mine or mill) or assistantship with one who does surgery; prefer western states reciprocating with Illinois; hospital and three years' general practice; aged 32, married, good habits; best of references; can come any time; please state full particulars, salary, etc., in first letter. Add. 7035 E, % AMA.

(*Continued on page 24*)



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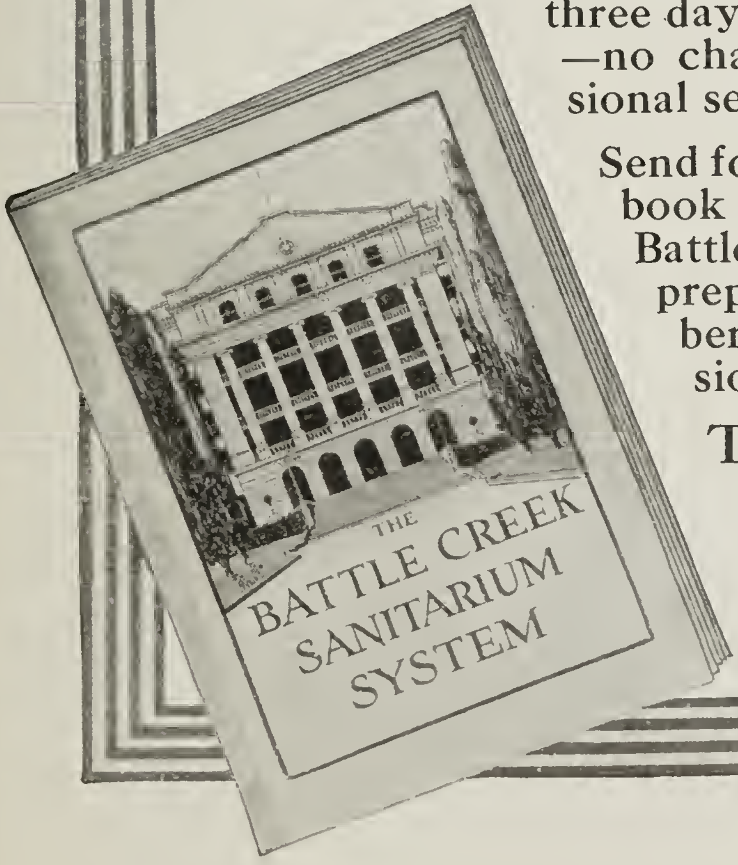
The institution has a faculty of 30 physicians, all of good and regular standing and has treated over 89,000 patients, among whom are nearly 2,000 physicians and more than 5,000 members of physicians' families.

Any physician who desires to visit the Sanitarium will receive on application a visiting guest's ticket good for three days' board and lodging in the institution—no charge is made for treatment or professional services to physicians.

Send for a copy of a profusely illustrated book of 229 pages entitled "The Battle Creek Sanitarium System," prepared especially for members of the medical profession.



The Battle Creek Sanitarium

Battle Creek,
Michigan

The Sanitarium,
Box 250
Battle Creek,
Michigan

I shall be glad to accept gratis a copy of your book entitled "The Battle Creek Sanitarium System."

Dr.____________________

Address____________________

CLIPPINGS FROM LAY EX'S

(Continued from page 22)

Dr. T., who is 68 years old, was married September 12, 1912, after which he and his bride made a trip around the world.—Kansas City *Journal.*

—o—

WE RECEIVE AN ORDER

Dear Sir: Please Send me one of your Journal Showing all Parts of Women and When they have Birth of a Child Send me the Next Journal in that Way

Dr. ——— ————
Licensed Pennsylvania 1890.

—o—

ST. CLOUD IS HAPPY

Dr. Ch.... performs capital operation. Successfully removes a fatty tumor that was complicated with a Carbuncle. That we have a real surgeon as well as practitioner in St. Cloud in the person of Dr. Ch.......... was evidenced two weeks ago when he removed a fatty tumor that was complicated with a carbuncle from the back of Mr. H the patient at this writing being as well as before his affliction.

What makes this operation one to attract general attention, and should cause a feeling of pride to possess Dr. Ch.... is the fact that Mr. H. is 70 years of age, and the presence of the carbuncle made it exceedingly liable to infection, therefore the greatest skill was neccssary.

We, in keeping with all the people of St. Cloud, are glad to know that in Dr. Ch.... we have a physician and surgeon who is equal to any emergency, however grave it may be, for in the past it has been exceedingly costly, both in time and money, to go to other cities for surgical work.—St. Cloud (Fla.) *Tribune.*

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

A TEXT-BOOK OF PHYSIOLOGICAL CHEMISTRY. By Olof Hammersten, Emeritus Professor of Medical and Physiological Chemistry in the University of Upsala. With the Collaboration of S. G. Hedin, Professor of Medical and Physiological Chemistry in the University of Upsala. Authorized translation from the Eighth German Edition by John A. Mandel, Sc.D., Professor of Chemistry in the New York University and Bellevue Hospital Medical College. Seventh edition. Cloth. Price, $4 net. Pp. 1026. New York: John Wiley & Sons, 1914.

FOCAL SYMPTOMS IN GENERAL PARALYSIS. By C. Macfie Campbell, M.D., B.Sc., Associate Professor of Psychiatry, Johns Hopkins University, Baltimore. Paper. Price, $1.25 net. Pp. 138, with 10 illustrations. New York: G. E. Stechert & Co., 1914.

VISITING NURSE MANUAL. Prepared for the Visiting Nurse Association of Chicago and Other Public Health Nurses. By Edna L. Foley, R.N. Cloth. Price, 25 cents. Pp. 90. Chicago: Visiting Nurse Association, 1914.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Sept. 5, 1914:

Persons, E. E., major, reports his arrival at Vera Cruz, Mexico, for duty, as asst. director public health.

Mitchell, Leopold, lieut., is ordered to Fort Baker, California, for duty by Sept. 1, 1914.

Hammond, J. F., lieut., Med. Corps, has been granted two months' leave of absence.

Macee, J. C., capt., has been granted 15 days' leave of absence.

Raymond, Thos. U., lieut. col., has been granted 1 month's leave of absence.

Clark, F. E., lieut., Med. Res. Corps, has been ordered to active duty with station at Ft. Ethan Allen, Vt.

(Continued on next page)

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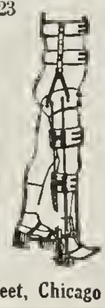

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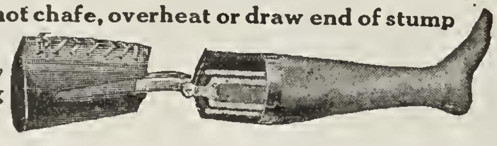

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(Continued from page 22)

WANTED—LOCATION — BY OTOLARYNGOLOGIST returning from year's study in Europe; desires partnership, association or some other arrangement that would facilitate the establishment of practice; also clinical and laboratory facilities for otolaryngological investigation; master's and doctor's degrees from A+ university; honors; several years' teaching and hospital experience in microscopy; internship in large eye and ear infirmary; private special practice; assistantship to widely known European otologist; important work in hands of publishers. Add. 7023 E, % AMA.

WANTED—FIRST-CLASS LOCATION IN west, California preferred; with contract or appointments desirable; in government service; qualified in sanitation and G.-U.; want chance for surgery; 39 years old, married, Protestant, energetic and healthy; buy equipment; rent real estate; partnership considered; give full particulars and references. Add. 7030 E, % AMA.

WANTED — VIRGINIA LOCATION BY physician, married, 27, two years' practice, Mason; best references as to ability, character and standing; in first letter go fully into details, covering location, fees, net collections, competition, property, price, churches, reasons for leaving, etc. Add. 7040 E, % AMA.

WANTED — PRACTICE IN LOUISIANA, Texas or California (southern); prefer medium-sized town where there are people of refinement; graduated 14 years; open for immediate proposition. Add. 7041 E, % AMA.

WANTED—IOWA — UNOPPOSED PRACTICE; northeast or central preferred; small town; may buy real estate, some drugs, supplies, if price and terms suitable; must be $2,000 to $3,500 practice, bear strict investigation, large territory, good fees, good introduction, mixed nationality; relinquish practice; school; church; am registered Iowa; full particulars first letter. Lock Box 365, Sterling, Colo. E

WANTED—IN NEW MEXICO, A GENERAL practice; can do surgery; am not an invalid; altitude must not be too high. Add. 7007 E. % AMA.

WANTED — LOCATION, PARTNERSHIP or position in St. Louis, Kansas City, St. Joseph or Omaha; competent to do genito-urinary or rectal work or general practice; a number of years' experience in each kind of work; middle aged, good appearance, temperate. Add. P. O. Box 934, Denver, Colo. E

WANTED — LOCATION IN ARKANSAS, Texas, Georgia, Oklahoma, Virginia or Illinois by graduate Class A school, with hospital experience; prefer contract practice; would consider any small town or country practice where a doctor is needed; prefer not to buy anything, but could pay as much as $500. Add. 6978 E, % AMA.

WANTED—AN UNOPPOSED TOWN AND country practice paying from $3,500 to $4,000 annually, preferably where there is no drug store; or a contract practice paying at least $250 to $300 per month, or a practice with light competition; have the cash to pay; west or middle west; must locate in three weeks. Add. 7001 E, % AMA.

WANTED — EYE, EAR, NOSE AND throat location, partnership or assistantship; graduate A1 college; intern general hospital; general practice; 18 months' special work Chicago and New York; city of 5,000 up, depending upon surrounding territory; middle west or west preferred. Add. 6933 E, % AMA.

WANTED — LOCATION OR PARTNERSHIP; married man, 32, good health and habits; Protestant, Mason; school A 1906; hospital experience, both medicine and surgery; registered in Pennsylvania; prefer Nevada or Illinois or reciprocating state; town under 10,000; best of reference; some means; send full information. Add. 6880 E, % AMA.

PARTNERS WANTED

WANTED — PARTNER—OR WILL SELL dermatological practice in southeastern city; only dermatologist in city; thickly settled prosperous surrounding country; established paying practice; clientele constantly increasing; high class, thoroughly qualified man will have support of local and country doctors; $1,500 cash or negotiable note; balance terms; inquiries must give qualifications, professional and financial references, enclosing postage for reply. Add. 6934 G, % AMA.

(Continued on next page)

THE PUBLIC SERVICE

(Continued from preceding page)

Kennedy, Chas. P., lieut., Med. Res. Corps, resigned his commission in that Corps, Aug. 27.

Reasoner, M. A., capt., relieved from duty Rockefeller Institute, New York City, about Sept. 15, 1914, and ordered to duty Army Med. School, Wash., D. C.

Nichols, H. J., capt., relieved from duty at Army Med. School, Washington, D. C., about Nov.15, and ordered to Letterman Genl. Hosp., Presidio of San Francisco, for duty.

Foster, C. L., capt., will take temp. charge of Med. Sup. Depot, St. Louis, Mo., during the absence of Lieut. Col. Thos. U. Raymond.

Speissegger, C. A., lieut., Med. Res. Corps, ordered to active duty in the Reserve Corps, with station at Fort Moultrie, So. Carolina.

Changes for the week ended Sept. 12, 1914:

Ingold, J. C., lieut., Med. Corps, reports on two months' leave of absence, which will be spent at Chicago, Ill.

Crissinger, J. D., capt., Med. Corps, reports on one month leave of absence, which will be spent at Mechanicsburg, Pa.

Nelson, Kent, major, Med. Corps, reports on one month leave of absence from U. S. Mil. Prison at Ft. Leavenworth, Kan.

Speissegger, C. O., lieut., Med. Res. Corps, reports for duty at Fort Moultrie, South Carolina.

Archer, W. M., lieut., Med. Res. Corps, reports departure on the September 5 transport for the Philippine Islands.

Clark, F. E., Med. Res. Corps, reports on active duty at Ft. Ethan Allen, Vt.

Reynolds, C. R., major, Med. Corps, reports on one month leave of absence from the base hospital, Ft. Sam Houston, Tex.; address Elmira, N. Y.

Marietta, S. U., lieut. Med. Corps; Tarleton, L. O., lieut., Med. Corps; Kennard, H. W., lieut., Med. Res. Corps; Sheep, W. L., capt., Med. Corps, report their departure September 5, 1914, from San Francisco, Cal., on the U. S. A. T. Logan, for Manila, P. I.

Ford, Clyde, S., major, reports departure from duty in the Surgeon General's Office en route to temporary duty at Ft. Leavenworth, Kan.

Candy, G. L., lieut., is relieved from duty in the second division, and at Ft. Meyer, Va., and will take the December 5 transport for Manila, P. I.

Clayton, Jere B., major, is relieved from duty at Vancouver Bks., on the arrival of Major Peter C. Field and will then proceed to Ft. Sam Houston, Tex., for duty with Field Hosp., No. 7, relieving Maj. James L. Bevans, Med. Corps, who on being relieved will report to his proper station Fort McKinley, Me.

Brownlee, C. Y., major, relieved from duty second division, and at Ft. Des Moines, Ia., and will proceed to Ft. Totten, N. Y., about October 1, for duty, relieving Major H. H. Rutherford, who on being thus relieved will proceed to Texas City for duty with second division, and with station at Fort Des Moines, Iowa.

Nichols, Harry C., Med. Res. Corps, tendered his resignation and same was accepted to take effect Sept. 3, 1914.

Vaughan, W. W., first lieut., Med. Corps, is relieved from duty with the second division, and from duty at Ft. Myer, Va., and will take the December 5 transport for Manila, P. I.

Hart, J. W., Med. Res. Corps, has been ordered to active duty with station at Washington Bks., D. C.

—o—

Medical Corps, U. S. Navy

Changes for the five weeks ended Sept. 5.

Dunn, H. A., surgeon, from Atlantic Reserve Fleet to Philadelphia Hospital.

Harlan, Tharos, P. A. surgeon, from receiving ship at Norfolk, Va., to Marine Brigade, Vera Cruz, Mexico.

Reed, T. W., P. A. surgeon, to receiving ship at Norfolk, Va.

Conner, W. H., P. A. surgeon, from *Isla de Luzon* to *Dubuque*.

(Continued on next page)

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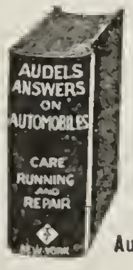

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WANTED—PARTNER — UNOPPOSED—Town 700; office equipped, electric light, steam heat, horse, buggy; free to right man; state age, height, weight, married, school, year, experience. Box 116, Baraboo, Wis. G

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WANTED—INDIANA — DOCTOR WHO needs practice to hold mine while I postgraduate; I furnish office, instruments, fuel; he drugs and rig; no salary; have what you make; 350 population; one other doctor; big territory; write for particulars. Add. 7003 F, % AMA.

PARTNERSHIP WANTED

WANTED — EYE, EAR, NOSE AND throat specialist; aged 37; perfect health; height 6 feet; weight 180 pounds; fine personality; graduate Plus A university; eight years in special work; assistantship or partnership with elderly man who wishes easier work; will buy practice later or will do eye work exclusively with nose, throat and ear man; an investigation will pay any one who wishes an exceptional assistant or partner. Add. 7004 H, % AMA.

WANTED—PARTNERSHIP — ASSOCIATION with internist; am interested in diseases of abdomen, especially colon, and desire only living remuneration at start; graduate of Class A school, 1908; 2 years' hospital and 4 years' unopposed general country practice; aged 30; best references. Add. F. E. Diemer, Triplett, Mo. H

WANTED — PARTNERSHIP IN GOOD paying contract practice; mean business and have the money to close a deal; American, 30 years old, single, graduate Class A+ school; 1 year hospital; 4 years in contract practice; highly trained, good habits and personality. Add. 6853 H, % AMA.

SITUATIONS WANTED

WANTED—WOMAN PHYSICIAN, AGED 31; graduate of Class A college; with thorough surgical training, desires position as resident physician and assistant surgeon in first-class hospital or sanatorium; has held similar position with prominent surgeon for two years; good salary required and opportunity for advancement; Chicago or states reciprocating with Illinois preferred. Add. 7026 I, % AMA.

WANTED—MALE NURSE, HEALTHY, INtelligent, with years of experience in hospital and private nursing, desires position with invalid; able to prepare diet and willing to do secretary work; A1 references. Add. 7029 I, % AMA.

WANTED — ASSISTANTSHIP WITH A busy surgeon, view to ultimate partnership, by graduate University of Pennsylvania; 20 months' hospital experience, nine months of which surgical; five and one-half years' general practice, last twelve months devoted surgical diagnosis with some operative work; complete course operative surgery on cadaver; 29 years old, married; will go anywhere if opportunity warrants; must make expenses from start and see excellent chances for future advancement; mean business and can consider nothing unless it holds out good opportunity for being permanent. Add. 7032 I, % AMA.

(Continued on next page)

THE PUBLIC SERVICE

(Continued from preceding page)

Hathaway, G. S., P. A. surgeon, from *Raleigh* to Tutuila Sta.

Kaveney, J. J., asst.-surgeon, M.R.C., from *Machias* to home.

Omer, J. A., asst.-surgeon, to Naval Dispensary, Washington, D. C.

Hunt, Daniel, asst.-surgeon, from *Missouri* to *Florida,* temporarily.

Straeton, R. J., P. A. surgeon, from *Florida* to *Tennessee.*

Wilson, C. C., asst.-surgeon, from *New Hampshire* to *Machias.*

Stitt, E. R., medical director, commissioned from Nov. 20, 1913.

De Valin, C. M., medical inspector, commissioned from June 24, 1914.

McLean, A. D., surgeon, commissioned from June 13, 1914.

Kindleberger, C. P., surgeon, to Naval Academy, Annapolis, Md.

Parker, E. G., surgeon, from Naval Academy, Annapolis, to *South Dakota.*

Hoen, W. S., surgeon, from *South Dakota* to Pacific Reserve Fleet.

Mendleson, R. W., acting asst.-surgeon, resignation accepted to take effect Sept. 1, 1914.

Dykes, J. R., surgeon, from receiving ship at Mare Island, Cal., to recruiting station, Atlanta, Ga.

Winn, C. K., P. A. surgeon, to Receiving Ship at Mare Island, Cal.

Neuberger, J. W., asst.-surgeon, M.R.C., from Pacific Reserve Fleet to Naval Medical School, Washington, D. C.

Ross, C. W., asst.-surgeon, from Receiving Ship at Mare Island, Cal., to Naval Medical School, Washington, D. C.

McDonald, Henry, asst.-surgeon, M.R.C., from Naval Hospital, Mare Island, Cal., to Naval Medical School, Washington, D. C.

Torrence, R. A., asst.-surgeon, M.R.C., commissioned July 23, 1914.

Brinsmade, W. B., asst.-surgeon, M.R.C., commissioned from July 13, 1914.

Saurman, J. S., asst.-surgeon, from Naval Medical School, Washington, D. C., to home.

Robnett, A. H., P. A. surgeon, from *Texas* to Las Animas Hospital.

Crow, G. B., P. A. surgeon, resignation accepted to take effect Jan. 30, 1915.

Hargrave, W. H., asst.-surgeon, from Navy Recruiting Station, Atlanta, Ga., to wait orders.

Ransdell, R. C., from *Mayflower* to Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Wheeler, L. H., P. A. surgeon, from Navy Yard, Portsmouth, N. H., to *Mayflower.*

Jones, E. L., P. A. surgeon, from Naval Hospital, Olongapo, P. I., to home.

Owens, W. D., P. A. surgeon, from *Tallahassee* to *Utah.*

Malkin, G. M., acting asst.-surgeon, from Naval Recruiting Station, New Orleans, La., to Naval Recruiting Station, Des Moines, Iowa.

Tompkins, J. A., asst.-surgeon, M.R.C., to Naval Recruiting Station, New Orleans, La.

Stenhouse, H. N., asst.-surgeon, to Naval Medical School, Washington, D. C.

Lhamon, R. H., asst.-surgeon, from Las Animas Hospital to Naval Medical School, Washington, D. C.

Reed, E. U., P. A. surgeon, to Naval Recruiting Station, Detroit, Mich.

Waterhouse, R. M., asst.-surgeon, from Naval Hospital, Newport, R. I., to wait orders.

Trielby, C. E., asst.-surgeon, from Marine Recruiting Station, Detroit, Mich., to wait orders.

Stephenson, C. S., asst.-surgeon, from New York Hospital to wait orders.

Eaton, W. E., P. A. surgeon, commissioned from Oct. 1, 1913.

Jenkins, H. E., P. A. surgeon, commissioned from Oct. 1, 1913.

Woodland, E. E., P. A. surgeon, commissioned from May 4, 1914.

George, C. I., P. A. surgeon, commissioned from Dec. 24, 1914.

Weaver, G. H., asst.-surgeon, M.R.C., commissioned from Aug. 4, 1914.

(Continued on next page)

(Continued from preceding page)

WANTED—SALARIED POSITION WITH corporation or assistantship to surgeon by graduate of Class A Massachusetts school; Protestant, American; aged 34; hard worker, best of habits and references; 7½ years medical and surgical experience in 2,500 bed hospital, including 16 months on Canal Zone; have made surgery a specialty; not adverse to Central or South America; available after November 15. Add. 7037 I, % AMA.

WANTED — ASSISTANTSHIP TO SURgeon or general practitioner doing surgery by graduate A+ school; was house surgeon large New York hospital; aged 36; single; healthy, temperate, moral, industrious; 4 years' general practice; Illinois license; prefer Illinois, but will go anywhere at once; reliable references. Add. 7048 I, % AMA.

WANTED — I DESIRE A POSITION AS locum tenens; am graduate of +A school; have had two years' hospital training, rotating service, and three years' general practice in city; wish to put in 2 months before going to New York to specialize; available October 1; give terms first letter. Add. 7010 I, % AMA.

WANTED—POSITION DESIRED BY PHYsician; aged 29; married; general practice and minor surgery for four years; do not smoke, drink and have no bad habits; graduate Louisville Medical College and postgraduate course; gilt-edge references; salary $100 month, with privilege of outside practice, or $125 for full time. Add. 465, % F. V. Kniest, Medical Broker, Omaha, Neb. I

WANTED — POSITION DESIRED BY graduate P. & S. College, Chicago; good habits; 12 years' general practice and as teacher; prefer Iowa, Illinois or Nebraska; institutional or assistantship to physician; might consider a first-class opening where there is no competition and very little to buy; ready for work at once; good habits; married. Add. 7, % F. V. Kniest, Medical Broker, Omaha, Neb. I

WANTED—ASSISTANTSHIP BY YOUNG physician and wife who is first-class nurse, with good doctor in general practice, doing his own surgery; Class A graduate and hospital training; two years assistant in busy country practice; wife had best of training as surgical nurse; both active; desire Illinois location or state reciprocating. Add. 7006 I, % AMA.

WANTED — ASSISTANTSHIP TO SURgeon or hospital position of resident surgeon; desirous of any hard and active work where competency and training will be appreciated; graduate of a leading eastern school; one year medical and two years' surgical hospital experience under prominent men; aged 29, single. Add. 6986 I, % AMA.

WANTED—GRADUATE NURSE DESIRES position; high moral character and high efficiency in all lines nursing, general and surgical; references to this effect; aged 29, unmarried; graduate; satisfaction guaranteed either as a regular nurse or as superintendent or head nurse. Add. Johanna V. Jackson, Lewisburg, W. Va. (Kniest-Omaha-Agency). I

WANTED — ASSISTANTSHIP, PARTNERship or position as anesthetist by young man 24 years of age; graduate Class A school; 2 years' general hospital experience; 18 months in general practice and as assistant; Protestant; prefer South Carolina; references from most prominent physicians in city now located. Add. 6972 I, % AMA.

WANTED — POSITION AS ASSISTANT physician or clinical director in state hospital for the insane by experienced man who is at present employed; state salary, accommodations, clinical facilities, opportunity for advancement and for original work in the first letter. Add. 6973 I, % AMA.

WANTED—POSITION AS ASSISTANT TO busy surgeon or general practitioner doing surgery; am 33 years old, single, sober and industrious; graduate of A1 eastern college; general practice 10 years; good reasons for making change; license Maryland; state salary. Add. 6992 I, % AMA.

WANTED — HARVARD GRADUATE, 32 years old, abstinent, industrious and ambitious, wishes a salaried position, preferably in the middle west; would consider private practice or partnership, but have only small capital; hospital experience, 1 year surgical, 1 year medical and 1 year mental; reliable references; give details in answering this adv. Add. 6857 I, % AMA.

WANTED—AN EXPERIENCED SURGEON from Class A schools and hospitals wants dryer climate on account of wife's health; will consider contract work or partnership with ethical man of extensive practice; will not pay for practice, but prove efficient and reliable; any medical man knowing of a good opening will confer a favor by add. 6993 I, % AMA.

WANTED—POSITION IN HOSPITAL OR with city practitioner by a young woman physician possessing business ability; experienced in hospital work, in laboratory work (blood work, vaccines, Wassermann, etc.), and in general practice; state salary and give full details of position in first letter. Add. 6998 I, % AMA.

WANTED — GRADUATED MASSEUSE, (Swedish system); electric and hydrotherapy (graduated nurse) wishes position at an established spring resort or in institution or physician's office. A1 references. Any location. Address Marguerite Due Wayne, 215 Boulevard, Winston-Salem, N. C.

WANTED—POSITION IN A STATE HOSpital or sanitarium for the nervous and insane, by a matured physician of varied institutional experience; unmarried; without family or business interests; can therefore be of the greatest service; correspondence and references solicited. Thos. R. Evans, M.D., Scarbro, W. Va. I

WANTED—ASSISTANTSHIP OR LOCAtion; young man, age 27; married; protestant, Mason; eighteen months city hospital internship; three years general practice; excellent references; not afraid to work; temperate, best of health and appearance with agreeable personality; licensed in Ohio; prefer opportunity for intensive work with good internist. Add. 6963 I, % AMA.

WANTED—PHYSICIAN DESIRES POSItion; corporation contract work, institutional or assistantship in city over 100,000; aged 31; married; hospital experience; three years' general practice; qualified for laboratory work; safe anesthetist; Protestant; good personality; honest and reliable; no alcohol or cigarettes. Add. 6811 I, % AMA.

WANTED—POSITION AS ASSISTANT IN mining or lumber practice by married physician, aged 29; graduate A1 eastern school; 1 year hospital work; 18 months in lumbar practice, and 2 years private practice; hard worker and qualified; West Virginia or reciprocating state. Add. 6814 I, % AMA.

WANTED—A YOUNG WOMAN PHYSIcian would like a position first as intern, then promotion as ability is proved, in either insane, surgical, sanitarium or medical hospital; will start on a salary of $45 per month and maintenance; would like the state of Illinois, though any state is acceptable. Add. 6940 I, % AMA.

WANTED—POSITION AS HOSPITAL SUperintendent or office nurse and anesthetist by registered nurse; graduate of Belleview, N. Y.; 12 years' experience in executive positions; special work in anesthesia; references furnished. Add. 6920 I, % AMA.

WANTED — INTERNSHIP IN GENERAL hospital, state hospital or sanitarium by young American; 2 years' experience in general practice; 18 months' practice in mine work; use no intoxicants, healthy and reliable; remuneration, fair salary and expenses; available October 1. Add. 6916 I, % AMA.

WANTED — GRADUATE A1 SCHOOL DEsires salaried position. Lumber, mining or institutional work; 18 months general hospital, 15 months private practice and assistant to busy surgeon; age, 32; single, protestant, pharmacist. A1 references as to ability and character. Sober and industrious. Missouri or reciprocating states. Add. 6954 I, % A. M. A.

WANTED—POSITION IN WYOMING OR Colorado or any western state reciprocating with Kansas, with busy eye, ear, nose and throat physician; partnership or assistantship with view to partnership; am 37 years old, sober and industrious; have had 12 years' general and 4 years' special practice; best of references. Add. 6922 I, % AMA.

WANTED—I WILL PAY $100 TO SECURE a suitable salaried position as an assistant in insane hospital or contract work; I am a graduate of an A+ Medical College, and can furnish best references; Pennsylvania license. Add. 6866 I, % AMA.

(Continued on next page)

THE PUBLIC SERVICE

(Continued from preceding page)

Glenn, C. F., asst.-surgeon, M.R.C., commissioned from Aug. 8, 1914.

Michael, W. H., asst.-surgeon, M.R.C., commissioned from Aug. 8, 1914.

Harris, J. H., asst.-surgeon, M.R.C., commissioned from July 30, 1914.

—o—

U. S. Public Health Service

Changes for the seven days ended Sept. 9.

Gassaway, J. M., senior surgeon, leave of absence for 1 month from Aug. 5, 1914, amended to read "1 month's leave of absence from Aug. 20, 1914."

Carter, H. R., senior surgeon, directed to proceed to Bluett Falls on the Pee Dee River in connection with investigations of malaria begun in North Carolina.

Nydegger, J. A., surgeon, leave of absence for 21 days from Aug. 13, 1914, on account of sickness, amended to read "18 days' leave of absence on account of sickness from Aug. 18, 1914."

Lavinder, C. H., surgeon, directed to proceed to Bridgeport, Conn., and make a sanitary inspection of the U. S. Post-Office and Court-House Building in that city.

Von Ezdorf, R. H., surgeon, directed to extend malarial studies, now being carried on, to the state of Virginia, and in addition to demonstrate to representatives of the State Board of Health the methods used in antimalarial work.

Fox, Carroll, surgeon, granted 2 days' leave of absence, Sept. 4-5, 1914.

Holt, J. M. surgeon, granted 29 days' leave of absence from June 13, 1914.

Burkhalter, J. T., surgeon, leave of absence for 14 days from Aug. 27, 1914, amended to read "8 days' leave of absence from Aug. 27, 1914."

Foster, A. D., P. A. surgeon granted 2 days' leave of absence from Sept. 8, 1914.

Ashford, F. A., P. A. surgeon, leave of absenc for 1 month from Aug. 17, 1914, amended to read "1 month's leave of absence from Sept. 8, 1914."

Leake, J. P., P. A. surgeon, granted 9 days' leave of absence en route during inspection of laboratories.

Kolb, L., P. A. surgeon, leave of absence for 1 month from Aug. 27, 1914, amended to read "1 month's leave of absence en route to rejoin station."

Phelps, E. B., Prof., directed, at the request of the International Joint Commission, to attend the hearings to be held by the commission at points on the Niagara and Detroit rivers, Sept. 25-30, 1914, for the purpose of advising on questions affecting the pollution of international waters.

Detailed to visit the experimental works at Luray, Va., during the week of September 7, to inspect the plant which is now completed and to outline the necessary analytical and experimental procedure.

Brown, F. L., pharmacist, directed to proceed to Providence, R. I., and report to P. A. Surgeon E. R. Marshall for the purpose of superintending the cleaning up and alterations on the quarantine vessel *Newark*.

Crohurst, H. R., sanitary engineer, directed to proceed to Noblesville, Ind., and take charge of the experimental plant being installed for the investigation of strawboard waste.

Hommon, H. B., sanitary chemist, directed to proceed to Farnham, N. Y., for the purpose of making preliminary studies of the wastes of the canning industry.

APPOINTMENT

Kinsey, Raymond D., appointed a pharmacist of the third class in the United States Public Health Service.

BOARD CONVENED

Board of commissioned medical officers convened to meet at the bureau for the examination of Pharmacist C. C. Cannon to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Assistant Surgeon-General W. G. Stimpson, chairman; Surgeon C. C. Pierce, recorder.

(Continued from preceding page)

WANTED — GRADUATE A+ MEDICAL school and pharmaceutical college desires position assistant physician institution for insane, feeble-minded and epileptic; experienced; A1 references, character and ability; married; no children; wife graduate nurse, experienced matron and musician; would consider contract, assistant to physician, private, public, children's or charitable institution. Add. 6830 I, % AMA.

WANTED — POSITION AS RESIDENT physician or first assistant in tuberculosis sanatorium by graduate of Harvard, who has had exceptional experience both here and abroad; expert in pneumothorax; highest references as to ability, character and habits; married. Add. 6798 I, % AMA.

WANTED—SUPERINTENDENCY OF TUberculosis sanatorium of 50 or 75 beds, private or municipal; graduate A1+ school; married, no children; executive experience and ability in institutional work; thorough laboratory training and experience with artificial pneumothorax, etc.; excellent references; good reason for desiring change. Add. 6938 I, % AMA.

WANTED—POSITION AS LOCUM TENens for general practice anywhere in state of Washington; thoroughly competent, reliable and experienced single man who can do satisfactory work and furnish high class references. Add. Dr. D., % Hospital, Lester, Washington. I

APPARATUS WANTED

WANTED — PHYSIOLOGICAL LABORAtory apparatus, pneumograph, spirometer, sphygmomanometer, gasometer, gas analysis apparatus, microscope, microtome, cardiograph, mercury gauges, recording drums, tables, slides, scales, etc. Add. 7033 L, % AMA.

MISCELLANEOUS—WANTED

WANTED — A DENTIST TO SHARE office with me; town of 400; no dentist here; 7 to 15 miles to dentist; good rich country all around; good school and churches. Add. T. C. Hainline, M.D., Seaton, Mercer Co., Ill. J

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FOR SALE—SCHEIDEL-WESTERN RADIgraphic portable coil; original cost $200; used on one private case only and that at patient's home; in perfect condition; for alternating current; will sell for half cost; have other apparatus that takes its place; do not need it. Write Dr. F. H. Cutler, Cedar Falls, Iowa. K

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PRACTICES FOR SALE

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FOR SALE—NORTHERN CALIFORNIA—Fine new irrigated country, beautiful climate; practice averages $3,000 year; collections good; nice bungalow home, well furnished; small fruit orchard; best of reasons for selling; home and office furniture, instruments, medical library, all for $6,000; two-thirds cash. Add. 7043 N, % AMA.

FOR SALE — COLORADO — EYE, EAR, nose and throat practice; library and fully equipped office; population 10,000; no other specialist; can make money from start; $1,000 required to come in. Add. 6733 N, % AMA.

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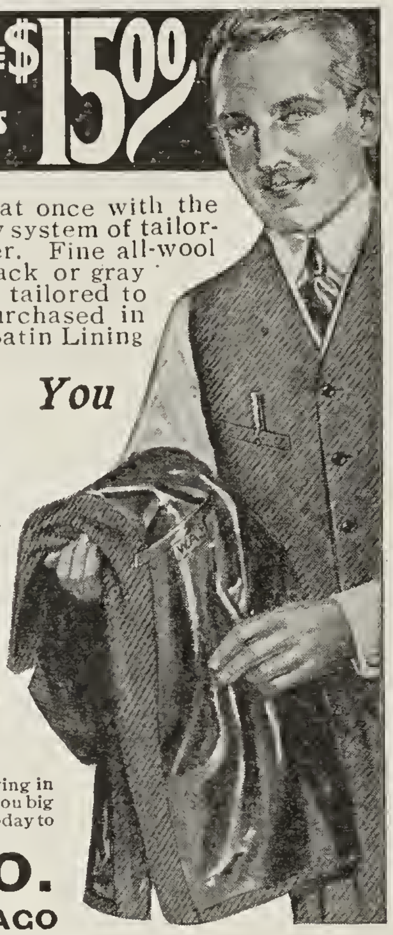

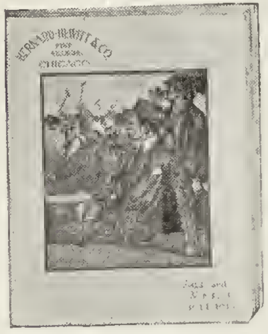

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(Continued from preceding page)

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FOR SALE—COLORADO — $1,200 BUYS fine $3,000 cash practice; population 400; modern incorporated town on main line of railroad; good country, fees and pay; mining, agriculture, stock raising; very little competition; valuable appointments; household goods; office equipment, drugs and introduction; this adv. appears but once. Add. 7002 N, % AMA.

FOR SALE — NORTHERN ILLINOIS—$10,000 practice in city of 60,000, Winnebago County, 80 miles from Chicago; established 15 years; held obstetrics record for past year; collections 90 per cent.; will remain to introduce purchaser; auto and fixtures included; any reasonable cash offer acceptable; moving west; ill health. Add. 7000 N, % AMA.

FOR SALE—ILLINOIS—FINE PRACTICE of Dr. Edwin Pynchon, noted ear, throat and nose specialist, with good will covering 22 years same office, including one of finest and most complete assortment foreign and domestic instruments, chairs, cabinets, desks, electric and hydrotherapeutic apparatus; snap opportunity for specialist or student; investigate quick. Call or add. Mrs. E. Pynchon, 31 N State St., Chicago. N

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FOR SALE—SOUTHERN ILLINOIS—UNopposed $3,500 practice in thriving town of 400; main line of L. & N. railway; German and American community; large and rich surrounding territory; good roads, churches and schools; transferable appointments; collections good; price, $300, includes instruments, furniture, large stock of drugs; competition 5, 7, 10 and 12 miles; going to city. Add. 6823 N, % AMA.

FOR SALE—ILLINOIS—$5,000 SLIGHTLY opposed practice in growing town of 1,500; two coal mines; good country; contract physician; can turn office fixtures, drugs, team and buggy; will rent office and house; price, $1,000; will introduce purchaser; will bear close investigation. Add. 6899 N, % AMA.

FOR SALE — SOUTHERN ILLINOIS—Practice in small town of 500; good farming country; terms $300, including office equipment; no opposition. Add. 7022 N, % AMA.

FOR SALE—ILLINOIS — LARGE UNOPposed territory; 7-room house, 3-room office; other outbuildings; competition 7 and 12 miles; splendid territory; thickly settled; collections 98 per cent.; four churches, good school; dairy in town; introduction; one time only; investigate this; do it now. For terms add. O. C. Church, M.D., Woburn, Ill. N

FOR SALE—CENTRAL IDAHO — TOWN of 1,000; good school, electric lights and water system; surrounded by large agricultural and mining country; practice averages $5,000; collections good; small hospital facilities; competition weak; does no surgery; will sell for value of household and office furniture, value about $1,500; will give good introduction; splendid opening for young married man doing major surgery; winters severe but summers delightful; 6,000 feet altitude; chronic rheumatism reason for sacrificing; don't answer unless you have the cash and can take possession about November 1; good living from start. Add. 7017 N, % AMA.

FOR SALE—NORTH CENTRAL INDIANA—$3,500 to $4,500 practice in small village, 9 to 12 miles from other physicians; all roads graveled; rich farming community; collections good; house of 7 rooms and bath; hot-air furnace; Kewaunee water-supply tank and engine; acetylene lighting plant; barn and garage combined; office separate from house; static machine; globe nebulizer and medicines; price, $5,000; Hupp 32 roadster optional. Add. 6846 N, % AMA.

FOR SALE—INDIANA — FULLY EQUIPped office, including library, instruments and office furniture and fixtures, in central Indiana city of 6,000; account death of young physician in August, whose practice amounted to $5,000 last year; everything modern and as good as new; right man should be able to hold the practice. Add. 7021 N, % AMA.

FOR SALE—SOUTHEASTERN INDIANA—Unopposed $2,500 practice in live town about 400; good country, roads, schools and fees; collections 90 per cent.; nearest competition 6 to 14 miles; insurance and other appointments; local railroad surgeon; price, $2,000 for property, drugs and fixtures; part cash. Add. 7044 N, % AMA.

FOR SALE—INDIANA—$5,000 PRACTICE in one of the best towns in state; population 20,000; surrounded by excellent farming country; will take $750 for practice, which includes office furniture, not instruments and apparatus; $5,000 fine new residence, with garage optional; a snap for some one; will stand investigation; going to specialize. Add. 6912 N, % AMA.

FOR SALE—IOWA — $3,000 PRACTICE, east central; fine location; average territory 12 miles; town 1,000; main line railroad; high school, good churches, electric lights and waterworks; Americans and German-Americans; good roads; collections 98 per cent.; competition moderate; drugs and office equipment will amount to about $700; have hospital appointment; must act soon. Add. 6969 N, % AMA.

FOR SALE—CENTRAL IOWA—AM UNable to do the work; will retire; sell office equipments, medicines, team, etc., for $675; time if secured; town 500 or 600; unusually large surrounding territory; if you want place to make good money write me; I will give full particulars in first letter. Add. 7012 N, AMA.

FOR SALE — NORTHWESTERN IOWA practice; 30 miles to Sioux Falls; population 1,500; live town and rich agricultural country; one competitor; good railroad; good roads; practice $3,500 to $4,000 a year; collections 98 per cent.; well established practice; several appointments; nearest town 9 miles; good churches, Protestant and Catholic; nationality American, German and Irish; house with two lots splendidly located; splendid office fixtures; will sell combined or separate; property $2,600; practice $1,100. Add. 6947 N, % AMA.

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(Continued from preceding page)

FOR SALE—NORTH CENTRAL IOWA—$5,000 unopposed practice, eight-room house with sewer system, water and furnace, three lots, barn, office, drugs and fixtures; price, $3,700; railroad town; competition 8, 14, 16, 15 miles; reason sickness; property worth more than price; automobile, horse, buggies, etc., optional; must sell. Add. 7034 N, % AMA.

FOR SALE—IOWA—TO WOMAN PHYSICIAN; location, city of 25,000; established practice 25 years; no woman competitor; $2,000 practice; residence and office combined; rent $25; office and house furnishings for sale; practice and all equipment, $750 cash; will leave the city to specialize. Add. 6996 N, % AMA.

FOR SALE—KANSAS PRACTICE—EQUIPMENT, residence offered of deceased physician; population 1,700; fine schools; modern equipped town; good mining and farm community; a large clientele to step into; part cash and easy terms. For full particulars add. Mrs. Louise Seabrook, Burlingame, Kan. N

FOR SALE—SOUTHERN KANSAS—PRACTICE of $3,200; town 800 population; prosperous farming community; large territory; good high school; excellent roads; will sell for price of office equipment, $500 cash; competition light and can make money from the start; want to leave in October; don't apply unless you have the cash. Add. 6935 N, % AMA.

FOR SALE—EASTERN KANSAS—PRACTICE of $3,000 to purchaser of my office equipment and drugs, about $500; good railroad town of 600 or 700 people, with good roads and good schools and churches; an unusual opportunity to get into a paying practice from the start; my equipment is all good and worth more than the price asked; might consider terms on part; don't write unless you mean business. Add. 6786 N, % AMA.

FOR SALE—SOUTHERN KANSAS—UNOPPOSED practice and drug stock; town 350, main line; electric lights; fine auto roads; 3 churches; 10-grade school; collections 95 per cent.; drug stock $750; office equipment, $350; pharmacist's license not necessary; made $850 since June 1; must sell on account of wife's health; exceptional opportunity; price, $1,000. Add. 6906 N, % AMA.

FOR SALE — MAINE — PRACTICE OF $2,500 in manufacturing town of 2,000 office equipment equal in value to price asked; fine class of people; competition light. Add. 6950 N, % A. M. A.

FOR SALE—MASSACHUSETTS — VERY desirable practice of $8,000 a year cash; owner leaving on account of health. Add. 6971 N, % AMA.

FOR SALE—NORTHERN MEXICO, NEAR Monterey; 100 acres, nearly all irrigated; 500 budded thin-shell pecans, beginning to bear; 500 oranges, bearing; sugar-cane, corn, bananas, figs, aguacates—suburbs of railroad town—9000—lucrative practice; price $6,800, American; $1,800 cash—balance long time. Dr. G. F. Brooks, Box 26, Las Cruces, New Mexico. N

FOR SALE—MICHIGAN—A RARE OPPORTUNITY; $6,500 cash office practice in best city of 25,000 in western Michigan; practice established 10 years; $2,000 cash will get it if taken at once; large stock of drugs included; the chance of a lifetime; reason for selling, domestic troubles. Add. 6987 N, % AMA.

FOR SALE — MICHIGAN — LEADING practice in fine town of 2,000; will guarantee a good business from the start; one of the best farming communities in the state; finest office in center of the town; established over 25 years; can get the surgery if you like it; $1,000 will put you in with a lot of equipment; partly on time if you wish; be prompt if you want it. Add. 7013 N, % AMA.

FOR SALE—MICHIGAN — GOOD PRACTICE in town of 3,500, for price of office equipment and drugs; best location and offices in town; rich farming country; good collections; five factories and ideal location to work up surgery; apply at once, as I leave first or second week in October. Add. Box 612, Grand Ledge, Mich. N

FOR SALE—MINNESOTA—PHYSICIAN'S $3,500 annual unopposed practice in southwestern Minnesota for price of new residence, $2,800; town strictly modern; nearest competition 10 miles; snap for the right man. Add. 7018 N, % AMA.

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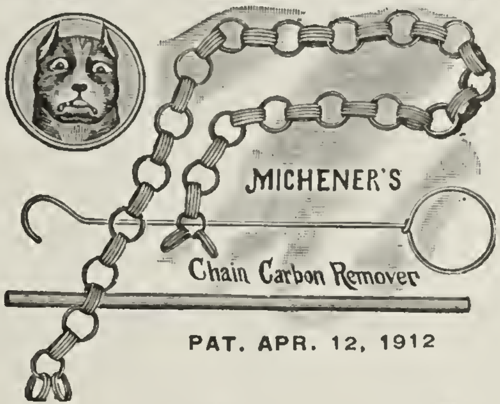

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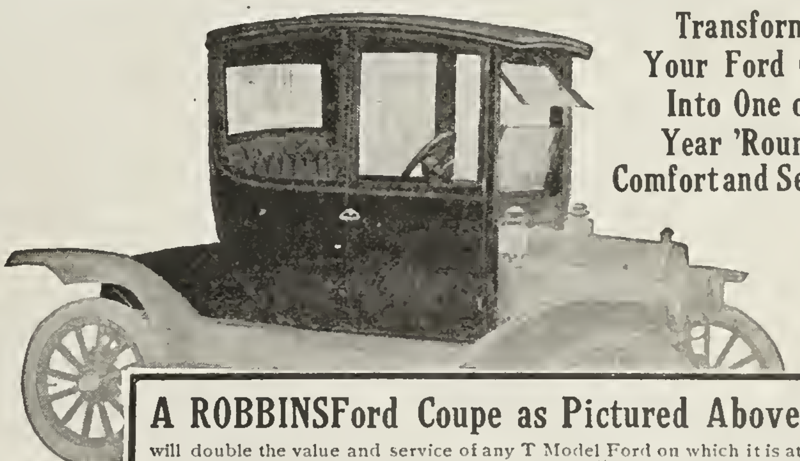

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FOR SALE—MINNESOTA—ONE OF THE best locations in Minnesota; a nice city; country territory rich and large; thickly settled; mixed nationality; two doctors in city; a nice residence with all modern conveniences; price, $4,000; for a doctor who is willing to work, can surely make good. Add. 6900 N, % AMA.

FOR SALE—SOUTHWEST MISSOURI—Well-established village and country $3,500 to $4,500 cash practice, with two-room office building and dispensing stock of drugs; new 6-room modern residence optional; price, with residence, $4,500; without residence, $1,500; terms; one competitor; American people; good country, good water. Add. 6985 N, % AMA.

FOR SALE — NEBRASKA PRACTICE—One of the best counties in state; good schools; no saloons; competition (1); general practice averaged $2,500 and can be increased if surgery is done; full equipment (write for details) and practice and introduction, $350; population 400; established 5 years. Add. Dr. F. E. Abbott, Bradshaw, Neb. N

FOR SALE—NEW JERSEY—GOOD GENERAL practice in town 7,000; excellent location, good office fees; $150 to $200 made in office each week; collections 95 per cent.; x-ray, drugs and office fixtures; reason for selling, doctor going to Europe; must sell at once. Add. 7050 N, % AMA.

FOR SALE—NEW YORK—$15,000 PRACTICE in large city of western New York; $7,000 cash and $6,000 bond and mortgage for house, office and large garage; good reasons for selling; right man can pay for place in one to two years. Add. 6841 N, % AMA.

FOR SALE—NEW MEXICO — IF YOU need to move west for health and want a location where you can make a good living, buy my home and I will introduce you to a $3,000 practice in eastern New Mexico; good railroad town; good people, pay; excellent climate; all at a bargain. Add. 7024 N, % AMA.

FOR SALE — NEBRASKA PRACTICE—Runs from $3,500 to $4,000 a year; first-class fees; competition easy and agreeable; population 1,000; best town for its size in Nebraska; good schools; large territory; 12 to 30 miles; well settled; good roads; all city conveniences; bed rock price for equipment, $500, and part on easy terms. Add. 480, % F. V. Kniest, Omaha, Neb. N

FOR SALE — SOUTHWESTERN NEBRASKA; $450 buys practice, office equipment, drugs and furniture for two living rooms; cash collections average $225 monthly; county seat; division point on main line of Burlington; population 5,000; fine climate, schools, churches, etc.; exceptional opening for eye man; leaving to take post work. Add. 6991 N, % AMA.

FOR SALE—NEW YORK—IN AN EASTERN New York railroad town of 600 inhabitants; practice of $1,800 per year; established 25 years; noted summer resort; good graded school; summer population 3,000; practically unopposed; can be doubled in a year by a competent man able and willing to work; best of reasons for selling; price, $500 cash. For detailed information add. 7031 N, % AMA.

(Continued on next page)

FOR SALE — EASTERN NORTH CAROLINA; $4,000 practice in growing town 3,000; surrounding country thickly settled; chief industry trucking, special farming and lumber manufacturing; opposition just right; new churches and schools; best reasons for selling; price, including office equipment, $1,000; investigate quick. Add. Box 233, Mount Olive, N. C. N

FOR SALE—NORTH DAKOTA — $4,000 unopposed practice; $500 buys practice, office fixtures and household goods; collections good; large territory; German and American village of 400 population. Add. 7011 N, ℅ AMA.

FOR SALE—NORTH DAKOTA — $3,000 country practice; $250 buys office outfit and drugs; real estate, new car, etc., optional; more interested in getting worthy successor than in selling, as I am leaving behind extensive farming interests; good country, fine crops; competition 30 miles; am ready to retire; will introduce. Add. 6929 N, ℅ AMA.

FOR SALE—OHIO—$4,000 PRACTICE IN one of the nicest towns in northern Ohio; 7-room house, all modern conveniences, with 3-room office attached; big garage, chicken house and park; complete office outfit and drug line, for $3,250; only $750 cash; $750 in two years, balance five years; will introduce and start you to work; collections 99 per cent.; competition easy; lengthy correspondence not solicited; want good man not afraid of hard work who has $750 and means business. Add. 6970 N, ℅ AMA.

FOR SALE—OKLAHOMA—A $2,000 PRACtice with good will, office and appointments, for price of real estate; town 10,000 in oil, gas and coal region; largest glass plant west of Pittsburgh; residence one block from square; oak finish; good opening for surgeon; price, $6,000; easy terms; possession January 1. Add. Box 291, Okmulgee, Okla. N

FOR SALE—OKLAHOMA — PHYSICIAN, this is a golden opportunity in the golden wheat belt of Oklahoma, where you get the gold for your practice; to purchaser of my small drug store and building I will relinquish my $3,000 to $4,000 cash practice per year; farmers raise wheat, corn, oats and alfalfa; large territory; automobile roads; no opposition. Dr. N. C. McLean, Breckenridge, Okla. N

FOR SALE—OKLAHOMA — $4,000 PRACtice; established seven years; residence cost $3,500; growing city of 15,000; best agricultural section of state; for $3,000; terms on half; excellent opportunity for Catholic; $50 monthly transferable appointments; two hospitals; excellent opportunity to build surgical practice; introduction; going north to specialize. Add. 7036 N, ℅ AMA.

FOR SALE — PENNSYLVANIA — $8,000 surgical and medical practice in manufacturing town and community of 10,000, within 50 miles of Pittsburgh; high school (new), cost $120,000; 8 churches (all denominations); pay roll from industries, $130,000 monthly; price, $4,000, of which $2,000 must be cash; balance suitable terms; this includes transfer of $1,800 yearly contract; $500 assured collections from another contract; insurance and lodge appointments; all furniture and fixtures; collections from January to September 1 this year over $5,000; write only if you mean business; purchaser must be A+ surgeon and able to do plenty of work. Add. 7016 N, ℅ AMA.

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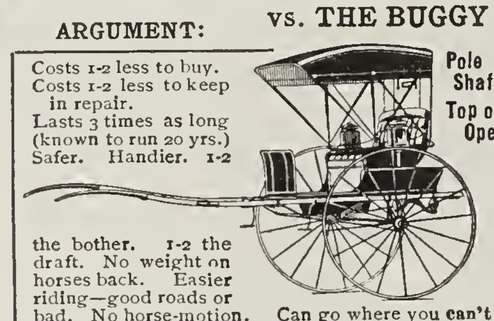
See page 20 for cost of classified and commercial announcement advertisements.



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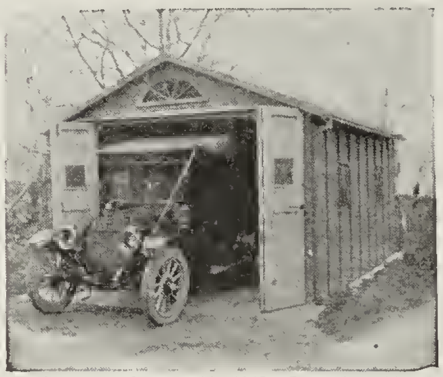

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(Continued on next page)

FOR SALE — FIFTEEN-BED HOSPITAL and practice in New England; good location for M.D. doing surgery; property is splendid investment, well located; buildings alone worth the price asked for everything; good introduction; this is certainly a good opening for some one; $4,000 cash, balance easy terms. Add. 7039 O, % AMA.

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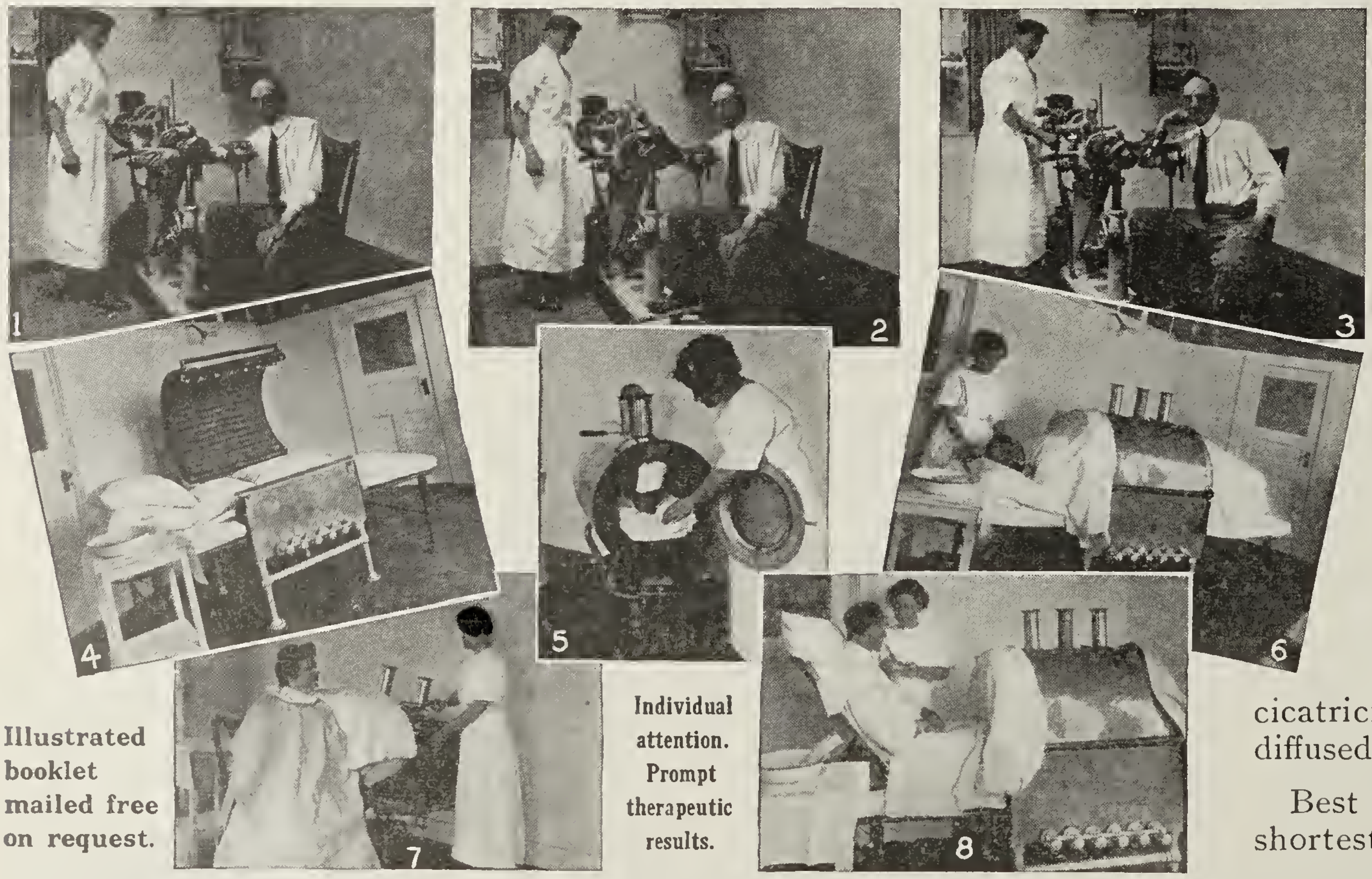

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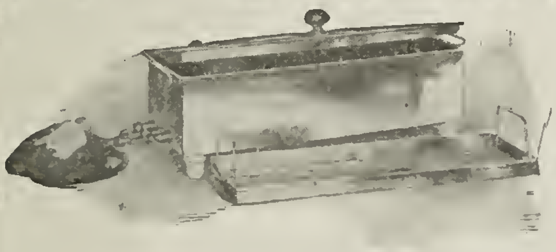

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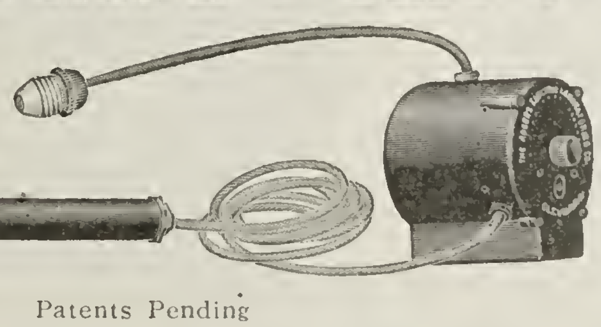

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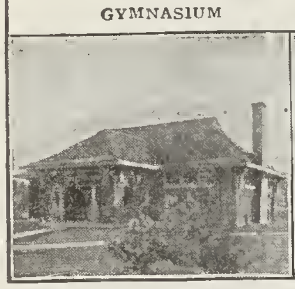

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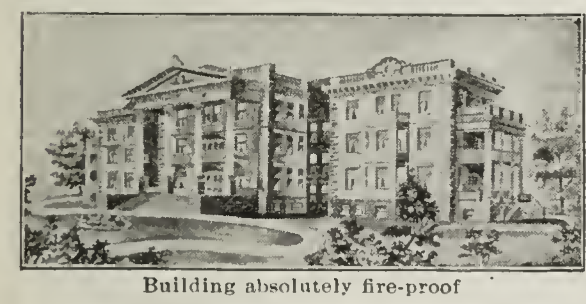

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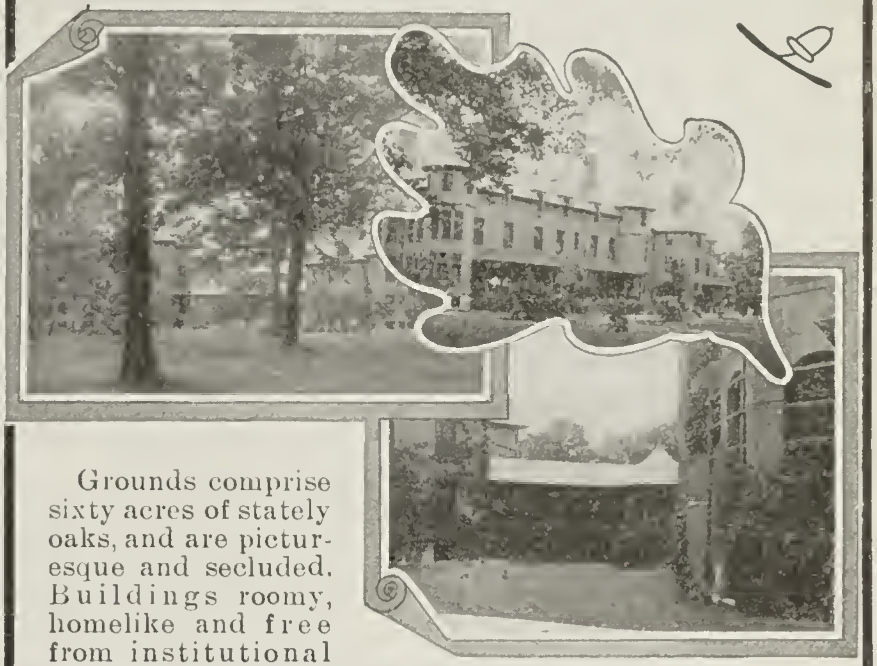

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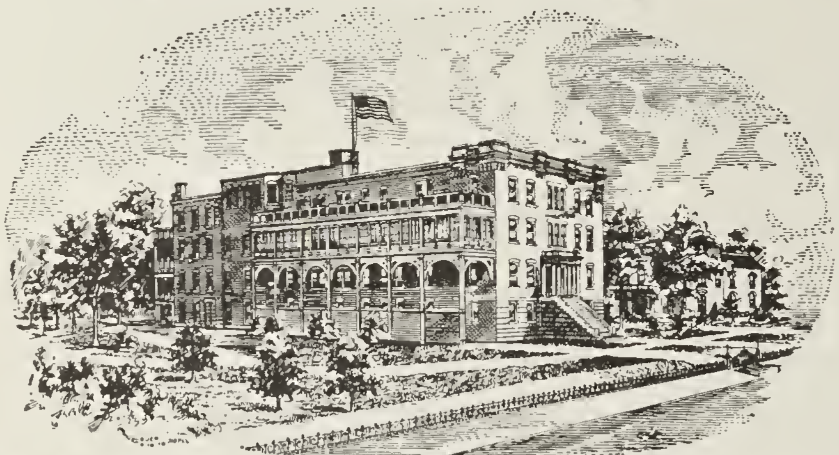

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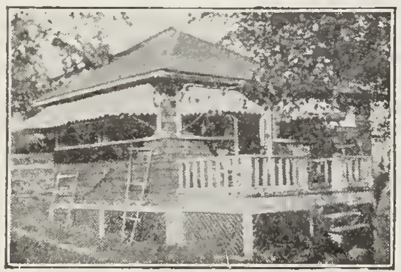

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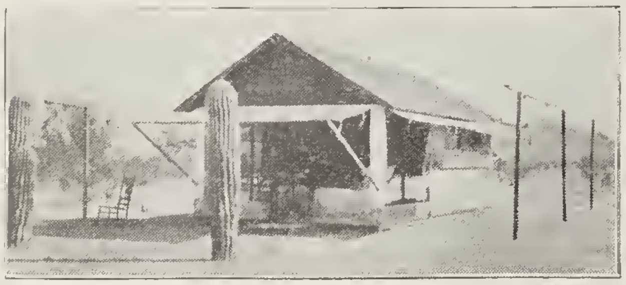

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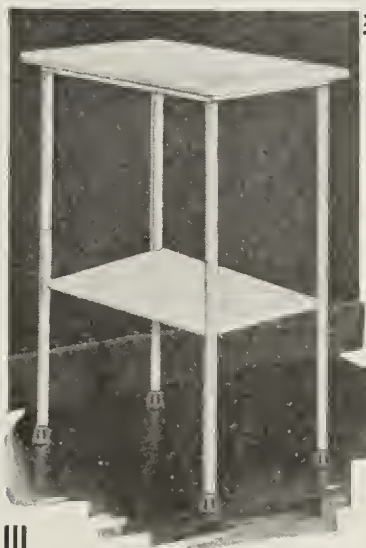

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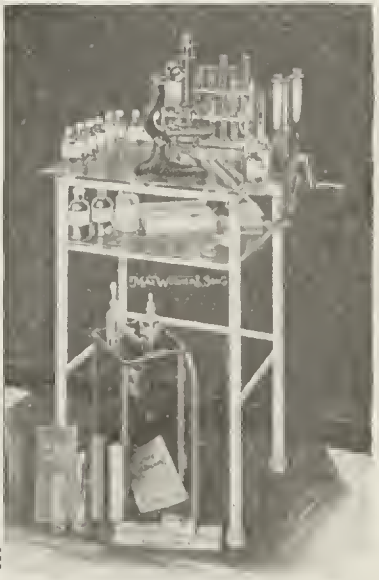

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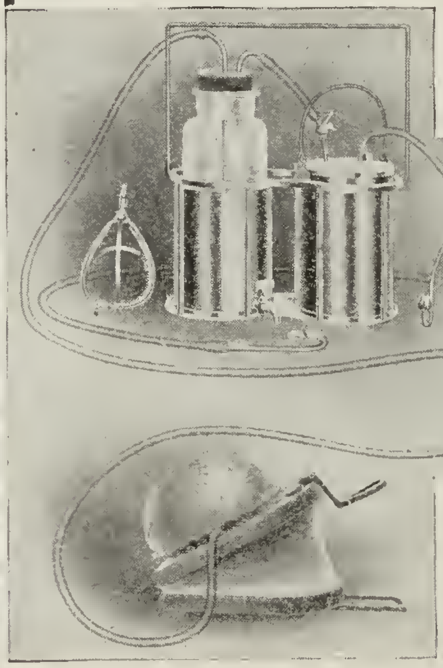

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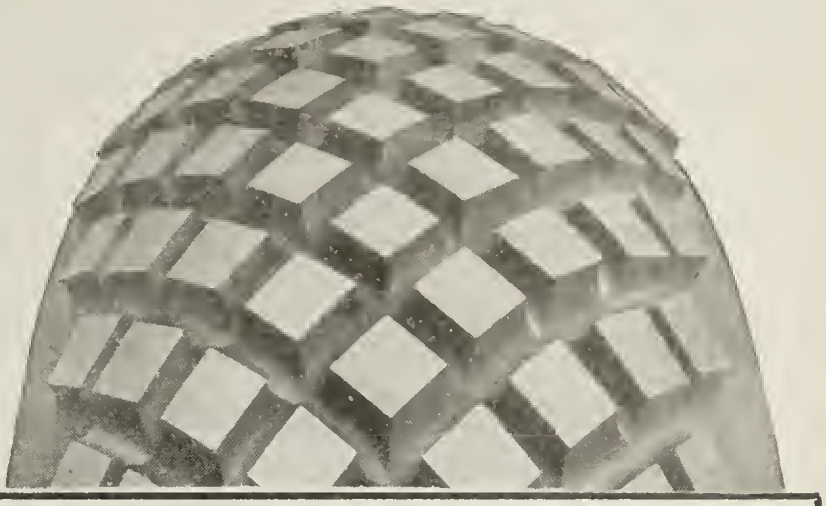

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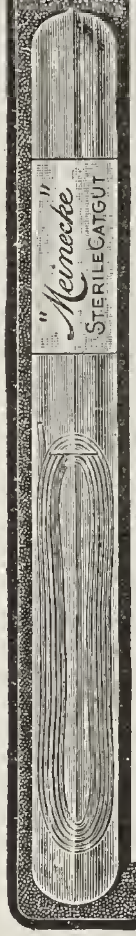

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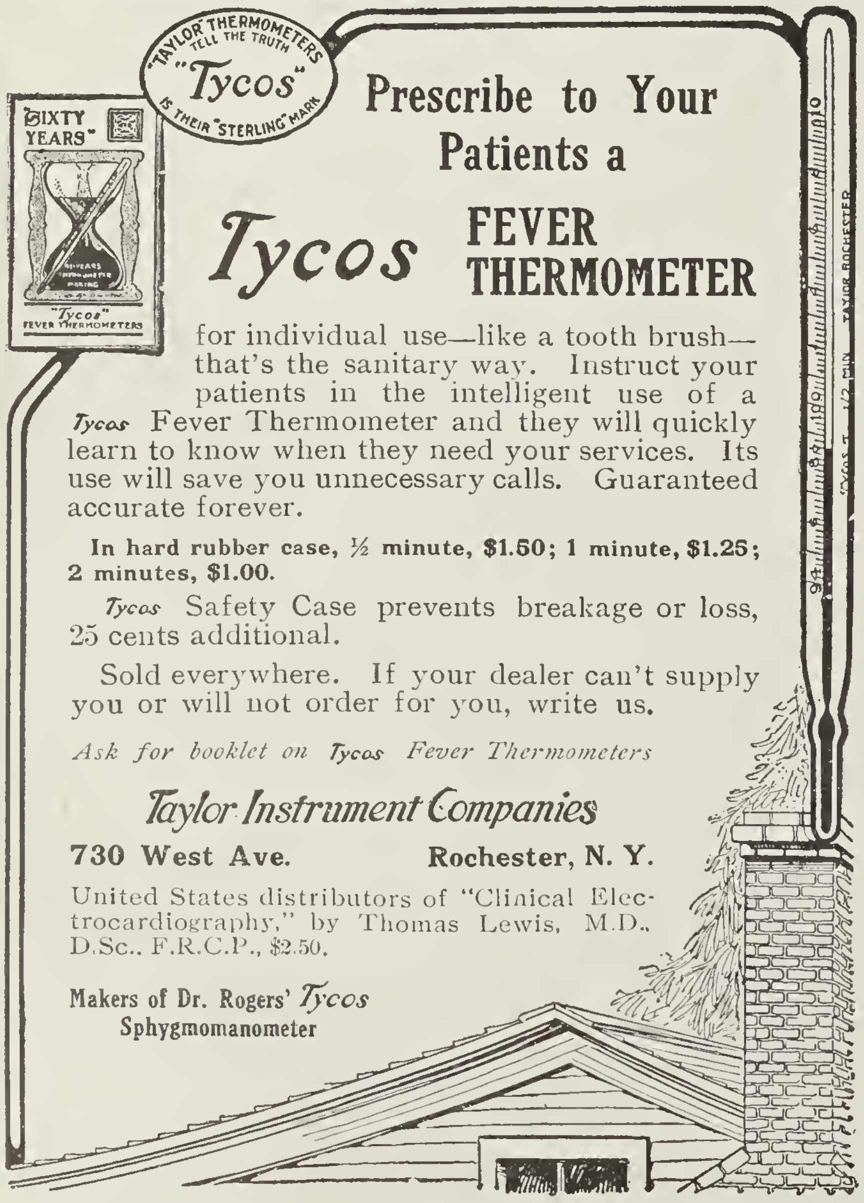
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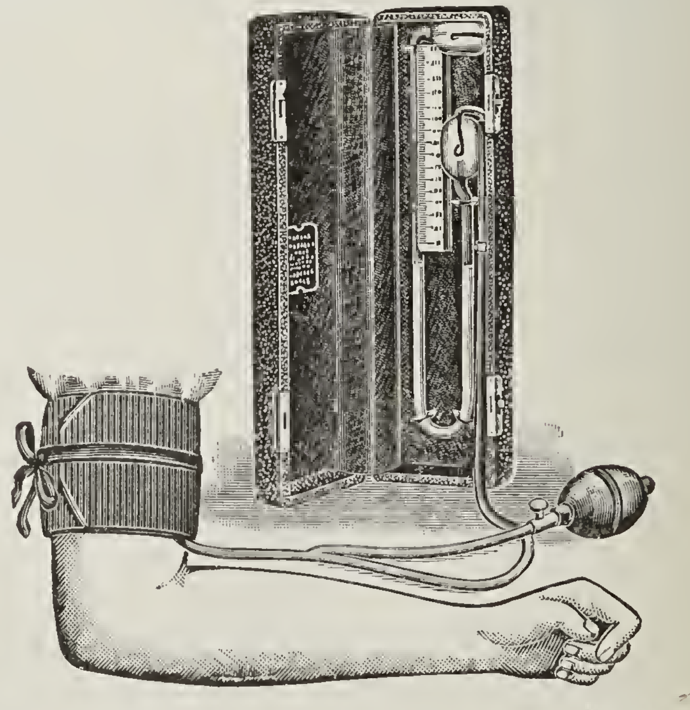

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